

Loudspeakers

4

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LB1-UM06E-1 Metal Cabinet Loudspeaker

4



Features

- Suitable for speech and music reproduction
- Robust metal enclosure
- Surface and/or recessed mounting
- Provision for internal mounting of the optional line/loudspeaker supervision boards
- Recommended for voice evacuation systems

The LB1-UM06E-1 circular metal cabinet emergency loudspeaker delivers professional performance from a robust, yet aesthetically designed metal enclosure. It is an ideal loudspeaker for indoor use in offices, schools, car parks, shopping centers, and in areas where vandalism is a potential hazard.

Functions

Voice alarm

Voice alarm loudspeakers are specifically designed for use in buildings, where the performance of PA systems is subject to official regulations. The LB1-UM06E-1 is designed for voice alarm systems, and is compliant with British Standard BS 5839-8 and EN 60849.

Protection

The loudspeaker has built-in protection to ensure that in the event of a fire damage does not cause failure of the connected circuit. In this way, system integrity is maintained; ensuring loudspeakers in other areas can still be used to inform people of the situation.

Connections and safety

The loudspeaker has a ceramic terminal block, thermal fuse, and heat-resistant, high-temperature wiring. The cabinet has a provision for internally mounting the optional line/loudspeaker supervision board.

Certifications and approvals

All Bosch loudspeakers are designed to withstand operating at their rated power for 100 hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. Bosch has also developed the Simulated Acoustical Feedback Exposure (SAFE) test to demonstrate that the speakers can withstand two times their rated power for short durations. This ensures extra reliability under extreme conditions, leading to greater customer satisfaction, longer operating life, and much less chance of failure or performance deterioration.

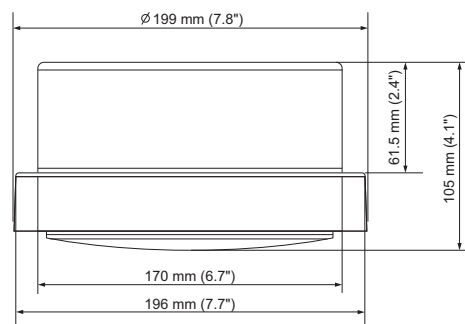
Safety	according to EN 60065
Emergency	according to BS 5839-8
	according to EN 60849
	according to EN 54-24
Water and dust protection	according to EN60529 IP32

Region	Certification
Europe	CE
	CE DOP
	CPD

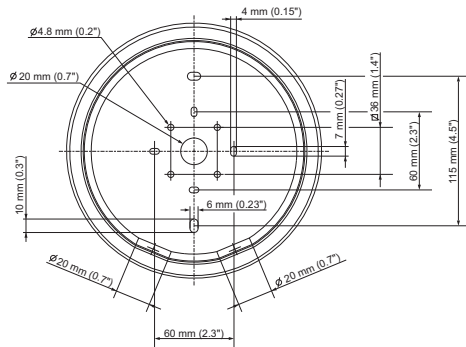
Installation/configuration notes

The cabinet is designed for both surface and recessed mounting on walls. The back box provides a selection of mounting holes, even for mounting on U40 and MK installation boxes. The back box has two knockout holes on the top side for two cable glands (not included) for loop-through connection. For extra installation convenience, a safety cord from the back box lets the installer temporarily hang the front grille unit during installation. The cabinet has a three-way terminal block with screw connections suitable for loop-through wiring (including earth).

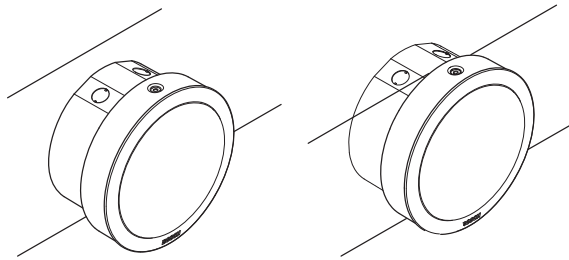
Four primary taps on the matching transformer allow selection of nominal full-power, half-power, quarter-power or eighth power radiation (in 3 dB steps).



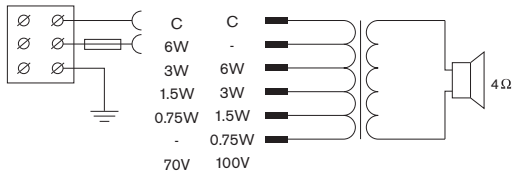
Dimensions in mm (in)



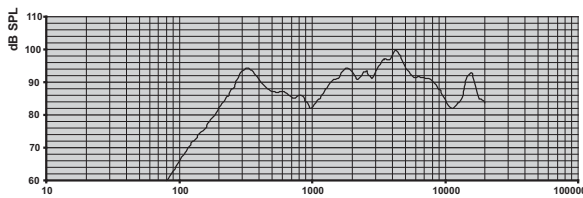
Rear / Installation dimensions in mm (in)



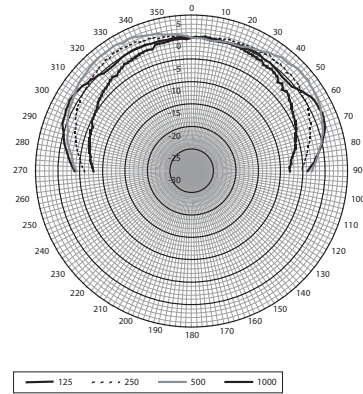
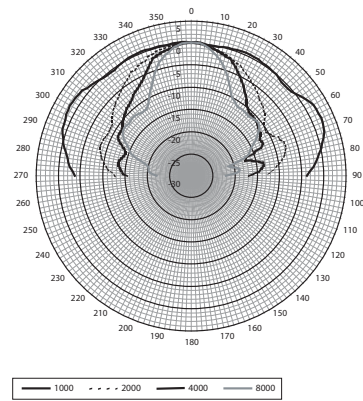
Surface mounted (left) and recessed mounted (right)



Circuit diagram



Frequency response



Polar diagrams (measured with pink noise)

Octave band sensitivity *

	Octave SPL 1W/m	Total octave SPL 1W/m	Total octave SPL Pmax/m
125 Hz	73.3	-	-
250 Hz	90.4	-	-
500 Hz	89.0	-	-
1000 Hz	86.0	-	-
2000 Hz	92.4	-	-
4000 Hz	96.6	-	-
8000 Hz	89.9	-	-
A-weighted	-	89.9	96.8
Lin-weighted	-	90.1	96.0

Octave band opening angles

	Horizontal	Vertical	
125 Hz	180	180	
250 Hz	180	180	
500 Hz	180	180	
1000 Hz	180	180	
2000 Hz	80	80	

4000 Hz	56	56	
8000 Hz	40	40	

Acoustical performance specified per octave

* (all measurements are done with a pink noise signal; the values are in dBSPL)

Parts included

Quantity	Components
1	LB1-UM06E-1
1	Installation instruction

Technical specifications

Electrical*

Maximum power	9 W
Rated power (PHC)	6 W
Power tapping	6 / 3 / 1.5 / 0.75 W
Sound pressure level at 6 W / 1 W (1 kHz, 1 m)	94 / 86 dB (SPL)
Sound pressure level at 6 W / 1 W (4 kHz, 1 m)	105 / 97 dB (SPL)
Effective frequency range (-10 dB)	160 Hz to 20 kHz
Opening angle at 1 kHz / 4 kHz (-6 dB)	180° / 56°
Rated input voltage	70/100 V
Rated impedance	835/1667 ohm
Connector	3-pole screw block

* Technical performance data acc. to IEC 60268-5

Mechanical

Dimensions (W x D)	199 x 105 mm (7.8 x 4.1 in)
Weight	1.23 kg (2.71 lb)
Color	White (RAL 9010)
Material (back box and grille)	Steel
Speaker size	152.4 mm (6 in)
Magnet weight	53 g (1.9 oz)

Environmental

Operating temperature	-25 °C to +55 °C (-13 °F to +131 °F)
Storage temperature	-40 °C to +70 °C (-40 °F to +158 °F)
Relative humidity	<95%

Other parameters are available in CNBOP test report nr 4782/BA/10.



1438

Bosch Security Systems BV
Kapittelweg 10, 4827 HG Breda, The Netherlands
10
1438-CPD-0195

EN 54-24:2008

Loudspeaker for voice alarm systems
for fire detection and fire alarm systems for buildings

Metal Cabinet 6 W
LB1-UM06E-1
Type A

Ordering information

LB1-UM06E-1 Metal Cabinet Loudspeaker

Cabinet loudspeaker 6 W, circular, metal enclosure, water and dust protected IP 32, EN54-24 certified, white RAL 9010.

Order number **LB1-UM06E-1**

LBC 3011/x1 Panel Loudspeakers



Features

- ▶ High-quality speech and music reproduction
- ▶ Two-way system
- ▶ Simple power setting
- ▶ Flush-mounting in walls, ceilings, or furniture
- ▶ Surface-mounting and flush mounting boxes

The Bosch panel loudspeakers and matching mounting boxes are ideal for built-in sound installations in shops, department stores, schools, offices, hotels and restaurants. They are manufactured and finished to the same exacting standards as all Bosch public address systems and components, guaranteeing high quality, and compatibility throughout the range.

Functions

The 6 W panel is equipped with a woofer and tweeter, enabling excellent quality speech and music reproduction. They are available with or without an integral volume control (LBC 3011/51 and LBC 3011/41, respectively). Nominal output power can be preset to full, half, quarter or eighth-power radiation (in 3 dB steps) by connecting the 100 V line to the appropriate primary taps on the matching transformer via a 2-pole screw connector.

The white (RAL 9010) panels are injection-molded from self-extinguishing, high-impact ABS material (according to UL 94V0). They are finished with an attractive perforated metal grill.

The panel loudspeakers flush-mount into rectangular cut-outs in cavity walls, ceilings, furniture or custom-made cabinets. The panels have provision on the rear side for mounting an optional line/loudspeaker supervision board.

The loudspeaker has built-in protection to ensure that, in the event of a fire, damage to the loudspeaker does not result in failure of the circuit to which it is connected. In this way, system integrity is maintained; ensuring loudspeakers in other areas can still be used to inform

people of the situation. The loudspeaker has a ceramic terminal block, thermal fuse, and heat-resistant, high-temperature wiring.

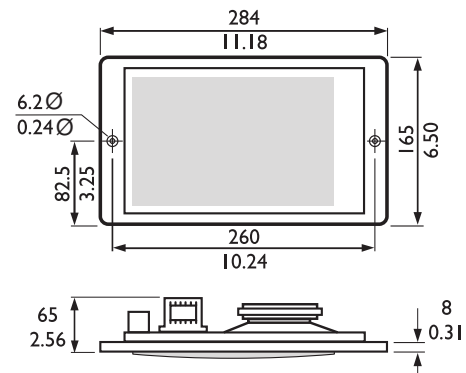
Certifications and approvals

Voice alarm loudspeakers are specifically designed for use in buildings, where performance of systems for verbal evacuation announcements is governed by regulations. The LBC 3011/x1 is designed for use in voice alarm systems.

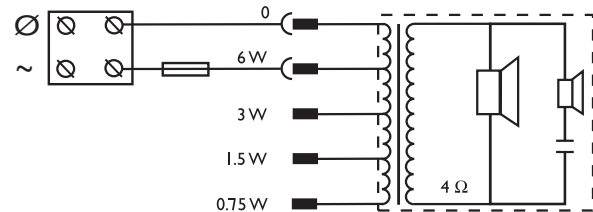
Safety	acc. to EN 60065
Emergency	acc. to BS 5839-8
Self-extinguishing	acc. to UL 94 V0

Installation/configuration notes

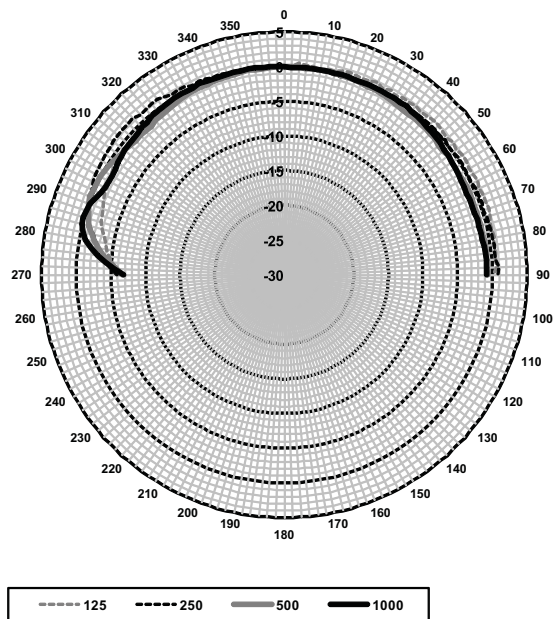
LBC 3011/41



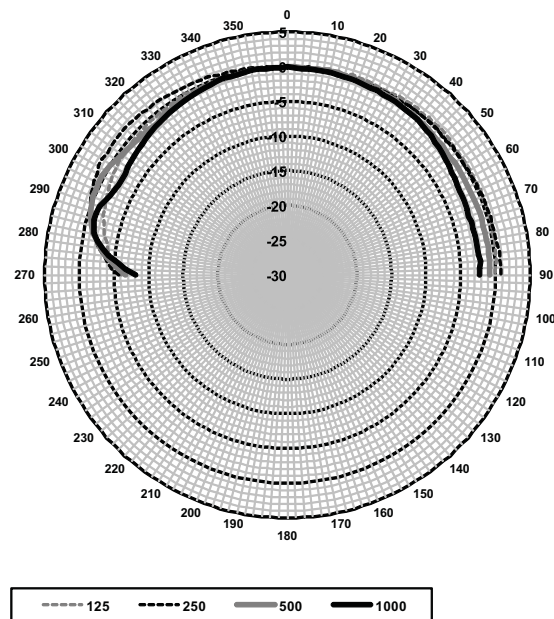
Dimensions in mm (in)



Circuit diagram

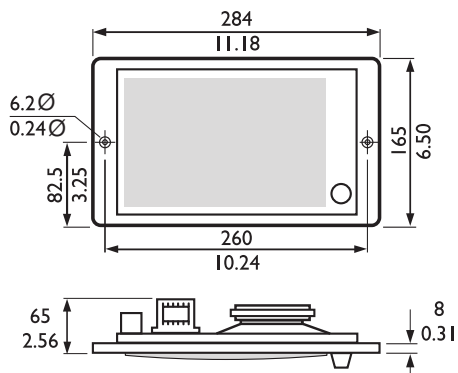


Polar diagram horizontal (measured with pink noise)

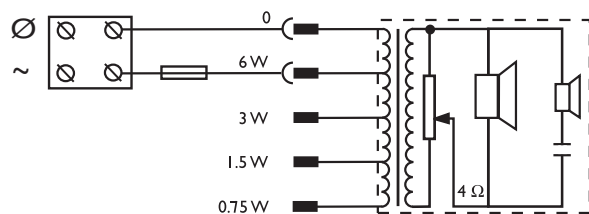


Polar diagram vertical (measured with pink noise)

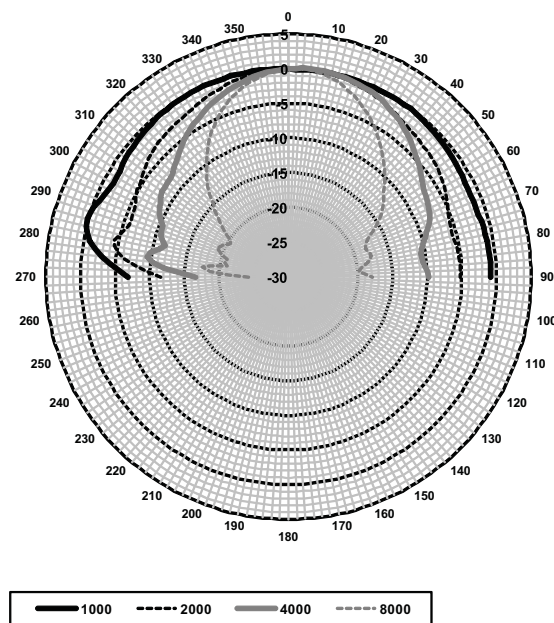
LBC 3011/51



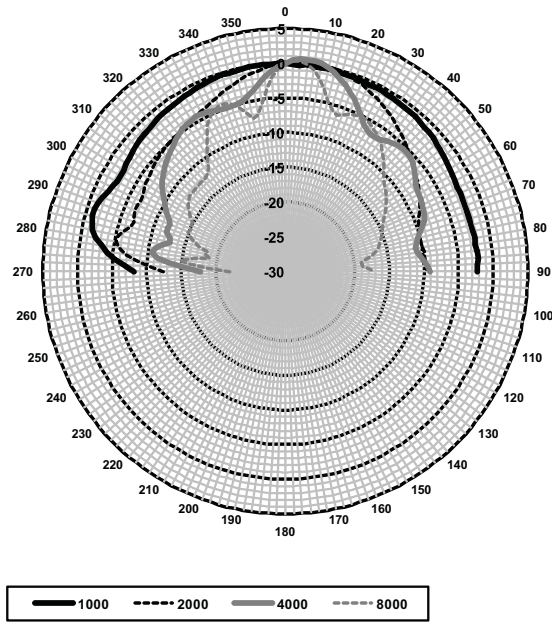
Dimensions in mm (inch)



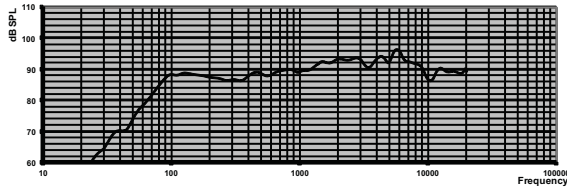
Circuit diagram



Polar diagram horizontal (measured with pink noise)



Polar diagram vertical (measured with pink noise)



Frequency response

Octave band sensitivity *

	Octave SPL 1W/1m	Total octave SPL 1W/1m	Total octave SPL Pmax/1m
125 Hz	89	-	-
250 Hz	87.3	-	-
500 Hz	88.2	-	-
1000 Hz	90	-	-
2000 Hz	93	-	-
4000 Hz	93.6	-	-
8000 Hz	92	-	-
A-weighted	-	89.3	96.6
Lin-weighted	-	89.9	97.3

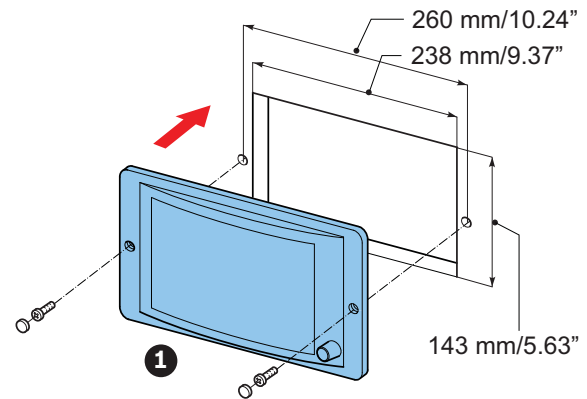
Octave band opening angles

	Horizontal	Vertical
125 Hz	180	180
250 Hz	180	180

500 Hz	180	180
1000 Hz	180	180
2000 Hz	174	130
4000 Hz	92	82
8000 Hz	62	64

Acoustical performance specified per octave

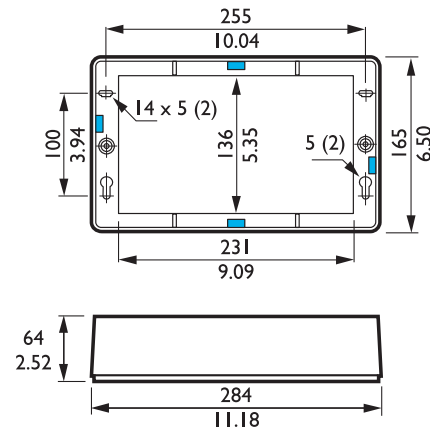
* (all measurements are done with a pink noise signal; the values are in dB SPL)



Recessed mounting in walls and ceilings. Dimensions in mm/in. (1) LBC 3011/41 or LBC 3011/51

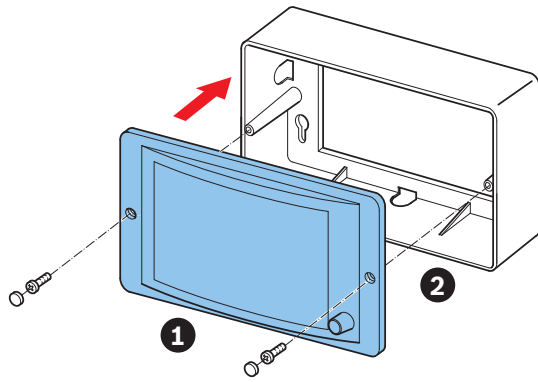
Two mounting boxes are available for surface mounting onto hard surfaces or flush-mounting into non-cavity walls. The LBC 3012/01 accommodates the panel loudspeaker for a self-contained unit for surface mounting.

LBC 3012/01 Mounting box for surface mounting



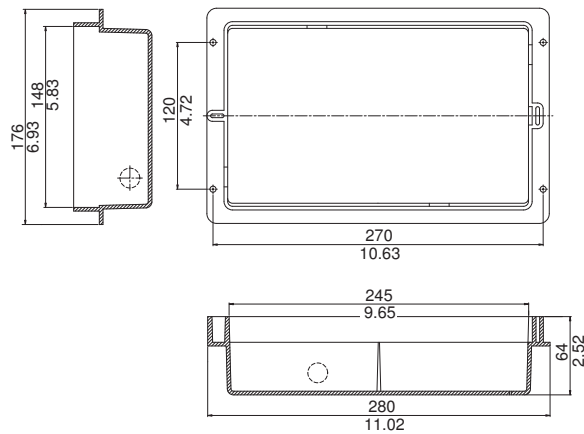
Dimensions in mm (in) with knockout holes

4

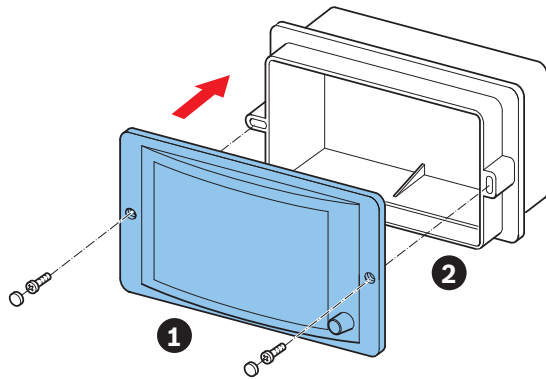


Surface mounting. (1) LBC 3011/41 or LBC 3011/51.
(2) LBC 3012/01

LBC 3013/01 Mounting box for flush mounting



Dimensions in mm (in)



Flush mounting. (1) LBC 3011/41 or LBC 3011/51. (2)
LBC 3013/01

Technical specifications

Electrical* LBC 3011/41 and LBC 3011/51

Max power	9 W
Rated power (PHC)	6 / 3 / 1.5 / 0.75 W
Sound pressure level at 6 W / 1 W (1 kHz, 1 m)	98 dB / 90 dB (SPL)

Effective frequency range (-10 dB)	65 Hz to 18 kHz
Opening angle	1 kHz / 4 kHz (-6 dB)
horizontal	180° / 92°
vertical	180° / 82°
Rated voltage	100 V
Rated impedance	1667 ohm
Connector	2-pole screw terminal block
Acceptable wire gauge	0.5 - 2.6 mm

* Technical performance data acc. to IEC 60268-5

Mechanical

Dimensions (HxWxD)	165 x 284 x 59.5 mm 6.49 x 11.18 x 2.34 in
Mounting cut-out (HxW)	143 x 238 mm 5.63 x 9.37 in
Weight	1.2 kg (2.64 lb)
Color	White (RAL 9010)
Speaker size	2" / 4"
Magnet weight	48 g / 150 g (1.7 oz / 5.3 oz)

Mechanical LBC 3012/01

Dimensions (HxWxD)	165 x 284 x 64 mm 6.49 x 11.18 x 2.52 in
Weight	238 g (8.40 oz)
Color	White (RAL 9010)

Mechanical LBC 3013/01

Dimensions (HxWxD)	176 x 280 x 64 mm 6.93 x 11.03 x 2.52 in
Weight	307 g (10.83 oz)
Color	White (RAL 9010)

Environmental

Operating temperature	-25 °C to +55 °C (-13 °F to +131 °F)
Storage temperature	-40 °C to +70 °C (-40 °F to +158 °F)
Relative humidity	<95%

Ordering information

LBC 3011/41 Panel Loudspeaker without Volume Control

Panel loudspeaker 6 W, rectangular ABS front with metal grille, two-way system, without volume control, white RAL 9010.

Order number **LBC3011/41**

LBC 3011/51 Panel Loudspeaker with Volume Control

Panel loudspeaker 6 W, rectangular ABS front with metal grille, two-way system, with volume control, white RAL 9010.

Order number **LBC3011/51**

Accessories**LBC 3012/01 Surface Mounting Box**

Surface mounting box for LBC3011/41 or LBC3011/51 panel loudspeaker, rectangular, ABS material, white RAL 9010.

Order number **LBC3012/01**

LBC 3013/01 Flush Mounting Box

Flush mounting box for LBC3011/41 or LBC3011/51 panel loudspeaker, rectangular, ABS material, white RAL 9010.

Order number **LBC3013/01**

LBC 3018/01 Metal Cabinet Loudspeaker



4

Features

- Suitable for speech and music reproduction
- Robust metal enclosure
- Surface and/or recessed mounting
- Provision for internal mounting of the optional line/loudspeaker supervision boards
- EN 54-24 certified

The LBC 3018/01 cabinet loudspeaker delivers professional performance from a robust, yet aesthetically designed metal enclosure. It is an ideal loudspeaker for indoor use in offices, schools, car parking, shopping centers and in areas where vandalism is a potential hazard. The cabinets are equipped with a high efficiency, dual-cone loudspeaker offering a wide frequency range suitable for both speech and music reproduction.

Functions

Voice alarm loudspeakers are specifically designed for use in buildings, where the performance of PA-systems is subject to official regulations. The LBC 3018/01 is designed for voice alarm systems, and is compliant with the EN 54-24 standard.

The loudspeaker has built-in protection to ensure that, in the event of a fire, damage to the loudspeaker does not result in failure of the circuit to which it is connected. In this way, system integrity is maintained, ensuring loudspeakers in other areas can still be used to inform people of the situation. The loudspeaker has a ceramic terminal block, thermal fuse, and heat-resistant, high-temperature wiring.

The cabinet has a provision for internally mounting the optional line/loudspeaker supervision board.

Certifications and approvals

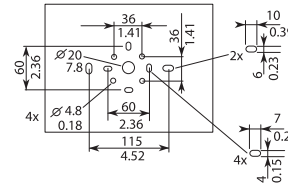
All Bosch loudspeakers are designed to withstand operating at their rated power for 100 continuous hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. Bosch has also developed the Simulated Acoustical Feedback Exposure (SAFE) test to dem-

onstrate that they can withstand two times their rated power for short durations. This ensures improved reliability under extreme conditions, leading to higher customer satisfaction, longer operating life, and lessens the chance of failure or performance deterioration.

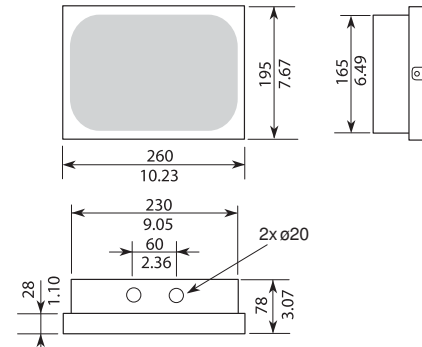
Safety	acc. to EN 60065
Emergency	acc. to EN 54-24, BS 5839-8 and EN 60849
Water and dust protection	acc. to EN60529 IP32

Region	Certification
Europe	CE
	CPR EU_CPR
Poland	CNBOP

Installation/configuration notes

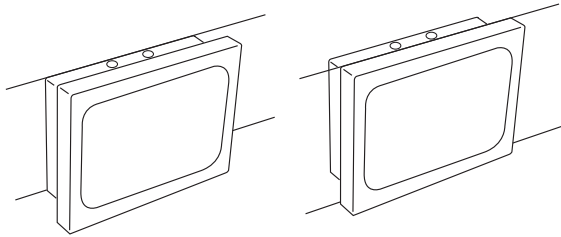


Mounting dimensions in mm (in)

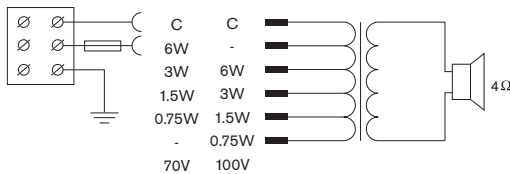


Dimensions in mm (in)

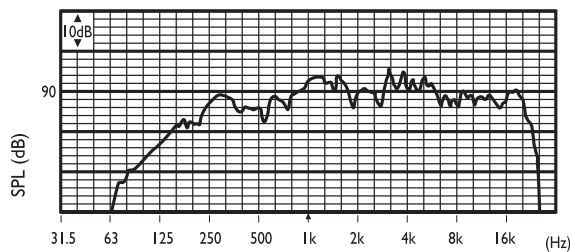
The cabinet is designed for both surface mounting on walls and recessed mounting into brick or concrete walls. The back-box of the cabinet provides a selection of mounting holes, even for mounting onto U40 and MK installation boxes. The back-box has two knockout holes on the topside for two cable glands for loop-through connection. For extra convenience, a safety cord from the back-box lets the installer temporarily hang the front grille unit during installation.



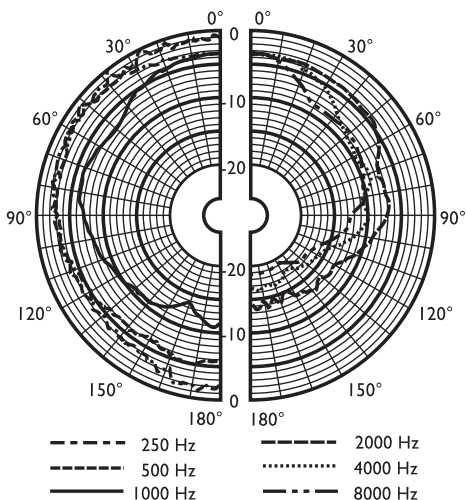
Surface mounted (left) and recessed (right) mounted
The cabinet has a three-way terminal block with screw connections suitable for loop-through wiring (including earth) Four primary taps are provided on the matching transformer to allow selection of nominal full-power, half-power, quarter-power or eighth power radiation (in 3 dB steps).



Circuit diagram



Frequency response



Polar diagram (measured with pink noise)

	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
SPL 1.1	84	93	94	97	97	93
SPL max.	92	101	102	105	105	103
Q-factor	2.5	3.3	7.9	8.5	12.9	14.2
Efficiency	0.32	2.2	4	7.1	5.6	2.5
H. angle	180	180	120	85	55	40
V. angle	180	180	80	110	60	35

Acoustical performance specified per octave

Technical specifications

Electrical*

Maximum power	9 W
Rated power (PHC)	6 W
Power tapping	6 / 3 / 1.5 / 0.75 W
Sound pressure level at 6 W / 1 W (1 kHz, 1 m)	102 dB / 94 dB (SPL)
Effective frequency Range (-10 dB)	150 Hz to 20 kHz
Opening angle at 1 kHz / 4 kHz (-6 dB)	120 ° / 55 °
Rated voltage	70/100 V
Rated impedance	835/1667 ohm
Connector	3-pole screw terminal block

* Technical performance data acc. to IEC 60268-5


Mechanical

Dimensions (H x W x D)	195 x 260 x 80 mm (7.68 x 10.24 x 3.15 in)
Weight	2.6 kg (5.78 lb)
Color	White (RAL 9010)
Speaker size	152.4 mm (6 in)
Magnet weight	150 g (5.3 oz)

Environmental

Operating temperature	-25 °C to +55 °C (-13 °F to +131 °F)
Storage temperature	-40 °C to +70 °C (-40 °F to +158 °F)
Relative humidity	<95%

Other parameters are available in CNBOP test report nr 4783/BA/10.

 1438
Bosch Security Systems BV Kapittelweg 10, 4827 HG Breda, The Netherlands 10 1438-CPD-0202
EN 54-24:2008 Loudspeaker for voice alarm systems for fire detection and fire alarm systems for buildings Metal Cabinet 6 W LBC3018/01 Type A

Ordering information

LBC 3018/01 Metal Cabinet Loudspeaker

Cabinet loudspeaker 6 W, rectangular, metal enclosure, water and dust protected IP32, EN54-24 certified, white RAL 9010.

Order number **LBC3018/01**

Cabinet Loudspeakers



Features

- ▶ Good speech intelligibility and background music reproduction
- ▶ Finished in white or black
- ▶ MDF construction
- ▶ Mounting brackets for wall or ceiling mounting
- ▶ Complies with international installation and safety regulations

The LB1-UW06-Fx is a 6 W, general-purpose, cost-effective loudspeaker for indoor use. Two brackets, fixed to the rear panel, are provided for quick and easy mounting on a wall or ceiling. The cabinet is available in the colors black or white.

Functions

The robust, solid MDF (medium density fiberboard) enclosures are covered with a durable, easy-to-clean vinyl in a choice of white or black. The ABS fronts are covered with fine woven cloth in matching color.

Certifications and approvals

Quality assurance

All Bosch loudspeakers are designed to withstand operating at their rated power for 100 hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. Bosch has also developed the Simulated Acoustical Feedback Exposure (SAFE) test to demonstrate that they can withstand two times their rated power for short durations. This ensures improved reliability under extreme conditions, leading to higher customer satisfaction, longer operating life, and lessens the chance of failure or performance deterioration.

Safety

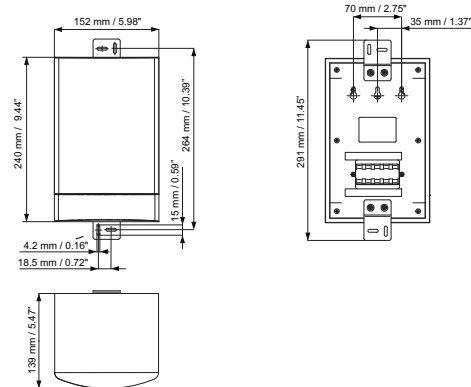
acc. to EN 60065

Region	Certification
Europe	CE

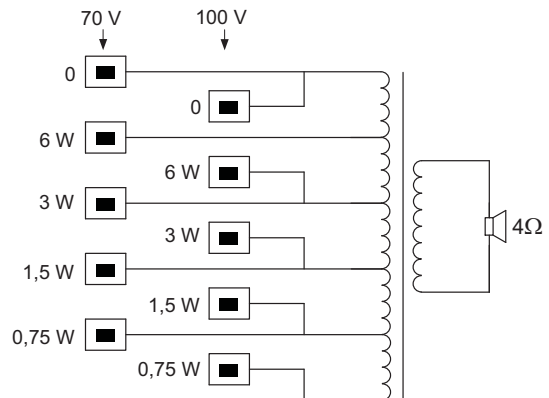
Installation/configuration notes

Two mounting brackets, fixed to the rear panel provide easy and quick wall mounting or ceiling mounting. If these are not desired, they can be removed, and the unit can still be wall mounted using the three keyholes in the rear panel.

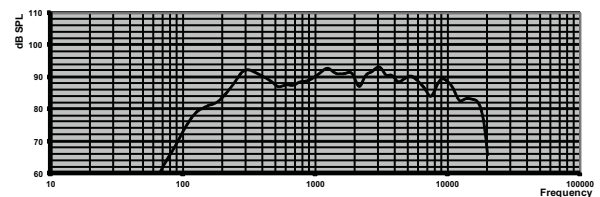
A convenient, easy-to-use, four-pole push-in terminal block is on the rear panel for on-site wiring. This terminal block has provision for power tapping on the 100 V matching transformer in the cabinet. It allows selection of nominal full-power, half-power or quarter-power radiation (in 3 dB steps).



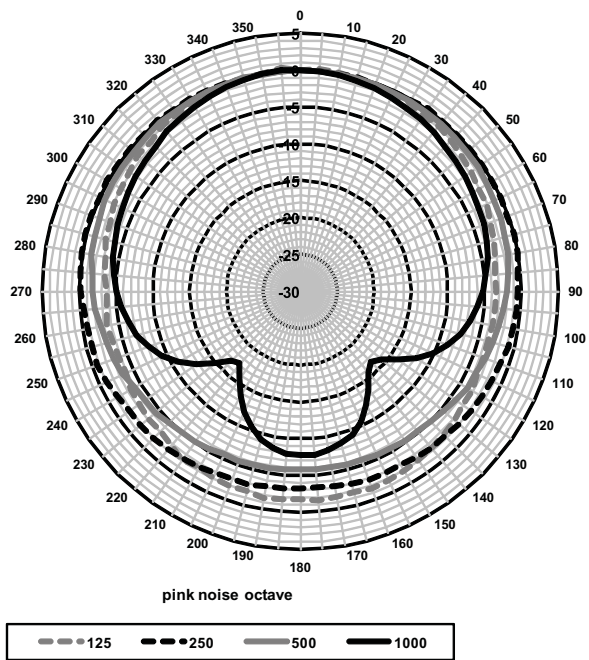
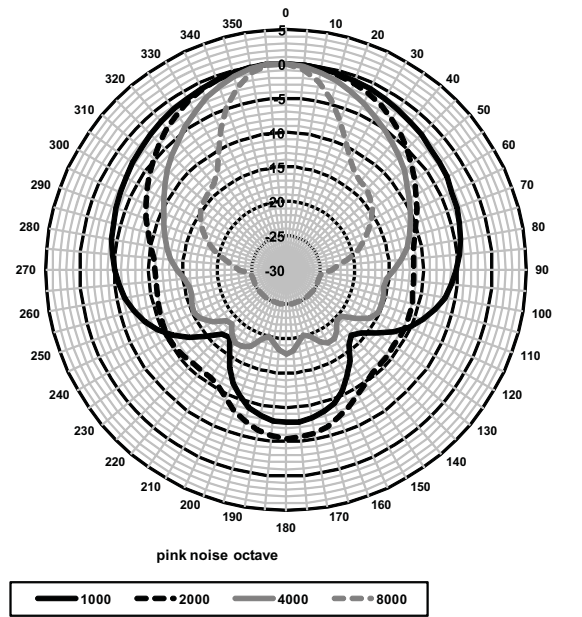
Dimensions



Circuit diagram



Frequency response



Polar diagrams (measured with pink noise)

Octave band sensitivity*

	Octave SPL 1W/1m	Total octave SPL 1W/1m	Total octave SPL Pmax/1m
125 Hz	79	-	-
250 Hz	90.7	-	-
500 Hz	89.2	-	-
1000 Hz	91	-	-
2000 Hz	90.9	-	-
4000 Hz	91.6	-	-
8000 Hz	89.1	-	-
A-weighted	-	87.8	94.9
Lin-weighted	-	88.5	95.8

Octave band opening angles

	Horizontal	Vertical	
125 Hz	360	-	
250 Hz	360	-	
500 Hz	360	-	
1000 Hz	194	-	
2000 Hz	106	-	
4000 Hz	82	-	
8000 Hz	40	-	

Acoustical performance specified per octave

* (all measurements are done with a pink noise signal; the values are in dB SPL)

Technical specifications

Electrical*

Maximum power	9 W
Rated power	6 / 3 / 1.5 W
Sound pressure level at 6 W / 1 W (1 kHz, 1 m)	99 dB / 91 dB (SPL)
Sound pressure level at 6 W / 1 W (4 kHz, 1 m)	100 dB / 92 dB (SPL)
Effective frequency range (-10 dB)	180 Hz to 20 kHz
Opening angle	1 kHz / 4 kHz (-6 dB)
horizontal	165° / 95°
vertical	158° / 73°
Rated input voltage	100 V
Rated impedance	1667 ohm
Connector	4-pole push-in terminal block

* Technical performance data acc. to IEC 60268-5

Mechanical

Dimensions (H x W x D)	240 x 151 x 139 mm (9.4 x 5.9 x 5.5 in)
Weight	1.5 kg (3.3 lb)
Color	Black (D) or white (L)
cabinet / cloth (D)	Matches RAL 9004 / RAL 9004
cabinet / cloth (L)	Matches RAL 9010 / RAL 7044

Environmental

Operating temperature	-25 °C to +55 °C (-13 °F to +131 °F)
Storage temperature	-40 °C to +70 °C (-40 °F to +158 °F)
Relative humidity	<95%

Ordering information

Cabinet Loudspeaker

Cabinet loudspeaker 6 W, MDF enclosure with fine-woven cloth front, finished in black, supplied with mounting brackets for wall or ceiling mounting.

Order number **LB1-UW06-FD1**

Cabinet Loudspeaker

Cabinet loudspeaker 6 W, MDF enclosure with fine-woven cloth front, finished in white, supplied with mounting brackets for wall or ceiling mounting.

Order number **LB1-UW06-FL1**

Cabinet Loudspeakers

4



Features

- ▶ Good speech intelligibility and background music reproduction
- ▶ Available in black or white
- ▶ MDF construction
- ▶ With or without integral volume control
- ▶ Complies with international installation and safety regulations

The LB1-UW06x-x is a 6 W, general-purpose, cost-effective loudspeaker for indoor use, with or without volume control. Keyholes at the rear are provided for quick and easy wall mounting. The angled front baffle results in a better sound in the listening area. The cabinet is available in black or white.

Functions

The robust, solid MDF (medium density fiber board) enclosures are covered with a durable, easy-to-clean vinyl in a choice of white or black. The ABS fronts are covered with fine woven cloth in matching color. The angled front baffle results in improved high frequency reproduction in the listening area.

The speaker is available with or without a volume control.

Certifications and approvals

Quality assurance

All Bosch loudspeakers are designed to withstand operating at their rated power for 100 hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. Bosch has also developed the Simulated Acoustical Feedback Exposure (SAFE) test to demonstrate that they can withstand two times their rated power for short durations. This ensures improved reliability under extreme conditions, leading to higher customer satisfaction, longer operating life, and lessens the chance of failure or performance deterioration.

Safety

acc. to EN 60065

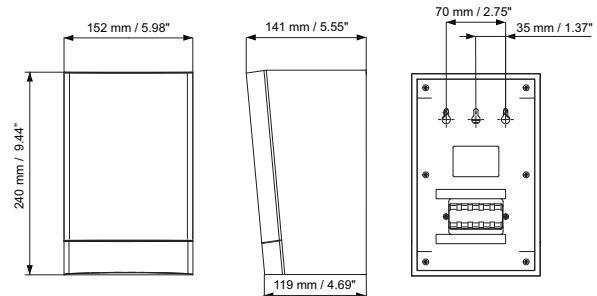
Region Certification

Europe CE

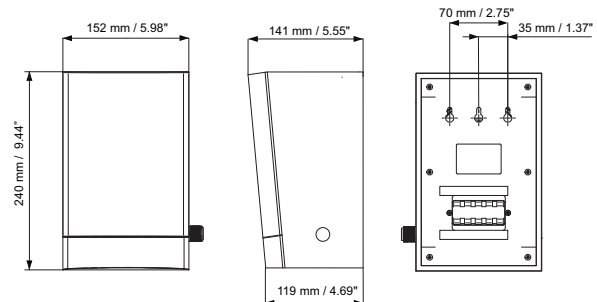
Installation/configuration notes

Three keyholes in the rear panel provide easy and quick wall mounting.

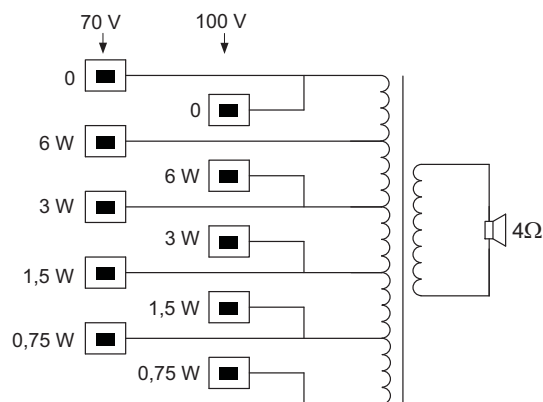
A convenient, easy-to-use, four-pole push-in terminal block is on the rear panel for on-site wiring. This terminal block has provision for power tapping on the 100 V, matching transformer in the cabinet. It allows selection of nominal full-power, half-power or quarter-power radiation (in 3 dB steps).



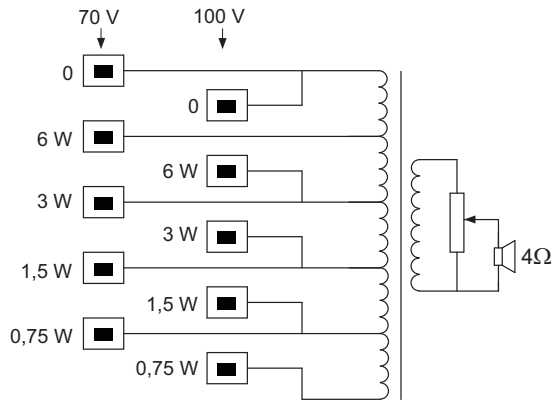
LB1-UW06-x1 dimensions



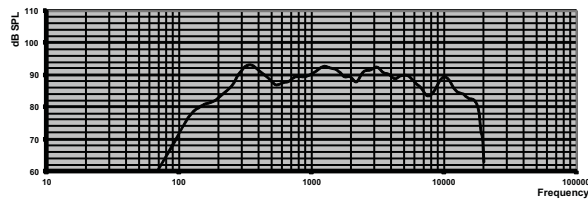
LB1-UW06V-x1 dimensions



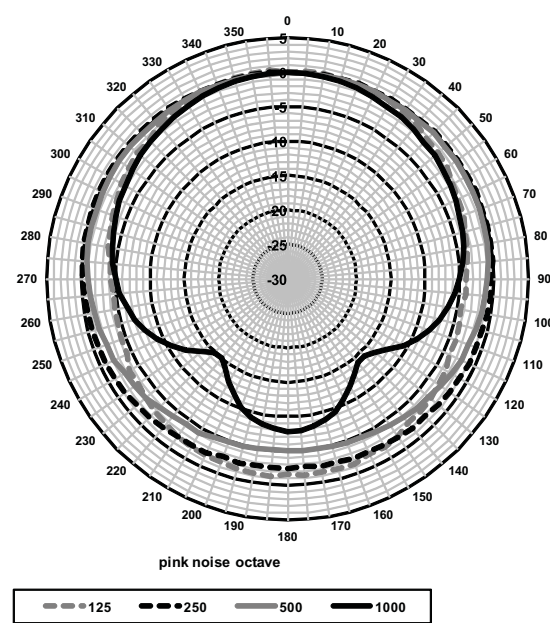
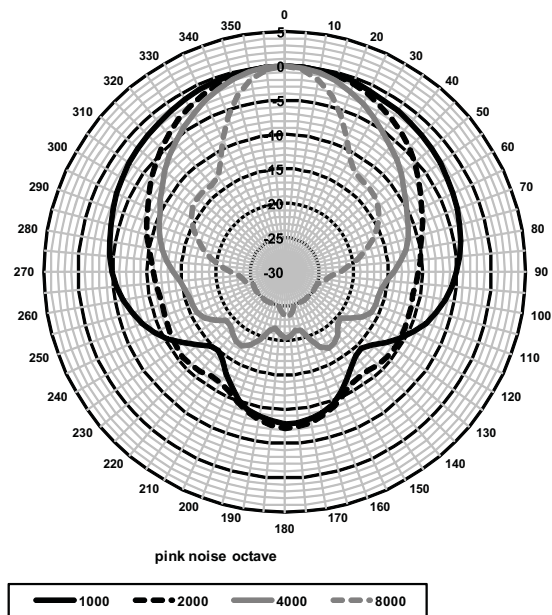
LB1-UW06-x1 circuit diagram



LB1-UW06V-x1 circuit diagram



Frequency response



Polar diagram (measured with pink noise)

Octave band sensitivity*

	Octave SPL 1W/1m	Total octave SPL 1W/1m	Total octave SPL Pmax/1m
125 Hz	78.8	-	-
250 Hz	90.5	-	-
500 Hz	90	-	-
1000 Hz	91.3	-	-
2000 Hz	90.8	-	-
4000 Hz	91.5	-	-
8000 Hz	89.1	-	-
A-weighted	-	87.8	94.9
Lin-weighted	-	88.6	95.9

Octave band opening angles

	Horizontal	Vertical	
125 Hz	360	-	
250 Hz	360	-	
500 Hz	360	-	
1000 Hz	195	-	
2000 Hz	106	-	
4000 Hz	82	-	
8000 Hz	40	-	

Acoustical performance specified per octave

* (all measurements are done with a pink noise signal; the values are in dB SPL)

Technical specifications**Electrical***

Maximum power	9 W
Rated power	6 / 3 / 1.5 W
Sound pressure level at 6 W / 1 W (1 kHz, 1 m)	99 dB / 91 dB (SPL)
Sound pressure level at 6 W / 1 W (4 kHz, 1 m)	100 dB / 92 dB (SPL)
Effective frequency range	180 Hz to 20 kHz (-10 dB)
Opening angle	1 kHz / 4 kHz (-6 dB)
horizontal	165° / 95°
vertical	158° / 73°
Rated input voltage	100 V
Rated impedance	1667 ohm
Connector	4-pole push-in terminal block

* Technical performance data acc. to IEC 60268-5

Mechanical

Dimensions (H x W x D)	240x151x141/119 mm (9.4 x 5.9 x 5.6/4.7 in)
Weight	0.9 kg (2 lb)
Color	Black (D) or white (L)
cabinet / cloth (D)	Matches RAL 9004 / RAL 9004
cabinet / cloth (L)	Matches RAL 9010 / RAL 7044

Environmental

Operating temperature	-25 °C to +55 °C (-13 °F to +131 °F)
Storage temperature	-40 °C to +70 °C (-40 °F to +158 °F)
Relative humidity	<95%

Ordering information**Cabinet Loudspeaker**

Cabinet loudspeaker 6 W, MDF enclosure with fine-woven cloth front, finished in black, with 3 keyholes for wall mounting.

Order number **LB1-UW06-D1**

Cabinet Loudspeaker

Cabinet loudspeaker 6 W, MDF enclosure with fine-woven cloth front, finished in white, with 3 keyholes for wall mounting.

Order number **LB1-UW06-L1**

Cabinet Loudspeaker with Volume Control

Cabinet loudspeaker 6 W with volume control, MDF enclosure with fine-woven cloth front, finished in black, with 3 keyholes for wall mounting.

Order number **LB1-UW06V-D1**

Cabinet Loudspeaker with Volume Control

Cabinet loudspeaker 6 W with volume control, MDF enclosure with fine-woven cloth front, finished in white, with 3 keyholes for wall mounting.

Order number **LB1-UW06V-L1**

Corner Cabinet Loudspeakers



Features

- ▶ Good speech intelligibility and background music reproduction
- ▶ Special shape for mounting in corners
- ▶ Available in black or white
- ▶ MDF construction
- ▶ Compliance with international installation and safety regulation

The LB1-CW06-x is a 6 W, general-purpose cost-effective loudspeaker for indoor use. Two brackets with keyholes, fixed on one side provide quick and easy mounting in corners between two walls, or between a wall and ceiling. The cabinet is available in black or white.

Functions

The robust, solid MDF (Medium Density Fiber board) enclosures are covered with a durable, easy-to-clean vinyl in white or black. The ABS fronts are covered with fine woven cloth in matching color.

The cabinet shapes allow installation in corners between walls, and between wall and ceiling.

Certifications and approvals

Quality assurance

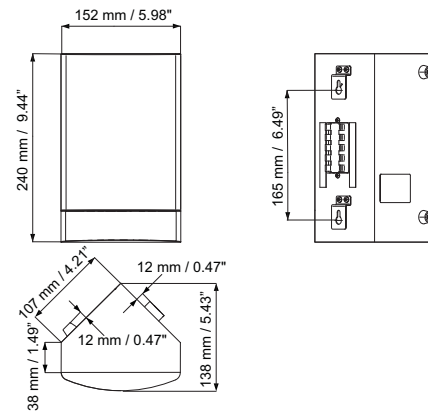
All Bosch loudspeakers are designed to withstand operating at their rated power for 100 hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. Bosch has also developed the Simulated Acoustical Feedback Exposure (SAFE) test to demonstrate that they can withstand two times their rated power for short durations. This ensures improved reliability under extreme conditions, leading to higher customer satisfaction, longer operating life, and lessens the chance of failure or performance deterioration.

Safety acc. to EN 60065

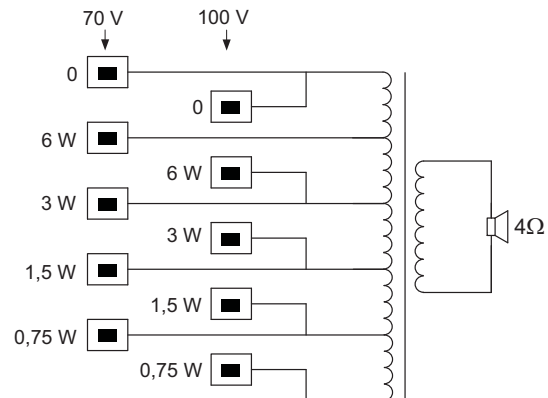
Region	Certification
Europe	CE

Installation/configuration notes

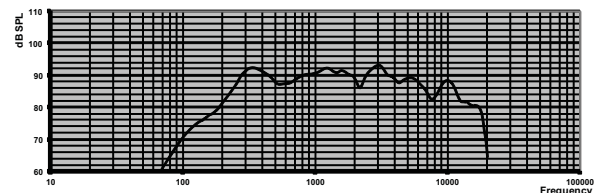
Two keyhole brackets at one side of the cabinet are provided for easy and quick wall mounting. The other side of the cabinet is provided with two rubber feet for absorbing unwanted vibrations and secure mounting. A convenient easy-to-use, four-pole push-in terminal block is present on the side for on-site wiring. This terminal block has provision for power tapping on the 100 V, matching transformer in the cabinet. It allows selection of nominal full-power, half-power or quarter-power radiation (in 3 dB steps).



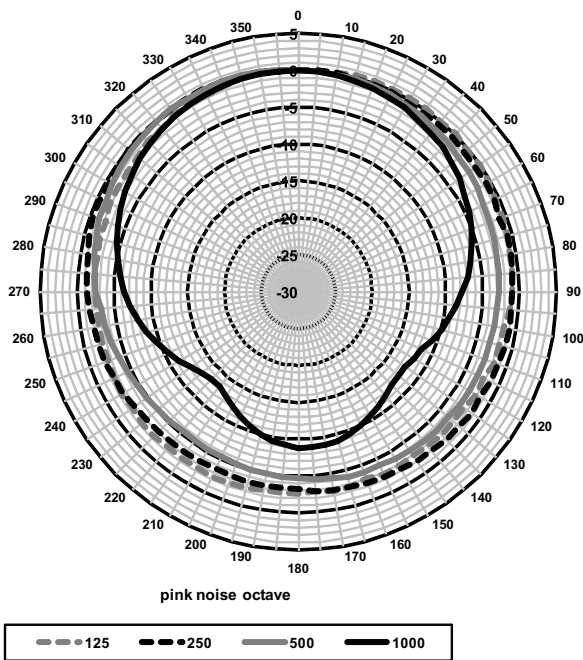
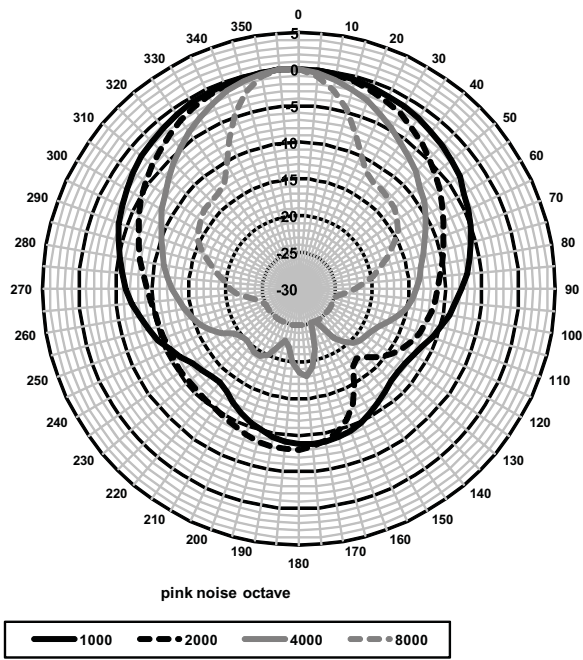
Dimensions



Circuit diagram



Frequency response



Polar diagrams (measured with pink noise)

Octave band sensitivity*

	Octave SPL 1W/1m	Total octave SPL 1W/1m	Total octave SPL Pmax/1m
125 Hz	75.3	-	-
250 Hz	90.5	-	-
500 Hz	89.7	-	-
1000 Hz	91.2	-	-
2000 Hz	90.7		
4000 Hz	91.2	-	-
8000 Hz	88	-	-
A-weighted	-	87.5	88.3
Lin-weighted	-	94.8	95.7

Octave band opening angles

	Horizontal	Vertical	
125 Hz	360	-	
250 Hz	360	-	
500 Hz	360	-	
1000 Hz	164	-	
2000 Hz	118	-	
4000 Hz	82	-	
8000 Hz	39	-	

Acoustical performance specified per octave

* (all measurements are done with a pink noise signal; the values are in dB SPL)

Technical specifications

Electrical*

Maximum power	9 W
Rated power	6 / 3 / 1.5 W
Sound pressure level at 6 W / 1 W (1 kHz, 1 m)	99 dB / 91 dB (SPL)
Effective frequency range (-10 dB)	180 Hz to 20 kHz
Opening angle	1 kHz / 4 kHz (-6 dB)
horizontal	165° / 95°
vertical	150° / 75°
Rated input voltage	100 V
Rated impedance	1667 ohm
Connector	4-pole push-in terminal block

* Technical performance data acc. to IEC 60268-5

Mechanical

Dimensions (H x W x D)	240 x 151 x 138 mm (9.5 x 5.9 x 5.6 in)
Weight	0.8 kg (1.8 lb)
Color	Black (D) or white (L)
cabinet / cloth (D)	Matches RAL 9004 / RAL 9004
cabinet / cloth (L)	Matches RAL 9010 / RAL 7044

Environmental

Operating temperature	-25 °C to +55 °C (-13 °F to +131 °F)
Storage temperature	-40 °C to +70 °C (-40 °F to +158 °F)
Relative humidity	<95%

Ordering information

Corner Cabinet Loudspeaker

Corner cabinet loudspeaker 6 W, MDF enclosure with fine-woven cloth front, finished in black, special shape for mounting in corners, supplied with two brackets with keyholes.

Order number **LB1-CW06-D1**

Corner Cabinet Loudspeaker

Corner cabinet loudspeaker 6 W, MDF enclosure with fine-woven cloth front, finished in white, special shape for mounting in corners, supplied with two brackets with keyholes.

Order number **LB1-CW06-L1**

Cabinet Loudspeakers

4



Features

- ▶ Good speech intelligibility and background music reproduction
- ▶ Available in black or white
- ▶ MDF construction
- ▶ Complies with international installation and safety regulations

The LB1-UW12-x is a 12 W, general-purpose, cost-effective loudspeaker for indoor use. Keyholes at the rear provide quick and easy wall mounting. The angled front baffle results in a better sound in the listening area. The cabinet is available in black or white.

Functions

The robust, solid MDF (Medium Density Fiber board) enclosures are covered with a durable, easy-to-clean vinyl in a choice of white or black. The ABS fronts are covered with fine woven cloth in matching color.

The angled front baffle results in improved high frequency reproduction in the listening area.

Certifications and approvals

Quality assurance

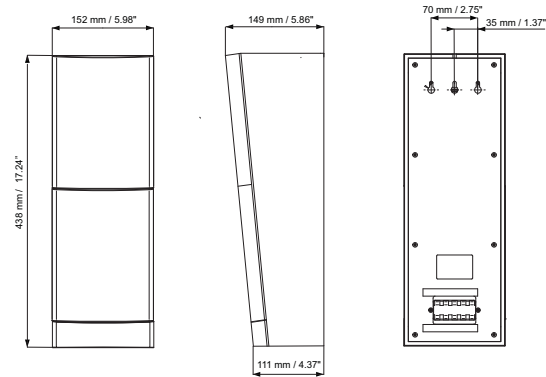
All Bosch loudspeakers are designed to withstand operating at their rated power for 100 hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. Bosch has also developed the Simulated Acoustical Feedback Exposure (SAFE) test to demonstrate that they can withstand two times their rated power for short durations. This ensures improved reliability under extreme conditions, leading to higher customer satisfaction, longer operating life, and lessens the chance of failure or performance deterioration.

Safety acc. to EN 60065

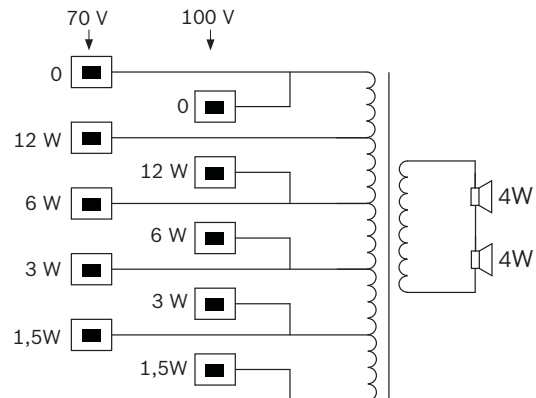
Region	Certification
Europe	CE

Installation/configuration notes

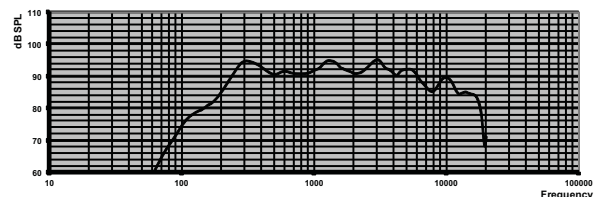
Three keyholes in the rear panel provide easy and quick wall mounting. A convenient easy-to-use, four-pole push-in terminal block is present on the rear panel for on-site wiring. This terminal block has provision for power tapping on the 100 V, matching transformer in the cabinet. It allows selection of nominal full-power, half-power or quarter-power radiation (in 3 dB steps).



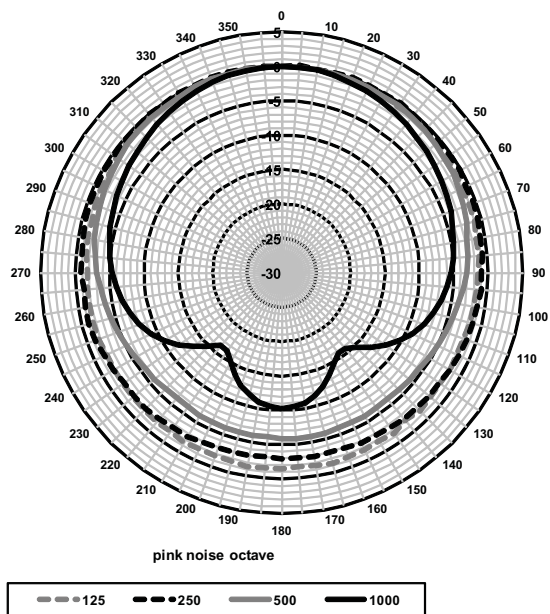
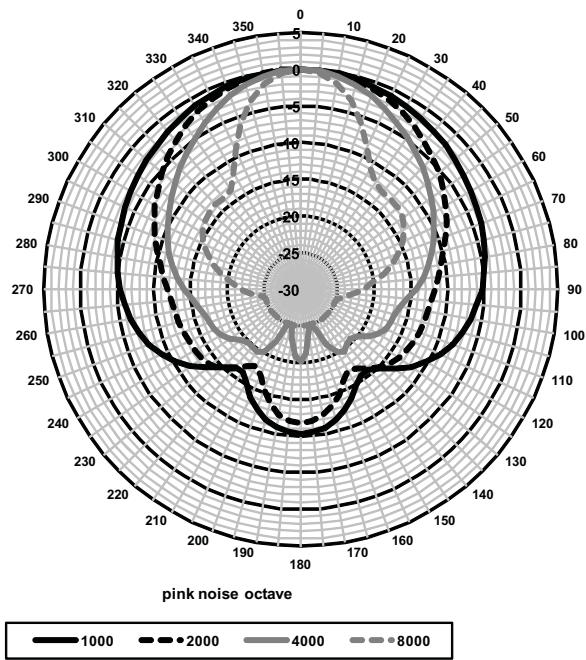
Dimensions



Circuit diagram



Frequency response



Polar diagrams (Measured with pink noise)

Octave band sensitivity*

	Octave SPL 1W/1m	Total octave SPL 1W/1m	Total octave SPL Pmax/1m
125 Hz	78.9	-	-
250 Hz	93.0	-	-
500 Hz	92.0	-	-
1000 Hz	93.1	-	-
2000 Hz	92.8	-	-
4000 Hz	93.3	-	-
8000 Hz	89.8	-	-
A-weighted	-	89.6	99.6
Lin-weighted	-	90.4	100.6

Octave band opening angles

	Horizontal	Vertical	
	360	>180	
250 Hz	360	>180	
500 Hz	360	136	
1000 Hz	190	60	
2000 Hz	106	34	
4000 Hz	82	18	
8000 Hz	40	27	

Acoustical performance specified per octave

* (all measurements are done with a pink noise signal;
the values are in dB SPL)

Technical specifications

Electrical*

Maximum power	18 W
Rated power	12 / 6 / 3 W
Sound pressure level at 12 W / 1 W (1 kHz, 1 m)	104 / 93 dB (SPL)
Effective frequency range (-10 dB)	160 Hz to 20 kHz
Opening angle	1 kHz / 4 kHz (-6 dB)
horizontal	195° / 95°
vertical	69° / 17°
Rated input voltage	100 V
Rated impedance	833 ohm
Connector	4-pole push-in terminal block

* Technical performance data acc. to IEC 60268-5

Mechanical

Dimensions (H x W x D)	441x151x150/111 mm (17.4x5.9x5.9/4.4 in)
Weight	2.5 kg (5.5 lb)
Color	Black (D) or white (L)
cabinet / cloth (D)	Matches RAL 9004 / RAL 9004
cabinet / cloth (L)	Matches RAL 9010 / RAL 7044

Environmental

Operating temperature	-25 °C to +55 °C (-13 °F to +131 °F)
Storage temperature	-40 °C to +70 °C (-40 °F to +158 °F)
Relative humidity	<95%

Ordering information

Cabinet Loudspeaker

Cabinet loudspeaker 12 W, MDF enclosure with fine-woven cloth front, finished in black, with 3 keyholes for wall mounting.

Order number **LB1-UW12-D1**

Cabinet Loudspeaker

Cabinet loudspeaker 12 W, MDF enclosure with fine-woven cloth front, finished in white, with 3 keyholes for wall mounting.

Order number **LB1-UW12-L1**

Bidirectional Cabinet Loudspeakers



Features

- ▶ Good speech intelligibility and background music reproduction
- ▶ Wedge shaped design
- ▶ Available in black or white
- ▶ MDF construction
- ▶ Complies with international installation and safety regulations

The LB1-BW12-x is a 12 W, cost-effective, bidirectional loudspeaker for indoor use. The baffle design creates a wide opening angle, making this loudspeaker very suitable for use in long corridors. Keyholes at the rear provide quick and easy wall mounting. The cabinet is available in black or white.

Functions

The robust, solid MDF (Medium Density Fiber board) enclosures are covered with a durable, easy-to-clean vinyl in a choice of white or black. The ABS fronts are covered with fine woven cloth in matching color. The cabinets have two dual cone loudspeaker drivers, mounted on an angled baffle, providing a wide opening angle. This model is intended for use in long corridors, such as in shopping arcades.

Certifications and approvals

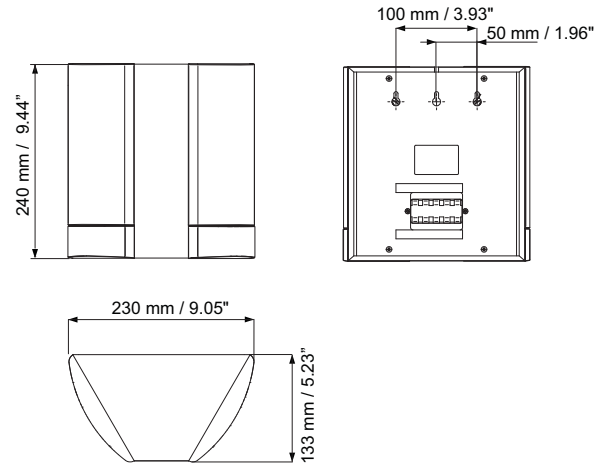
All Bosch loudspeakers are designed to withstand operating at their rated power for 100 hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. Bosch has also developed the Simulated Acoustical Feedback Exposure (SAFE) test to demonstrate that they can withstand two times their rated power for short durations. This ensures extra reliability under extreme conditions, leading to higher customer satisfaction, longer operating life, and much less chance of failure or performance deterioration.

Safety acc. to EN 60065

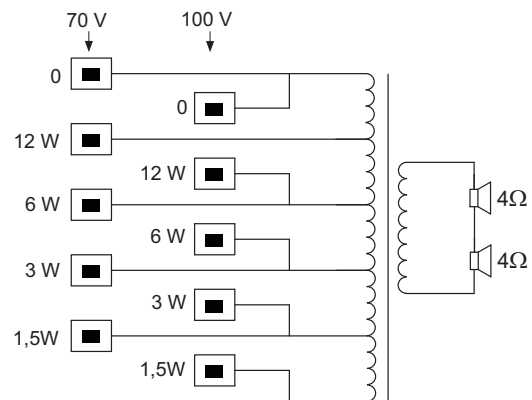
Region	Certification
Europe	CE

Installation/configuration notes

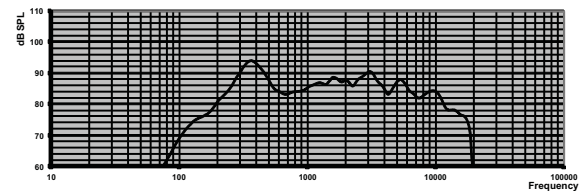
Three keyholes in the rear panel provide easy and quick wall mounting. A convenient, easy-to-use, four-pole push-in terminal block is present on the rear panel for on-site wiring. This terminal block has provision for power tapping on the 100 V, matching transformer in the cabinet. It allows selection of nominal full-power, half-power or quarter-power radiation (in 3 dB steps).



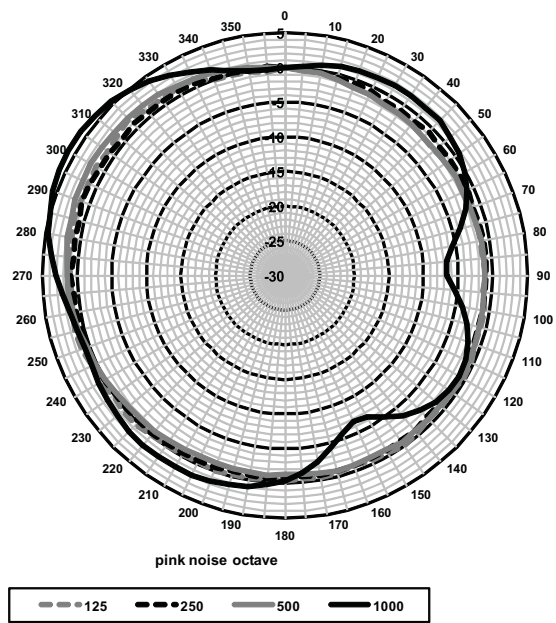
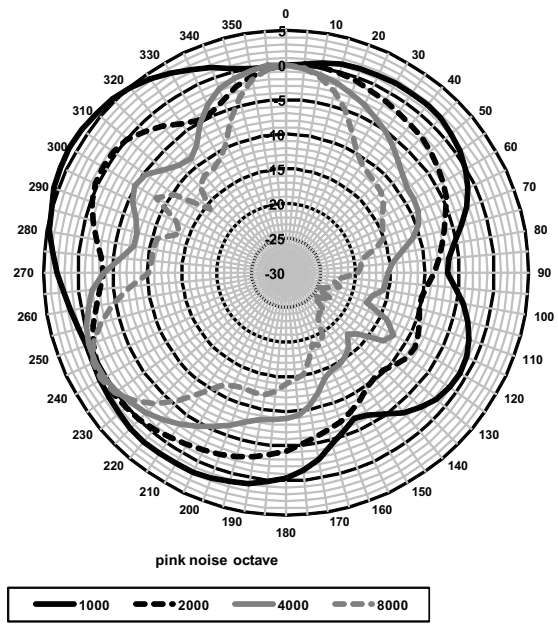
Dimensions



Circuit diagram



Frequency response



Polar diagrams (measured with pink noise)

Octave band sensitivity*

	Octave SPL 1W/1m	Total octave SPL 1W/1m	Total octave SPL Pmax/1m
125 Hz	74.4	-	-
250 Hz	89.4	-	-
500 Hz	89.9	-	-
1000 Hz	86.3	-	-
2000 Hz	88.1	-	-
4000 Hz	88.6	-	-
8000 Hz	85.2	-	-
A-weighted	-	84.8	94.6
Lin-weighted	-	86.1	96

Octave band opening angles

	Horizontal	Vertical	
125 Hz	360	-	
250 Hz	360	-	
500 Hz	360	-	
1000 Hz	360	-	
2000 Hz	253	-	
4000 Hz	71	-	
8000 Hz	41	-	

Acoustical performance specified per octave

* (all measurements are done with a pink noise signal; the values are in dB SPL)

Technical specifications

Electrical*

Maximum power	18 W
Rated power	12 / 6 / 3 W
Sound pressure level at 12 W / 1 W (1 kHz, 1 m)	97 / 86 dB (SPL)
Effective frequency range (-10 dB)	140 Hz to 20 kHz
Opening angle at 1 kHz / 4 kHz (-6 dB)	270° / 165°
Rated input voltage	100 V
Rated impedance	833 ohm
Connector	4-pole push-in terminal block

* Technical performance data acc. to IEC 60268-5

Mechanical

Dimensions (H x W x D)	240 x 238 x 133 mm (9.4 x 9.3 x 5.24 in)
Weight	1.5 kg (3.3 lb)
Color	Black (D) or white (L)
cabinet / cloth (D)	Matches RAL 9004 / RAL 9004
cabinet / cloth (L)	Matches RAL 9010 / RAL 7044

Environmental

Operating temperature	-25 °C to +55 °C (-13 °F to +131 °F)
Storage temperature	-40 °C to +70 °C (-40 °F to +158 °F)
Relative humidity	<95%

Ordering information

Bidirectional Cabinet Loudspeaker

Bidirectional cabinet loudspeaker 12 W, MDF enclosure with fine-woven cloth fronts, finished in black, with 3 keyholes for wall mounting.

Order number **LB1-BW12-D1**

Bidirectional Cabinet Loudspeaker

Bidirectional cabinet loudspeaker 12 W, MDF enclosure with fine-woven cloth fronts, finished in white, with 3 keyholes for wall mounting.

Order number **LB1-BW12-L1**

Premium-sound Cabinet Loudspeaker Range

4



Features

- High-fidelity music and speech reproduction
- Selectable 8 ohm, 70 V and 100 V inputs
- Compact yet robust ABS enclosure
- Supplied with adjustable mounting bracket
- Complies with international installation and safety regulations

The LB2-UCxx-xPremium-sound cabinet loudspeakers are intended for clear reproduction of speech, foreground and background music to be used in general indoor and outdoor applications. The Premium-sound cabinet loudspeaker range consists of a 15 W and 30 W model, available in a light or dark color. The loudspeakers have selectable 8 ohm, 70 V and 100 V inputs. The ABS cabinets are fitted with aluminum front-grilles and standard supplied with aluminum bracket. Typical applications are: theme bars, music restaurants, theme parks, retail outlets, audio visual, boardrooms and offices, exhibition areas, showrooms, fitness centre's and presentation environments.

Certifications and approvals

Quality assurance

All Bosch loudspeakers are designed to withstand operating at their rated power for 100 hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. Bosch has also developed the Simulated Acoustical Feedback Exposure (SAFE) test to demonstrate that they can withstand two times their rated power for short durations. This ensures improved reliability under extreme conditions, leading to higher customer satisfaction, longer operating life, and lessens the chance of failure or performance deterioration.

Safety	acc. to EN 60065
Water and dust protection	acc. to EN 60529 IP x4
Self extinguishing	acc. to UL94 V0
Chlorine resistant	acc. to IEC60068-2-42
Corrosion resistant	acc. to IEC60068-2-52
Salt mist	acc. to IEC60068-2-11

Installation/configuration notes

The cabinets include a built-in transformer that offers a selection of nominal full power, half power, quarter power or eight power radiation (i.e. in 3 dB steps) for 70 V, 100 V or 8 Ohm bypass.

Selection is done by a convenient switch on the rear enclosure.

A two meter long twin-core loudspeaker cable (in matching color with the cabinet) is connected to the loudspeaker. The core ends are stripped ready for use.

The mounting brackets are fitted with anti-theft torx screws, covered with plastic covers in matching color of the cabinets.

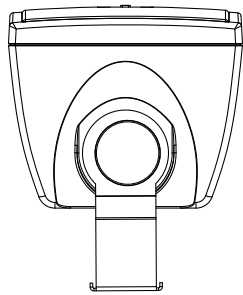
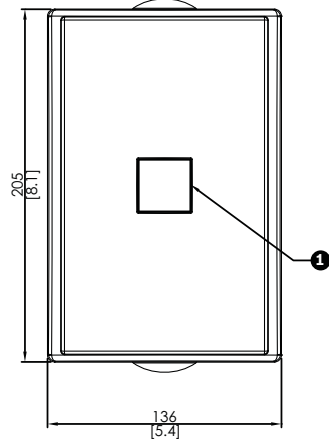
The cabinets can be mounted horizontally to allow the loudspeaker to be directed up or down, or vertically to allow left and right rotation by means of a steel U-shaped wall bracket (standard supplied).

The rotatable logo can be easily adjusted to match the mounting orientation.

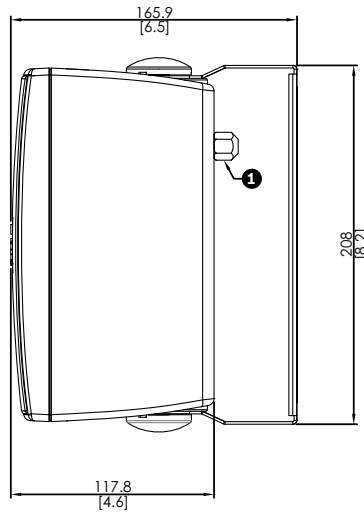


Rear view LB2-UC15-x1 / LB2-UC30-x1

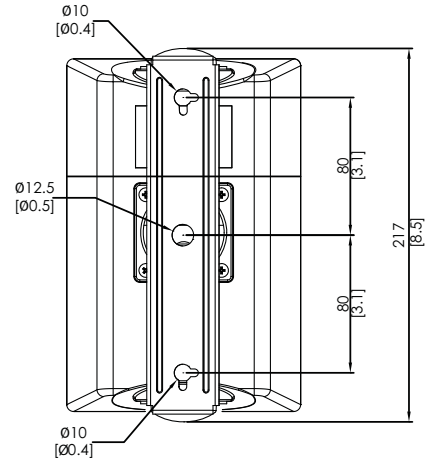
LB2-UC15-D1/L1



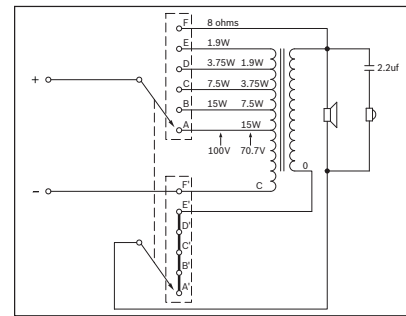
Front and top view mm (in). (1) Rotatable logo.



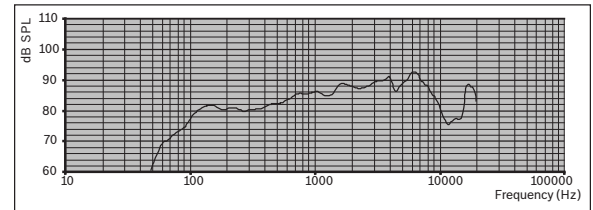
Side view mm (in). (1) Power tapping switch.



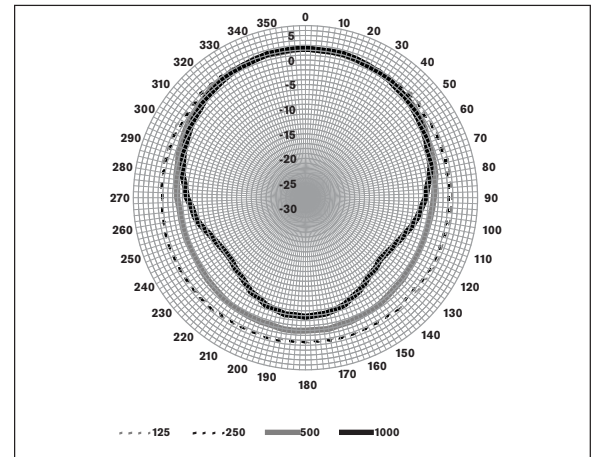
Rear view mm (in).



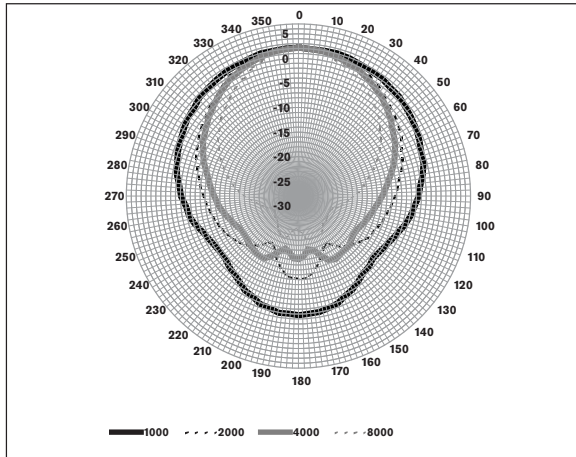
LB2-UC15-x1 Circuit diagram



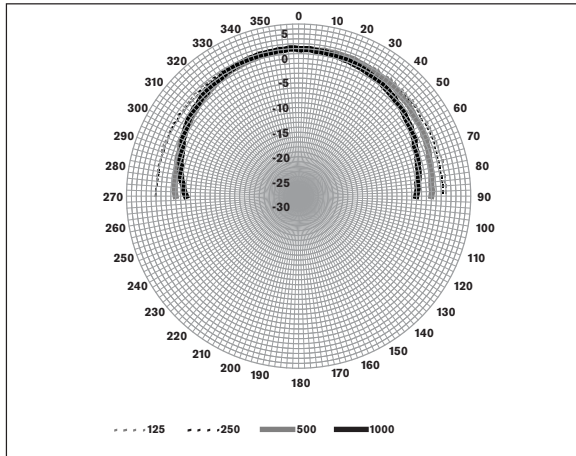
LB2-UC15-x1 Frequency response



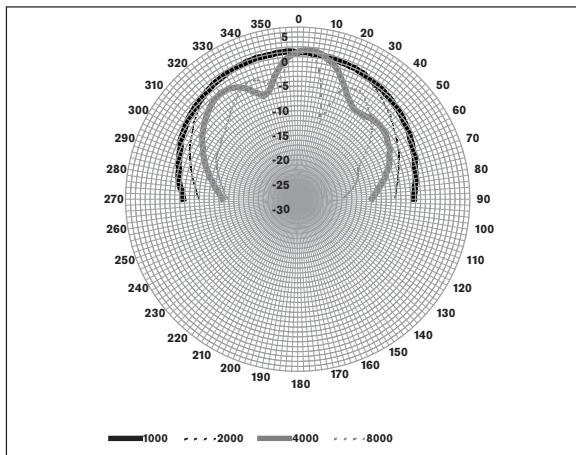
LB2-UC15-x1 Polar diagram horizontal (low frequency).
Normalized at 0 degrees axis.



LB2-UC15-x1 Polar diagram horizontal (high frequency). Normalized at 0 degrees axis.



LB2-UC15-x1 Polar diagram vertical (low frequency). Normalized at 0 degrees axis.



LB2-UC15-x1 Polar diagram vertical (high frequency). Normalized at 0 degrees axis.

125 Hz	80.6	-	-
250 Hz	80.4	-	-
500 Hz	82.7	-	-
1000 Hz	85.9	-	-
2000 Hz	87.8	-	-
4000 Hz	88.9	-	-
8000 Hz	88.8	-	-
A-weighted	-	84.7	95.9
Lin-weighted	-	85.0	95.6

Octave band opening angles

	Horizontal	Vertical
125 Hz	360	> 180
250 Hz	360	> 180
500 Hz	360	> 180
1000 Hz	179	168
2000 Hz	115	121
4000 Hz	101	35
8000 Hz	76	44

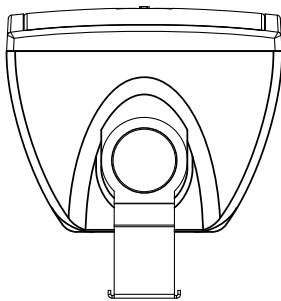
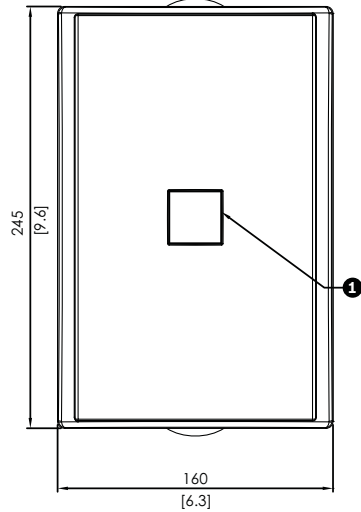
Acoustical performance specified per octave

* (all measurements are done with a pink noise signal; the values are in dB SPL)

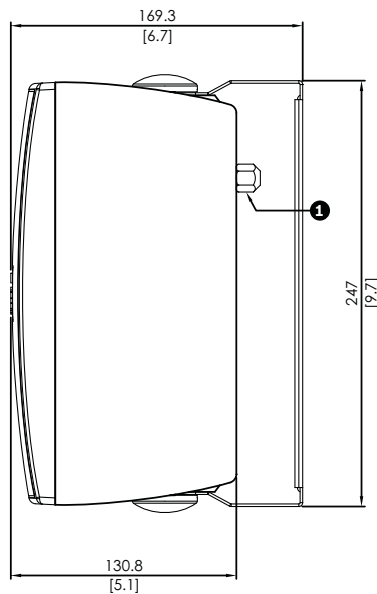
Octave band sensitivity *

Octave SPL 1W/1m	Total octave SPL 1W/1m	Total octave SPL Pmax/1m
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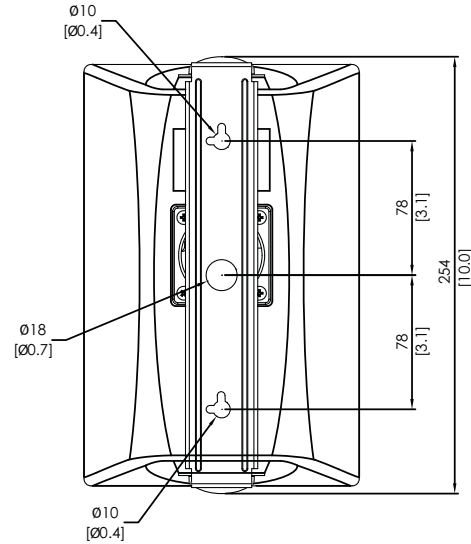
LB2-UC30-D1/L1



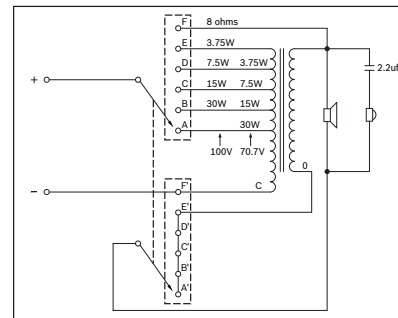
Front and top view mm (in). (1) Rotatable logo.



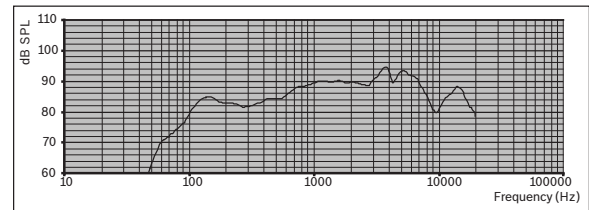
Side view mm (in). (1) Power tapping switch.



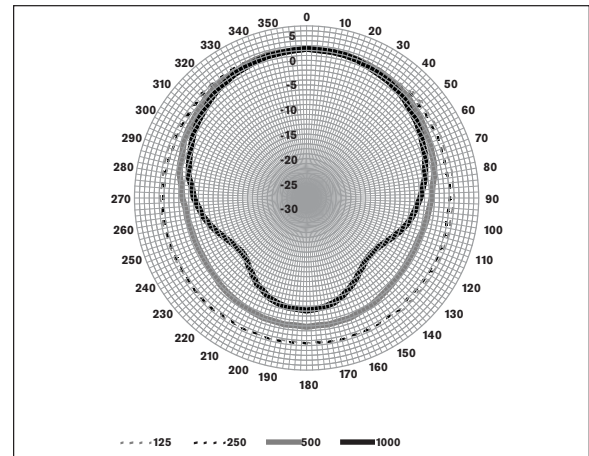
Rear view mm (in)



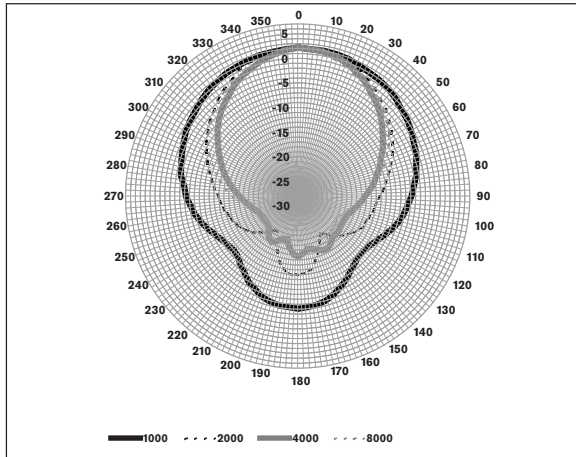
LB2-UC30-x1 Circuit diagram



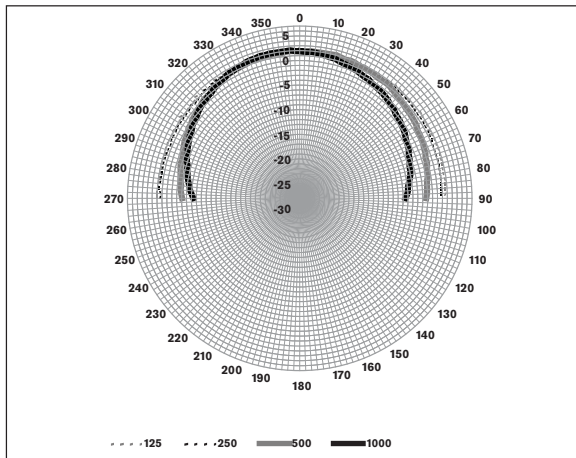
LB2-UC30-x1 Frequency response



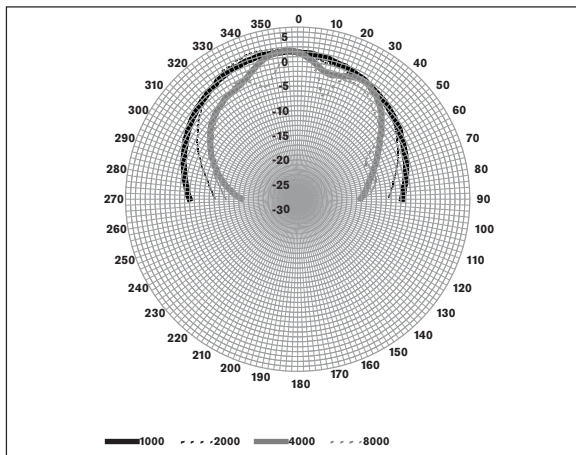
LB2-UC30-x1 Polar diagram horizontal (low frequency). Normalized at 0 degrees axis.



LB2-UC30-x1 Polar diagram horizontal (high frequency). Normalized at 0 degrees axis.



LB2-UC30-x1 Polar diagram vertical (low frequency). Normalized at 0 degrees axis.



LB2-UC30-x1 Polar diagram vertical (high frequency). Normalized at 0 degrees axis.

Parts included

Quantity	Components
1	LB2-UCxx-x

1	Mounting bracket
1	Installation instruction

Technical specifications

Electrical*

Product	LB2-UC15-D LB2-UC15-L	LB2-UC30-D LB2-UC30-L
Description	Premium-sound Cabinet Loudspeaker	Premium-sound Cabinet Loudspeaker
Maximum power	22.5 W	45 W
Rated power (PHC)	15 W	30 W
Power tapping	15/7.5/3.75/1.9 W	30/15/7.5/3.75 W
Sound pressure level at rated power / 1 W (1 kHz, 1 m)	98/86 dB (SPL)	105/90 dB (SPL)
Effective frequency range (-10 dB)	95 Hz to 19.5 kHz	100 Hz to 18.5 kHz
Opening angle at 1 kHz / 4 kHz (-6 dB)	179° / 101° (hor.) 168° / 35° (ver.)	160° / 81° (hor.) 150° / 90° (ver.)
Rated input voltage	11/70/100 V	15.5/70/100 V
Rated impedance	8/326/667 ohm	8/163/333 ohm
Transducers	101.6 mm (4") woofer, 13 mm (0.51") dome tweeter	127 mm (5") woofer, 13 mm (0.51") dome tweeter
Connection	2 m (78.8 in.) two-wire cable	2 m (78.8 in.) two-wire cable

* Technical performance data acc. to IEC 60268-5

Mechanical

Dimensions (HxWxD)	205x136x117 mm 8.07x5.35x4.60 in	250x60x140 mm 9.84x6.30x5.51 in
Weight	Approx. 1.9 kg (4.18 lb)	Approx. 2.4 kg (5.29 lb)
Color	White (RAL 9010) (L) or Charcoal (RAL 7021) (D)	White (RAL 9010) (L) or Charcoal (RAL 7021) (D)

Environmental

Operating temperature	-25 °C to +55 °C (-13 °F to +131 °F)
Storage temperature	-40 °C to +70 °C (-40 °F to +158 °F)
Relative humidity	<95%

Ordering information**Premium-sound Cabinet Loudspeaker**

Cabinet Loudspeaker 15 W, ABS enclosure, U-bracket mounting, fixed 2 m twin-core connection cable, water- and dust protected IP 65, charcoal RAL 7021.

Order number **LB2-UC15-D1**

Premium-sound Cabinet Loudspeaker

Cabinet Loudspeaker 15 W, ABS enclosure, U-bracket mounting, fixed 2 m twin-core connection cable, water- and dust protected IP 65, white RAL 9010.

Order number **LB2-UC15-L1**

Premium-sound Cabinet Loudspeaker

Cabinet Loudspeaker 30 W, ABS enclosure, U-bracket mounting, fixed 2 m twin-core connection cable, water- and dust protected IP 65, charcoal RAL 7021.

Order number **LB2-UC30-D1**

Premium-sound Cabinet Loudspeaker

Cabinet Loudspeaker 30 W, ABS enclosure, U-bracket mounting, fixed 2 m twin-core connection cable, water- and dust protected IP 65, white RAL 9010.

Order number **LB2-UC30-L1**

LB1-UMx0E Premium-sound Cabinet Loudspeaker Range

4



Features

- ▶ High-fidelity music and speech reproduction
- ▶ Supplied with adjustable wall-mounting bracket
- ▶ Self-restoring overload protection
- ▶ Provision for internal mounting of the optional line / loudspeaker supervision board
- ▶ EN 54-24 certified

The Premium-sound range of cabinets is intended for clear reproduction of speech, foreground and background music to be used in general indoor and outdoor applications. The range comprises two models, offering a choice of 20 W or 50 W power handling capacity. The enclosures are made from aluminum with ABS top and bottom covers and are available in charcoal (D) and white (L).

Typical applications for these products are: theme bars, music restaurants, theme parks, retail outlets, audio visual, boardrooms and offices, exhibition areas and presentation environments, fitness centre.

Its excellent sound reproduction capability is attributed to the superb to the use of high-quality driver components and crossover network design.

A self-restoring passive element protects the high frequency driver against incidental overload.

A three-way ceramic terminal block with screw connections suitable for loop-through wiring is located in the compartment in the base of the unit.

An easy to install, sturdy wall mounting bracket is standard supplied. The same bracket can be used in combination with the universal floor stand LBC 1259/00 for temporary installations.

All models are supplied with a built-in 70/100 V transformer with taps on the primary winding for full-power, half-power, quarter-power and one-eighth power radiation. These taps are connected to a rotary vari-tap switch located in the compartment in the base of the enclosure, to allow simple output power setting. A low ohmic connection is also provided on the vari-tap switch.

Functions

Voice alarm

Voice alarm loudspeakers are specifically designed for use in buildings, where the performance of Public Address systems is subject to official regulations. The LB1-UMx0E-x are designed for voice alarm systems, and are EN 54-24 certified and compliant with BS 5839-8 and EN 60849.

Protection

The loudspeakers have built-in protection to ensure that in the event of a fire damage does not cause failure of the connected circuit. In this way, system integrity is maintained; ensuring loudspeakers in other areas can still be used to inform people of the situation.

Connections and safety

The loudspeakers have a ceramic terminal block, thermal fuse, and heat-resistant, high-temperature wiring. The cabinets have a provision for internally mounting the optional line/loudspeaker supervision board.

Certifications and approvals

All Bosch loudspeakers are designed to withstand operating at their rated power for 100 hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. Bosch has also developed the Simulated Acoustical Feedback Exposure (SAFE) test to demonstrate that the speakers can withstand two times their rated power for short durations. This ensures extra reliability under extreme conditions, leading to greater customer satisfaction, longer operating life, and much less chance of failure or performance deterioration.

Safety	according to EN 60065
Emergency	according to EN 54-24
	according to BS 5839-8 / EN 60849
Water and dust protection	according to EN 60529 IP 65
Self-extinguishing ABS	according to UL 94 V 0
Wind-force	according to NEN 6702:2007 + A1: 2008, Bft11

Region	Certification
Europe	CPD

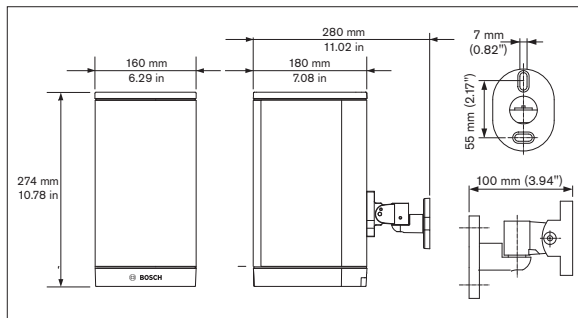
Installation/configuration notes

LB1-UMx0E-D/L

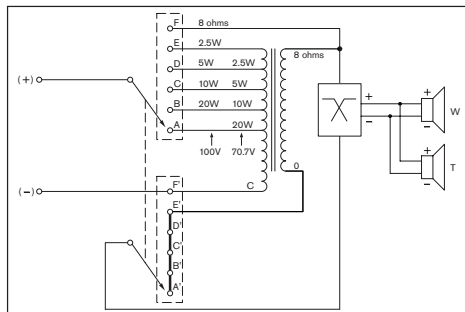


Mounting bracket

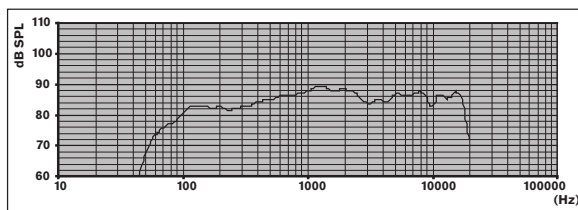
LB1-UM20E-D/L



Dimensions

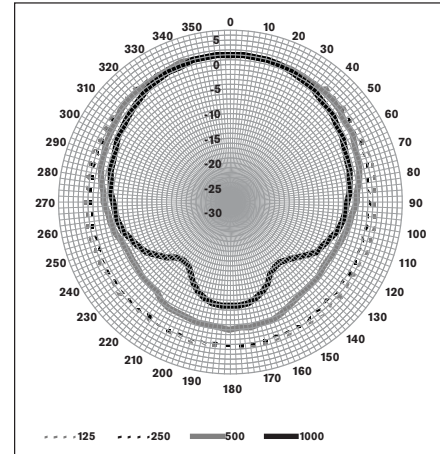


Circuit diagram

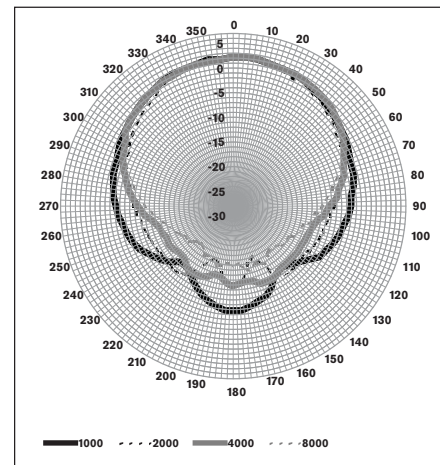


Frequency response

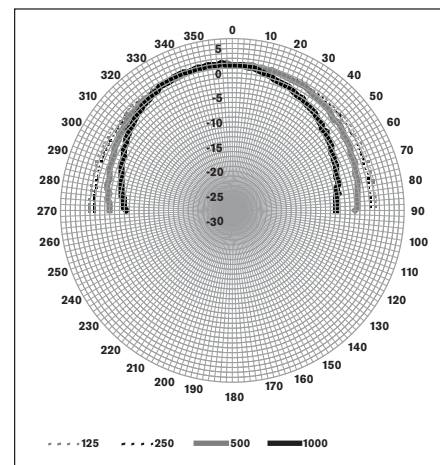
LB1-UM20E-D/L



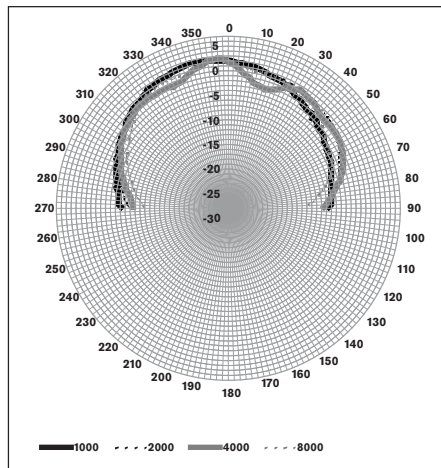
Polar diagram horizontal



Polar diagram horizontal



Polar diagram vertical



Polar diagram vertical

Octave band sensitivity *

	Octave SPL 1W/1m	Total octave SPL 1W/1m	Total octave SPL Pmax/1m
125 Hz	82.5	-	-
250 Hz	82.5	-	-
500 Hz	85.4	-	-
1000 Hz	88.2	-	-
2000 Hz	88.0	-	-
4000 Hz	85.5	-	-
8000 Hz	86.3	-	-
A-weighted	-	84.1	96.4
Lin-weighted	-	85.0	97.4

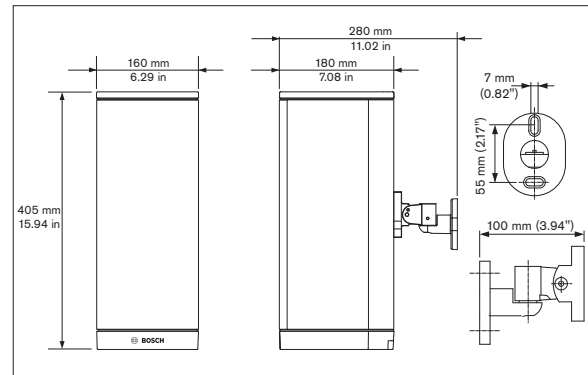
Octave band opening angles

	Horizontal	Vertical	
125 Hz	360	360	
250 Hz	360	360	
500 Hz	206	360	
1000 Hz	174	127	
2000 Hz	128	141	
4000 Hz	136	141	
8000 Hz	132	117	

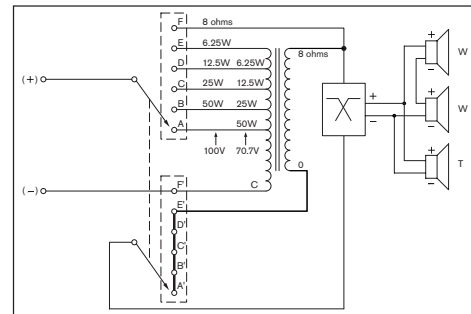
Acoustical performance specified per octave

* (all measurements are done with a pink noise signal; the values are in dB SPL)

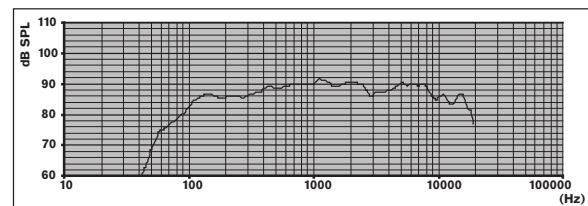
LB1-UM50E-D/L



Dimensions

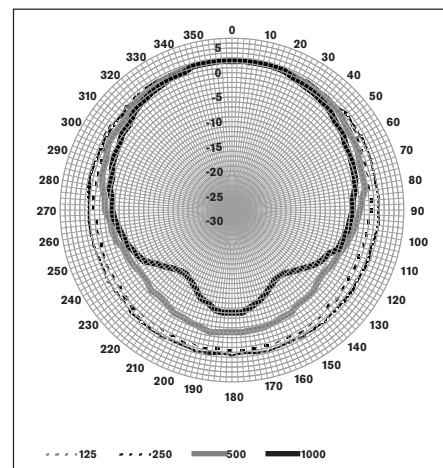


Circuit diagram

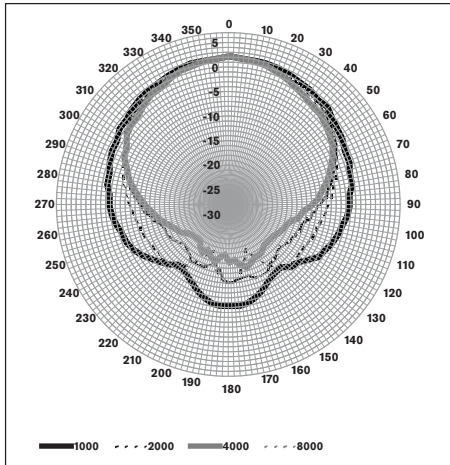


Frequency response

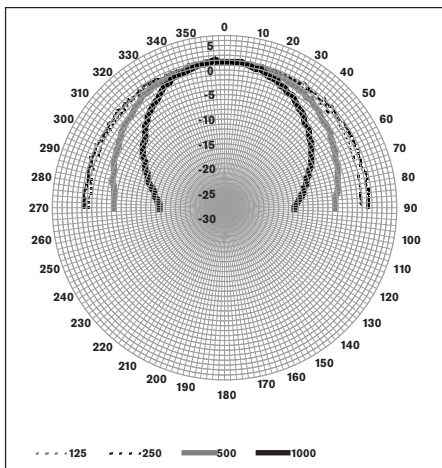
LB1-UM50E-D/L



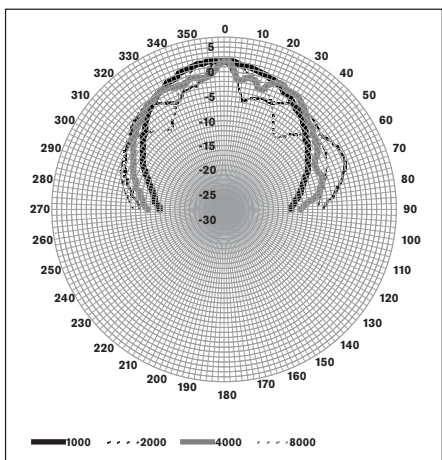
Polar diagram horizontal



Polar diagram horizontal



Polar diagram vertical



Polar diagram vertical

Octave band sensitivity *

	Octave SPL 1W/1m	Total octave SPL 1W/1m	Total octave SPL Pmax/1m
125 Hz	85.3	-	-

250 Hz	86.1	-	-
500 Hz	89.0	-	-
1000 Hz	90.7	-	-
2000 Hz	90.1	-	-
4000 Hz	88.5	-	-
8000 Hz	89.0	-	-
A-weighted	-	86.7	102.9
Lin-weighted	-	87.6	102.9

Octave band opening angles

	Horizontal	Vertical	
125 Hz	360	> 180	
250 Hz	360	> 180	
500 Hz	209	142	
1000 Hz	186	84	
2000 Hz	126	47	
4000 Hz	126	62	
8000 Hz	119	95	

Acoustical performance specified per octave

* (all measurements are done with a pink noise signal; the values are in dBSPL)

Parts included

Quantity	Components
1	LB1-UMx0E-x
1	Mounting bracket
1	Installation instruction

Technical specifications

Electrical*

Product	LB1-UM20E-(D/L)	LB1-UM50E-(D/L)
Description	Premium-sound Cabinet Loud- speaker	Premium-sound Cabinet Loud- speaker
Maximum power	30 W	75 W
Rated power (PHC)	20 W	50 W
Power tapping	20 / 10 / 5 / 2.5 W	50 / 25 / 12.5 / 6. 25 W
Sound pressure level at rated power / 1 W (1 kHz, 1 m)	101 dB / 88 dB (SPL)	108 dB / 91 dB (SPL)
Effective frequency range (-10 dB)	90 Hz to 20 kHz	90 Hz to 20 kHz

Opening angle at 1 kHz / 4 kHz (-6 dB)		
horizontal	174° / 136°	186° / 126°
vertical	127° / 141°	84° / 62°
Rated input voltage	12.65 / 70 / 100 V	20 / 70 / 100 V
Rated impedance	8 / 250 / 500 ohm	8 / 100 / 200 ohm
Connector	3-pole screw block	3-pole screw block


* Technical performance data acc. to IEC 60268-5

Mechanical

Product	LB1-UM20-(D/L)	LB1-UM50-(D/L)
Dimensions (W x D)	274x160x180mm 10.78x6.29x7.08in	405x160x180mm 15.94x6.29x7.08in
Loudspeaker diameter		
Woofer	134.5 mm (5 in)	134.5 mm (5 in)
Dome tweeter	25.4 mm (1 in)	25.4 mm (1 in)
Material		
Cabinet	Aluminum	Aluminum
Front grille	Aluminum	Aluminum
Top and bottom	ABS	ABS
Color	White (RAL 9010) (L) or Charcoal (RAL 7021) (D)	White (RAL 9010) (L) or Charcoal (RAL 7021) (D)
Weight	3.88 kg (8.55 lb)	5.58 kg (12.30 lb)

Environmental

Operating temperature	-25 °C to +55 °C (-13 °F to +131 °F)
Storage temperature	-40 °C to +70 °C (-40 °F to +158 °F)
Relative humidity	<95%

 1438
Bosch Security Systems BV Torenallee 49, 5617BA Eindhoven, The Netherlands 10 1438-CPD-0253
EN 54-24:2008 Loudspeaker for voice alarm systems for fire detection and fire alarm systems for buildings Premium-sound Cabinet LB1-UM20E-(D/L), LB1-UM50E-(D/L) Type B

Ordering information

LB1-UM20E-D Premium-sound Cabinet Loudspeaker 20 W Charcoal

Cabinet loudspeaker 20 W, aluminum extruded enclosure, two-way system, including wall bracket, EN54-24 certified, charcoal RAL 7021.

Order number **LB1-UM20E-D**

LB1-UM20E-L Premium-sound Cabinet Loudspeaker 20 W White

Cabinet loudspeaker 20 W, aluminum extruded enclosure, two-way system, including wall bracket, EN54-24 certified, white RAL 9010.

Order number **LB1-UM20E-L**

LB1-UM50E-D Premium-sound Cabinet Loudspeaker 50 W Charcoal

Cabinet loudspeaker 50 W, aluminum extruded enclosure, two-way system, including wall bracket, EN54-24 certified, charcoal RAL 7021.

Order number **LB1-UM50E-D**

LB1-UM50E-L Premium-sound Cabinet Loudspeaker 50 W White

Cabinet loudspeaker 50 W, aluminum extruded enclosure, two-way system, including wall bracket, EN54-24 certified, white RAL 9010.

Order number **LB1-UM50E-L**

Accessories

LBC 1259/01 Universal Floorstand

Universal floor stand lightweight aluminum construction, foldable, M10 x 12 reducer flange.

Order number **LBC1259/01**

LB1-SW60 Subwoofer Cabinet 60W



Features

- ▶ Compact size
- ▶ Built-in Low-pass filter
- ▶ Wall mounting bracket included
- ▶ Versatile mounting applications
- ▶ Selectable 70 V, 100 V and 4 Ohm input

The LB1-SW60 is the ideal solution for adding low frequency enhancement in general public address applications.

It is a 60 W subwoofer cabinet, which reproduces the low frequency part of a full-range input signal content. The built-in low-pass filter eliminates the need for an external crossover. It features a tuned, ported enclosure and an 8" woofer resulting in a tight, warm bass response. The subwoofer is designed to be used in combination with smaller loudspeakers so-called satellite loudspeakers. These smaller loudspeakers reproduce full frequency range, but lack bass response because of their small size. One or more subwoofers connected in combination with Bosch Ceiling-, Cabinet-, Column Loudspeakers and Sound projectors is possible. The built-in matching transformer allows easy integration in existing and new constant voltage installations.

Certifications and approvals

All Bosch loudspeakers are designed to withstand operating at their rated power for 100 hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. Bosch has also developed the Simulated Acoustical Feedback Exposure (SAFE) test to demonstrate that they can withstand two times their rated power for short durations. This ensures extra reliability under extreme conditions, leading to higher customer satisfaction, longer operating life, and much less chance of failure or performance deterioration.

CE	Declaration of conformity
Safety	According to EN 60065
Region	Certification
Europe	CE

Installation/configuration notes

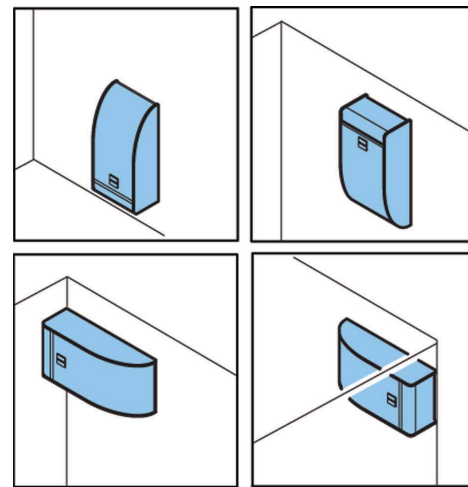
The LB1-SW60 can be placed on the floor or mounted onto the wall. For invisible wall mounting, a wall bracket is standard supplied.

The rear of the cabinet has screw inserts for mounting the wall bracket for either horizontal or vertical wall mounting. A drilling template is supplied standard. The Bosch logo plate can be easily adjusted to match the mounting orientation.

Connections are made using a 4-way push terminal block at the rear of the cabinet, where each incoming and outgoing conductor of the same potential can be connected to a separate terminal.

Close to the terminal is a provision for mounting an optional ceramic terminal block with thermal fuse. Power tapping on both 70 V and 100 V allows selection of full-power, half-power, quarter power, eight-power radiation, and 4 Ohm.

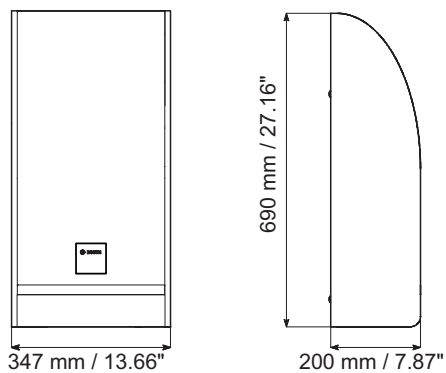
A selector at the front of the cabinet simplifies the required selection of power setting. This selector can be reached after removing the Bosch logo plate. The metal front grille can be removed from the cabinet for ease of painting, if required.



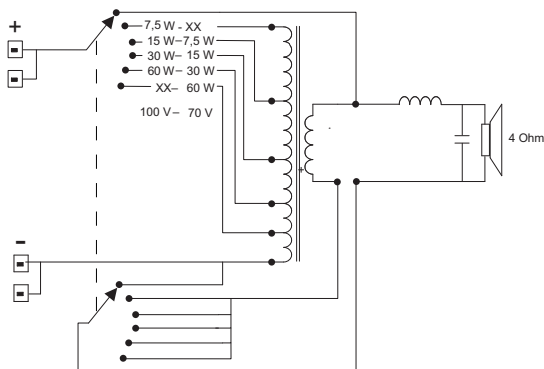
LB1-SW60 Versatile mounting applications



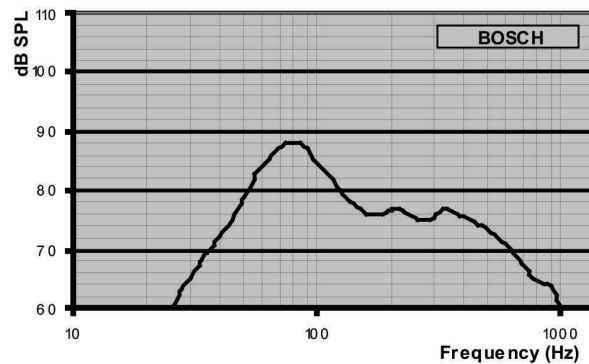
LB1-SW60 rear view, showing mounting bracket screw inserts and connection terminal



LB1-SW60 Dimensions



LB1-SW60 Circuit diagram



LB1-SW60 Frequency response

Octave band sensitivity *

	Octave SPL 1W/m	Total octave SPL 1W/m	Total octave SPL Pmax/m
125 Hz	80.0	-	-
250 Hz	75.6	-	-
500 Hz	73.0	-	-
1000 Hz	62.2	-	-
2000 Hz	44.0	-	-
4000 Hz	33.5	-	-
8000 Hz	29.3	-	-
A-weighted	-	63.2	80.1
Lin-weighted	-	76.8	93.5

Acoustical performance specified per octave

* (all measurements are done with a pink noise signal; the values are in dBSPL)

Parts included

Quantity	Components
1	LB1-SW60
1	Drilling template for wall mounting
1	Installation instruction

Technical specifications

Electrical*

Description	LB1-SW60 Subwoofer cabinet
Maximum power	90 W

Rated power (PHC)	60 W
Power tapping	60/30/15/7.5 W
Sound pressure level at rated power / 1 W (70 Hz, 1 m)	106 / 88 dB
Effective frequency range (-10 dB)	45 Hz to 150 Hz
Rated input voltage	15.5/70/100 V
Rated impedance	4/83.5/167 Ohm
Connector	4-way push terminal block

* Technical performance data acc. to IEC 60268-5

Mechanical

Dimensions (H x W x D)	690 x 347 x 200 mm (27.16 x 13.66 x 7.87 in)
Weight	12.4 kg (27.34 lb)
Color	White (RAL 9010)
Material	
- Loudspeaker cabinet	MDF
- Front grille	Steel

Environmental

Operating temperature	-25 °C to +55 °C (-13 °F to +131 °F)
Storage temperature	-40 °C to +70 °C (-40 °F to +158 °F)
Relative humidity	<95%

Ordering information

LB1-SW60 Subwoofer Cabinet 60W

Subwoofer cabinet 60 W, MDF enclosure with metal front grille, white RAL 9010, built-in low-pass filter, selectable 70 V, 100 V, and 4 ohm input, wall-mounting bracket included.

Order number **LB1-SW60**

LB3-PCx50 Premium Cabinet Loudspeakers

4



Features

- ▶ High-quality music and speech reproduction
- ▶ Weatherized, suited for sheltered outside use
- ▶ Prepared for Bosch WLS, EOL and DMY pcb's
- ▶ Attachment points for (suspended) mounting, pole mount
- ▶ BS 5839-8 compliant

The Bosch premium loudspeakers are full range passive loudspeakers for a wide range of applications where high output, wide controlled dispersion and wide frequency are required, as well as the flexibility of mounting inside and sheltered outside.

The Bosch line of large premium loudspeakers consists of two sizes; 12" and 15" models. All models feature a two-way loudspeaker in a molded ABS VO enclosure. The loudspeakers have a 1" compression driver coupled to an impedance transformer with constant directivity characteristics and a direct radiating 12" or 15" loudspeaker.

Typical uses include fixed installations in auditoriums, conference venues, community centers, theaters, areas of assembly, factories multipurpose halls and sports facilities.

A self-restoring protection device protects the high-frequency driver against incidental overload. The transformer accepts signals between 40 Hz and 22 kHz at 100 V or 70 V.

System overview

The LB3-PC250 features a 12" woofer and 1" exit compression driver. The LB3-PC350 features a 15" woofer and 1" exit compression driver.

The premium loudspeaker is fitted with a specially designed horn that provides constant coverage independent of frequency. The handle locations and position of rig-points are placed to make the loudspeaker easy to carry and align when installing. There is an integrated pole mount on the bottom of the cabinet and a weather-resistant steel grille. All screws and bolts are stainless steel or treated to resist rust. The cabinet has been de-

signed to provide the possibility of mounting the loudspeaker close to a side wall or on the floor. The enclosure features high dampening, is impact resistant and weather proof (sheltered).

The LB3-PC250 and LB3-PC350 are suited for locations where high sound pressure, wide-band audio is needed and where there is no mains power or where active loudspeakers are not desired, like outside applications or applications where the benefits of the 100 V technique comes into play like easy connection of multiple speakers and long cable runs.

The LB3-PC250 and LB3-PC350 have a 100/70 V transformer with power tapping. The speakers are weather-proof (IP44, able to be mounted sheltered outside).

Functions

The loudspeaker has two SPEAKON connectors wired in parallel. The input from the SPEAKON is available under a waterproof cover at the rear side of the loudspeaker. To protect against moisture, dirt and tampering a splash proof cover is fitted over the control part of the rear panel. Below the cover you can find the input from the SPEAKON, you can choose to wire either channel 1 or channel 2 to the ceramic terminal block. Alternatively it is possible to wire E30 wire directly through PG11 waterproof feed through to the ceramic block (with thermal fuse). The loudspeaker has two PG11 locations to enable loop-through of direct wires. From the ceramic block it is possible to select the speaker tapping. Full, half and quarter power is available at 100 V and 70 V. The cover has a dedicated location for the EOL (End Of Line) LED, if the Bosch EOL pcb is used, the Bosch proprietary line supervision set for individual loudspeaker monitoring or line monitoring can also be used at this location. Internally the loudspeaker has a dedicated notch filter to filter out a 20 kHz pilot-tone. This will reduce the 20 kHz pilot-tone. The filter is bypassed by a bridge as standard delivery.

Safety features include a thermal fuse in the transformer, thermal fuse at the ceramic input block in accordance with evacuation standards and an auto resetting current limiting circuit between the HF filter output and the HF driver.

The coverage of the speaker is 90° x 60° (H x V).

Wires are connected from the drivers to the metal rear panel, where a hoist/tether point for safety wire is located.

Certifications and approvals

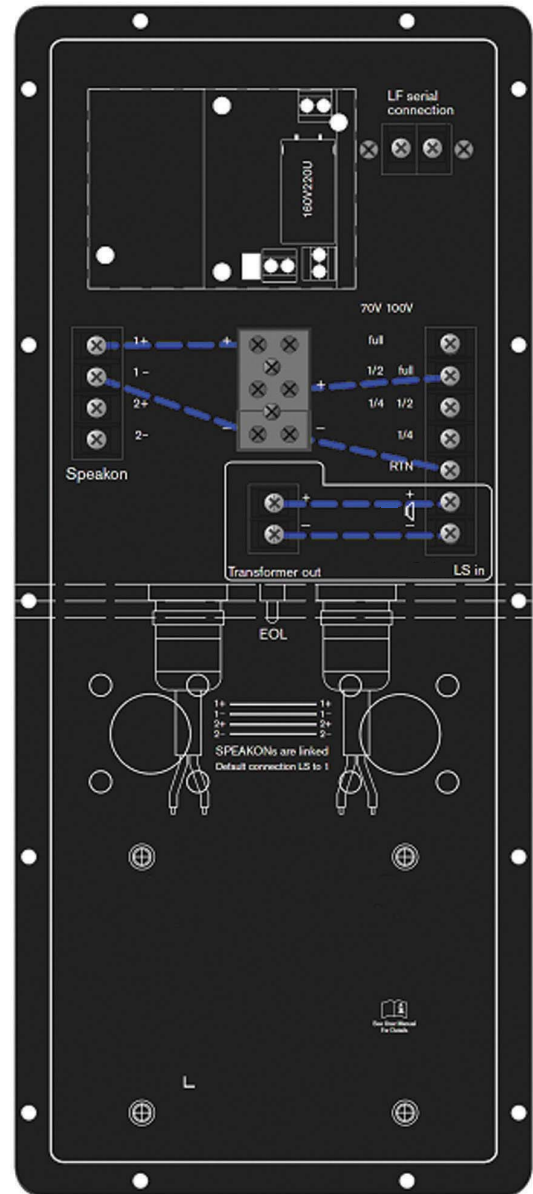
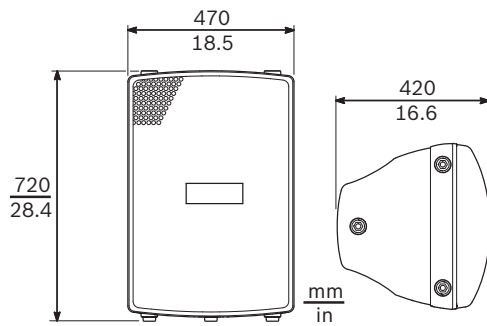
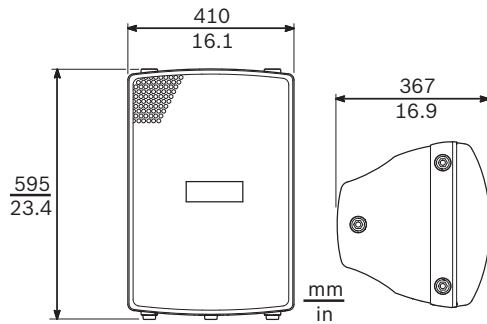
All Bosch loudspeakers are designed to withstand operating at their rated power for 100 hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. Bosch has also developed the Simulated Acoustical Feedback Exposure (SAFE) test to demonstrate that the speakers can withstand two times their rated power for short durations. This ensures extra reliability under extreme conditions, leading to greater customer satisfaction, longer operating life, and much less chance of failure or performance deterioration.

Safety	According to EN 60065
Emergency	According to BS 5839-8
	According to EN 60849

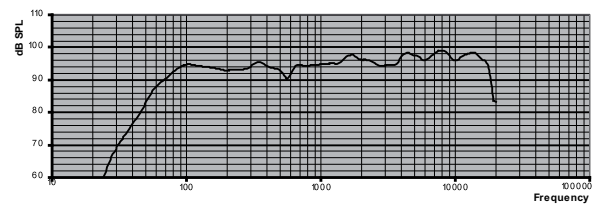
Water and dust protection	According to EN 60529 IP44
Self-extinguishing ABS	According to UL 94 V 0

Region	Certification
Europe	CE
	CE DOP
	CPD
Poland	CNBOP

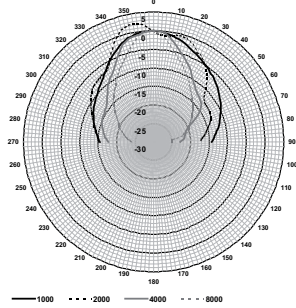
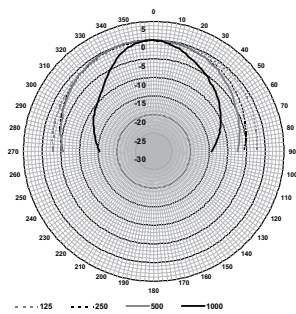
Installation/configuration notes



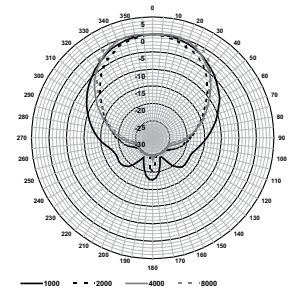
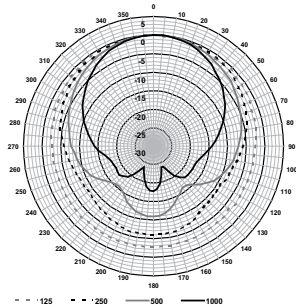
Connection panel on the rear side



Frequency response LB3-PC250



Vertical polar diagrams of LB3-PC250 (pink noise octave, normalized at 0° axis)



Horizontal polar diagrams of LB3-PC250 (pink noise octave, normalized at 0° axis)

Octave band sensitivity *

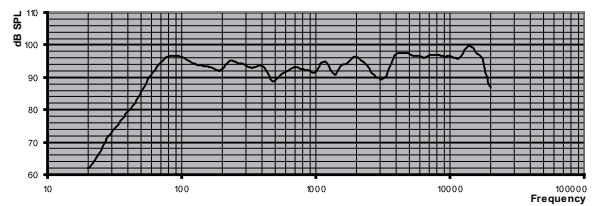
	Octave SPL 1W/1m	Total octave SPL 1W/1m	Total octave SPL Pmax/1m
125 Hz	92.8	-	-
250 Hz	93.3	-	-
500 Hz	93.6	-	-

1000 Hz	94.7	-	-
2000 Hz	97	-	-
4000 Hz	96.8	-	-
8000 Hz	98	-	-
A-weighted	-	93.7	-
Lin-weighted	-	95.1	-

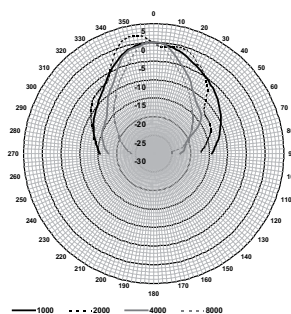
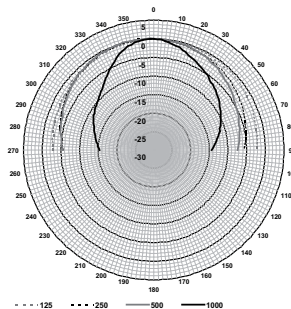
Octave band opening angles

	Horizontal	Vertical	
125 Hz	360	360	
250 Hz	183	180	
500 Hz	152	162	
1000 Hz	100	70	
2000 Hz	77	66	
4000 Hz	87	44	
8000 Hz	86	32	

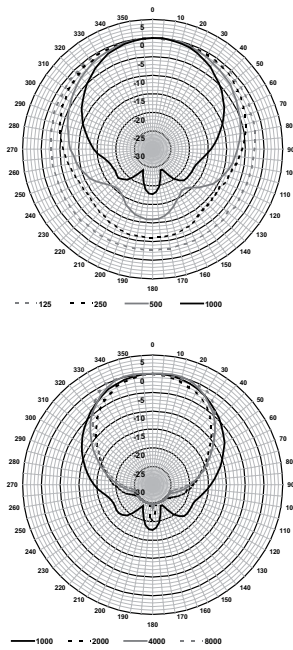
LB3-PC250. Acoustical performance specified per octave. *all measurements are done with a pink noise signal; the values are in dB SPL



Frequency response LB3-PC350



Vertical polar diagrams of LB3-PC350 (pink noise octave, normalized at 0° axis)



Horizontal polar diagrams of LB3-PC350 (pink noise octave, normalized at 0° axis)

Octave band sensitivity *

	Octave SPL 1W/1m	Total octave SPL 1W/1m	Total octave SPL Pmax/1m
125 Hz	93.3	-	-
250 Hz	93.8	-	-
500 Hz	93.0	-	-
1000 Hz	93.6	-	-
2000 Hz	95.2	-	-
4000 Hz	96.6	-	-
8000 Hz	98.4	-	-
A-weighted	-	93.3	-
Lin-weighted	-	95.3	-

Octave band opening angles

	Horizontal	Vertical	
125 Hz	360	360	
250 Hz	183	180	
500 Hz	152	162	
1000 Hz	100	70	
2000 Hz	77	66	
4000 Hz	87	44	
8000 Hz	86	32	

LB3-PC350. Acoustical performance specified per octave. *all measurements are done with a pink noise signal; the values are in dB SPL

Parts included

Quantity	Components
1	LB3-PCx50
1	Installation instruction

Technical specifications

Electrical*

Product	LB3-PC250	LB3-PC350
Description	Premium 250 W Cabinet Loud-speaker	Premium 350 W Cabinet Loud-speaker
Maximum power	500 W	700 W
Rated power (PHC)	250 W	350 W
Power tapping	250 / 125 / 62.5 W	350 / 175 / 87.5 W
Sound pressure level at rated power / 1 W (1 kHz, 1 m)	117 dB / 94 dB (SPL)	122 dB / 97 dB (SPL)
Effective frequency range (-10 dB)	55 Hz to 18 kHz	48 Hz to 18 kHz
Opening angle at 1 kHz / 4 kHz (-6 dB)		
horizontal	100°/87°	100°/87°
vertical	70°/44°	70°/44°
Rated input voltage	70 / 100 V	70 / 100 V
Rated impedance	20 / 40 ohm	14 / 29 ohm

* Technical performance data acc. to IEC 60268-5

Mechanical

Product	LB3-PC250	LB3-PC350
Dimensions (WxDxH)	410x367x595 mm (16.1x16.9x23.4 in)	470x420x720 mm (18.5x16.6x28.4 in)
Connectors	SPEAKON	SPEAKON
	3-pole ceramic screw block	3-pole ceramic screw block
Loudspeaker diameter		
Woofer	305 mm (12 in)	381 mm (15 in)
Driver	25.4 mm (1 in)	25.4 mm (1 in)
Material		
Cabinet	ABS VO	ABS VO

Front grille	Powder coated steel	Powder coated steel
Color	Charcoal (RAL 7021) (D)	Charcoal (RAL 7021) (D)
Weight	19 kg (42 lb)	34 kg (74 lb)

Environmental

Operating temperature	-10 °C to +40 °C (-14 °F to +104 °F)
Storage temperature	-40 °C to +70 °C (-40 °F to +158 °F)
Relative humidity	<95%

Other parameters are available in CNBOP test report nr 4788/BA/10.



1438

Bosch Security Systems BV
Kapittelweg 10, 4827 HG Breda, The Netherlands
10
1438-CPD-0208

EN 54-24:2008

Loudspeaker for voice alarm systems
for fire detection and fire alarm systems for buildings

Premium loudspeaker 250 W and 350 W cabinet
LB3-PC250 and LB3-PC350
Type B

Ordering information

LB3-PC250 Premium 250W Cabinet Loudspeaker

Premium cabinet loudspeaker, 12 inch, 250 W.
Order number **LB3-PC250**

LB3-PC350 Premium 350W Cabinet Loudspeaker

Premium cabinet loudspeaker, 15 inch, 350 W.
Order number **LB3-PC350**

Accessories

LM1-MBX12 Mounting Bracket

For LB3-PC250

Order number **LM1-MBX12**

LM1-MBX15 Mounting bracket

For LB3-PC350

Order number **LM1-MBX15**

LB6-100S Compact Sound Speaker System



Features

- ▶ A complete matched background/foreground music speaker solution.
- ▶ Large 8-inch (200 mm) woofer transducer for substantial low frequency output.
- ▶ Direct connection of satellites to subwoofer — simplifies installation wiring.
- ▶ Mounting brackets with wide range of motion for surface mount satellites provide easy and secure mounting of speaker to wall.
- ▶ Convenient detachable phoenix style signal connections speed up installation time.

The EVID Compact Sound Speaker System is a very compact full-range loudspeaker ideal for applications requiring high-quality sound. Its shape flexibility and size make it nearly invisible for use in background/foreground music systems for restaurants, bars, patios, retail, and other applications. The system consists of a high performance 8-inch subwoofer module with a crossover network to support the included four (4) 2-inch satellite speakers. The system provides for easy signal connections at the subwoofer and can support either 4/8 ohm or 70/100v signal connections. Its high power handling allows the system to be used in a wide variety of environments and spaces to provide high quality background or foreground music.

Certifications and approvals

Region	Certification
Europe	CE
	CE

Parts included

Quantity	Description
2	Surface mount satellite speakers
2	Wall brackets
2	Speaker brackets
1	Data sheet
2	M6 hex drive pan-head screws
4	M5 pan-head screws
2	Screw sockets
1	Hex wrench

* Surface mount satellite speaker (1 box)

Quantity	Description
1	Surface mount subwoofer
1	Wall bracket, assembled in box
1	Installation manual
4	M6 hex drive pan-head screws
4	Rubber feet
1	Hex wrench

* Surface mount subwoofer

Technical specifications

	EVID 2.1	EVID 40S
Frequency Response (-10 dB):	180 Hz - 20 kHz ¹	42 Hz - 300 Hz ¹
Power Handling:	30 W ²	200 W ²
Sensitivity:	84 dB ¹	88 dB ¹
Impedance:	16 ohms	Dual 8 ohm / mono 4 ohm
Maximum SPL:	102 dB ¹	114 dB ¹
Voice Coverage (H x V):	150° x 150° ³	Omnidirectional
Music Program Coverage (H x V):	100° x 100° ⁴	Omnidirectional
Transducer:	50 mm (1.97 in)	200 mm (7.87 in)
Bracket Adjustment Range (H x V):	160° x 60°	Fixed
Connectors:	Phoenix (2-pin)	Phoenix (2-pin)
Enclosure:	ABS (fire rated)	Wood (MDF)
Transformer Taps:	NA	100 W, 50 W, 25 W, 12.5 W
Dimensions (H x W x D):	115 mm x 85 mm x 95 mm (4.53 in x 3.35 in x 3.75 in)	400 mm x 400 mm x 230 mm (15.75 in x 15.75 in x 9.06 in)

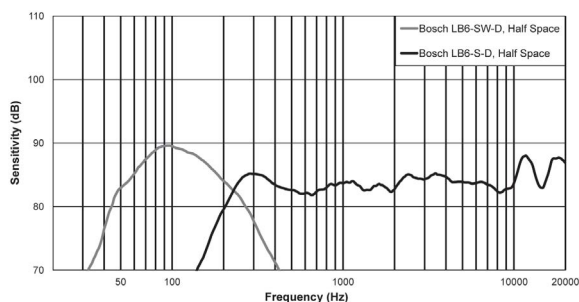
	EVID 2.1	EVID 40S
Net Weight: (each)	0.5 kg (1.1 lb)	12.05 kg (26.55 lb)
Shipping Weight:	1 sub and 4 satellites: 18.26 kg (40.25 lb)	
Included Accessories:	Wall bracket; hex wrench	Wall bracket; hex wrench

1. Half space (wall mounting).
2. Long Term Program Rating, 3 dB greater than continuous noise pink noise rating.
3. Average 1 kHz – 4 kHz.
4. Average 1 kHz – 8 kHz.

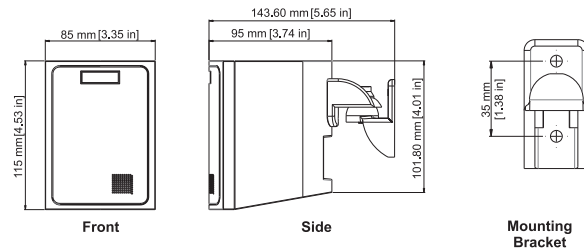
Architecture and Engineering Specifications:

The loudspeaker system shall be a two-way design consisting of a separate subwoofer containing one 8-inch (200 mm) low-frequency transducer, (4) satellites consisting of 2 inch (50 mm) high-frequency transducers, and frequency-dividing network installed in the vented subwoofer enclosure. All input and output signal connections shall be made at the subwoofer. All signal connections for the subwoofer and satellite speakers shall be made using phoenix style connectors. The system shall be operable either in stereo or monaural mode when powered with a 4/8 low impedance amplified source. The system shall be capable of operating up to 100 watts when driven with a 100V or 70V amplified source signal. The loudspeaker system shall meet the following performance criteria: Power handling, 200 watts of Long Term Program Rating; Frequency response, 42 Hz – 20 kHz (-10 dB from rated sensitivity); Impedance, 8 ohms nominal in stereo mode, 4 ohms nominal in mono mode. The high frequency transducer in the satellites speakers shall provide even coverage of a minimum 100° horizontally by 100° vertically averaged over a frequency range of 1-8 kHz and a minimum 150° horizontally by 150° vertically averaged over a frequency range of 1-4 kHz. The subwoofer enclosure shall be constructed of MDF with a vinyl wrapped exterior. The satellite speakers shall be constructed of fire rated ABS. The subwoofer enclosure shall be 15.75 inch (400 mm) high, 15.75 inch (400 mm) wide, and 9.06 inch (230 mm) deep. The satellite loudspeakers shall be adjustable over a range of 160° horizontally and 60° vertically. The support bracket shall be low profile and fully detachable from the enclosure. The surface mount loudspeaker system shall be the EVID S44 or the EVID S44W models made by Electro-Voice.

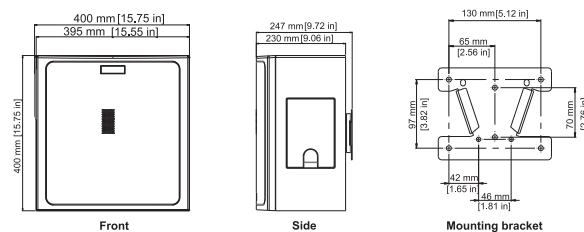
Frequency response:



Dimensions:



EVID 2.1 and mounting bracket



EVID 40S and mounting bracket



Notice

The mounting bracket dimension drawings are not to scale. Drawing sizes increased for readability.

Ordering information

LB6-100S-D

Wall mount speaker system package - surface mount subwoofer and four (4) surface mount satellite speakers; black
Order number **LB6-100S-D**

LB6-100S-L

Wall mount speaker system package - surface mount subwoofer and four (4) surface mount satellite speakers; white
Order number **LB6-100S-L**

LB6-S-D

Surface mount satellite speaker system; black
(priced and sold in pairs)
Order number **LB6-S-D**

LB6-S-L

Surface mount satellite speaker system; white
(priced and sold in pairs)
Order number **LB6-S-L**

LB6-SW100-D

Surface mount subwoofer; black cabinet
Order number **LB6-SW100-D**

LB6-SW100-L

Surface mount subwoofer; white cabinet
Order number **LB6-SW100-L**

Column Loudspeakers



Features

- ▶ Good speech intelligibility and background music reproduction
- ▶ For applications where directivity is important
- ▶ High sensitivity
- ▶ Swivel wall-mounting bracket supplied as standard
- ▶ Available in black or white

The Column Loudspeakers are, general-purpose, cost-effective column loudspeakers for indoor use where beaming is desirable, such as places of worship, conference venues, meeting rooms, and canteens. The column loudspeaker is available in 24 W and 36 W rated power, and in dark or light color. A swivel wall-mounting bracket is supplied as standard.

Functions

The robust, solid MDF (Medium Density Fiber board) enclosures are covered with a durable, easy-to-clean vinyl in a choice of black or white. The ABS fronts are covered with fine woven cloth in matching color. These powerful column loudspeakers are fitted with four dual-cone, high-sensitivity, loudspeaker drivers.

Certifications and approvals

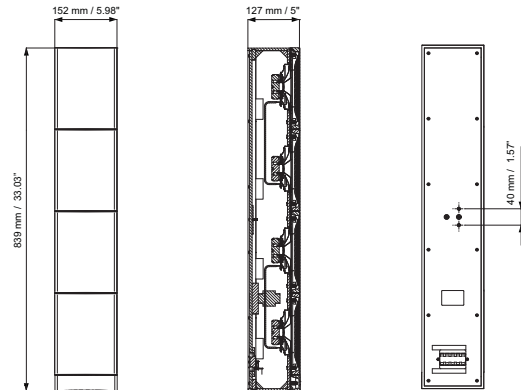
Quality assurance

All Bosch loudspeakers are designed to withstand operating at their rated power for 100 hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. Bosch has also developed the Simulated Acoustical Feedback Exposure (SAFE) test to demonstrate that they can withstand two times their rated power for short durations. This ensures improved reliability under extreme conditions, leading to higher customer satisfaction, longer operating life, and lessens the chance of failure or performance deterioration.

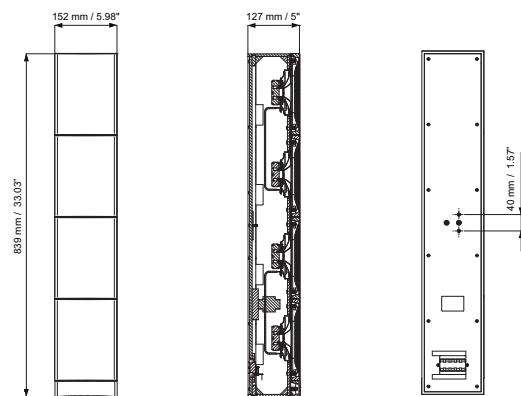
Safety	acc. to EN 60065
Region	Certification
Europe	CE
	CE

Installation/configuration notes

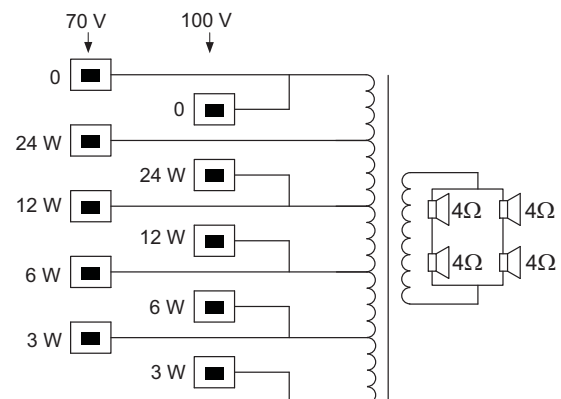
The column loudspeakers can be wall mounted using the supplied swivel bracket, allowing accurate positioning. A convenient, easy-to-use, four-pole push-in terminal block is present on the rear panel for on-site wiring. This terminal block has provision for power tapping on the 100 V, matching transformer in the cabinet. It allows selection of nominal full-power, half-power or quarter-power radiation (in 3 dB steps).



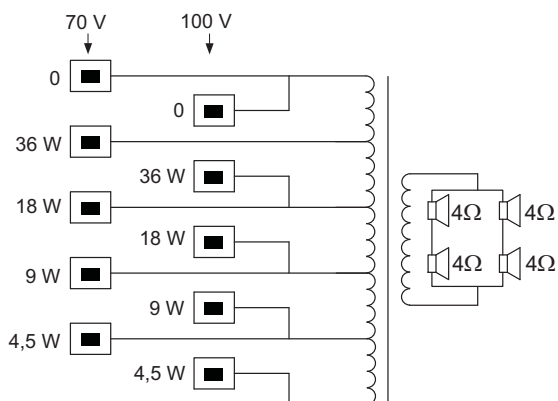
LA1-UW24-x1 dimensions



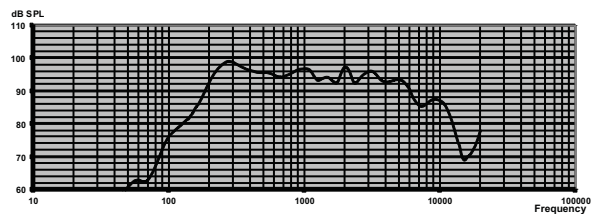
LA1-UW36-x1 dimensions



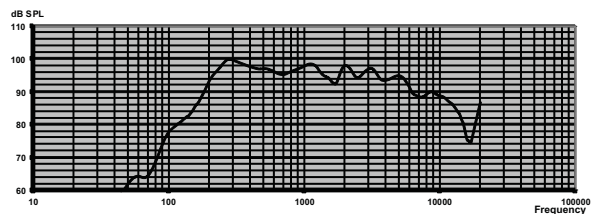
LA1-UW24-x1 circuit diagram



LA1-UW36-x1 circuit diagram

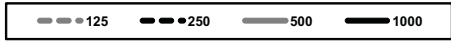
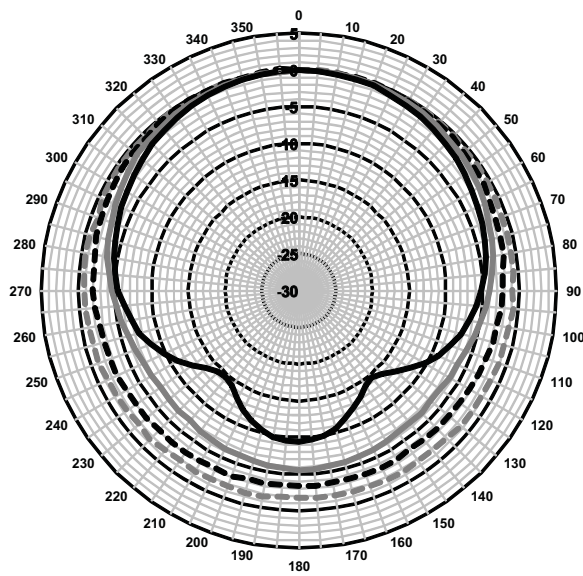


LA1-UW24-x1 frequency response

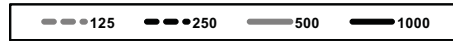
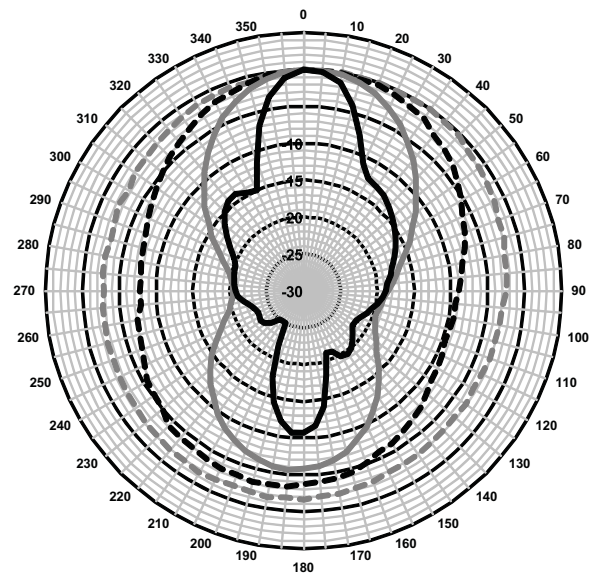


LA1-UW36-x1 frequency response

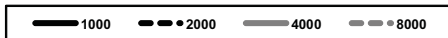
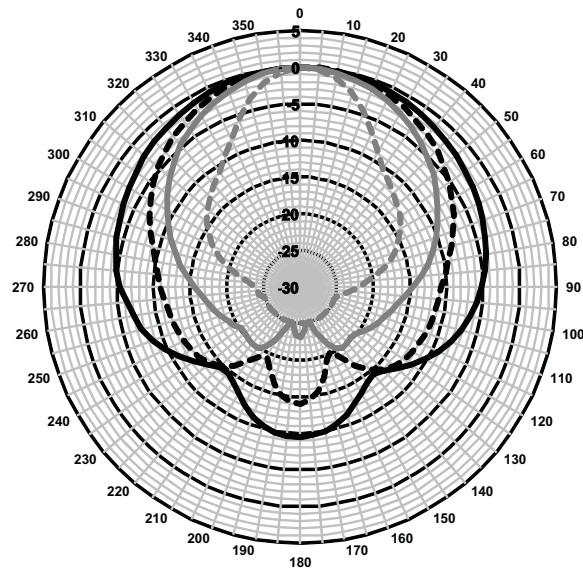
Note: The frequency response is based on measurements at a distance of 1 meter and 4 meter on the main axis.



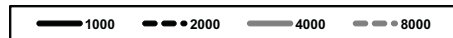
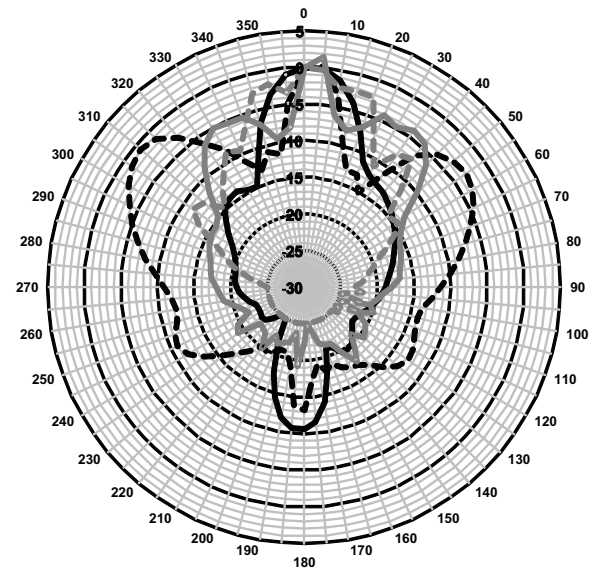
LA1-UW24-x1 polar diagram horizontal (low frequency)



LA1-UW24-x1 polar diagram vertical (low frequency)

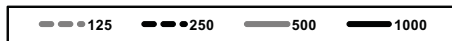
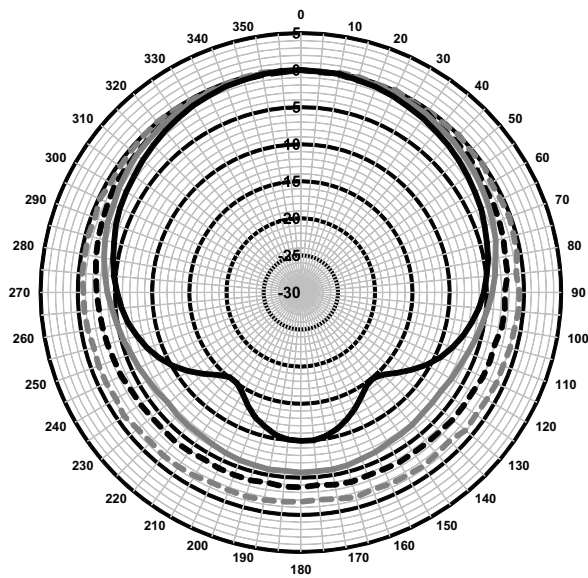


LA1-UW24-x1 polar diagram horizontal (high frequency)

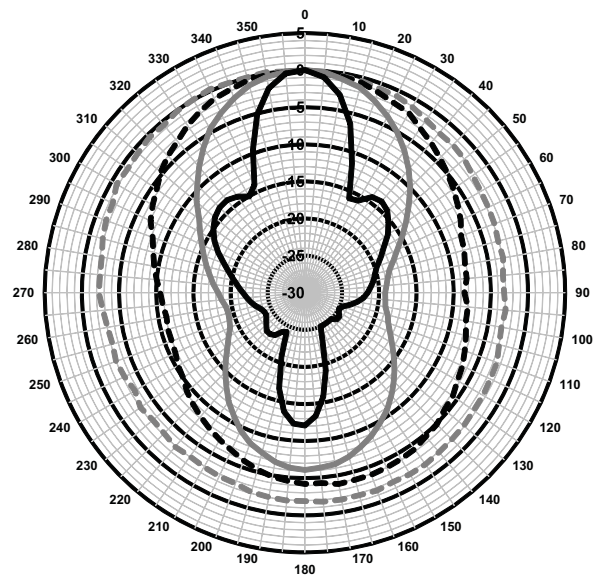


LA1-UW24-x1 polar diagram vertical (high frequency)

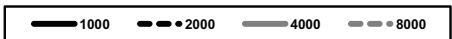
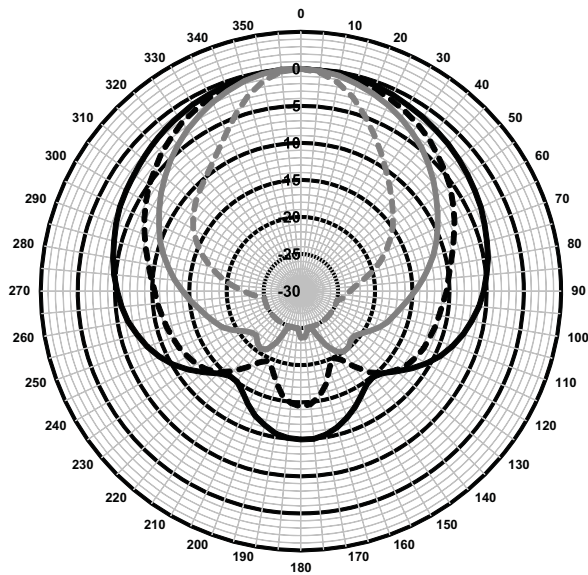
Polar diagrams are measured with pink noise. Normalized at the 0-degree axis.



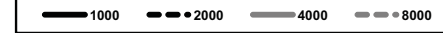
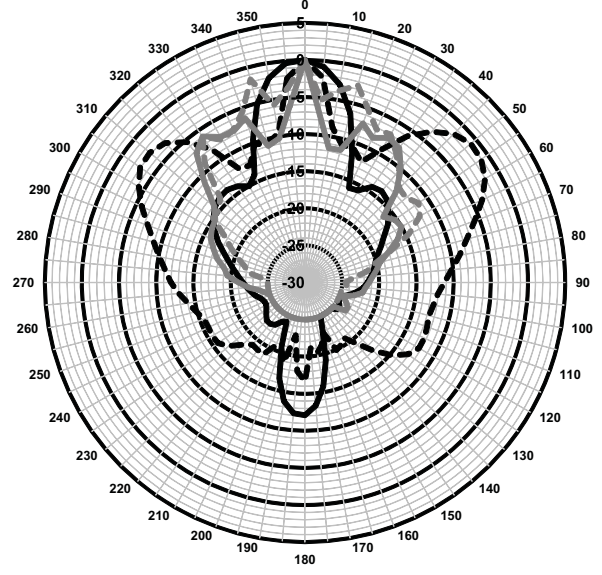
LA1-UW36-x1 polar diagram horizontal (low frequency)



LA1-UW36-x1 polar diagram vertical (low frequency)



LA1-UW36-x1 polar diagram horizontal (high frequency)



LA1-UW36-x1 polar diagram vertical (high frequency)

Polar diagrams are measured with pink noise. Normalized at the 0-degree axis.

Octave band sensitivity* LA1-UW24-x1

	Octave SPL 1W/1m	Total octave SPL 1W/1m	Total octave SPL Pmax/1m
125 Hz	81.8	-	-
250 Hz	96.5	-	-
500 Hz	95.0	-	-
1000 Hz	95.1	-	-
2000 Hz	92.9		
4000 Hz	85.7	-	-
8000 Hz	87.9	-	-
A-weighted	-	89.5	102.1
Lin-weighted	-	91.5	104.4

Octave band opening angles LA1-UW24-x1

	Horizontal	Vertical	
125 Hz	360	360	
250 Hz	360	79	
500 Hz	230	68	
1000 Hz	190	32	
2000 Hz	117	18	
4000 Hz	94	13	
8000 Hz	44	42	

Octave band sensitivity* LA1-UW36-x1

	Octave SPL 1W/1m	Total octave SPL 1W/1m	Total octave SPL Pmax/1m
125 Hz	82.9	-	-
250 Hz	97.4	-	-
500 Hz	96.7	-	-
1000 Hz	97.1	-	-
2000 Hz	94.2		
4000 Hz	86.6	-	-
8000 Hz	91.6	-	-
A-weighted	-	91.3	105.3
Lin-weighted	-	93.2	107.5

Octave band opening angles LA1-UW36-x1

	Horizontal	Vertical	
125 Hz	360	360	
250 Hz	360	114	
500 Hz	248	68	

1000 Hz	192	31	
2000 Hz	118	16	
4000 Hz	95	9	
8000 Hz	47	42	

Acoustical performance specified per octave

* (all measurements are done with a pink noise signal; the values are in dB SPL)

Parts included

Quantity	Component
1	LA1-UW24-x1 Column Loudspeaker or LA1-UW36-x1 Column Loudspeaker
1	Swivel wall-mounting bracket

Technical specifications

Electrical*

Column Loudspeaker type	LA1-UW24-D1/ L1	LA1-UW36-D1/ L1
Maximum power	36 W	54 W
Rated power	24 / 12 / 6 / 3 W	36 / 18 / 9 / 4.5 W
Sound pressure level at 24 W/36 W / 1 W (1 kHz, 1 m)	110 dB / 96 dB +/- 3 dB (SPL)	114 dB / 98 dB +/- 3 dB (SPL)
Effective frequency range (-10 dB)	150 Hz to 12.5 kHz	160 Hz to 13.5 kHz
Opening angle	1 kHz / 4 kHz (-6 dB)	1 kHz / 4 kHz (-6 dB)
horizontal	190° / 88°	190° / 88°
vertical	30° / 8°	30° / 8°
Rated input voltage	100 V and 70 V	100 V and 70 V
Rated impedance	417 ohm	278 ohm
Connector	5-pole push-in terminal block	5-pole push-in terminal block

* Technical performance data according to IEC 60268-5

Mechanical

Dimensions (H x W x D)	841x 151 x 129 mm (33.1 x 5.9 x 5.1 in)
Weight LA1-UW24-x Weight LA1-UW36-x	5.5 kg (12.1 lb) 6 kg (13.2 lb)
Color	Black (D) or white (L)
cabinet / cloth (D)	Matches RAL 9004 / RAL 9004
cabinet / cloth (L)	Matches RAL 9010 / RAL 7044

Environmental

Operating temperature	-25 °C to +55°C (-13 °F to +131 °F)
Storage temperature	-40 °C to +70 °C (-40 °F to +158 °F)
Relative humidity	<95%

Ordering information

4

Column Loudspeaker

Column loudspeaker 24 W, MDF enclosure with fine-woven cloth fronts, finished in black, supplied with a swivel wall-mounting bracket.

Order number **LA1-UW24-D1**

Column Loudspeaker

Column loudspeaker 24 W, MDF enclosure with fine-woven cloth fronts, finished in white, supplied with a swivel wall mounting bracket.

Order number **LA1-UW24-L1**

Column Loudspeaker

Column loudspeaker 36 W, MDF enclosure with fine-woven cloth fronts, finished in black, supplied with a swivel wall mounting bracket.

Order number **LA1-UW36-D1**

Column Loudspeaker

Column loudspeaker 36 W, MDF enclosure with fine-woven cloth fronts, finished in white, supplied with a swivel wall mounting bracket.

Order number **LA1-UW36-L1**

LA1-UMx0E-1 Metal Column Loudspeakers



Features

- ▶ Good speech intelligibility and background music reproduction
- ▶ For applications where directivity is important
- ▶ Slim-line weatherproof design
- ▶ Swivel wall mounting bracket supplied as standard
- ▶ Robust aluminum construction

The LA1-UM20E-1 and LA1-UM40E-1 metal column loudspeakers deliver professional performance from a robust, yet aesthetically designed aluminum enclosure in a white finish.

It is an ideal loudspeaker column where sound beaming is required, for both indoor and outdoor use in passenger terminals, places of worship, conference venues, theme parks, swimming pools, factories, exhibition areas.

A swivel wall mounting bracket is supplied as standard, allowing accurate positioning.

Functions

Voice alarm

Voice alarm loudspeakers are specifically designed for use in applications, where the performance of PA systems is subject to official regulations. The LA1-UM20E-1 and LA1-UM40E-1 are designed for voice alarm systems.

Protection

Both loudspeaker columns have built-in protection to ensure that in the event of a fire damage does not cause failure of the connected circuit. In this way, system integrity is maintained; ensuring loudspeakers in other areas can still be used to inform people of the situation.

Connections and safety

The loudspeaker columns have a ceramic terminal block, thermal fuse, and heat-resistant, high-temperature wiring. The column has a provision for internally mounting the optional line/loudspeaker supervision board.

Loudspeaker output power setting

Four primary taps are provided on the built-in matching transformer. Loudspeaker output power setting is done on the built-in transformer and connected to a rotary vary-tap switch located in the back of the enclosure to allow simple output power setting. An 8 ohms setting is also provided on the rotary vary-tap switch.

Certifications and approvals

All Bosch loudspeakers are designed to withstand operating at their rated power for 100 hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. Bosch has also developed the Simulated Acoustical Feedback Exposure (SAFE) test to demonstrate that the speakers can withstand two times their rated power for short durations. This ensures extra reliability under extreme conditions, leading to greater customer satisfaction, longer operating life, and much less chance of failure or performance deterioration.

Safety	acc. to EN 60065
Emergency	acc. to EN 54-24
	acc. to EN 60849
	acc. to BS 5839-8
Water and dust protection	acc. to EN 60529 IP 65
Wind-force	Acc. to NEN 6702:2007 + A1: 2008, Bft11

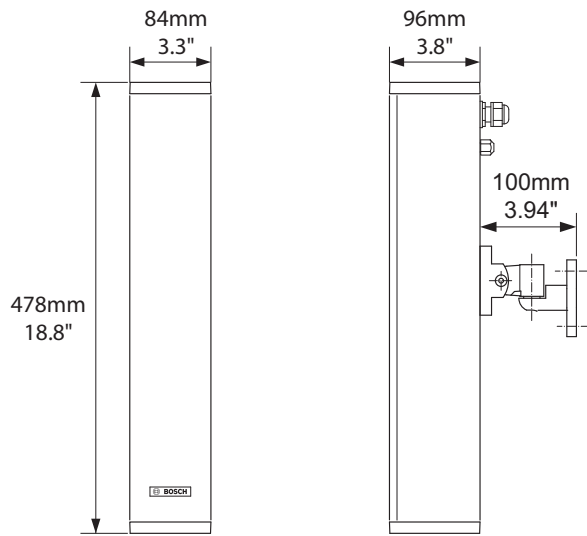
Region	Certification
Europe	CPD
Poland	CNBOP

Installation/configuration notes

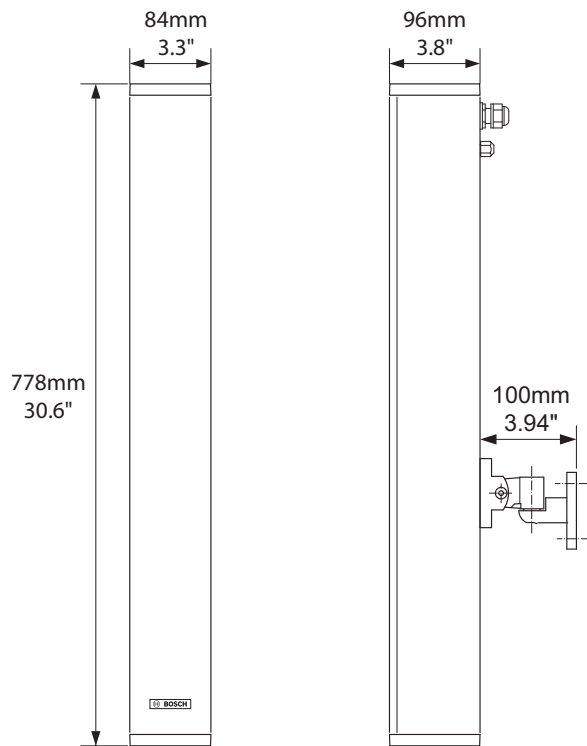
The column loudspeakers can be wall mounted using the swivel wall bracket standard supplied, or directly onto a floor stand LBC 1259/01 with an M10 threaded bolt without additional accessories. The bracket is attached on a slider, which can be placed and secured in any desired position along the rear of the enclosure. Standard supplied with 1 m connection cable, but these can be replaced during installation with any other type of connection cable.

The connection cable is fed out through a cable gland (PG 20) in the top rear of the enclosure. For loop through connection, a second hole (covered as standard supplied) is provided.

4



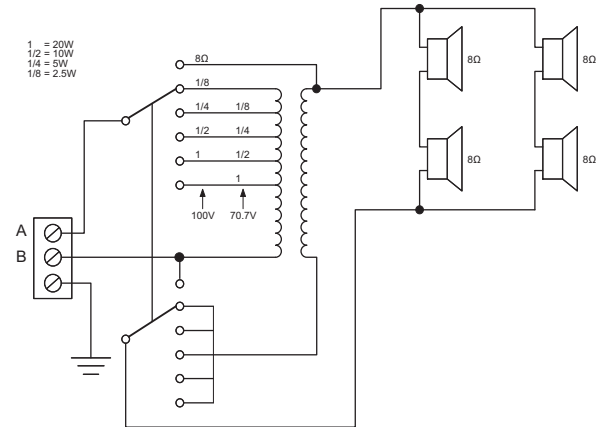
LA1-UM20E-1 Dimensions mm (in)



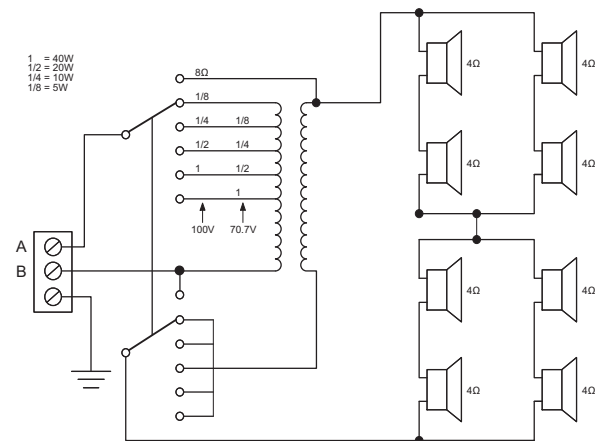
LA1-UM40E-1 Dimensions mm (in)



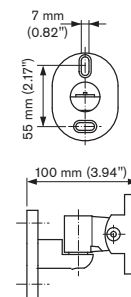
LA1-UM20E-1 / LA1-UM40E-1 Rear view



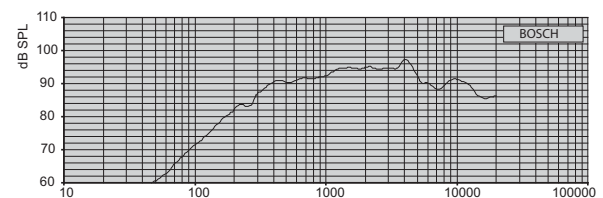
LA1-UM20E-1 Circuit diagram (A: Phase, B: Common)



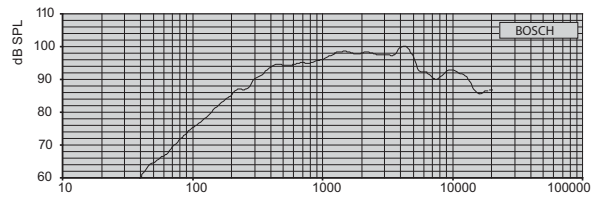
LA1-UM40E-1 Circuit diagram (A: Phase, B: Common)



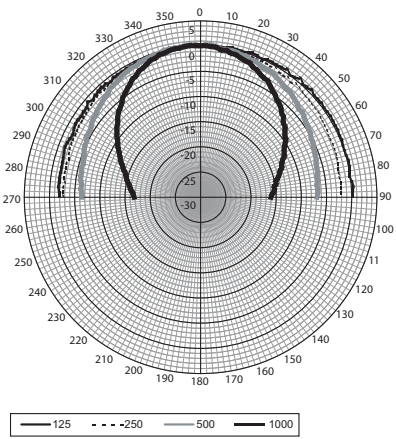
Details mounting bracket



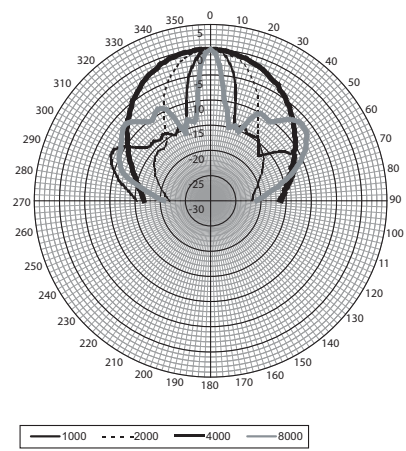
LA1-UM20E-1 Frequency response



LA1-UM40E-1 Frequency response

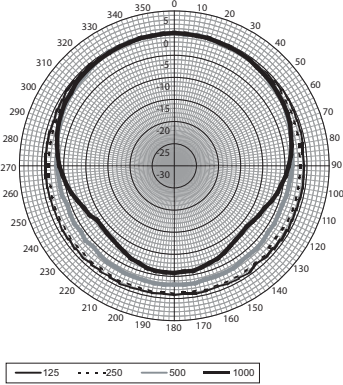


— 125 - - - 250 — 500 — 1000

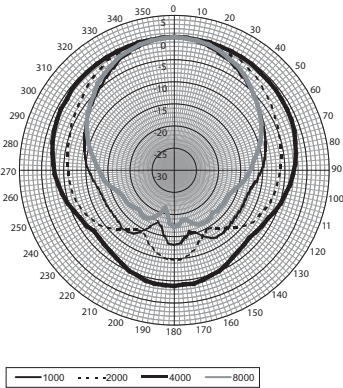


— 1000 - - - 2000 — 4000 — 8000

LA1-UM20E-1 Polar diagram (vertical)

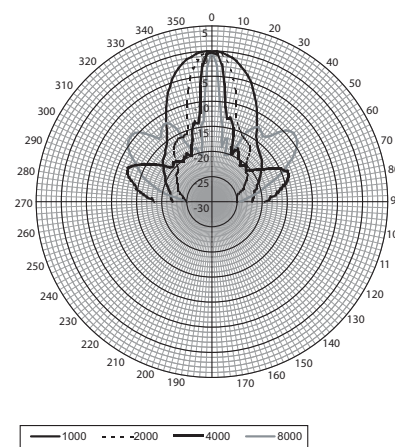
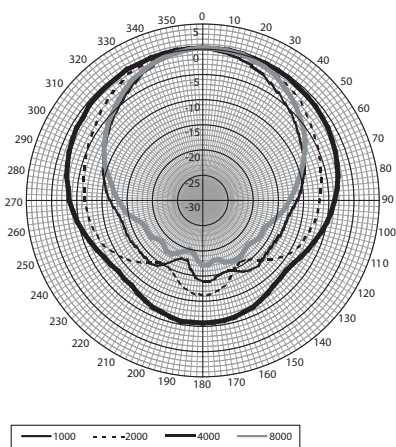
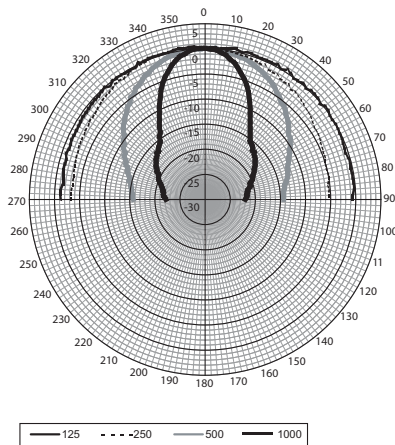
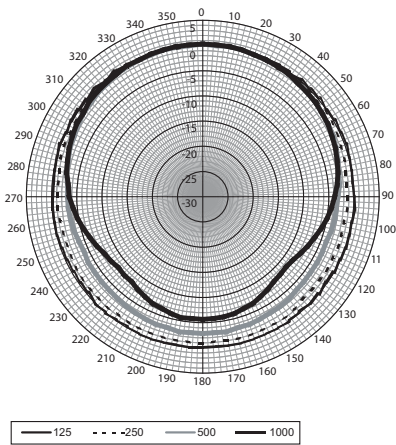


— 125 - - - 250 — 500 — 1000



— 1000 - - - 2000 — 4000 — 8000

LA1-UM20E-1 Polar-diagram (horizontal)



LA1-UM40E-1 Polar diagram (horizontal)

LA1-UM40E-1 Polar diagram (vertical)

Octave band sensitivity LA1-UM20E-1

	Octave SPL 1W/1m	Total octave SPL 1W/1m	Total octave SPL Pmax/1m
125 Hz	75.9	-	-
250 Hz	82.9	-	-
500 Hz	88.7	-	-
1000 Hz	91.5	-	-
2000 Hz	93.9	-	-
4000 Hz	94.5	-	-
8000 Hz	89.6	-	-
A-weighted	-	89.7	101.5
Lin-weighted	-	89.6	101.6

Octave band opening angles LA1-UM20E-1

	Horizontal	Vertical	
125 Hz	360	>180	
250 Hz	360	>180	
500 Hz	360	160	

1000 Hz	210	80	
2000 Hz	148	43	
4000 Hz	94	22	
8000 Hz	95	10	

Octave band sensitivity LA1-UM40E-1

	Octave SPL 1W/1m	Total octave SPL 1W/1m	Total octave SPL Pmax/1m
125 Hz	78.5	-	-
250 Hz	86.7	-	-
500 Hz	92.2	-	-
1000 Hz	95.2	-	-
2000 Hz	97.4	-	-
4000 Hz	97.8	-	-
8000 Hz	90.7	-	-
A-weighted	-	93.0	107.6
Lin-weighted	-	92.3	107.5

Octave band opening angles LA1-UM40E-1

	Horizontal	Vertical	
125 Hz	360	>180	
250 Hz	360	>180	
500 Hz	360	82	
1000 Hz	210	40	
2000 Hz	146	22	
4000 Hz	92	12	
8000 Hz	97	6	

Acoustical performance specified per octave * (all measurements are done with a pink noise signal; the values are in dB SPL).

Parts included

Quantity	Components
1	LA1-UMx0E-1 Metal Column loudspeaker
1	Wall mounting bracket
1	Installation instruction

Technical specifications

Electrical*

Description	LA1-UM20E-1	LA1-UM40E-1
Maximum power	30 W	60 W
Rated power (PHC)	20 W	40 W

Power tapping	20 / 10 / 5 / 2.5 W	40 / 20 / 10 / 5 W
Sound pressure level at rated power / 1 W (1 kHz, 1 m)	105 / 92 dB (SPL)	111 / 95 dB (SPL)
Sound pressure level at rated power / 1 W (4 kHz, 1 m)	108 / 95 dB (SPL)	114 / 98 dB (SPL)
Effective frequency range (-10 dB)	240 Hz to 16 kHz	250 Hz to 16 kHz
Horizontal opening angle at 1 kHz / 4 kHz (-6 dB)	210° / 94°	210° / 92°
Vertical opening angle at 1 kHz / 4 kHz (-6 dB)	80° / 22°	40° / 12°
Rated input voltage	12.65/70/100 V	17.89/70/100 V
Rated impedance	8/251/500 ohm	8/125/250 ohm

* Technical performance data acc. to IEC 60268-5

Mechanical

	LA1-UM20E-1	LA1-UM40E-1
Dimensions (L x W x D)	478 x 84 x 96 mm (18.8 x 3.3 x 3.8 in)	778 x 84 x 96 mm (30.6 x 3.3 x 3.8 in)
Weight	2.9 kg (6.4 lb)	4.4 kg (9.7 lb)
Color	White (RAL 9010)	White (RAL 9010)
Material (housing and grille)	Extruded aluminum / steel	Extruded aluminum / steel
Connection	1 m (39.37 in) 3-wire cable	1 m (39.37 in) 3-wire cable
Connector (phase, common, earth)	3-pole screw block	3-pole screw block

Environmental

Operating temperature	-25 °C to +55 °C (-13 °F to +131 °F)
Storage temperature	-40 °C to +70 °C (-40 °F to +158 °F)
Relative humidity	<95%



1438

Bosch Security Systems BV
Torenallee 49, 5617 BA Eindhoven, The Netherlands
10
1438-CPD-0203

EN 54-24:2008

Loudspeaker for voice alarm systems
for fire detection and fire alarm systems for buildings

Metal Column 20 W and 40 W
LA1-UM20E-1 and LA1-UM40E-1
Type B

4

Ordering information

LA1-UM20E-1 Metal Column Loudspeaker

Column loudspeaker 20 W, aluminum extruded enclosure, water and dust protected IP65, white RAL 9010.
Order number **LA1-UM20E-1**

LA1-UM40E-1 Metal Column Loudspeaker

Column loudspeaker 40 W, aluminum extruded enclosure, water and dust protected IP65, white RAL 9010.
Order number **LA1-UM40E-1**

Accessories

LBC 1259/01 Universal Floorstand

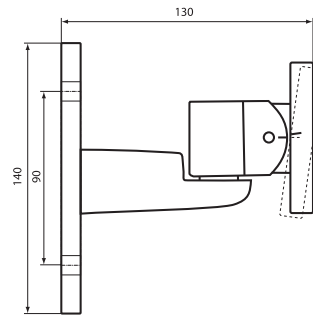
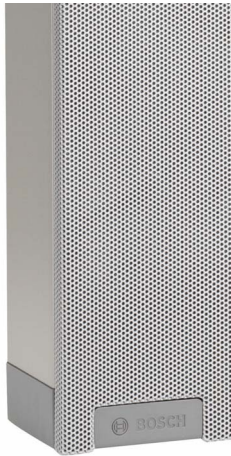
Universal floor stand lightweight aluminum construction, foldable, M10 x 12 reducer flange.
Order number **LBC1259/01**

LM1-CB Carrier Bag for two floorstands

Carrying bag for storing and transporting two floor stands.
Order number **LM1-CB**

LBC 3200/00 Line Array Indoor Loudspeaker

4



Dimensions in mm of included mounting bracket (with marked angle)

Features

- ▶ Extended listening area
- ▶ Excellent intelligibility of speech and music
- ▶ Uniform distribution of natural sound throughout the room
- ▶ Ideal combination of advanced acoustics and easy application
- ▶ EN 54-24 certified

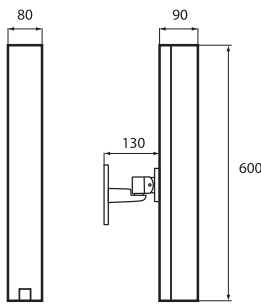
This loudspeaker, with its good directivity, can handle small and medium indoor environments such as congress venues, meeting rooms, showrooms and canteens. The full frequency range of the LBC 3200/00 makes it ideal for speech as well as music reproduction. Its exceptionally narrow housing (only 8 cm wide) makes it extremely unobtrusive.

System overview

A wall bracket for mounting the line array onto walls and pillars is included with the loudspeaker. It is fully adjustable in two perpendicular planes for accurate positioning. For temporary installations, the LBC 3200/00 can be mounted on an LBC 1259/01 floor stand with an M10 threaded bolt without additional accessories.



Detail mounting bracket



Dimensions in mm



Mounted on optional loudspeaker stand (LBC 1259/01)

A three-way, ceramic terminal block with screw connections suitable for loop-through wiring is located in a compartment at the base of the loudspeaker. There is also a switch, which allows the selection of nominal full power (30 W), half power (15 W), or quarter power (7.5 W). The compartment has knockout slots for cables.

Functions

Range of Application

The LBC 3200/00 is part of the XLA 3200 (eXtended Listening Area) range of line array loudspeakers. The positioning of the loudspeaker drivers has resulted in greatly

improved audio directivity. The specially developed high quality drivers enable reproduction of remarkably clear, natural sound, giving excellent intelligibility of both speech and music. Greater coverage is achieved, so more people can be reached with perceptually perfect sound. All this makes this small line array loudspeaker very suitable for use in small to medium sized applications.

Easy Installation

The positioning of the drivers in the array generates larger vertical opening angles for high frequencies, reducing the narrow 'beaming' of higher tones. As an example, the vertical opening angle is still 18° at 4 kHz. Having larger vertical opening angles makes installation easier, as the positioning of the loudspeakers is easier because they cover a wider area. An extremely wide horizontal opening angle of 130° at 4 kHz means that a single loudspeaker can provide natural sound reproduction over an extensive listening area.

Suppressed Side Lobes

All conventional column loudspeakers produce a main lobe of sound, which is directed at listeners, and a number of unwanted side lobes. The LBC 3200/00 has highly suppressed side lobes in the vertical plane, typically at least 8 dB of suppression from the 500 Hz octave band at 90°. This provides a much clearer, less colored sound, and greatly reduces the possibilities for acoustic feedback.

Sound Reproduction

The positioning and very high quality of the 2 inch drivers contribute significantly in making the LBC 3200/00 a very efficient line array. With a sound pressure level of 106 dB at 1 m, at 30 W, loud and clear sound reproduction is possible even at a significant distance from the loudspeaker.

The high-quality loudspeaker drivers used in the LBC 3200/00 give excellent, natural sound reproduction of frequencies ranging from 190 Hz to 18 kHz. This ensures that all important frequencies for superb speech intelligibility are heard in the listening area.

Emergency Compliant

The loudspeakers ceramic terminal block, thermal fuse and heat-resistant, high-temperature wiring ensures that, in the event of a fire, damage to the loudspeaker does not result in failure of the circuit to which it is connected. This maintains system integrity, ensuring that loudspeakers within the same loudspeaker zone in other areas can still be used to inform people of the situation.

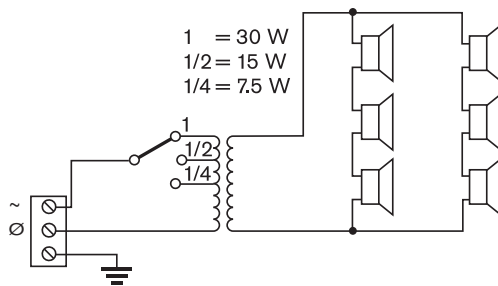
Certifications and approvals

All Bosch loudspeakers are designed to withstand operation at their rated power for 100 hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. These loudspeakers also comply with the Simulated Acoustical Feedback Exposure (SAFE) test, which demonstrates that they can withstand acoustical feedback at full power for short durations. This ensures extra reliability under extreme conditions, leading to higher customer satisfaction, longer operating life, and much less chance of failure or performance deterioration.

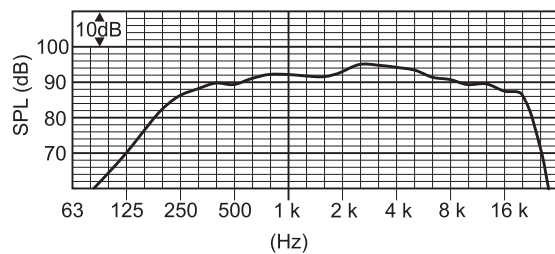
Safety	acc. to EN 60065 and CE
Emergency	acc. to EN 54-24 / BS 5839-8 / EN 60849
Impact	acc. to EN 50102, IK 07
Water and dust protection	acc. to IEC 60529, IP 32

Region	Certification
Europe	CE
	CE DOP
	CPD
Poland	CNBOP

Installation/configuration notes



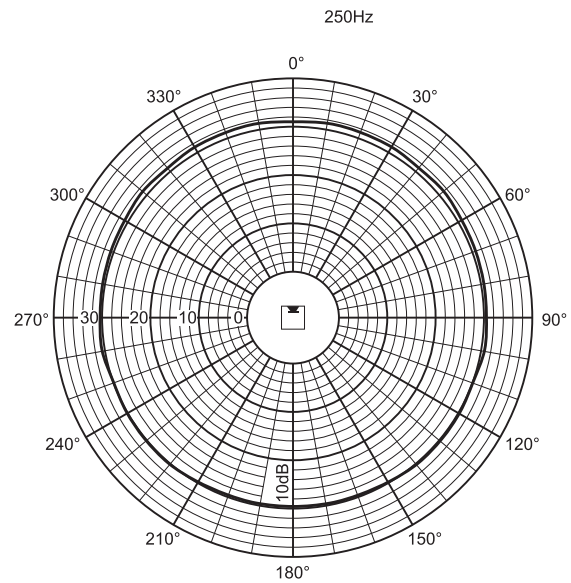
Circuit diagram



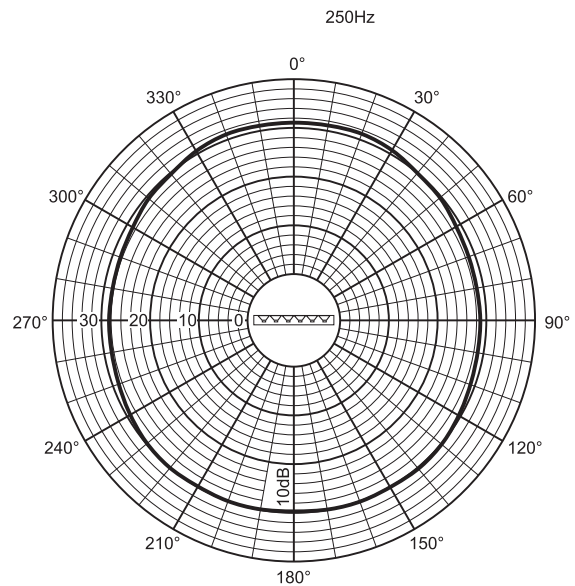
Frequency response

	25 0 Hz	50 0 Hz	1 kHz	2 kHz	4 kHz	8 kHz
SPL 1.1	87	89	91	93	93	89
SPL max.	10 2	10 4	10 6	108	108	104
Q-factor	1.3	2.2	4.5	11.6	25.7	58.9
H. angle (deg)	36 0	36 0	22 0	190	130	100
V. angle (deg)	36 0	12 0	70	32	18	10

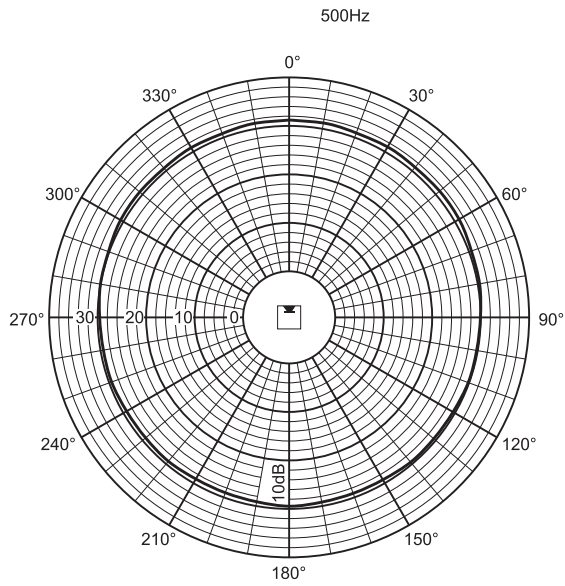
Acoustical performance specified per octave



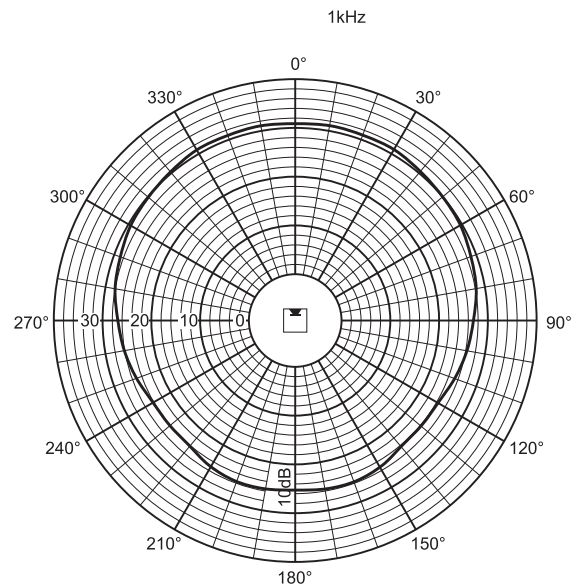
Polar diagram horizontal



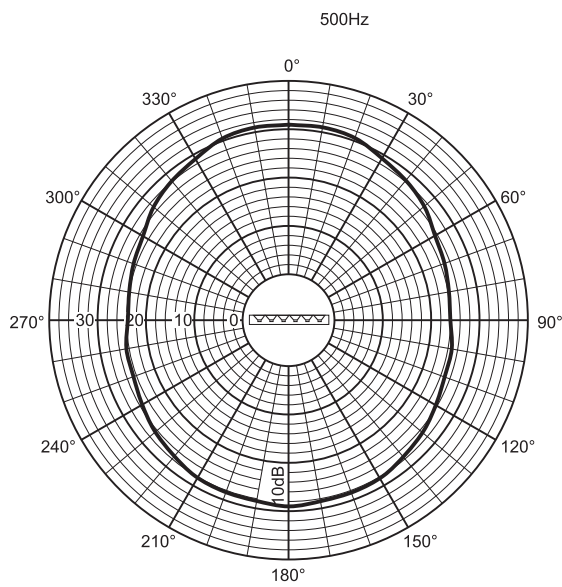
Polar diagram vertical



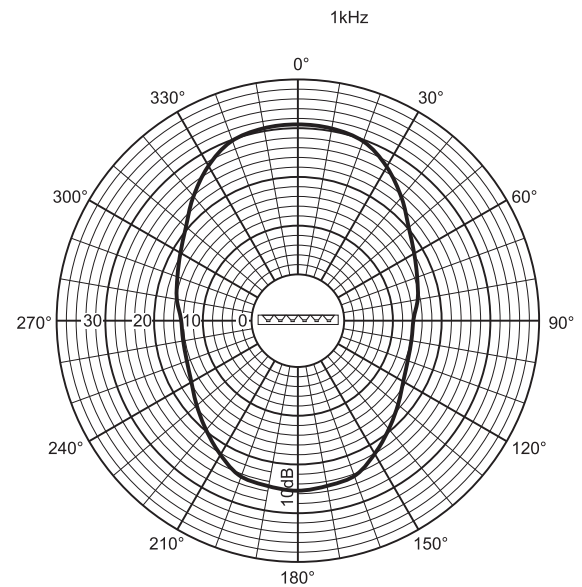
Polar diagram (horizontal)



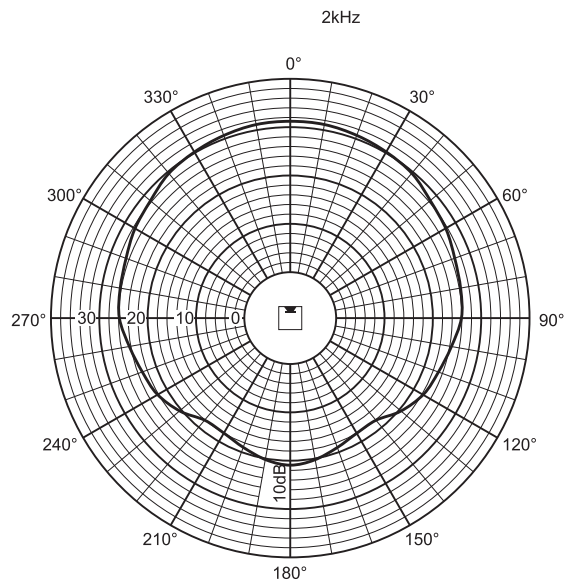
Polar diagram (horizontal)



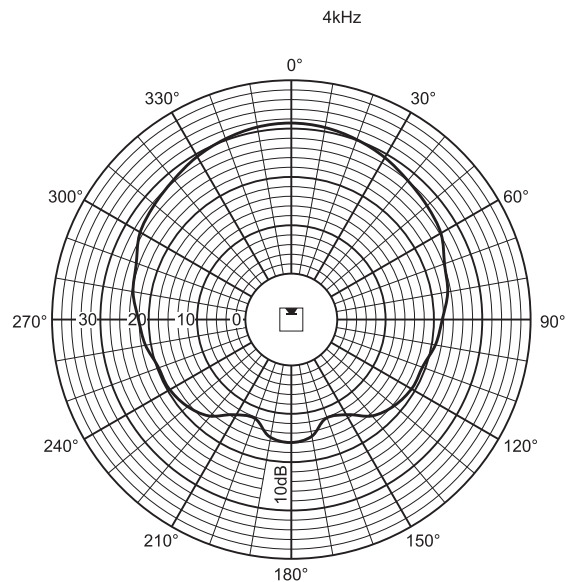
Polar diagram (vertical)



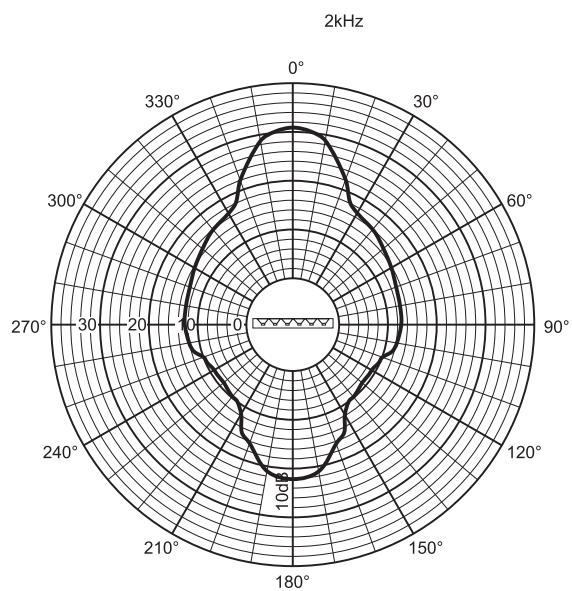
Polar diagram (vertical)



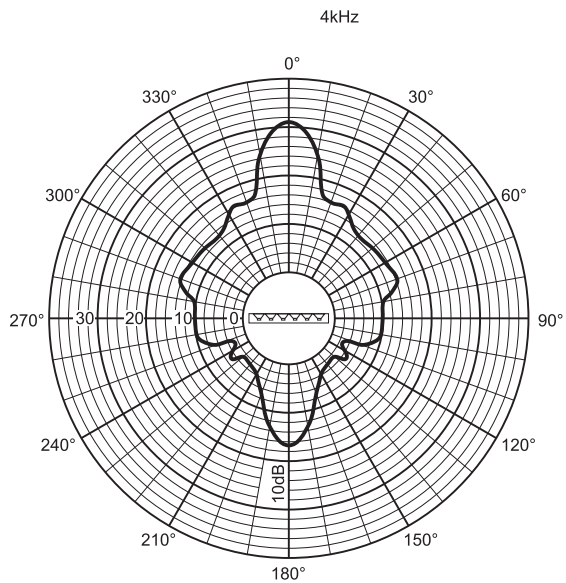
Polar diagram (horizontal)



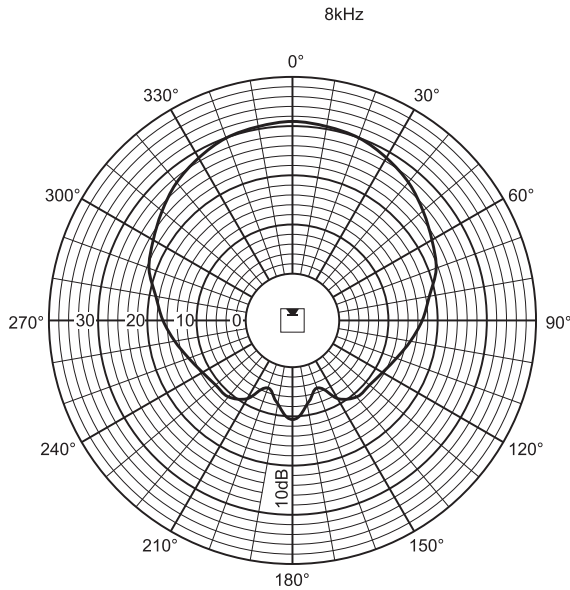
Polar diagram (horizontal)



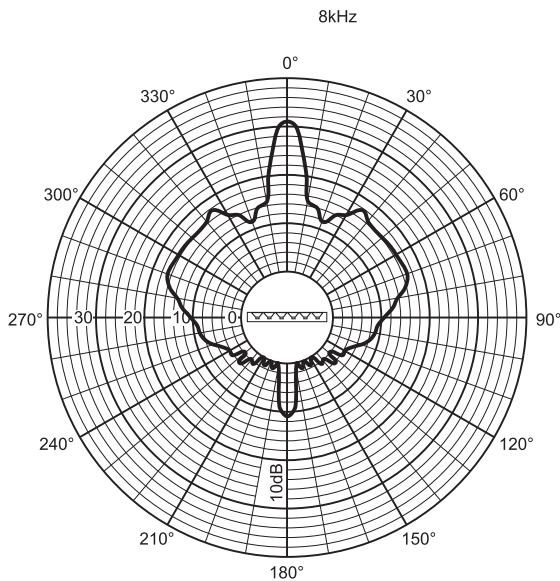
Polar diagram (vertical)



Polar diagram (vertical)



Polar diagram (horizontal)



Polar diagram (vertical)

Parts included

Quantity	Component
1	LBC 3200/00 Line Array Loudspeaker
1	Wall mounting bracket

Technical specifications

Electrical*

Maximum power	45 W
Rated power	30 / 15 / 7.5 W

Sound pressure level at 30 W / 1 W (1 kHz, 1 m)	106 / 91 dB (SPL)
Sound pressure level at 30 W / 1 W (2 kHz, 1 m)	108 / 93 dB (SPL)
Effective frequency range (-10 dB)	190 Hz to 18 kHz
Opening angle	1 kHz / 4 kHz (-6 dB)
horizontal	220° / 130°
vertical	70° / 18°
Rated input voltage	100 V
Rated impedance	333 ohm
Connector	Screw terminal block

* Technical performance data acc. to IEC 60268-5

Mechanical

Dimensions (H x W x D)	600 x 80 x 90 mm (23.62 x 3.15 x 3.54 in)
Weight	3 kg (6.6 lb)
Color	Light gray (matches RAL 9022)

Environmental

Operating temperature	-25 °C to +55 °C (-13 °F to +131 °F)
Storage temperature	-40 °C to +70 °C (-40 °F to +158 °F)
Relative humidity	<95%



1438

Bosch Security Systems BV
Torenallee 49, 5617BA Eindhoven, The Netherlands
10
1438-CPD-0254

EN 54-24:2008

Loudspeaker for voice alarm systems
for fire detection and fire alarm systems for buildings

Line Array 30W
LBC 3200/00
Type A

Ordering information

LBC 3200/00 Line Array Indoor Loudspeaker

Line array loudspeaker for small and medium indoor environments, 30 W, extended listening area, aluminum extruded enclosure, EN54-24 certified, light gray, swivel wall-mounting bracket included.

Order number **LBC3200/00**

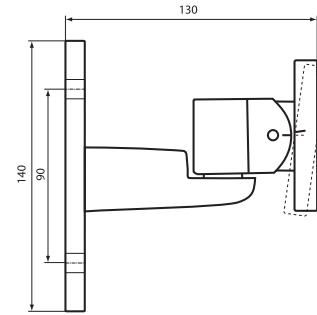
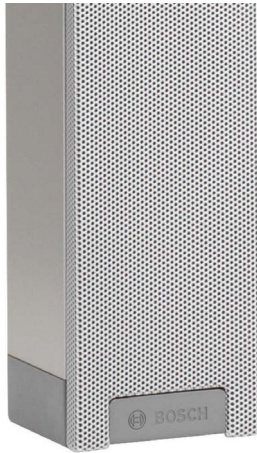
Accessories

LBC 1259/01 Universal Floorstand

Universal floor stand lightweight aluminum construction, foldable, M10 x 12 reducer flange.

Order number **LBC1259/01**

LBC 3201/00 Line Array Indoor Loudspeaker



Dimensions in mm of included mounting bracket (with marked angle)

4

Features

- ▶ Extended listening area
- ▶ Excellent intelligibility of speech and music
- ▶ Uniform distribution of natural sound throughout the room
- ▶ Excellent directivity for use in acoustically difficult, reverberant applications
- ▶ EN 54-24 certified

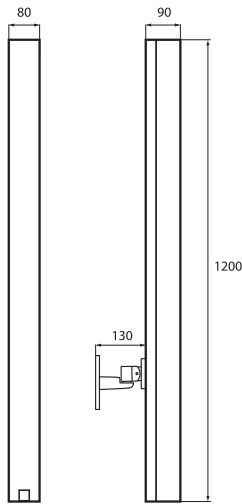
This loudspeaker, with its excellent directivity and high power output, can handle medium and large (reverberant) indoor environments, especially the more acoustically challenging ones. It is typically used in congress venues, meeting halls and places of worship. The full frequency range of the LBC 3201/00 makes it ideal for speech as well as music reproduction. Its exceptionally narrow housing (only 8 cm wide) makes it extremely unobtrusive.

System overview

A time and labor-saving mounting method has been developed for the LBC 3201/00. The loudspeaker comes with a chart, which shows the ideal installation height for the area that the loudspeaker has to cover. Once the appropriate height has been determined for a given area, the loudspeaker is mounted at an angle marked on the mounting bracket. This procedure is much simpler and more accurate than traditional trial and error installation methods. The LBC 3201/00 can be mounted on a wall or directly onto a floor stand LBC 1259/01 with an M10 threaded bolt without additional accessories.



Detail mounting bracket



Dimensions in mm



Mounted on optional loudspeaker stand (LBC 1259/01)

Functions

Range of application

The LBC 3201/00 is part of the XLA 3200 (eXtended Listening Area) range of line array loudspeakers. Advanced filtering and positioning of the loudspeaker drivers has resulted in greatly improved audio directivity. Each speaker driver produces a dedicated frequency range.

The specially developed high quality drivers enable reproduction of remarkably clear, natural sound, which gives excellent intelligibility of both speech and music.

The difference between a conventional column loudspeaker and this line array is noticeable in several ways. There is uniform sound distribution throughout the whole listening area: not too loud at the front, not too quiet at the back. All relevant frequencies are present everywhere in the listening area. Greater coverage is achieved, so more people can be reached with speech and music with a higher intelligibility level. All these important features give the experience of a very natural sound quality in the whole listening area.

Easy installation

The advanced filtering generates larger vertical opening angles for high frequencies, so there is less narrow 'beaming' of higher tones in the vertical plane. As an example, at 4 kHz the vertical opening angle is still 22°. Having more constant vertical opening angles makes installation easier, as the positioning of the loudspeakers is less critical because they cover a wider area. An extremely wide horizontal opening angle of 132° at 4 kHz means that a single loudspeaker can provide natural sound reproduction over an extensive listening area.

Suppressed Side Lobes

All conventional column loudspeakers produce a main lobe of sound, which is directed at listeners, as well as a number of unwanted side lobes. The LBC 3201/00 has highly suppressed side lobes in the vertical plane, typically at least 10 dB suppression of the 250 Hz octave band at 90°, resulting in a much clearer, less 'colored' sound, even when close to the loudspeakers. This gives the line array superb speech intelligibility.

Sound Reproduction

The positioning and very high quality of the 2-inch drivers contribute significantly towards making the LBC 3201/00 a very efficient line array. With a sound pressure level of 110 dB at 1 m, and at 60 W, loud and clear sound reproduction is possible even at considerable distances from the loudspeaker.

The high-quality loudspeaker drivers used in the LBC 3201/00 give excellent, natural sound reproduction of frequencies ranging from 190 Hz to 18 kHz. Together with the constant directivity, this ensures that all important frequencies are heard in the listening area.

Emergency Compliant

The loudspeaker has a ceramic terminal block, a thermal fuse, and heat-resistant, high-temperature wiring. These ensure that, in the event of a fire, damage to the loudspeaker does not result in failure of the circuit to which it is connected. Thus, system integrity is maintained, and loudspeakers within the same loudspeaker zone in other areas can still be used to inform people of the situation.

The three-way ceramic terminal block with screw connections is suitable for loop-through wiring, and is located in a compartment at the base of the loudspeaker column. There is also a switch, which allows the selection of nominal full power (60 W), half power (30 W) or quarter power (15 W). The compartment has knockout slots for accommodating cables.

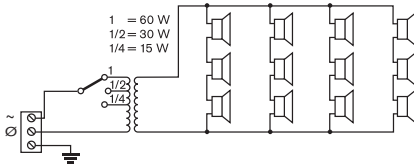
Certifications and approvals

All Bosch loudspeakers are designed to withstand operation at their rated power for 100 hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. These loudspeakers also comply with the Simulated Acoustical Feedback Exposure (SAFE) test, which demonstrates that they can withstand acoustical feedback at full power for short durations. This ensures extra reliability under extreme conditions, leading to higher customer satisfaction, longer operating life, and much less chance of failure or performance deterioration.

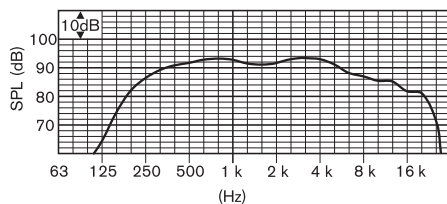
Safety	acc. to EN 60065 and CE
Emergency	acc. to EN 54-24 / BS 5839-8 / EN 60849
Water and dust protection	acc. to IEC 60529, IP 32
Impact	acc. to EN 50102, IK 07

Region	Certification
Europe	CE
	CE DOP
	CPD
Poland	CNBOP

Installation/configuration notes



Circuit diagram

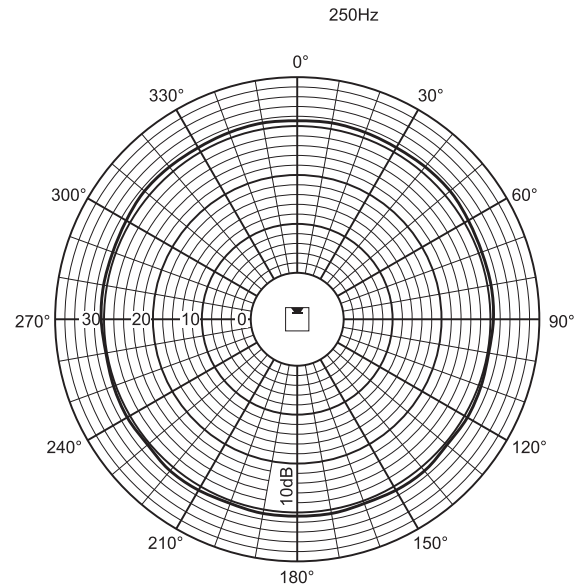


Frequency response

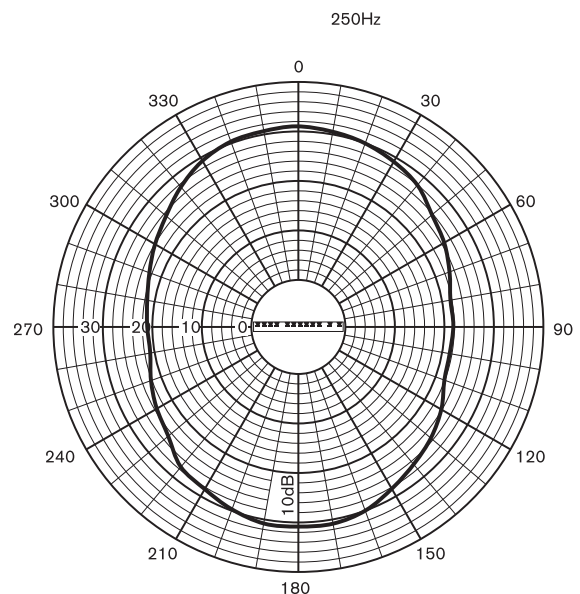
	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
SPL 1.1	88	92	92	91	91	86
SPL max.	106	110	110	109	109	104
Q-factor	2.2	3.2	6.5	12.6	23.4	53.3

H. angle (deg)	360	360	210	192	132	100
V. angle (deg)	107	67	50	33	22	12

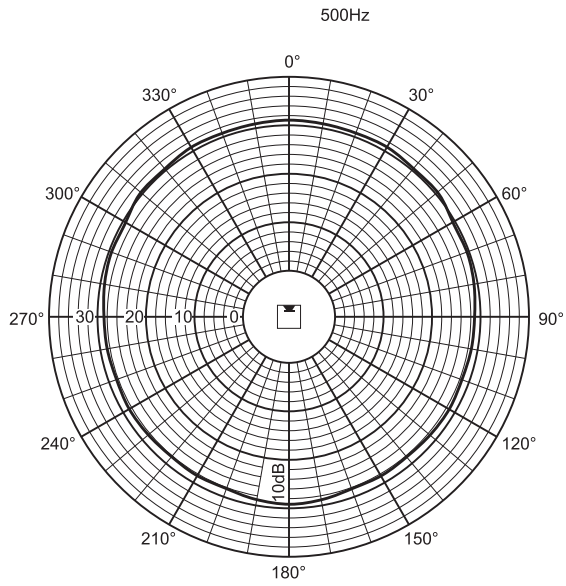
Acoustical performance specified per octave



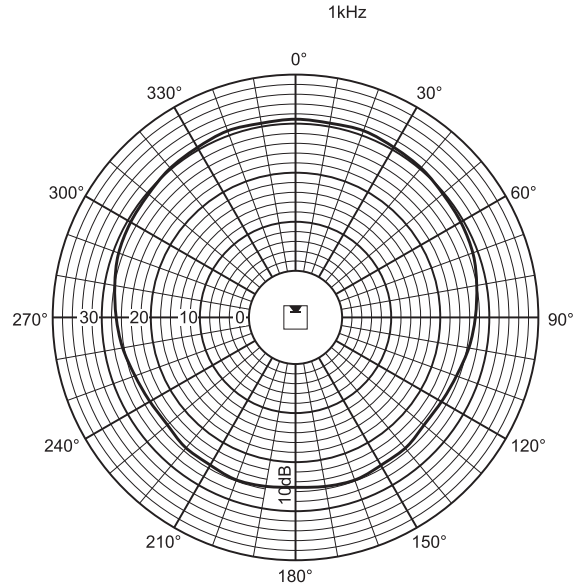
Polar diagram (horizontal)



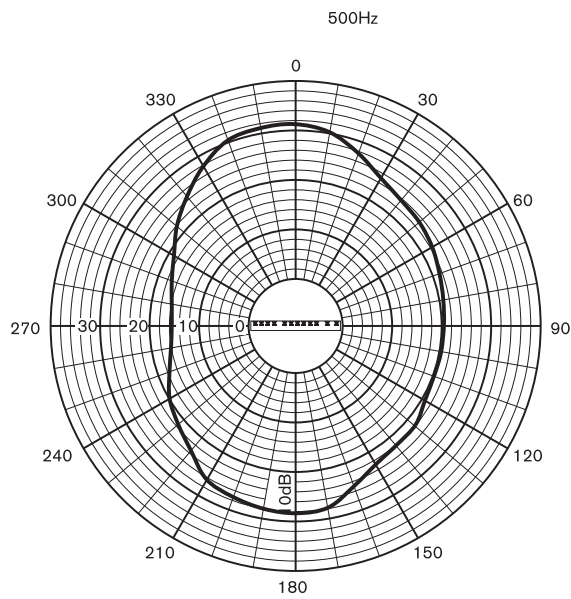
Polar diagram (vertical)



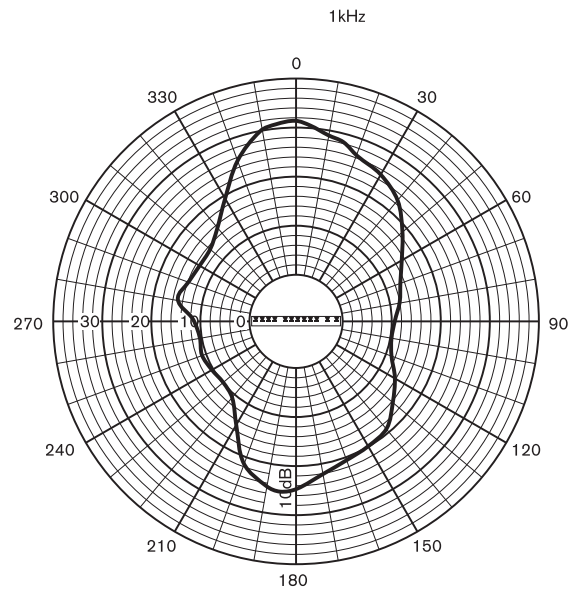
Polar diagram (horizontal)



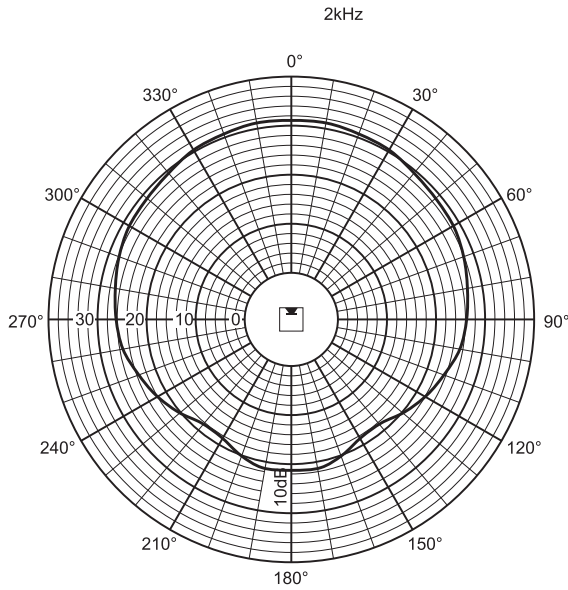
Polar diagram (horizontal)



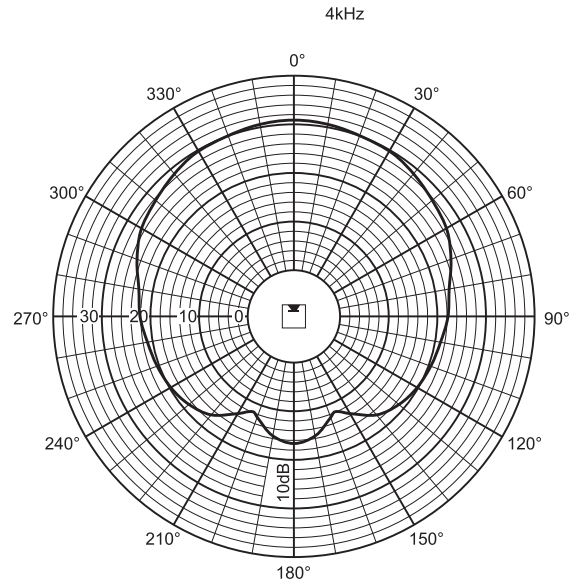
Polar diagram (vertical)



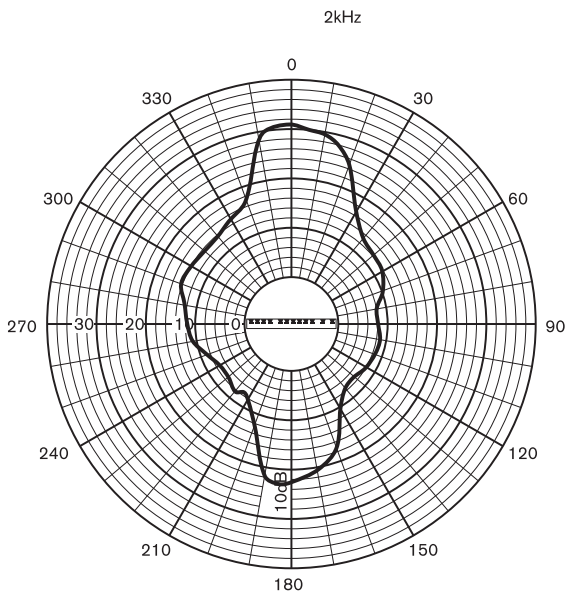
Polar diagram (vertical)



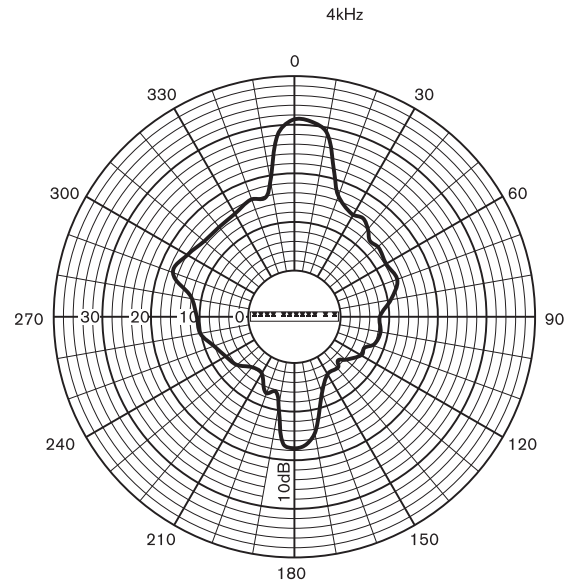
Polar diagram (horizontal)



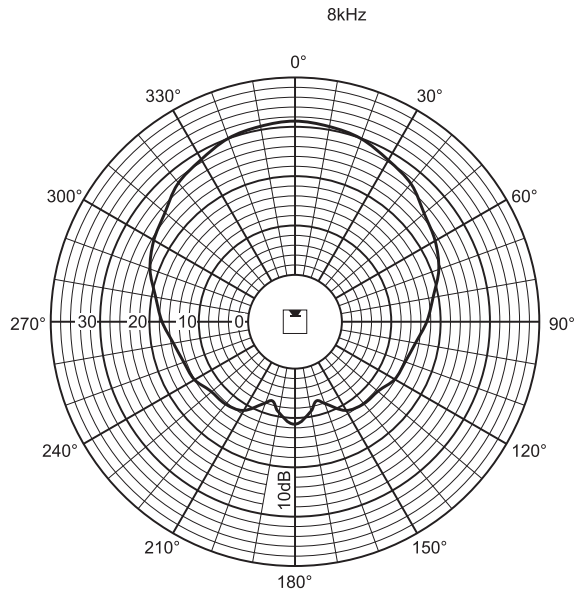
Polar diagram (horizontal)



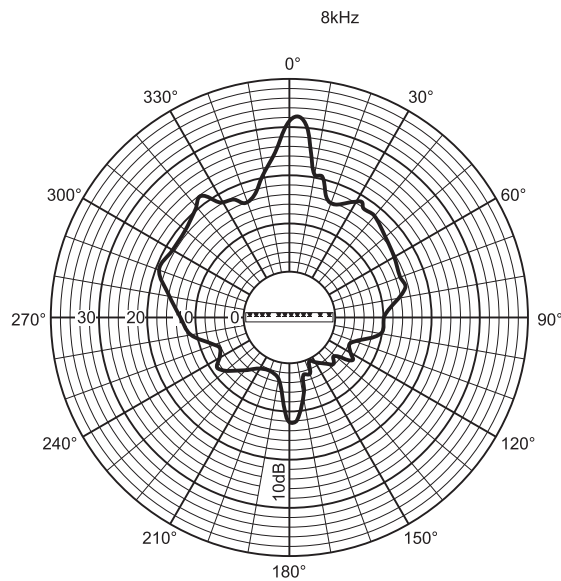
Polar diagram (vertical)



Polar diagram (vertical)



Polar diagram (horizontal)



Polar diagram (vertical)

Parts included

Quantity	Components
1	LBC 3201/00 Line Array Loudspeaker
1	Wall mounting bracket
1	Attachment piece
1	Installation chart

Technical specifications

Electrical*

Maximum power	90 W
Rated power	60 / 30 / 15 W
Sound pressure level at 60 W / 1 W (1 kHz, 1 m)	110 dB / 92 dB (SPL)
Effective frequency range (-10 dB)	190 Hz to 18 kHz
Opening angle	1 kHz / 4 kHz (-6 dB)
horizontal	210° / 132°
vertical	50° / 22°
Rated input voltage	100 V
Rated impedance	167 ohm
Connector	Screw terminal block

*) Technical performance data acc. to IEC 60268-5

Mechanical

Dimensions (H x W x D)	1200 x 80 x 90 mm (47.24 x 3.15 x 3.54 in)
Weight	6,4 kg (14,1 lb)
Color	Light gray (matches RAL 9022)

Environmental

Operating temperature	-25 °C to +55 °C (-13 °F to +131 °F)
Storage temperature	-40 °C to +70 °C (-40 °F to +158 °F)
Relative humidity	<95%



1438

Bosch Security Systems BV
Torenallee 49, 5617BA Eindhoven, The Netherlands
10
1438-CPD-0254

EN 54-24:2008

Loudspeaker for voice alarm systems
for fire detection and fire alarm systems for buildings

Line Array 60W
LBC 3201/00
Type A

Ordering information

LBC 3201/00 Line Array Indoor Loudspeaker

Line array loudspeaker for large (reverberant) indoor environments, 60 W, extended listening area, aluminum extruded enclosure, EN54-24 certified, light gray, swivel wall-mounting bracket included.

Order number **LBC3201/00**

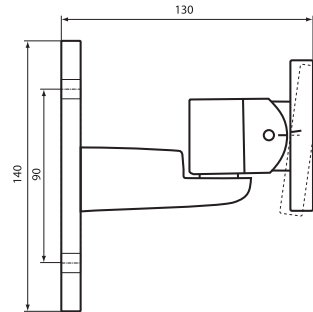
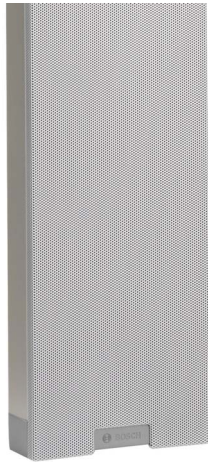
Accessories**LBC 1259/01 Universal Floorstand**

Universal floor stand lightweight aluminum construction, foldable, M10 x 12 reducer flange.

Order number **LBC1259/01**

LBC 3210/00 Line Array Indoor/Outdoor Loudspeaker

4



Mounting bracket (included) with marked angle.
Dimensions in mm

Features

- ▶ Extended listening area
- ▶ Excellent intelligibility of speech and music
- ▶ Uniform distribution of natural sound throughout the room
- ▶ Provision for inside mounting the optional line/loudspeaker supervision board
- ▶ EN 54-24 certified

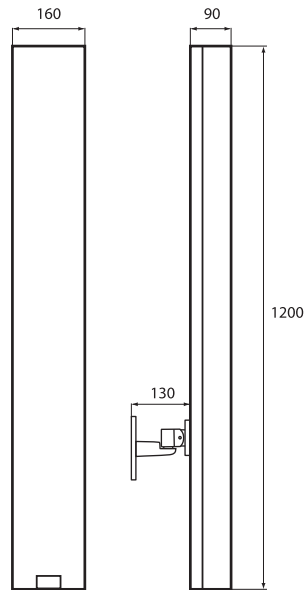
This loudspeaker, with its excellent directivity and high power output, can handle large (reverberant) indoor environments like airport departure lounges, train stations and congress venues. It is also suitable for outdoor use, for instance in railway stations or sports stadiums. Its full frequency range makes it ideal for speech as well as music reproduction.

System overview

A time- and labor-saving mounting method has been developed for the LBC 3210/00. A chart is supplied with the loudspeaker, which shows the ideal installation height for the area the loudspeaker has to cover. Once the appropriate height has been determined for a given area, the loudspeaker is mounted at an angle marked on the mounting bracket. This simple procedure is very much simpler and more accurate than traditional trial and error installation methods. The LBC 3210/00 can be mounted on a wall or directly onto a floor stand LBC 1259/01 with an M10 threaded bolt without additional accessories.



Detail mounting bracket



Dimensions in mm



Mounted on optional loudspeaker stand (LBC 1259/01)

Functions

Range of Application

The LBC 3210/00 is part of the XLA 3200 (eXtended Listening Area) range of line array loudspeakers. Advanced filtering and positioning of the loudspeaker drivers has resulted in greatly improved audio directivity. Each speaker driver produces a dedicated frequency range. The difference between a conventional column loudspeaker and this line array is noticeable in several ways. There is uniform sound distribution throughout the whole listening area: not too loud at the front, not too quiet at the back. All relevant frequencies are present everywhere in the listening area. Greater coverage is achieved, so more people can be reached with speech and music with a higher intelligibility level. All these important features will give the experience of a very natural sound quality in the whole listening area.

Easy Installation

The advanced filtering generates larger vertical opening angles for high frequencies, so there is less narrow 'beaming' of higher tones. Compared to conventional column loudspeakers, this line array has a more constant opening angle for all relevant frequencies. As an example, at 4 kHz the vertical opening angle is still 18°. Having more constant vertical opening angles makes installation easier, as the positioning of the loudspeakers is less critical because they cover a wider area. An excellent horizontal opening angle of 90° at 4 kHz means that a single loudspeaker can provide natural sound reproduction over an extensive listening area.

Suppressed Side Lobes

All conventional column loudspeakers produce a main lobe of sound, which is directed at listeners, and a number of unwanted side lobes. The LBC 3210/00 has highly suppressed side lobes in the vertical plane, typically at least 10 dB from the 250 Hz octave band at 90°, resulting in a much clearer, less 'colored' sound, even when close to the loudspeakers. This gives the line array loudspeaker superb intelligibility of both speech and music.

Sound Reproduction

The positioning and very high quality of the 4-inch drivers contribute significantly in making the LBC 3210/00 a very efficient line array. With a sound pressure level of 115 dB at 1 m at 60 W, loud and clear sound reproduction is possible even at considerable distances from the loudspeaker.

The high-quality loudspeaker drivers used in the LBC 3210/00 give excellent, natural sound reproduction of frequencies ranging from 190 Hz to 20 kHz. Together with the constant directivity this ensures that all important frequencies are heard in the listening area.

Emergency Compliant

The loudspeakers ceramic terminal block, thermal fuse and heat-resistant, high-temperature wiring, ensure that, in the event of a fire, damage to the loudspeaker does not result in failure of the circuit to which it is connected. In this way, system integrity is maintained, ensuring loudspeakers in other areas within the same loudspeaker zone can still be used to inform people of the situation.

The line arrays have provision for mounting the optional line/loudspeaker supervision board.

A three-way ceramic terminal block with screw connections suitable for loop-through wiring is located in a compartment at the base of the loudspeaker column. There is also a switch which allows the selection of nominal full power (60 W), half power (30 W) or quarter power (15 W). The compartment has knock-out slots for accommodating cables.

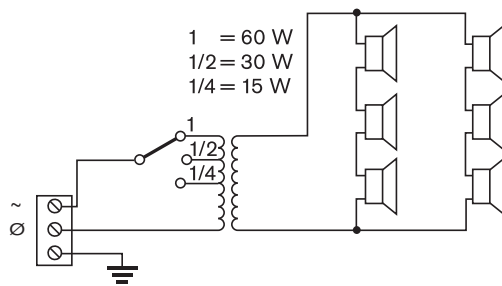
Certifications and approvals

All Bosch loudspeakers are designed to withstand operation at their rated power for 100 hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. These loudspeakers also comply with the Simulated Acoustical Feedback Exposure (SAFE) test, which demonstrates that they can withstand acoustical feedback at full power for short durations. This ensures extra reliability under extreme conditions, leading to higher customer satisfaction, longer operating life and much less chance of failure or performance deterioration.

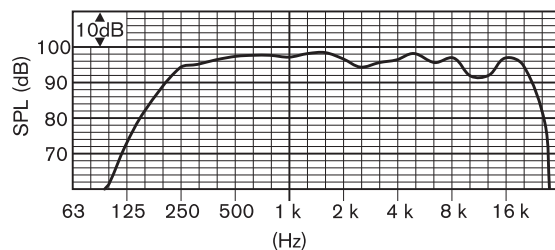
Safety	acc. to EN 60065 and CE
Emergency	acc. to EN 54-24 / BS 5839-8 / EN 60849
Water and dust protection	acc. to IEC 60529, IP 66
Impact	acc. to EN 50102, IK 07
Wind-force	acc. to NEN 6702 :2007 + A1 :2008, Bft 11

Region	Certification
Europe	CE
	CE DOP
	CPD
Poland	CNBOP

Installation/configuration notes



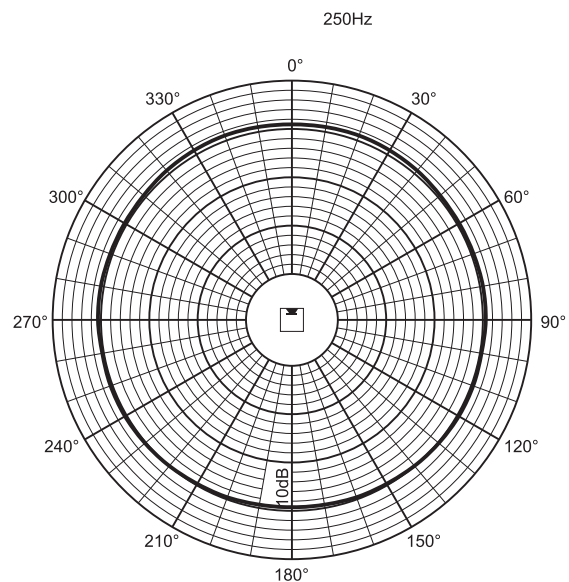
Circuit diagram



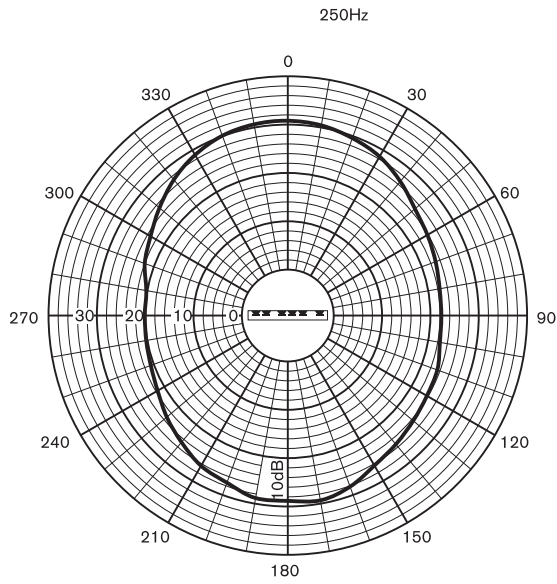
Frequency response

	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
SPL 1.1	94	97	97	95	96	93
SPL max.	112	115	115	113	114	111
Q-factor	2.2	2.7	6.3	10.8	22.6	32.3
H. angle (deg)	360	180	170	160	90	60
V. angle (deg)	100	60	55	34	18	10

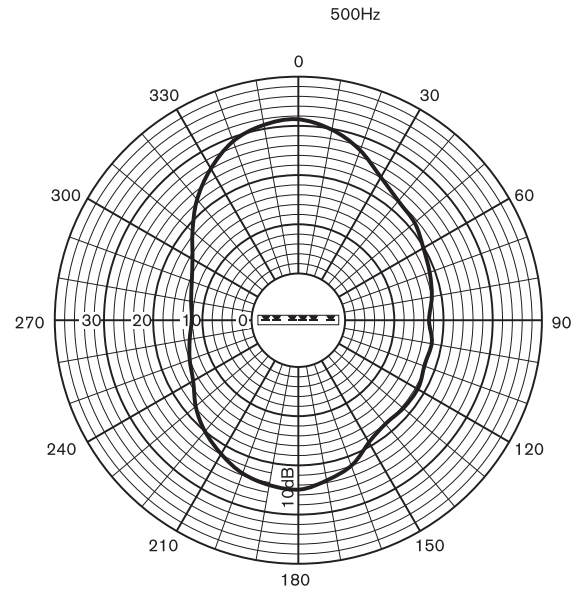
Acoustical performance specified per octave



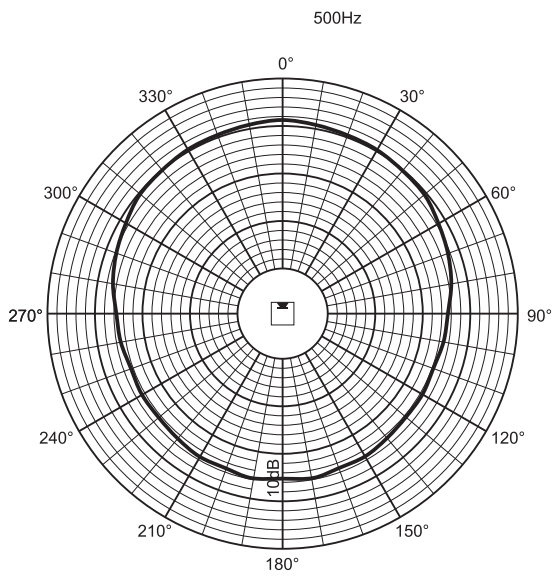
Polar diagram (horizontal)



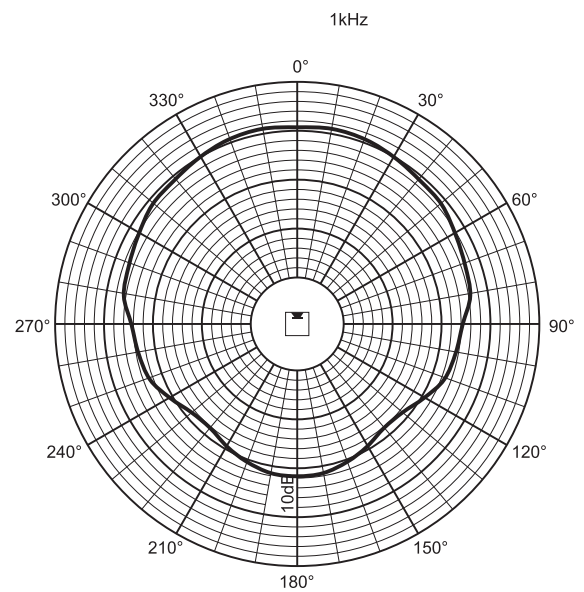
Polar diagram (vertical)



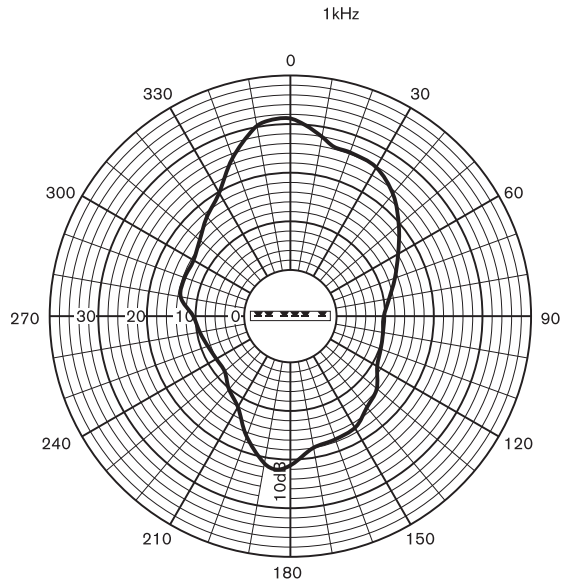
Polar diagram (vertical)



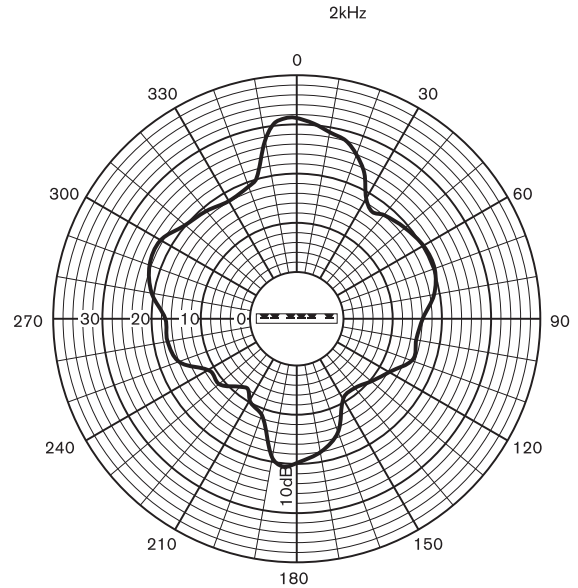
Polar diagram (horizontal)



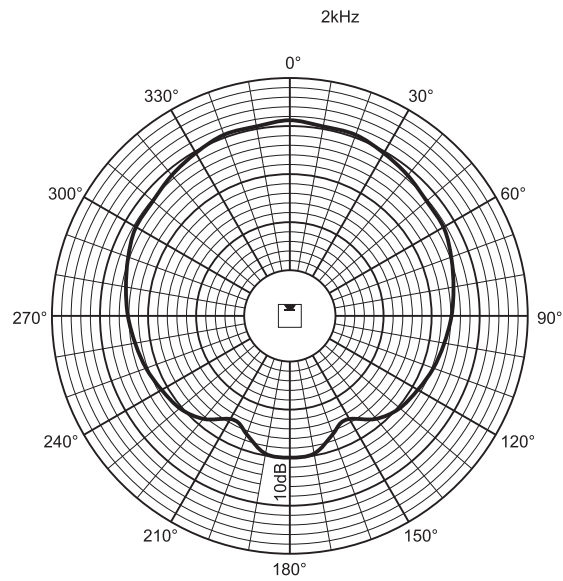
Polar diagram (horizontal)



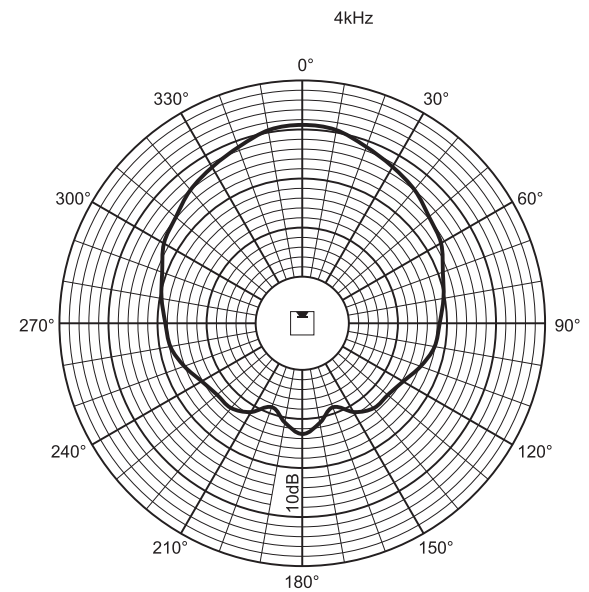
Polar diagram (vertical)



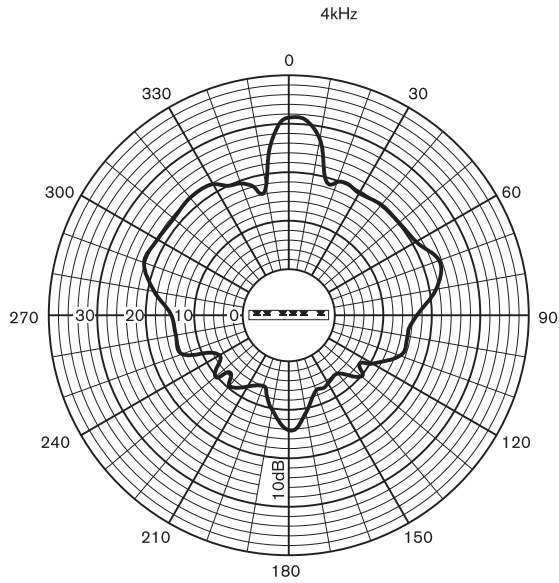
Polar diagram (vertical)



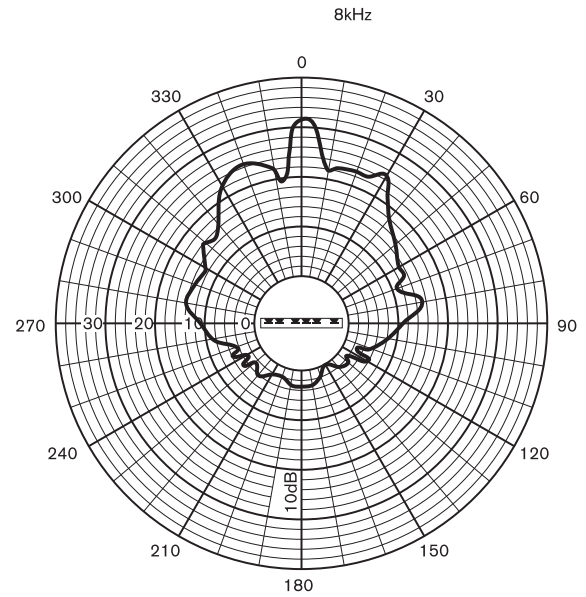
Polar diagram (horizontal)



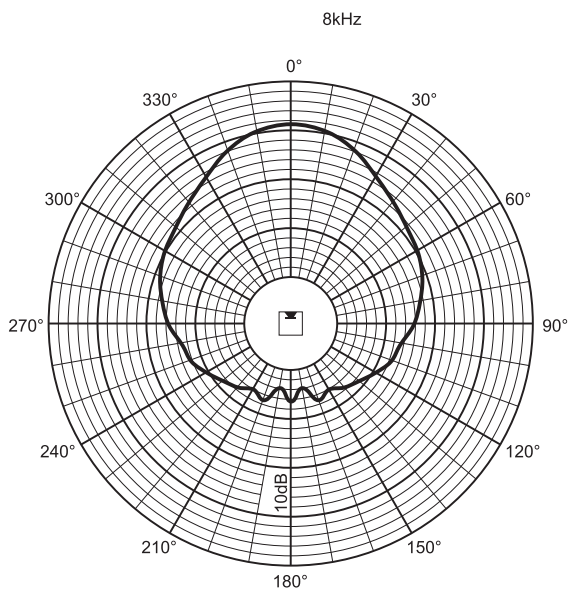
Polar diagram (horizontal)



Polar diagram (vertical)



Polar diagram (vertical)



Polar diagram (horizontal)

Parts included

Quantity	Components
1	LBC 3210/00 Line Array Loudspeaker
1	Wall mounting bracket
1	Attachment piece
1	Installation chart

Technical specifications

Electrical*

Maximum Power	90 W
Rated Power	60 / 30 / 15 W
Sound pressure level at 60 W / 1 W (1 kHz, 1 m)	115 dB / 97 dB (SPL)
Effective frequency range (-10 dB)	190 Hz to 20 kHz
Opening angle	1 kHz / 4 kHz (-6 dB)
horizontal	170° / 90°
vertical	55° / 18°
Rated input voltage	100 V
Rated impedance	167 ohm
Connector	Screw terminal block

* Technical performance data acc. to IEC 60268-5


Mechanical

Dimensions (H x W x D)	1200 x 160 x 90 mm (47.24 x 6.3 x 3.54 in)
Weight	9 kg (19,8 lb)
Color	Light gray (matches RAL 9022)

Environmental

Operating temperature	-25 °C to +55°C (-13 °F to +131 °F)
Storage temperature	-40 °C to +70 °C (-40 °F to +158 °F)
Relative humidity	<95%

4

 1438
Bosch Security Systems BV Torenallee 49, 5617BA Eindhoven, The Netherlands 10 1438-CPD-0254
EN 54-24:2008 Loudspeaker for voice alarm systems for fire detection and fire alarm systems for buildings Line Array 60W LBC 3210/00 Type B

Ordering information**LBC 3210/00 Line Array Indoor/Outdoor Loudspeaker**

Line array loudspeaker for large indoor and outdoor environments, 60 W, extended listening area, aluminum extruded enclosure, light gray, EN54-24 certified, swivel wall-mounting bracket included.

Order number **LBC3210/00**

Accessories**LBC 1259/01 Universal Floorstand**

Universal floor stand lightweight aluminum construction, foldable, M10 x 12 reducer flange.

Order number **LBC1259/01**

Vari-directional Array



Features

- ▶ Unmatched sound quality and speech intelligibility
- ▶ Smart modular design, flush mountable
- ▶ Sophisticated beam configuration with EASE support
- ▶ Integrated ambient noise level sensor for AVC
- ▶ Available in gray or white

Many large modern and classical buildings, like passenger terminals and cathedrals, use hard reflective materials for floors, walls and ceilings. Due to their size and absence of absorbing materials the reverberation time is long and the amount of indirect reverberant sound compared to direct sound is high. This is disastrous for good speech intelligibility. Still it is very important to hear and understand the spoken message, whether it is a gate change announcement on an airport or a prayer in a house of worship. Here the Bosch Vari-directional Array offers a really smart and easy solution.

System overview



Notice

Where, in this datasheet, VARI-B, VARI-BH or VARI-E is written, the provided information is also valid for the white colored versions VARI-BL, VARI-BHL or VARI-EL unless stated otherwise.

The Bosch Vari-directional Array series is a comprehensive set of array loudspeakers to address people with clear intelligible messages in large reverberant spaces. These active units utilize integrated digital signal processing and high efficiency class-D amplifiers. Using a PC configuration program the array can be adapted to the venue where it is used and its sound output optimally aimed at the audience, creating a maximum direct to ambient sound ratio, for best intelligibility given the circumstances.

The modular concept allows for three different array lengths for small to large areas. Using separate array elements makes transport easy and upgrading to a longer array possible. An optional CobraNet module allows the array to be networked and to receive digital audio data via CobraNet and to monitor the operational status of the loudspeakers. The units are suited for both background music and speech.

Although these loudspeaker arrays are very sophisticated and offer unrivalled sound in difficult acoustical environments, the advanced configuration software makes setup quick and easy.

The units are available in gray aluminum RAL 9007 or signal white RAL 9003 finishing.

Functions

Advanced beam steering

The Bosch Vari-directional Array provides a very good direct to reverberant sound ratio. Firstly, it radiates more direct sound to the audience and secondly, it induces less ceiling reflections. The increased direct sound is also due to a lower rate of decay of the sound level with distance compared to a traditional loudspeaker acting as a point source.

Instead of mechanically aiming the complete loudspeaker column to the listeners, the Bosch Vari-directional Array is capable of virtually aiming the loudspeaker array by electronic means. It drives the loudspeakers of the array individually with differently delayed signals, virtually moving the loudspeakers. Now the array can be positioned vertically against a wall or even recessed into the wall. This is esthetically more pleasing and as a bonus also reduces disturbing incoherent reflections from the wall. Furthermore, the Bosch Vari-directional Array uses very advanced beam steering techniques to achieve a beam shape that provides an equal level for all frequencies in the range of interest at all listening positions. Only then, listeners will get a balanced sound.

Another important factor is the loudness of the signal, which should be almost the same for all listening positions, avoiding hot spots. To create an even sound level in a large area, the shape of the beam should be optimized to the listening plane (ear level). Solving these challenges requires that for every audio frequency in the range of interest the level of each individual loudspeaker should be carefully controlled. The Bosch Vari-directional Array performs this combination of frequency response and delay tailoring in the digital domain using a DSP and subsequent multi-channel amplification. Then a very consistent SPL from front to rear can be attained in the listening plane, with a minimum of side lobes. But the Bosch arrays excel in two additional ways. In the first place it is able to deal with non-flat audience planes, for instance theaters and auditoriums. Secondly, it does not solely try to maximize the direct output to the listening plane, but also to minimize the output to unwanted areas. Due to physical limitations of a loudspeaker array every practical array will have side lobes. The configuration of the Vari-directional Array uses an advanced optimization algorithm that allows for minimization of the most harmful side-lobes, to achieve the best possible coverage combined with a maximum direct to reverberant ratio.

Easy installation and setup

The Bosch Vari-directional Array makes installation and configuration fairly easy for the installer and sound engineer.

The majority of the applications can be described in a rather straightforward way, where the configuration can be selected from a database of pre-optimized setups. Selection is quick and interactively by entering some key parameters of the room, the position of the array and the listening plane. The configuration program then shows graphically the realized direct SPL coverage. The Vari Configuration Set includes the configuration software and a USB to RS485 converter to connect a PC's USB port to one or more (networked) Vari units, even across longer distances. Using the optional CobraNet module it is even possible to configure and monitor multiple units across an Ethernet network.

Modular approach

One-key design factor for a line array is its length. To enable a long throw, the array should be long. If the audience is closer to the array, it can be shorter. Because the array is modular, arrays of three different lengths are possible: 1.20, 2.40 or 3.60 m. It consists of a base unit as a minimum and one or two extension units. Each unit is only 1.20 m in length for easy transport. The base unit contains the controller, the DSP, the power supply and 8 power amplifiers and loudspeakers. The extension unit contains 8 loudspeakers with supporting power amplifiers. All necessary interconnections between base and extension units are established automatically when the units are invisibly bolted together. Signal and power cables enter the base unit through a hole on the rear side of the unit to the internal tamper resistant connection compartment, which is only accessible during installation.

The Bosch Vari-directional Array, with its full steel cabinet and grill, powder coated silver gray, blends easily with contemporary and traditional interiors and exteriors. Since front-cooling is applied, even flush mounting is possible.

Swivel-wall mounting brackets come with the units as standard.

CobraNet connectivity

The Bosch Vari-directional Array offers the possibility to equip the base unit with a small CobraNet module that allows the array to be connected to an Ethernet network via a CAT-5 cable connection. This way the audio signal to the array is delivered in a digital format to the array with low latency and a high degree of routing flexibility. Furthermore the array can be configured via Ethernet, its operation can be supervised and logged.

Use of standard Ethernet wiring reduces costs. CobraNet technology allows for the co-existence of audio and data traffic over existing standard Ethernet infrastructure resulting in substantial savings in design and installation. CobraNet is a technology that is owned by Cirrus Logic and is used by many professional audio manufacturers as the technology of choice in digital audio networking.

Supervision

The Vari-directional Array provides a pilot tone detection circuit at the input for surveillance of the audio connection, internal supervision of operation, connection for a 24 V (battery) backup power supply, a fault output relay and a fault log with network access.

Automatic Volume Control (AVC)

In certain environments, such as sports stadiums and passenger terminals, the background noise level fluctuates constantly. This may seriously affect the intelligibility of spoken messages. The Bosch Vari-directional Array has a built-in noise level sensor that can be configured to control the gain of the amplifiers to constantly adjust the sound level. This automatic volume control (AVC) keeps the audio level comfortably above the background noise level for improved intelligibility without becoming unnecessarily loud.

Sound-processing

Large halls or platforms may need multiple arrays at different locations. The audio output of these arrays should be time-aligned to avoid echoes at the audience position. The Bosch Vari-directional Array provides a built-in high resolution delay adjustment.

An 8-section parametric equalizer is present for adjustment of the array to the acoustical environment, e.g. to increase the margin before acoustic feedback occurs. Separate 4-section equalizers at the inputs enable separate frequency responses for e.g. background music and announcements.

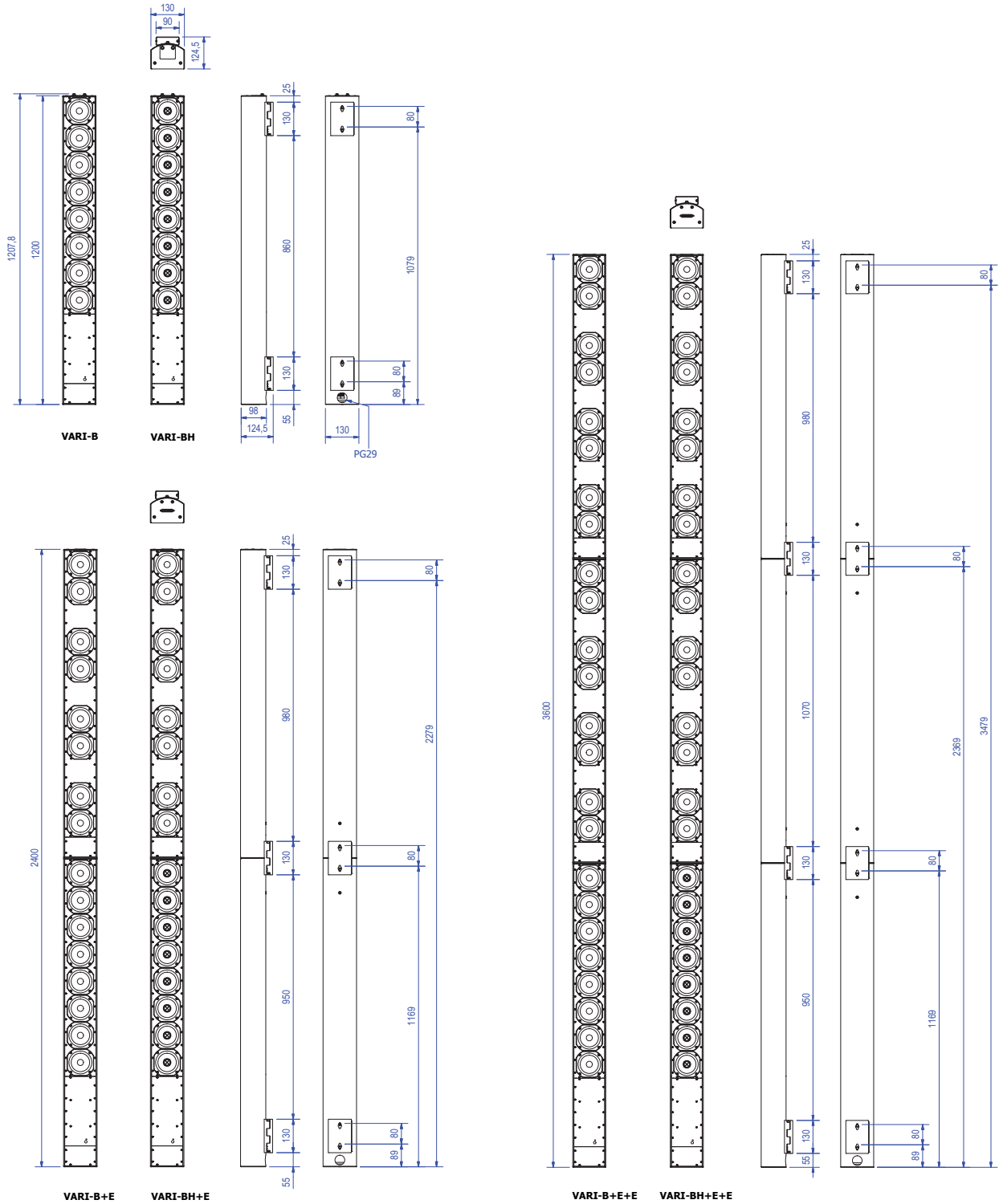
Certifications and approvals

Safety	according to IEC 60065: 2001 + A1: 2005
Immunity	according to EN 55103-2: 2009 according to FCC-47 part 15B
Emissions	according to EN 55103-1: 2009 according to EN 50130-4: 2006 according to EN 50121-4: 2006 according to EN 61000-3-2: 2006 + A1: 2009 + A2: 2009
Wind-force	according to NEN 6702: 2007 + A1: 2008, Bft 11
Water and dust protection	according to EN60529 IP54
Approval	CE

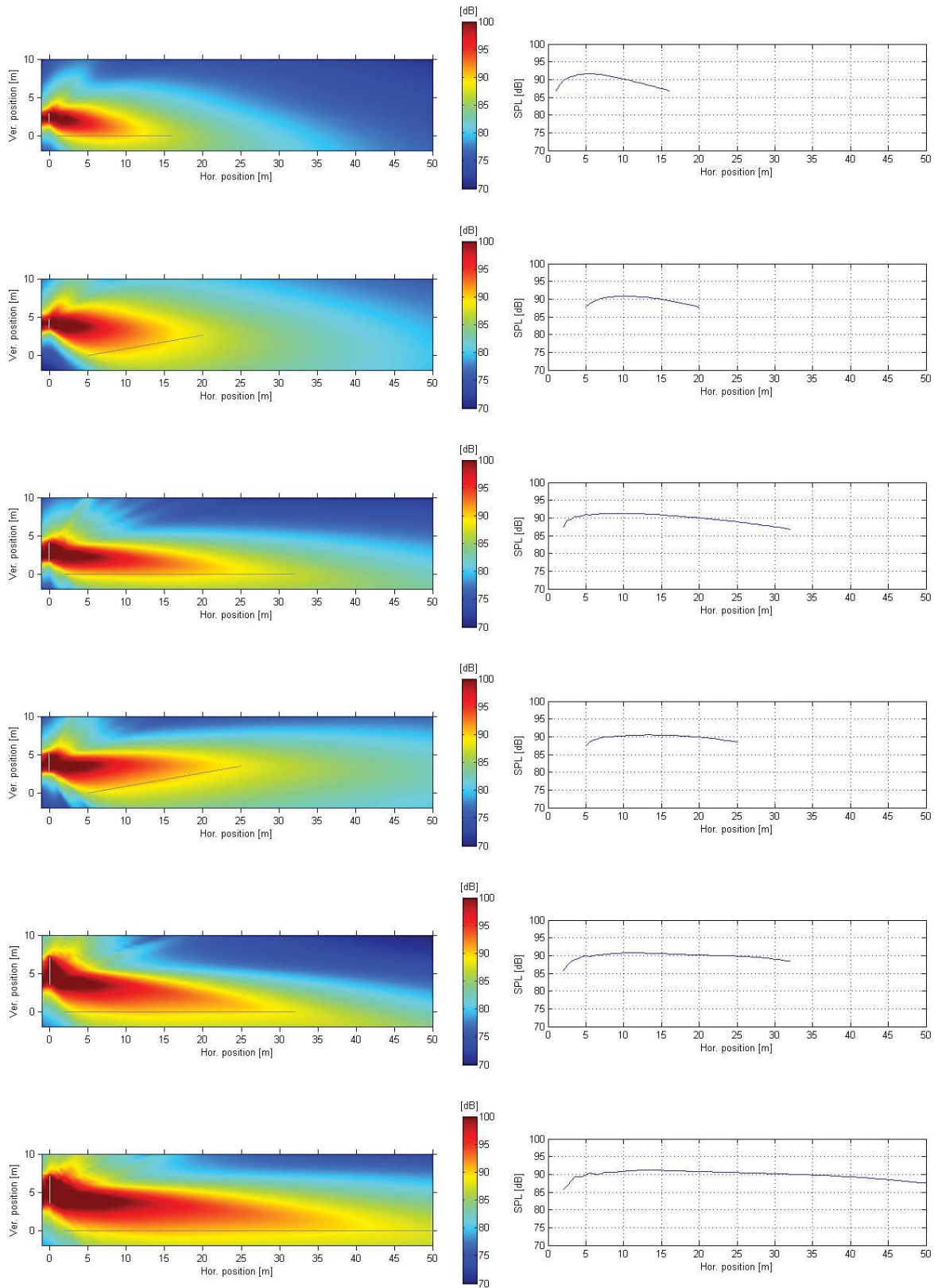
Region	Certification
Europe	CE

Installation/configuration notes

Array moniker	Array composition	Elements used		
		LA3-VARI-B	LA3-VARI-BH	LA3-VARI-E
Vari-array-B1	VARI-B	1		
Vari-array-B2	VARI-B+E	1		1
Vari-array-B3	VARI-B+E+E	1		2
Vari-array-H1	VARI-BH		1	
Vari-array_H2	VARI-BH+E		1	1
Vari-array-H3	VARI-BH+E+E		1	2



Mechanical dimensions (mm)



Examples of vertical beam cross sections and SPL at ear level (2 x VARI-B, 2 x VARI-B+E, 2 x VARI-B+E+E)

Parts included

Quantity	Components

	LA3-VARI-B
1	Vari Base Unit
2	Wall bracket
1	Right angle IEC mains connector C13
1	Cover plate
1	Connection set (Phoenix)
1	Grille removal tool
1	Installation Manual
	LA3-VARI-BH
1	Vari Base Unit HF
2	Wall bracket
1	Right angle IEC mains connector C13
1	Cover plate
1	Connection set (Phoenix)
1	Grille removal tool
1	Installation Manual
Quantity	Components
	LA3-VARI-E
1	Vari Extension Unit
1	Wall bracket
2	Fixing bolts
	LA3-VARI-CS
1	CD (software and documentation)
1	USB to RS485 converter
1	USB cable
1	RS485 cable
	LA3-VARI-CM
1	CobraNet module
2	Fixing screws
1	CAT-5 cable

Technical specifications

Acoustical¹

Frequency range²	
VARI-B	130 Hz to 10 kHz (±3 dB)
VARI-BH	130 Hz to 18 kHz (±3 dB)
Max SPL³	Continuous / peak
VARI-B	90 / 93 dB SPL (A-weighted at 20 m)
VARI-B+E	90 / 93 dB SPL (A-weighted at 32 m)
VARI-B+E+E	88 / 91 dB SPL (A-weighted at 50 m)
VARI-BH	89 / 92 dB SPL (A-weighted at 20 m)
VARI-BH+E	89 / 92 dB SPL (A-weighted at 32 m)
VARI-BH+E+E	87 / 90 dB SPL (A-weighted at 50 m)

Coverage

Horizontal (fixed) ⁴	130° (-6 dB, avg. 1 to 4 kHz)
Vertical (adjustable) ⁵	Software configurable
Maximum throw:	
VARI-B(H)	20 m
VARI-B(H)+E	32 m
VARI-B(H)+E+E	50 m

Transducers

VARI-B	4" Full Range (8 x 1 driver)
VARI-BH	4" Coaxial (8 x 1 driver)
VARI-E	4" Full Range (4 x 2 drivers)

Electrical

Input Line (2x)	
Input level nominal	0 dBV rms
Input level maximum	+20 dBV peak
Type	Transformer balanced
Impedance (balanced)	7.8 kohm at 1 kHz
Input 100 V (2x)	
Input level nominal	+40 dBV rms
Type	Transformer balanced (floating input)
Impedance (balanced)	1 Mohm at 1 kHz
Power Amplifiers	
Power	
VARI-B(H)	8 x 15 W (class-D full bridge)
VARI-E	4 x 25 W (class-D full bridge)

Protection	Thermal shutdown
	Current limiting
Dynamic range ⁶	>105 dB
PSU	
Mains voltage	100 to 120 V / 200 to 240 V (auto switching)
Power consumption	@ Mains / 24 Vdc
Power save	
VARI-B(H)	13 / 4.5 W
VARI-B(H)+E	17 / 7 W
VARI-B(H)+E+E	19 / 9 W
Idle	
VARI-B(H)	18 / 8.5 W
VARI-B(H)+E	23 / 13 W
VARI-B(H)+E+E	28 / 17 W
Max. (Noise, CF 6 dB)	
VARI-B(H)	60 / 36 W
VARI-B(H)+E	97 / 75 W
VARI-B(H)+E+E	124 / 100 W
Power factor	According to EN61000-3-2, class A
Mains inrush current	<70 A (at 230 V)
Protection	Thermal shutdown
	Current limiting
	Under voltage lock-out
Signal processing⁵	
DSP	32-bit floating point, 900 Mflops
ADC / DAC	24-bits S-D, 128 x oversampling
Sample rate	48 kHz
Functions	Pre-delay (max. 21 s)
	Input-delay (max. 2 x 10 s / 4 x 5 s)
	Equalizer and compensation filtering
	Compressor
	Volume
	AVC
Control	
Network interface	RS-485 full duplex, auto-switching 115k2, 57k6, 38k4, 19k2 baud, optically isolated
Max. number of units ⁷	126

Surveillance	General status
	Amplifier and load monitoring
	External pilot-tone detection (20 kHz to 30 kHz, min. level -22 dBV)
	Built-in ambient noise sensing microphone
	Thermal overload protection
Failure relay	Maskable conditions
Contact 1	No failure = closed / Failure = open
Rating	Max. 24 V, 100 mA
Contact 2	No failure = 10 k ohm / Failure = 20 k ohm
Control voltage input	5 to 24 Vdc, optically isolated
CobraNet	
Interface	RJ-45, Ethernet 100 Mbps
Word length	16-/20-/24-bit (set by transmitter)
Sample rate	48 kHz
Additional latency	1.33/2.67/5.33 ms (set by transmitter)

Mechanical

Dimensions (H x W x D)	
VARI-B(H)	1200 x 130 x 98 mm (47.2 x 5.1 x 3.8 in)
VARI-B(H)+E	2400 x 130 x 98 mm (94.5 x 5.1 x 3.8 in)
VARI-B(H)+E+E	3600 x 130 x 98 mm (141.7 x 5.1 x 3.8 in)
Bracket	27 mm (1.1 in) additional depth, flat mounted
VARI-CM	100 x 50 x 23 mm (3.9 x 2.0 x 0.9 in)
Weight	
VARI-B(H)	13.0 kg (28.7 lbs)
VARI-B(H)+E	24.7 kg (54.5 lbs)
VARI-B(H)+E+E	36.4 kg (80.3 lbs)
Color	
Enclosure: VARI-B(H) and -E VARI-B(H)L and -EL	RAL9007 (gray aluminum) RAL9003 (signal white)
Grill: VARI-B(H) and -E VARI-B(H)L and -EL	RAL9006 (white aluminum) RAL9003 (signal white)

Environmental

Operating temperature	-25 °C to 55 °C (-13 °F to 131 °F)
Storage temperature	-40 °C to +70 °C (-40 °F to +158 °F)
Relative humidity	<95 %

Notes:

1. Measured outside under semi-anechoic 'full-space' conditions with typical filter and delay settings unless stated otherwise.
2. Measured on-axis. The frequency response of the complete array is depending on the actual signal processing parameters and air absorption (at larger distances). A typical bandwidth is specified for the complete array under 'full-space' radiation conditions.
3. Levels are valid for pink noise (100 Hz to 20 kHz bandwidth) with a crest factor of 3 dB, default EQ and minimum opening angle setting. 'Continuous' is the RMS level, 'Peak' is the absolute peak level, both determined at the onset of the output limiter. SPL values will vary depending upon opening angle.
4. For this measurement the signals at all power amplifier outputs are summed together.
5. Additional processing capabilities available.
6. Measured as the A-weighted difference (in dB) between the maximum rms level (with pink noise input signal) and the noise output (with no input signal present).
7. Maximum number that can be connected to one RS-485 subnet, multiple subnets can be controlled by one host PC.

Ordering information**LA3-VARI-B Vari Base Unit (gray)**

Active vari-directional array loudspeaker (gray).

Order number **LA3-VARI-B**

LA3-VARI-BL Vari Base Unit (white)

Active vari-directional array loudspeaker (white).

Order number **LA3-VARI-BL**

LA3-VARI-BH Vari Base Unit HF (gray)

Active vari-directional array loudspeaker (gray) with co-axial drivers for improved high frequency response.

Order number **LA3-VARI-BH**

LA3-VARI-BHL Vari Base Unit HF (white)

Active vari-directional array loudspeaker (white) with co-axial drivers for improved high frequency response.

Order number **LA3-VARI-BHL**

LA3-VARI-E Vari Extension Unit (gray)

Active vari-directional array extension (gray), to be used with a base unit to increase the coverage distance. A maximum of two extension units can be used with a base unit.

Order number **LA3-VARI-E**

LA3-VARI-EL Vari Extension Unit (white)

Active vari-directional array extension (white), to be used with a base unit to increase the coverage distance. A maximum of two extension units can be used with a base unit.

Order number **LA3-VARI-EL**

Accessories**LA3-VARI-CM Vari CobraNet Module**

CobraNet module for connecting the vari-directional array to a CobraNet network. The module must be mounted inside the base unit.

Order number **LA3-VARI-CM**

LA3-VARI-CS Vari Configuration set

Configuration software for the vari-directional array with USB to RS485 converter for connection to the PC USB port.

Order number **LA3-VARI-CS**

LBC 3950/01 Ceiling Loudspeaker

4



Features

- ▶ Compact yet powerful
- ▶ Very wide opening angle
- ▶ Modern unobtrusive styling
- ▶ Installation friendly
- ▶ Splash-waterproof

The LBC 3950/01 is a compact, 6 W loudspeaker with a circular plastic grille. It has excellent audio performance and is easy to install with its integral mounting clips. The loudspeaker is IPx4 water protected from the front so it can be installed in humid environments.

Functions

The LBC 3950/01 has a circular pattern plastic grille with a plastic surround, finished in an attractive off-white RAL color. The unobtrusive styling of this loudspeaker complements modern interior lighting. The loudspeakers feature a very wide opening angle, which means fewer units are required to cover a given area. The wide frequency range means better speech and music reproduction. The unit is supplied with a 100 V matching transformer with taps on the primary winding for full-power, half-power, quarter-power and eighth-power radiation. The loudspeaker (with special treated paper cone), is IP 4 water protected from the front and can be applied in humidity environments for example bathrooms, saunas, atriums and swimming pool areas.

Certifications and approvals

All Bosch loudspeakers are designed to withstand operating at their rated power for 100 hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. Bosch has also developed the Simulated Acoustical Feedback Exposure (SAFE) test to demonstrate that they can withstand two times their rated power for

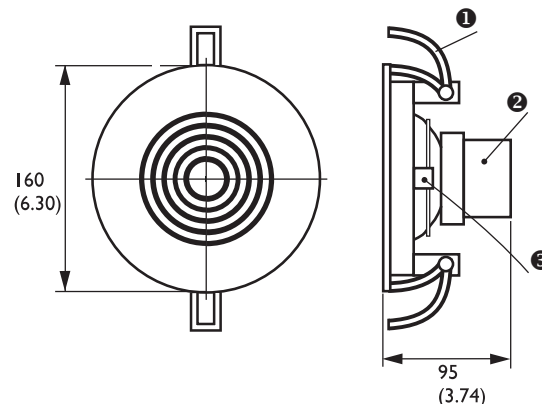
short durations. This ensures extra reliability under extreme conditions, leading to higher customer satisfaction, longer operating life, and much less chance of failure or performance deterioration.

All plastic parts are manufactured from self-extinguishing high-impact ABS material (according to UL 94V0).

Safety	acc. to EN 60065	
Water protected	acc. to EN 60529, IPx4	
Region	Certification	
Europe	CE	Declaration of Conformity

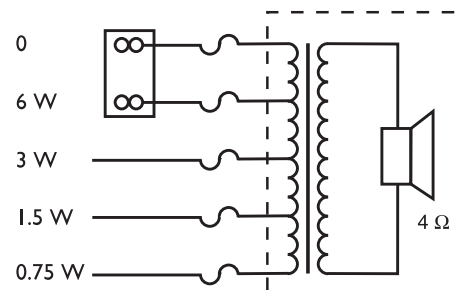
Installation/configuration notes

Installation is easy with integral clips that securely hold the ceiling loudspeaker in its cut-out. Ceilings from 9 to 25 mm thick can be accommodated. A template is also provided for accurately marking the cutout in ceiling panels. Wiring is via a connection block with push-type terminals, making installation possible without using any special tools. The terminal blocks have provision for loop-through wiring. The transformer is delivered wired for loop-through wiring. The transformer is delivered wired for 6 W rated output power, but can easily be changed for other connections using the color-coded wires and terminal block.

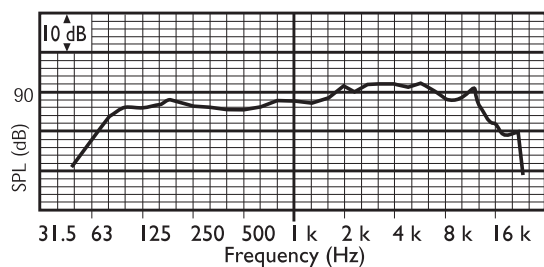


- 0 Clamp
- 1
- 0 Matching transformer
- 2
- 0 Terminal block
- 3

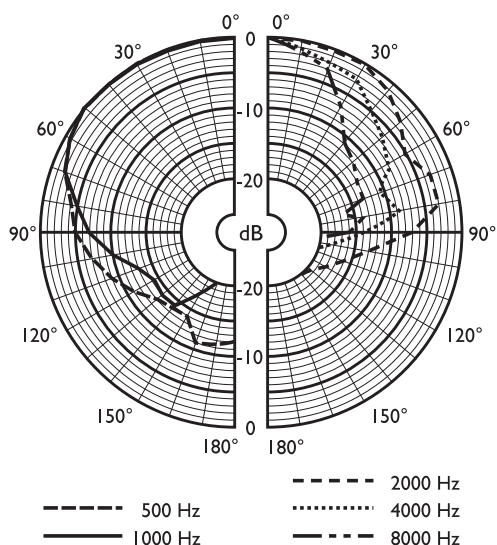
Dimensions in mm (in)



Circuit diagram



Frequency response



Polar diagram

	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
SPL 1.1	87	88	86	88	89	91	89
SPL max.	95	96	94	96	97	99	97
Q-factor	4	5.6	2.6	3	3.8	8.1	15
Efficiency	0.1 6	0.1 4	0.1 9	0.2 7	0.2 6	0.1 9	0. 06
H. angle	180	180	180	170	165	90	55
V. angle	180	180	180	170	165	90	55

Acoustical performance specified per octave

Technical specifications

Electrical*

Maximum power	9 W
Rated power	6 / 3 / 1.5 / 0.75 W
Sound pressure level at 6 W / 1 W (1 kHz, 1 m)	96 dB / 88 dB (SPL)
Sound pressure level at 6 W / 1 W (4 kHz, 1 m)	99 dB / 91 dB (SPL)

Effective frequency range (-10 dB)	60 Hz to 18 kHz
Opening angle at 1 kHz/4 kHz (-6 dB)	170° / 90°
Rated voltage	100 V
Rated impedance	1667 ohm
Connector	2-pole push-in terminal block

* Technical performance data acc. to IEC 60268-5

Mechanical

Diameter	160 mm (6.30 in)
Maximum depth	95 mm (3.74 in)
Ceiling thickness	9 to 25 mm (0.35 to 0.98 in)
Mounting cut-out	145 mm (5.71 in)
Speaker diameter	101.6 mm (4 in)
Weight	690 g (1.52 lb)
Color	White (RAL 9010)
Magnet weight	101 g (3.57 oz)

Environmental

Operating temperature	-25 °C to +55 °C (-13 °F to +131 °F)
Storage temperature	-40 °C to +70 °C (-40 °F to +158 °F)
Relative humidity	<95%

Ordering information

LBC 3950/01 Ceiling Loudspeaker

Ceiling loudspeaker 6 W, circular ABS grille, integral clips for easy mounting, push terminal block, white RAL 9010.

Order number **LBC3950/01**

Accessories

LBC 1256/00 EVAC Connection Adapter

Emergency connection adapter, 3-pole screw ceramic connector with a pre-mounted thermal fuse, to be installed in series with the 100 V primary connection of a loudspeaker unit, set of 100 pieces.

Order number **LBC1256/00**

LBC 3951/11 Ceiling Loudspeaker

4



Features

- ▶ Compact yet powerful
- ▶ Very wide opening angle
- ▶ Modern unobtrusive styling
- ▶ Installation friendly
- ▶ Splash - waterproof

The LBC 3951/11 is a compact, 6 W loudspeaker with a perforated metal grille. It has excellent audio performance and is easy to install with its integral mounting clips. The loudspeaker is IPx4 water protected from the front so it can be installed in humid environments.

Functions

The LBC 3951/11 has a perforated metal grille with a plastic surround, finished in an attractive off-white RAL color. The unobtrusive styling of this loudspeaker complements today's interior lighting.

The loudspeaker feature a very wide opening angle, which means fewer units are required to cover a given area. The wide frequency range means better speech and music reproduction. The unit is supplied with a 100 V matching transformer with taps on the primary winding for full-power, half-power, quarter-power and eighth-power radiation.

The loudspeaker (with special treated paper cone), is IPx4 water protected from the front and can be applied in humidity environments for example bathrooms, saunas, atriums and swimming pool areas.

Certifications and approvals

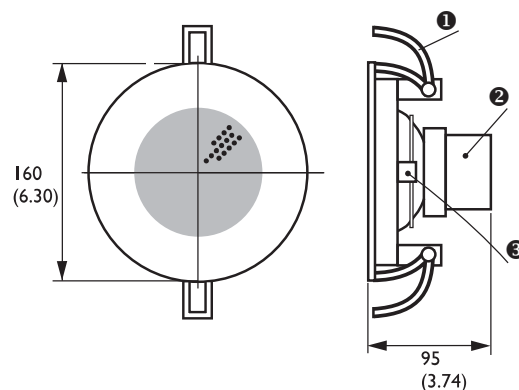
All plastic parts are manufactured from self-extinguishing high-impact ABS material (according to UL 94V0). All Bosch loudspeakers are designed to withstand operating at their rated power for 100 hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. Bosch has also developed the Simulated Acousti-

cal Feedback Exposure (SAFE) test to demonstrate that they can withstand two times their rated power for short durations. This ensures extra reliability under extreme conditions, leading to higher customer satisfaction, longer operating life, and much less chance of failure or performance deterioration.

Safety	acc. to EN 60065
Water protected	acc. to EN 60529, IPx4
Region	Certification
Europe	CE

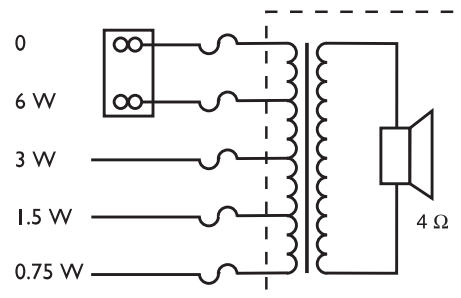
Installation/configuration notes

Installation is easy with integral clips that securely hold the ceiling loudspeaker in its cut-out. Ceilings from 9 to 25 mm thick can be accommodated. A template is also provided for accurately marking the cutout in ceiling panels. Wiring is via a connection block with push-type terminals, making installation possible without using any special tools. The terminal blocks have provision for loop-through wiring. The transformer is delivered wired for 6 W rated output power, but can easily be changed for other connections using the color-coded wires and terminal block.

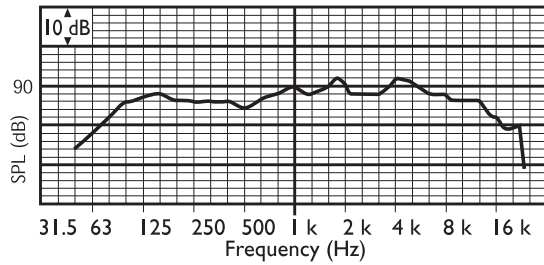


- 0 Clamp
- 1
- 0 Matching transformer
- 2
- 0 Terminal block
- 3

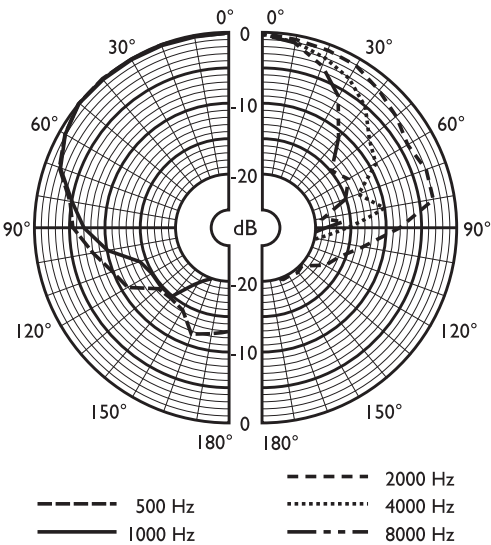
Dimensions in mm (inch)



Circuit diagram



Frequency response



Polar diagram

	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
SPL 1.1	87	87	85	88	89	89	86
SPL max.	95	95	93	96	97	97	94
Q-factor	4	5.6	2.2	3.2	4.6	10.7	19
Efficiency	0.16	0.11	0.08	0.25	0.22	0.09	0.03
H. angle	180	180	180	170	160	80	60
V. angle	180	180	180	170	160	80	60

Acoustical performance specified per octave

Technical specifications

Electrical*

Maximum power	9 W
Rated power	6 / 3 / 1.5 / 0.75 W
Sound pressure level at 6 W / 1 W (1 kHz, 1 m)	96 dB / 88 dB (SPL)
Sound pressure level at 6 W / 1 W (4 kHz, 1 m)	99 dB / 91 dB (SPL)

Effective frequency range (-10 dB)	60 Hz to 18 kHz
Opening angle at 1 kHz/4 kHz (-6 dB)	170° / 80°
Rated voltage	100 V
Rated impedance	1667 ohm
Connector	2-pole push-in terminal block

* Technical performance data acc. to IEC 60268-5

Mechanical

Diameter	160 mm (6.30 inch)
Maximum depth	95 mm (3.74 inch)
Ceiling thickness	9 to 25 mm (0.35 to 0.98 inch)
Mounting cut-out	145 mm (5.71 inch)
Speaker diameter	101.6 mm (4 in)
Weight	690 g (1.52 lb)
Color	White (RAL 9010)
Magnet weight	101 g (3.57 oz)

Environmental

Operating temperature	-25 °C to +55 °C (-13 °F to +131 °F)
Storage temperature	-40 °C to +70 °C (-40 °F to +158 °F)
Relative humidity	<95%

Ordering information

LBC 3951/11 Ceiling Loudspeaker

Ceiling loudspeaker 6 W, circular metal grille with an ABS surround, integral clips for easy mounting, push terminal block, white RAL 9010.

Order number **LBC3951/11**

Accessories

LBC 1256/00 EVAC Connection Adapter

Emergency connection adapter, 3-pole screw ceramic connector with a pre-mounted thermal fuse, to be installed in series with the 100 V primary connection of a loudspeaker unit, set of 100 pieces.

Order number **LBC1256/00**

LC3 Ceiling Loudspeaker Range

4



Features

- Suitable for speech and music reproduction
- Light weight ABS material
- Easy to install
- Optional back-box
- Unobtrusive design

The LC3-UC06 is a general purpose, cost-effective 6 W ceiling loudspeaker, suitable for 100 V connection with power tapping of: 6, 3 and 1.5 Watt.

The LC3-UC06-LZ is a low impedance (4 Ohm) version ceiling loudspeaker for direct connection to a low impedance amplifier output.

The optional back-box LC3-CBB fully protects the loudspeaker from dust, falling objects and prevents sound traveling via the ceiling cavity to adjacent areas.

The loudspeaker frame, grill and back-box are manufactured from self-extinguishing ABS according to UL 94V0.

Certifications and approvals

All Bosch loudspeakers are designed to withstand operating at their rated power for 100 continuous hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. Bosch has also developed the Simulated Acoustical Feedback Exposure (SAFE) test to demonstrate that they can withstand two times their rated power for short durations. This ensures improved reliability under extreme conditions, leading to higher customer satisfaction, longer operating life, and lessens the chance of failure or performance deterioration.

CE	Declaration of Conformity
Safety	According to EN 60065
Region	Certification
Europe	CE

Installation/configuration notes

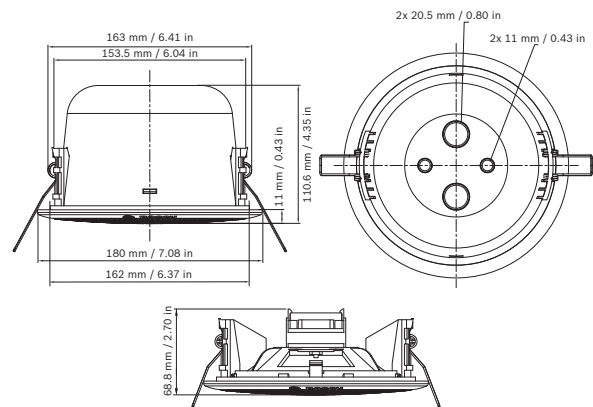
Installation is easy with integral spring arms that securely hold the ceiling loudspeaker in its cut-out. Ceilings from 5 to 25 mm thick can be accommodated. A template is also provided for accurately marking the cut-out in ceiling panels.

The electrical connection is by means of flying leads, with each color connected to a different primary tap of the matching transformer.

Three primary taps for 100 V are provided on the matching transformer to allow selection of nominal full-power, half-power and quarter-power.

The optional back-box (LC3-CBB) protects the rear of the loudspeaker from dust, falling objects, makes the unit vermin proof and prevents sound traveling via the ceiling cavity to adjacent areas.

The back-box is assembled with the loudspeaker by means of a snap-in construction and has knock-out holes for two grommets (11 mm) and for two cable glands (20.5 mm).



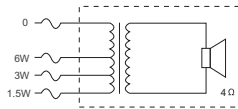
Mechanical diagram LC3-UC06 and LC3-CBB



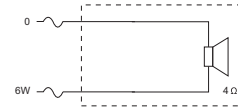
LC3-UC06 and LC3-CBB



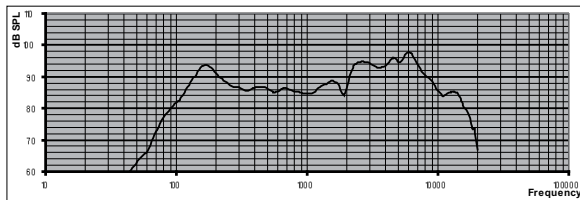
LC3-CBB



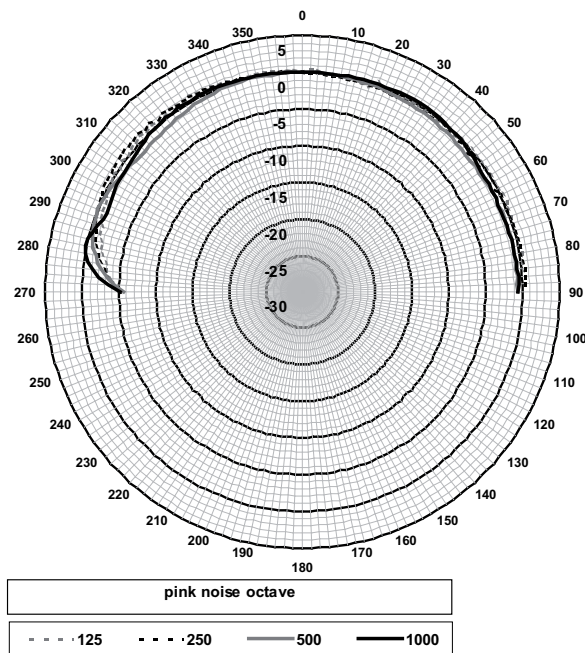
Circuit diagram LC3-UC06



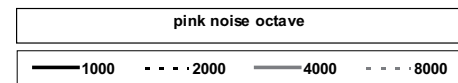
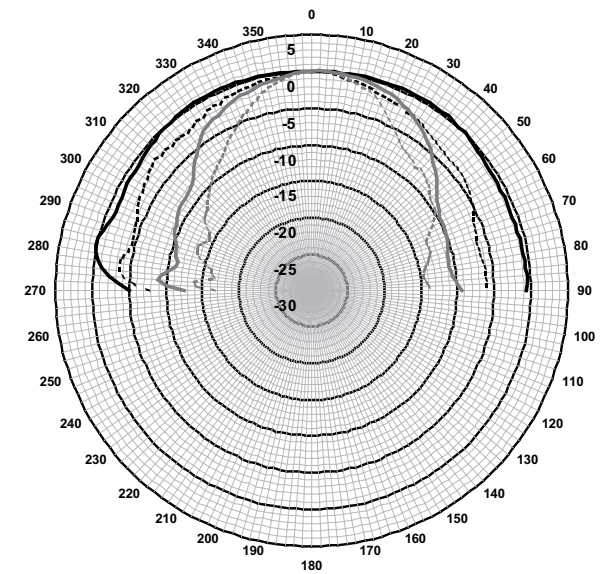
Circuit diagram LC3-UC06-LZ



Frequency response LC3-UC06



LC3-UC06 horizontal/vertical polar diagram (low frequency). Normalized at 0-degrees axis.



LC3-UC06 horizontal/vertical polar diagram (low frequency). Normalized at 0-degrees axis.

Octave band sensitivity LC3-UC06 *

	Octave SPL 1W/1m	Total octave SPL 1W/1m	Total octave SPL Pmax/1m
125 Hz	90.7	-	-
250 Hz	89.7	-	-
500 Hz	86.3	-	-
1000 Hz	85.9	-	-
2000 Hz	91.4	-	-
4000 Hz	94.5	-	-
8000 Hz	93.4	-	-
A-weighted	-	89.1	95.9
Lin-weighted	-	89.7	96.7

Octave band opening angles LC3-UC06

	Horizontal	Vertical	
125 Hz	180	180	
250 Hz	180	180	
500 Hz	180	180	
1000 Hz	180	180	
2000 Hz	180	180	
4000 Hz	85	85	
8000 Hz	56	56	

Acoustical performance specified per octave

* (all measurements are done with a pink noise signal; the values are in dB SPL)

Parts included

Quantity	Components
1	LC3-UC06 Ceiling Loudspeaker
1	Installation Instruction
1	Ceiling cut-out template

Technical specifications

Electrical*

	LC3-UC06	LC3-UC06-LZ
Description	Ceiling loudspeaker	
Maximum power	9 W	9 W
Rated power	6 W (6/3/1.5 W)	6 W
Sound pressure level at 6 W power / 1 W (1 kHz, 1 m)	94 dB / 86 dB (SPL)	94 dB / 86 dB (SPL)
Sound pressure level at 6 W power / 1 W (4 kHz, 1 m)	103 dB / 95 dB (SPL)	103 dB / 95 dB (SPL)
Opening angle at 1 kHz / 4 kHz (-6 dB)	180° / 85°	180° / 85°
Effective frequency range (-10 dB)	90 Hz to 20 kHz	90 Hz to 20 kHz
Rated voltage	100 V	4.9 V
Rated impedance	1667 Ohm	4 Ohm
Electrical connection	Flying leads: Length is 150 mm (5.90 in)	

*Technical performance according to IEC 60268-5

Mechanical

	LC3-UC06	LC3-UC06-LZ
Description	Ceiling Loudspeaker	
Diameter	180 mm (7.08 in)	180 mm (7.08 in)
Mounting cut-out	167 mm (6.57 in)	167 mm (6.57 in)
Max. ceiling thickness	5 to 25 mm (0.19 to 0.98 in)	5 to 25 mm (0.19 to 0.98 in)
Maximum depth	59 mm (2.32 in)	59 mm (2.32 in)
Material (frame, front grille)	ABS	ABS
Weight	475 g (1.04 lb)	337 g (0.74 lb)
Color	White (RAL 9010)	White (RAL 9010)

	LC3-CBB
Description	Back-Box
Diameter	148 mm (5.82 in)
Maximum depth	96.3 mm (3.79 in)
Material	ABS
Weight	110 g (0.24 lb)
Color	White (RAL 9010)

Environmental

Operating temperature	-25 °C to +55 °C (-13 °F to +131 °F)
Storage temperature	-40 °C to +70 °C (-40 °F to +158 °F)
Relative humidity	<95%

Ordering information

LC3-UC06 Ceiling Loudspeaker

Ceiling loudspeaker 6 W, circular ABS grille and frame, ceiling mounted by 2 integral spring arms, white RAL 9010.

Order number **LC3-UC06**

LC3-UC06-LZ Ceiling Loudspeaker

Ceiling loudspeaker 6 W, low impedance (4 ohm) version, circular ABS grille and frame, ceiling mounted by 2 integral spring arms, white RAL 9010.

Order number **LC3-UC06-LZ**

Accessories

LC3-CBB Back Box

Back box for LC3 ceiling speakers, fully protects the loudspeaker from dust and dripping water, makes the unit vermin proof and prevents sound traveling via the ceiling cavity to adjacent areas, white RAL 9010.

Order number **LC3-CBB**

LC3-UC06E Ceiling Loudspeaker



Features

- Suitable for speech and music reproduction
- Light weight ABS material
- Easy to install
- Unobtrusive design
- EN 54-24 certified

The LC3-UC06E is a general purpose, cost-effective 6 W ceiling loudspeaker, suitable for 100 V connection with power tapping of: 6, 3, 1.5 and 0.75 Watt.

The optional back-box LC3-CBB fully protects the loudspeaker from dust and dripping water from above, according to IP21C.

The loudspeaker frame, grill and back-box are manufactured from self-extinguishing ABS according to UL 94V0.

Certifications and approvals

Quality assurance

All Bosch loudspeakers are designed to withstand operating at their rated power for 100 hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. Bosch has also developed the Simulated Acoustical Feedback Exposure (SAFE) test to demonstrate that they can withstand two times their rated power for short durations. This ensures improved reliability under extreme conditions, leading to higher customer satisfaction, longer operating life, and lessens the chance of failure or performance deterioration.

Emergency	According to BS 5839-8 According to EN 54-24
CE	Declaration of Conformity
Safety	According to EN 60065
UL compliancy	According to UL 94 V 0



Notice

To be compliant with EN 54-24:

The loudspeaker must be installed with the back-box LC3-CBB.

Region	Certification
Europe	CE
Poland	CNBOP

Installation/configuration notes

Installation is easy with integral spring arms that securely hold the ceiling loudspeaker in its cut-out. Ceilings from 5 to 25 mm thick can be accommodated. A template is also provided for accurately marking the cut-out in ceiling panels.

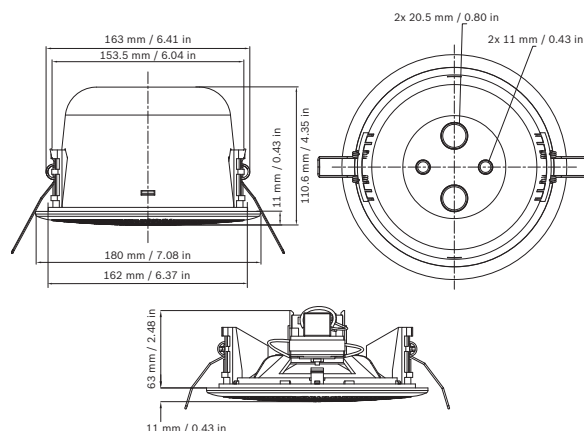
The loudspeaker has built-in protection to ensure that, in the event of a fire, damage to the loudspeaker does not result in failure of the circuit to which it is connected. In this way, system integrity is maintained; ensuring loudspeakers in other areas can still be used to inform people of the situation.

The loudspeaker has a ceramic screw-terminal connection block, thermal fuse and heat-resistant high temperature wiring.

Four primary taps for 100 V are provided on the matching transformer to allow selection of nominal full-power, half-power, quarter-power and one-eighth-power.

The optional back-box (LC3-CBB) protects the rear of the loudspeaker from dust, falling objects, makes the unit vermin proof and prevents sound traveling via the ceiling cavity to adjacent areas.

The back-box is assembled with the loudspeaker by means of a snap-in construction and has knock-out holes for two grommets (11 mm) and for two cable glands (20.5 mm).



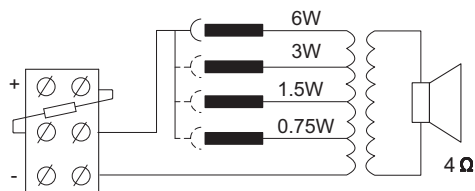
Mechanical diagram LC3-UC06E and LC3-CBB



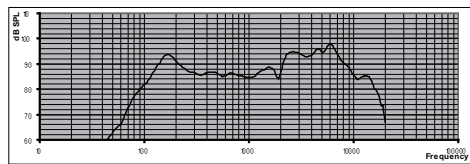
LC3-UC06E and LC3-CBB



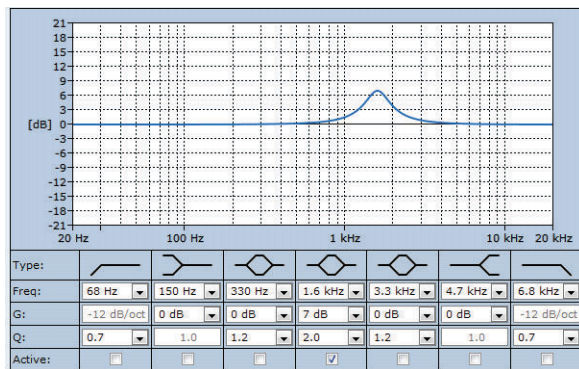
LC3-CCB



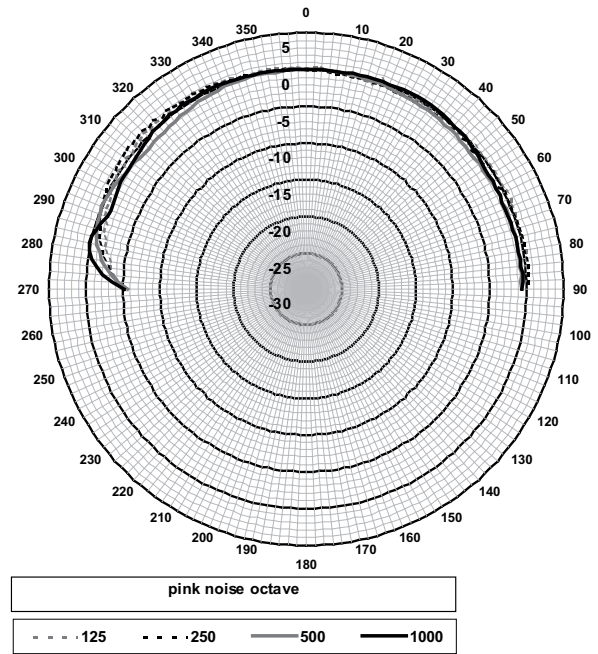
Circuit diagram LC3-UC06E



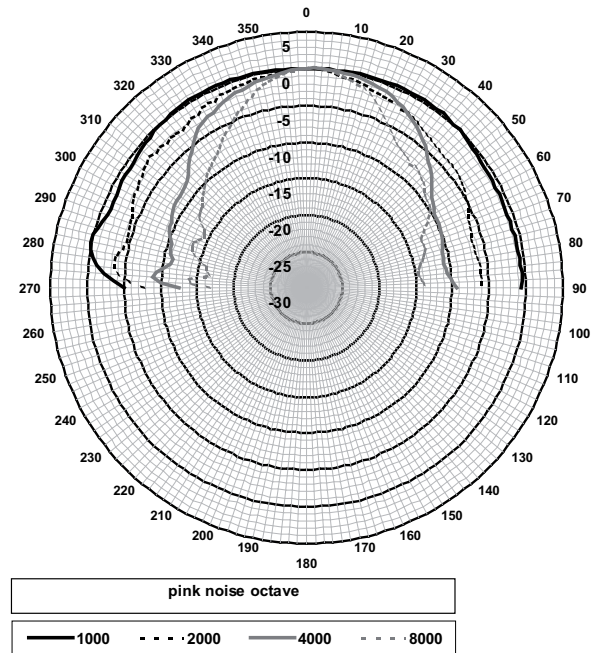
Frequency-response LC3-UC06E



LC3-UC06E specified active equalization required for EN 54-24



LC3-UC06E horizontal/vertical polar diagram (low frequency). Normalized at 0-degrees axis



LC3-UC06E horizontal/vertical polar diagram (high frequency). Normalized at 0-degrees axis

Octave band sensitivity LC3-UC06E *

	Octave SPL 1W/1m	Total octave SPL 1W/1m	Total octave SPL Pmax/1m
125 Hz	91.3	-	-
250 Hz	89.1	-	-

500 Hz	86.2	-	-
1000 Hz	85.5	-	-
2000 Hz	89.4		
4000 Hz	93.2	-	-
8000 Hz	92.7	-	-
A-weighted	-	88.0	94.7
Lin-weighted	-	89.0	96.0

Octave band opening angles LC3-UC06E

	Horizontal	Vertical
125 Hz	180	180
250 Hz	180	180
500 Hz	180	180
1000 Hz	180	180
2000 Hz	180	180
4000 Hz	85	85
8000 Hz	56	56

Acoustical performance specified per octave

* (all measurements are done with a pink noise signal; the values are in dB SPL)

Parts included

Quantity	Components
1	LC3-UC06E Ceiling Loudspeaker
1	Installation Instruction
1	Ceiling cut-out template

Technical specifications

Electrical

	LC3-UC06E
Description	Ceiling loudspeaker
Maximum power	9 W
Rated power	6 W (6/3/1.5/0.75 W)
Sound pressure level at 6 W power / 1 W (1 kHz, 1 m)	94 dB / 86 dB (SPL)
Opening angle at 1 kHz / 4 kHz (-6 dB)	180° / 85°
Effective frequency range (-10 dB)	90 Hz to 20 kHz
Rated voltage	100 V
Rated impedance	1667 Ohm

Electrical connection	3-pole ceramic screw terminal block
Acceptable wire gauge	0.5 – 3 mm ²

Mechanical

	LC3-UC06E	LC3-CBB
Description	Ceiling Loudspeaker	Back-Box
Diameter	180 mm (7.08 in)	148 mm (5.82 in)
Mounting cut-out	167 mm (6.57 in)	-
Max. ceiling thickness	5 to 25 mm (0.19 to 0.98 in)	-
Maximum depth	63 mm (2.48 in)	96.3 mm (3.79 in)
Material (frame, front grille)	ABS	ABS
Weight	538 g (1.19 lb)	110 g (0.24 lb)
Color	White (RAL 9010)	White (RAL 9010)

Environmental

Operating temperature	-25 °C to +55 °C (-13 °F to +131 °F)
Storage temperature	-40 °C to +70 °C (-40 °F to +158 °F)
Relative humidity	<95%



1438

Bosch Security Systems BV
Torenallee 49, 5617BA Eindhoven, The Netherlands
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1438-CPD-0336

EN 54-24:2008

Loudspeaker for voice alarm systems
for fire detection and fire alarm systems for buildings

Ceiling loudspeaker 6 W and accessories
LC3-UC06E, LC3-CBB
Type A

Ordering information

LC3-UC06E Ceiling Loudspeaker

Ceiling loudspeaker 6 W, circular ABS grille and frame, ceiling mounted by 2 integral spring arms, EN54-24 certified, white RAL 9010.

Order number **LC3-UC06E**

Accessories**LC3-CBB Back Box**

Back box for LC3 ceiling speakers, fully protects the loudspeaker from dust and dripping water, makes the unit vermin proof and prevents sound traveling via the ceiling cavity to adjacent areas, white RAL 9010.

Order number **LC3-CBB**

LC5-WC06E4 Ceiling Loudspeaker



Features

- ▶ Suitable for speech and music reproduction
- ▶ Extreme compact size
- ▶ Suitable for use in humidity-, chlorine- and salty environments
- ▶ Selectable 70 V, 100 V and 8 Ohm input
- ▶ EN 54-24 certified

The LC5-WC06E4 is an extreme compact ceiling loudspeaker, suitable for speech and background music reproduction. The design of the front grille perfectly matches with current available recessed luminaires, integrating light and sound.

The optional back-box LC5-CBB fully protects the rear of the loudspeaker from dust and dripping water from above, making the combination IP 44 protected.

The loudspeaker frame, grille and back-box are manufactured from self-extinguishing ABS according to UL 94 V 0.

This ceiling loudspeaker is suitable for use in low ceiling applications with low noise level. The small driver used in the unit stands for delivering good sound quality from a small sized unit and provides a wide opening angle for the important frequency octaves. Fewer loudspeakers are needed to cover a given area, and the noticeable "fading" that occur as a listener walks from one loudspeaker to another area is eliminated.

The loudspeaker (with assembled back-box) is suitable for use in humidity-, chlorine- and salty environments.

Certifications and approvals

Quality assurance

All Bosch loudspeakers are designed to withstand operating at their rated power for 100 hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. Bosch has also developed the Simulated Acoustical Feedback Exposure (SAFE) test to demonstrate that they can withstand two times their rated power for short durations. This ensures improved reliability under

extreme conditions, leading to higher customer satisfaction, longer operating life, and lessens the chance of failure or performance deterioration.

Safety	According to EN 60065
Water and dust protected*	According to EN 60529 IP 44
Emergency*	According to EN 54-24 Compliant to BS 5839 part 8
Salt mist*	According to IEC 60068-2-11
Chlorine resistant*	According to IEC 60068-2-60

* With LC5-CBB back-box.

Region	Certification
Europe	CE
Poland	CNBOP

Installation/configuration notes

Installation is easy with two integral leaf springs that securely hold the loudspeaker in its cut-out. The integral leaf springs can be adjusted in three positions to accommodate ceiling thicknesses from 5 mm to 25 mm. The size of the ceiling cut-out opening is standardized on available 3" (76.2 mm) cutting hole saws.

No tool required for fitting the loudspeaker into the ceiling cut-out.

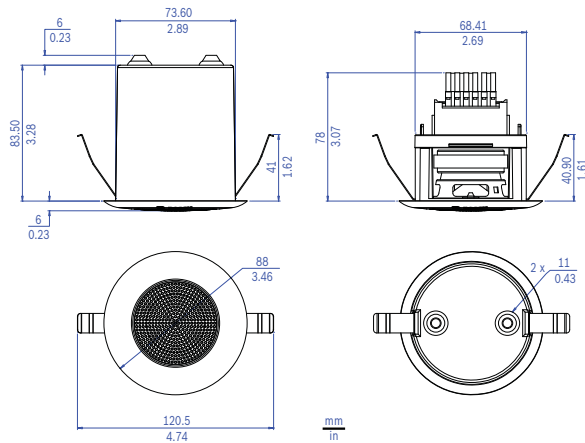
The loudspeaker has built-in protection to ensure that, in the event of a fire, damage to the loudspeaker does not result in failure of the circuit to which it is connected. In this way, system integrity is maintained; ensuring loudspeakers in other areas can still be used to inform people of the situation.

The loudspeaker has ceramic screw-terminal connection blocks, thermal fuse and heat-resistant high temperature wiring.

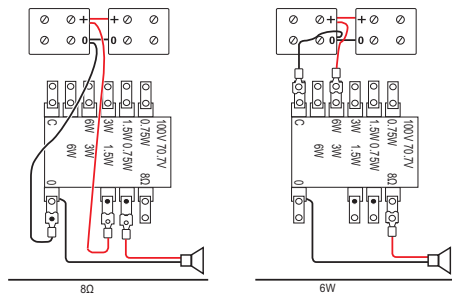
Connections are made using two 2-way screw terminal blocks at the rear of the loudspeaker, where each incoming and outgoing conductor of the same potential can be connected to a separate terminal.

Power tapping on both 70 V and 100 V allows selection of full-power, half-power, quarter-power and eight-power radiation, and 8 Ohm.

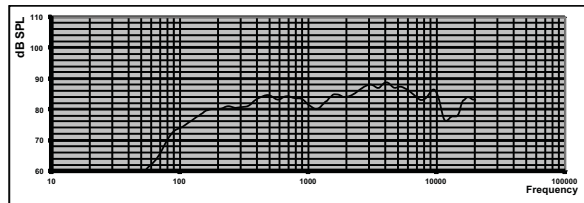
The optional back-box (LC5-CBB) protects the rear of the loudspeaker from water and dust, falling objects, makes the unit vermin proof and prevents sound traveling via the ceiling cavity to adjacent areas. The back-box is assembled with the loudspeaker by means of a snap-in construction and has on top two knock-out holes for two rubber cable grommets (11 mm/0.43"), standard supplied.



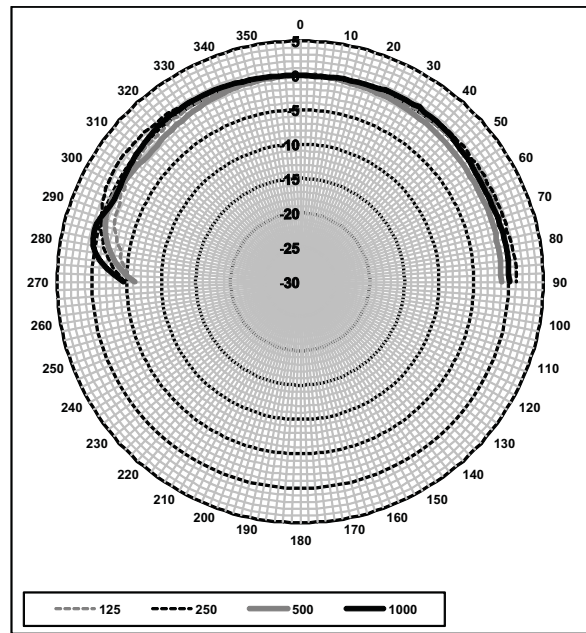
Dimensions LC5-WC06E4 and LC5-CBB



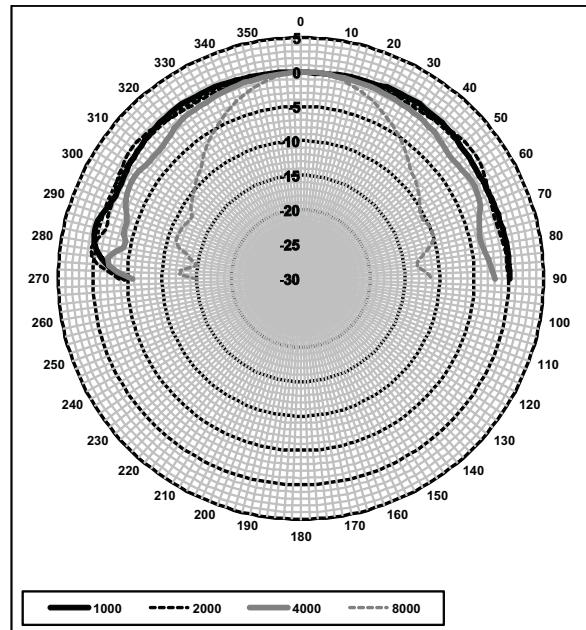
Circuit diagrams 8 Ohm and 6 W connection



Frequency response



Horizontal/vertical polar diagram (low frequency). Normalized at 0-degrees axis.



Horizontal/vertical polar diagram (high frequency). Normalized at 0-degrees axis.

Octave band sensitivity *

	Octave SPL 1W/1m	Total octave SPL 1W/1m	Total octave SPL Pmax/1m
125 Hz	77.3	-	-
250 Hz	80.8	-	-
500 Hz	83.6	-	-
1000 Hz	82.1	-	-

2000 Hz	84.8		
4000 Hz	87.3	-	-
8000 Hz	84.4	-	-
A-weighted	-	82.0	88.6
Lin-weighted	-	82.5	89.4

Octave band opening angles *

	Horizontal	Vertical	
125 Hz	180	180	
250 Hz	180	180	
500 Hz	180	180	
1000 Hz	180	180	
2000 Hz	180	180	
4000 Hz	180	180	
8000 Hz	72	72	

Acoustical performance specified per octave

* (all measurements are done with a pink noise signal; the values are in dBSPL)

Parts included

Quantity	Components
1	LC5-WC06E Ceiling Loudspeaker
1	Installation Instruction
1	Ceiling cut-out template

Technical specifications

Electrical*

	LC5-WC06E4
Description	Ceiling Loudspeaker
Maximum power	9 W
Rated power	6 W (6/3/1.5/0.75W)
Sound pressure level at 6 W power / 1 W (1 kHz, 1 m)	90 dB / 82 dB (SPL)
Opening angle at 1 kHz / 4kHz (-6 dB)	180° / 180°
Effective frequency range (-10 dB)	85 Hz to 20 kHz
Rated voltage	6.93 / 70 / 100 V
Rated impedance	8 / 835 / 1667 Ohm
Electrical connection	2x two-way screw terminal block
Acceptable wire gauge	0.5 – 2 mm

Mechanical

	LC5-WC06E4
Description	Ceiling Loudspeaker
Diameter	88 mm (3.46 in)
Mounting cut-out	76 mm (2.99 in)
Min./Max. ceiling thickness	5 to 25 mm (0.19 to 0.98 in)
Maximum depth	78 mm (3.07 in)
Material	ABS (V 0)
Weight	395 g (0.87lb)
Color	White (RAL 9003)

	LC5-CBB
Description	Back-Box
Diameter	75 mm (2.95 in)
Maximum depth	83.5 mm (3.29 in)
Material	ABS (V 0)
Weight	41 g (0.09 lb)
Color	White (RAL 9003)

Environmental

Operating temperature	-25 °C to +55 °C (-13 °F to +131 °F)
Storage temperature	-40 °C to +70 °C (-40 °F to +158 °F)
Relative humidity	<95%



1438

Bosch Security Systems BV
Torenallee 49, 5617 BA Eindhoven, The Netherlands
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1438-CPR-0372

EN 54-24:2008

Loudspeaker for voice alarm systems
for fire detection and fire alarm systems for buildings

Ceiling Loudspeaker 6 W and accessories
LC5-WC06E4 and LC5-CBB
Type B

Ordering information

LC5-WC06E4 Ceiling Loudspeaker

Ceiling loudspeaker 6 W, circular, ABS grille, compact design, ceiling mounted by two leaf springs, white RAL 9003.

Order number **LC5-WC06E4**

LC5-CBB Back-Box

Back box for mounting onto the LC5 loudspeaker, protects the rear of the loudspeaker from dust and dripping water, makes the unit vermin proof, and prevents sound traveling via the ceiling cavity to adjacent areas, white RAL 9003.

Order number **LC5-CBB**

LHM 0606/xx Ceiling Loudspeaker



Features

- Suitable for speech and music reproduction
- Flush-mounting in ceiling cavity
- Easy to install
- Simple power setting
- Unobtrusive in virtually all interiors

The LHM 0606/xx is a general purpose, 6 W, cost-effective ceiling loudspeaker. The /00 version is screw mounted and the /10 version is clamp mounted into the ceiling. An optional fire dome LBC 3080/01 is available.

Functions

An economic flushing-mounting ceiling loudspeaker is available for general purpose applications. This full range loudspeaker is suitable for both speech and music reproduction in shops, department stores, schools, offices, sports halls, hotels and restaurants.

The speaker assembly consists of a single-piece, 6W dual cone loudspeaker and frame, with a 100 V, matching transformer mounted on the back. A circular metal grille is an integrated part of the front. The appearance and neutral white color has been selected to be unobtrusive in virtually all interiors.

Certifications and approvals

All Bosch loudspeakers are designed to withstand operating at their rated power for 100 hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. Bosch has also developed the Simulated Acoustical Feedback Exposure (SAFE) test to demonstrate that they can withstand two times their rated power for short durations. This ensures extra reliability under extreme conditions, leading to higher customer satisfaction, longer operating life, and much less chance of failure or performance deterioration.

Safety

acc. to EN 60065

Installation/configuration notes

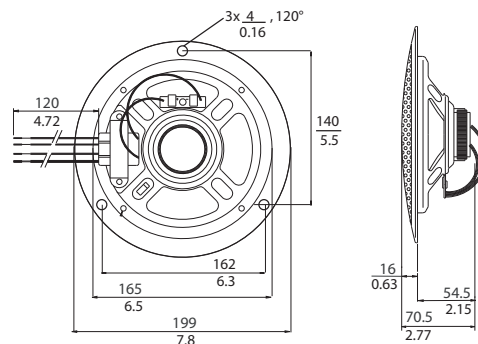
Mounting

The assembly is simply and quickly installed into a hole in the ceiling cavity. The /00 version is secured with the three white screws (supplied). The /10 version is secured by two integral spring-loaded ceiling locking clamps. A circular template for marking a 165 mm diameter hole is included with the loudspeaker.

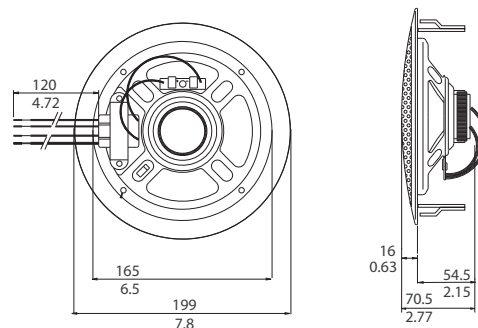
Three wires on the matching transformer (primary) provide for selection of nominal full-power, half-power or quarter-power radiation.

Fire dome

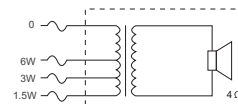
During a fire, the ceiling cavity in which loudspeakers are installed can allow flames to spread throughout a building. To prevent fire entering the cavity via the loudspeaker, the ceiling loudspeaker can be fitted with a protective steel fire dome (LBC 3080/01). This optional fire dome is mounted on the loudspeaker assembly using four self-tapping screws, supplied as standard. There are four knock-out holes; two (2) for rubber grommets (supplied) and two (2) for cable glands. (PG13).



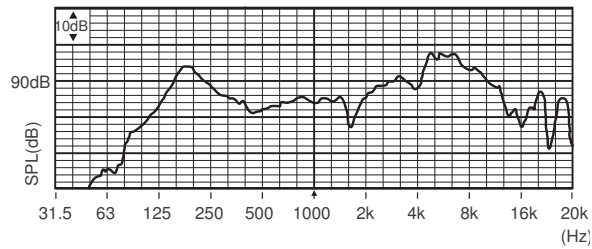
LHM 0606/00 Dimensions in mm / inch



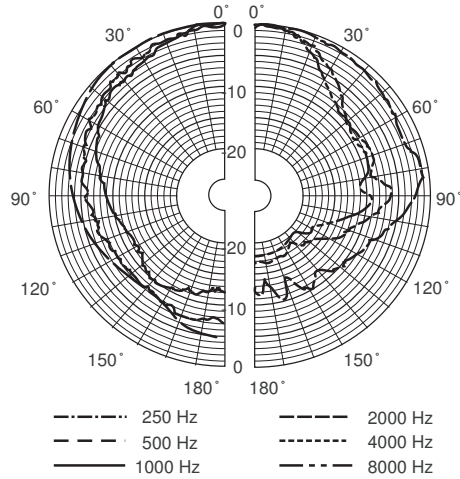
LHM 0606/10 Dimensions in mm / inch



Circuit diagram



Frequency response



Polar diagram (measured with pink noise)

Octave band sensitivity *

	Octave SPL 1W/1m	Total octave SPL 1W/1m	Total octave SPL Pmax/1m
125 Hz	91.3	-	-
250 Hz	85.3	-	-
500 Hz	85.3	-	-
1000 Hz	85.7	-	-
2000 Hz	90.5	-	-
4000 Hz	98.2	-	-
8000 Hz	91.1	-	-
A-weighted	-	90.4	97.1
Lin-weighted	-	90.4	97.6

Octave band opening angles

	Horizontal	Vertical
125 Hz	180	180
250 Hz	180	180
500 Hz	180	180
1000 Hz	180	180
2000 Hz	122	122

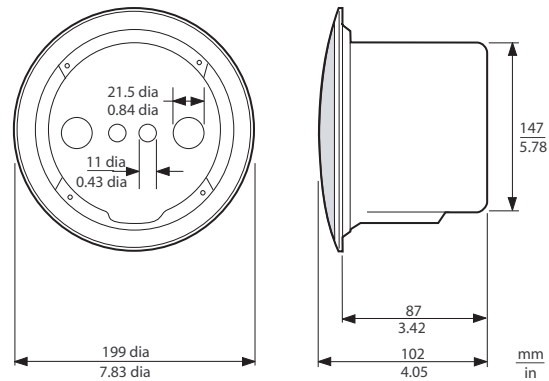
4000 Hz	51	51
8000 Hz	42	42

Acoustical performance specified per octave

* (all measurements are done with a pink noise signal; the values are in dB SPL)



LBC 3080/01 Fire Dome (optional)



LHM 0606/xx + LBC 3080/01 Fire dome assembly dimensions in mm

Technical specifications

Electrical

Maximum power	9 W
Rated power	6 / 3 / 1.5 W
Sound pressure level at 6 W / 1 W (1 kHz, 1 m)	94 dB / 86 dB (SPL)
Sound pressure level at 6 W / 1 W (4 kHz, 1 m)	106 dB / 98 dB (SPL)
Effective frequency range (-10 dB)	80 Hz to 18 kHz
Opening angle at 1 kHz/4 kHz (-6 dB)	175° / 55°
Rated voltage	100 V
Rated impedance	1667 ohm
Connection	Flying leads

Mechanical

Diameter	199 mm (7.8 in)
Maximum depth	70.5 mm (2.8 in)

Mounting cut-out	165 + 5 mm (6.5 + 0.20 in)
Speaker diameter	152.4 mm (6 in)
Weight	620 g (1.37 lb)
Color	White (RAL 9010)

Environmental

Operating temperature	-25 °C to +55 °C (-13 °F to +131 °F)
Storage temperature	-40 °C to +70 °C (-40 °F to +158 °F)
Relative humidity	<95%

Ordering information

LHM 0606/00 Ceiling Loudspeaker

Ceiling loudspeaker 6 W, circular metal grille, ceiling-mounted with 3 (white) screws (supplied), white RAL 9010.

Order number **LHM0606/00**

LHM 0606/10 Ceiling Loudspeaker

Ceiling loudspeaker 6 W, circular metal grille, ceiling-mounted with 2 spring clamps, white RAL 9010.

Order number **LHM0606/10**

Accessories

LBC 1256/00 EVAC Connection Adapter

Emergency connection adapter, 3-pole screw ceramic connector with a pre-mounted thermal fuse, to be installed in series with the 100 V primary connection of a loudspeaker unit, set of 100 pieces.

Order number **LBC1256/00**

LBC 3080/01 Fire Dome

Metal fire dome for the LBC 3087/41, LBC 3090/01, LBC 3090/31, LHM 0606/00, LHM 0606/10, and LHM 0626/00 ceiling loudspeakers, EN54-24 certified, flame red RAL 3000.

Order number **LBC 3080/01**

LBC 3080/11 Fire Dome

Metal fire dome for LBC 3087/41, LBC 3090/01, LBC 3090/31, LHM 0606/00, LHM 0606/10 and LHM 0626/00 ceiling loudspeakers, white RAL 9010.

Order number **LBC3080/11**

LBC 3086/41 Ceiling Loudspeaker

4



Features

- Suitable for speech and music reproduction
- Easy to install
- Optional certified fire dome
- EN 54-24 certified

Voice alarm loudspeakers are specifically designed for use in buildings where performance of systems for verbal evacuation announcements is governed by regulations. The LBC 3086/41 is designed for use in voice alarm systems.

Functions

The loudspeaker unit is a 6 W, dual-cone loudspeaker with an integrated circular metal grille. A 100 V matching transformer is mounted on the back. The appearance and neutral white RAL color have been selected to be unobtrusive in virtually all interiors.

The loudspeaker has built-in protection to ensure that, in the event of a fire, damage to the loudspeaker does not result in failure of the circuit to which it is connected. In this way, system integrity is maintained, ensuring loudspeakers in other areas can still be used to inform people of the situation. The loudspeaker has ceramic terminal blocks, thermal fuse and heat-resistant, high-temperature wiring. It can also be fitted with an optional fire-dome to increase protection of the cable termination.

Certifications and approvals

All Bosch loudspeakers are designed to withstand operating at their rated power for 100 hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. Bosch has also developed the Simulated Acoustical Feedback Exposure (SAFE) test to demonstrate that they can withstand two times their rated power for short durations. This ensures extra reliability under ex-

treme conditions, leading to higher customer satisfaction, longer operating life, and much less chance of failure or performance deterioration.

Safety	acc. to EN 60065
* Emergency	acc. to BS 5839-8 /* EN 54-24 / EN 60849
* Water and dust protection	acc. to EN 60529-IP32



Notice

* only in combination with the LBC 3081/02 Fire Dome

Region	Certification
Europe	CE
	CE
	CPD
Poland	CNBOP

Installation/configuration notes

Installation

The assembly is quickly installed into a hole in the ceiling cavity. A separate mounting ring, secured by three integral spring-loaded ceiling locking clamps (for ceilings and wall boards from 9 to 25 mm thick) holds it in place. The clamps are provided with protective rubbers to avoid damaging soft ceiling material. A circular template for marking a 196 mm (7.7 in) diameter hole is included with the loudspeaker. The loudspeaker unit is held in the mounting ring with a bayonet fitting.

Terminal Block

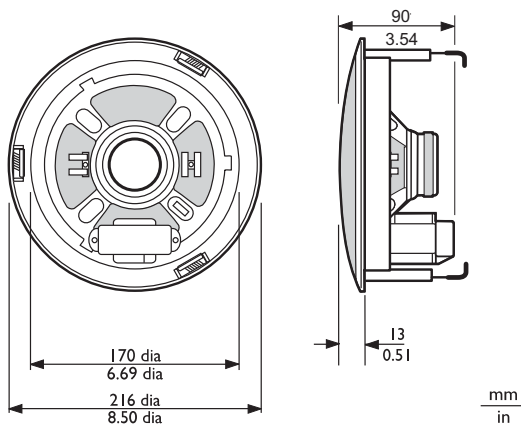
The unit has a three-way terminal block with screw connections suitable for loop-through wiring. Four primary taps are provided on the matching transformer to allow selection of nominal full-power, half-power, quarter-power or eighth power radiation (i.e. in 3 dB steps).

LBC 3081/02 Fire Dome Assembly

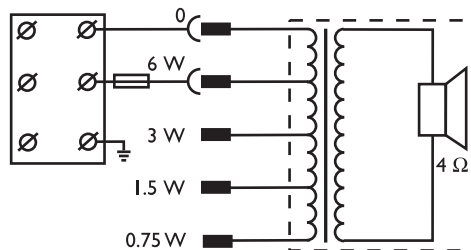
During a fire, the ceiling cavity in which loudspeakers are installed can allow flames to spread throughout a building. To prevent fire entering the cavity via the loudspeaker, the ceiling loudspeaker can be fitted with a protective steel fire dome (LBC 3081/02).



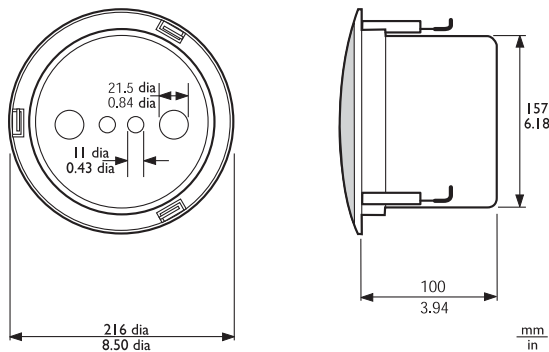
LBC 3086/41 with LBC 3081/02 fire dome assembly



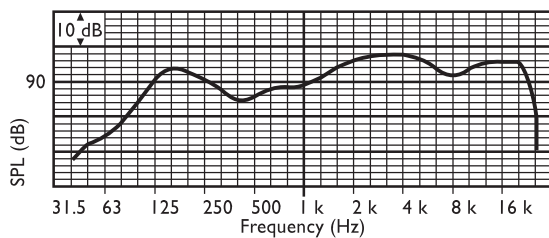
Dimensions in mm (in)



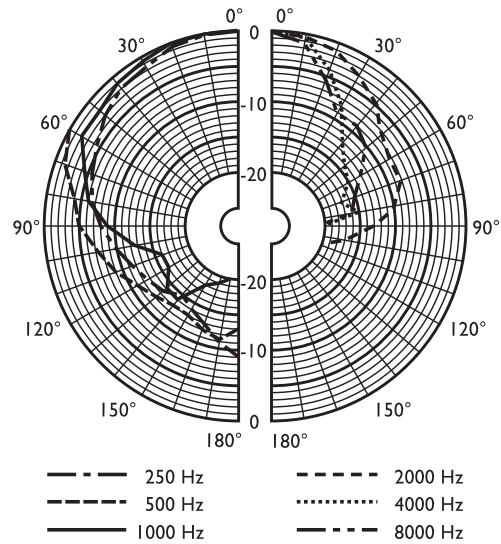
Circuit diagram



LBC 3086/41 with LBC 3081/02 fire dome assembly dimensions in mm (in)



Frequency response



Polar diagram (measured with pink noise)

	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
SPL 1.1	92	90	85	90	96	98	92
SPL max.	100	98	93	98	104	106	100
Q-factor	4.8	4.4	2.5	3.7	8.3	20	21
Efficiency	0.42	0.29	0.16	0.34	0.6	0.4	0.1
H. angle	160	160	180	160	90	50	40
V. angle	160	160	180	160	90	50	40

Acoustical performance specified per octave

Parts included

Quantity	Components
1	LBC 3086/41 Ceiling Loudspeaker
1	196 mm circular template

Technical specifications

Electrical*

Maximum power	9 W
Rated power	6 / 3 / 1.5 / 0.75 W
Sound pressure level at 6 W / 1 W (1 kHz, 1 m)	98 dB / 90 dB (SPL)
Effective frequency range (-10 dB)	90 Hz to 20 kHz
Opening angle at 1 kHz / 4 kHz (-6 dB)	180° / 50°

Rated voltage	100 V
Rated impedance	1667 ohm
Connector	3-pole screw terminal block

* Technical performance data acc. to IEC 60268-5

Mechanical

Diameter	216 mm (8.5 in)
Maximum depth	90 mm (3.54 in)
Ceiling thickness	9 to 25 mm (0.35 to 0.98 in)
Mounting cut-out	196 mm (7.7 in)
Weight	1.3 kg (2.86 lb)
Color	White (RAL 9010)
Magnet weight	150 g (5.3 oz)

Environmental

Operating temperature	-25 °C to +55 °C (-13 °F to +131 °F)
Storage temperature	-40 °C to +70 °C (-40 °F to +158 °F)
Relative humidity	<95%

 1438
Bosch Security Systems BV Torenallee 49, 5617 BA Eindhoven, The Netherlands 10 1438-CPD-0193
EN 54-24:2008 Loudspeaker for voice alarm systems for fire detection and fire alarm systems for buildings Ceiling Loudspeaker 6 W with metal Fire-dome LBC3086/41 and LBC3081/02 Type A

Ordering information

LBC 3086/41 Ceiling Loudspeaker

Ceiling loudspeaker, 6 W, integrated circular metal grille, mounting-ring with three spring-loaded ceiling clamps and bayonet loudspeaker mounting, white RAL 9010.

Order number **LBC3086/41**

Accessories

LBC 3081/02 Fire Dome

Metal fire dome for LBC 3086/41 ceiling loudspeaker, flame red RAL 3000.

Order number **LBC3081/02**

LBC 3087/41 Ceiling Loudspeaker



Features

- ▶ Suitable for speech and music reproduction
- ▶ Screw mounting
- ▶ Simple power setting
- ▶ EN 54-24 certified

Voice alarm loudspeakers are specifically designed for use in buildings where performance of systems for verbal evacuation announcements is governed by regulations. The LBC 3087/41 is designed for use in voice alarm systems and is compliant with British standard BS 5839-8.

Functions

The LBC 3087/41 is an economic flush-mounting ceiling loudspeaker for general-purpose applications. It is a full-range loudspeaker for speech and music reproduction in shops, department stores, schools, offices, sports halls, hotels and restaurants.

The LBC 3087/41 has a single-piece, 6 W, dual-cone loudspeaker. A 100 V matching transformer is mounted on the back of the frame. The circular metal grille is an integrated part of the front, and is finished in an unobtrusive white color (RAL 9010)

The loudspeaker has built-in protection to ensure that, in the event of a fire, damage to the loudspeaker does not result in failure of the circuit to which it is connected. In this way, system integrity is maintained, ensuring loudspeakers in other areas can still be used to inform people of the situation. The loudspeaker has ceramic terminal blocks, thermal fuse and heat-resistant, high-temperature wiring. It can also be fitted with an optional fire-dome to increase protection of the cable termination.

Certifications and approvals

All Bosch loudspeakers are designed to withstand operating at their rated power for 100 hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. Bosch has also developed the Simulated Acoustical Feedback Exposure (SAFE) test to demonstrate that they can withstand two times their rated power for short durations. This ensures extra reliability under extreme conditions, leading to higher customer satisfaction, longer operating life, and much less chance of failure or performance deterioration.

Safety	acc. to EN 60065
Emergency	acc. to BS 5839-8 / EN 60849/ EN 54-24*
Ball-proof	acc. to DIN VDE 0710 part 13
* Water and dust protection	acc. to EN 60529-IP32



Notice

* Only in combination with the LBC 3080/01 Fire Dome

Region	Certification	
Europe	CE	
	CE	DOP
	CPD	
Poland	CNBOP	
	CNBOP	

Installation/configuration notes

Installation

The assembly is quickly installed into a hole in the ceiling cavity and secured with three white-colored screws (supplied). A circular template for marking a 165 mm (6.5 in) diameter hole is included with the loudspeaker.

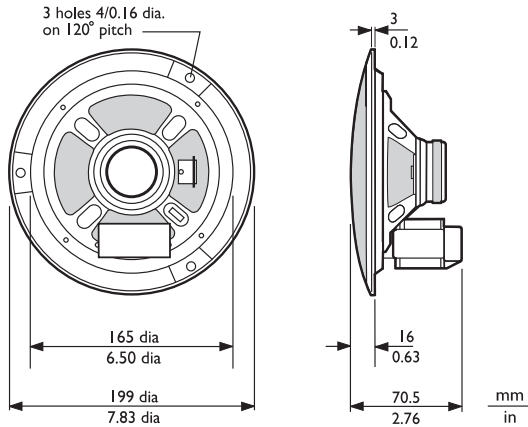
Terminal Block

The unit has a three-way terminal block with screw connections suitable for loop-through wiring. Four primary taps are provided on the matching transformer to allow selection of nominal full-power, half-power, quarter-power or eighth power radiation (i.e. in 3 dB steps).

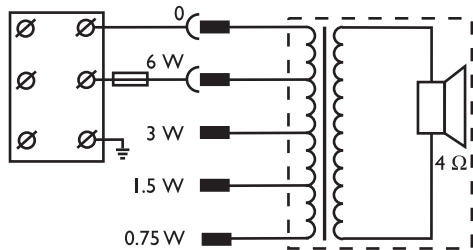
Fire dome

During a fire, the ceiling cavity in which loudspeakers are installed can allow flames to spread throughout a building. To prevent fire entering the cavity via the loudspeaker, the ceiling loudspeaker can be fitted with a protective steel fire dome (LBC 3080/01). This optional fire dome is mounted on the loudspeaker assembly using four self-tapping screws, supplied as standard. There are four knock-out holes; two (2) for rubber grommets (supplied) and two (2) for cable glands. (PG13).

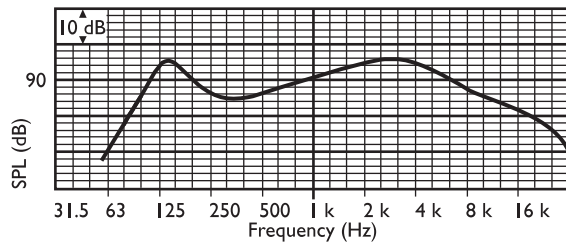
4



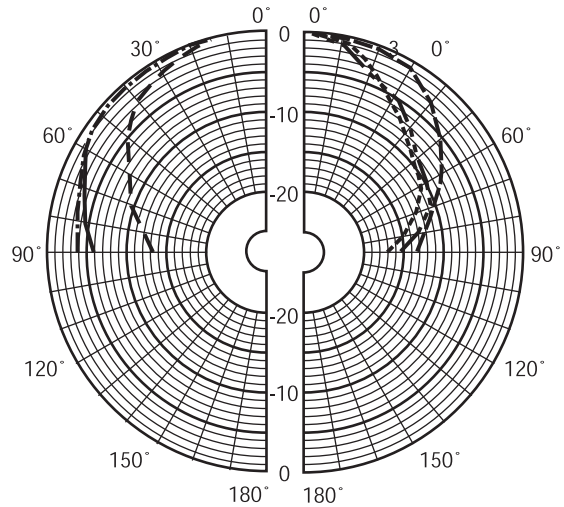
Dimensions in mm (in)



Circuit diagram



Frequency response



--- 250 Hz --- 2000 Hz
 --- 500 Hz --- 4000 Hz
 --- 1000 Hz --- 8000 Hz

Polar diagram (measured with pink noise)

	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
SPL 1.1	94	91	86	89	94	94	86
SPL max.	102	99	94	97	102	102	94
Q-factor	3	4.7	2.3	4.5	6.6	11	17
Efficiency	1.1	0.4	0.2	0.2 2	0.4 8	0.3	0.0 3
H. angle	170	150	180	16 0	10 0	65	55
V. angle	170	150	180	16 0	10 0	65	55

Acoustical performance specified per octave

Parts included

Quantity	Component
1	LBC 3087/41 Ceiling Loudspeaker
3	White colored screws
1	165 mm circular template

Technical specifications

Electrical*

Maximum power	9 W
Rated power	6 / 3 / 1.5 / 0.75 W
Sound pressure level at 6 W / 1 W (1 kHz, 1 m)	97 dB / 89 dB (SPL)
Sound pressure level at 6 W / 1 W (4 kHz, 1 m)	102 dB / 94 dB (SPL)

Effective frequency range (-10 dB)	80 Hz to 18 kHz
Opening angle at 1 kHz / 4 kHz (-6 dB)	160° / 65°
Rated voltage	100 V
Rated impedance	1667 ohm
Connector	3-pole screw terminal block


* Technical performance data acc. to IEC 60268-5

Mechanical

Diameter	199 mm (7.8 in)
Maximum depth	70.5 mm (2.8 in)
Mounting cut-out	165 + 5 mm (6.5 + 0.20 in)
Speaker diameter	152.4 mm (6 in)
Weight	720 g (1.6 lb)
Color	White (RAL 9010)
Magnet weight	80 g (2.8 oz)

Environmental

Operating temperature	-25 to +55 °C (-13 °F to +131 °F)
Storage temperature	-40 to +70 °C (-40 °F to +158 °F)
Relative humidity	<95%

 1438
Bosch Security Systems BV Torenallee 49, 5617 BA Eindhoven, The Netherlands 10 1438-CPD-0335
EN 54-24:2008 Loudspeaker for voice alarm systems for fire detection and fire alarm systems for buildings Ceiling Loudspeaker 6 W and accessories LBC3087/41 and LBC3080/01 Type A

Ordering information

LBC 3087/41 Ceiling Loudspeaker

Ceiling loudspeaker, 6 W, integrated circular metal grille, screw mounted with 3 white screws (included), white RAL 9010.

Order number **LBC3087/41**

Accessories

LBC 3080/01 Fire Dome

Metal fire dome for the LBC 3087/41, LBC 3090/01, LBC 3090/31, LHM 0606/00, LHM 0606/10, and LHM 0626/00 ceiling loudspeakers, EN54-24 certified, flame red RAL 3000.

Order number **LBC 3080/01**

LBC 3080/11 Fire Dome

Metal fire dome for LBC 3087/41, LBC 3090/01, LBC 3090/31, LHM 0606/00, LHM 0606/10 and LHM 0626/00 ceiling loudspeakers, white RAL 9010.
Order number **LBC3080/11**

LBC 3090/01 Ceiling Loudspeaker

4



Features

- Suitable for speech and music reproduction
- Increased sensitivity
- Flush-mounting in ceiling cavity
- Easy to install
- Protective dust cover

The LBC 3090/01 is an economic flush-mounting ceiling loudspeaker for general purpose applications. It is a full range loudspeaker for speech and music reproduction in shops, department stores, schools, offices, sports halls, hotels and restaurants.

Functions

The LBC 3090/01 has a single-piece, 6 W dual cone loudspeaker. A 100 V matching transformer is mounted behind the front panel assembly. The moulded plastic front panel is mounted onto the loudspeaker's metal frame, and a dust cover protects the rear. The appearance and colour are unobtrusive in any interior.

Certifications and approvals

All Bosch loudspeakers are designed to withstand operating at their rated power for 100 hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. Bosch has also developed the Simulated Acoustical Feedback Exposure (SAFE) test to demonstrate that they can withstand two times their rated power for short durations. This ensures extra reliability under extreme conditions, leading to higher customer satisfaction, longer operating life, and much less chance of failure or performance deterioration.

All plastic parts are manufactured from self-extinguishing high-impact ABS material (according to UL 94V0).

Safety

acc. to EN 60065

Region	Certification
Europe	CE

Installation/configuration notes

Installation

Installation is both quick and easy, as the unit(s) have two built-in spring-loaded locking clamps that secure them into holes in the ceiling (for suspended ceilings and wall boards from 9 to 25 mm thick). Alternatively, they can be fixed with four screws (using pre-drilled holes) in ceiling or wall panels less than 9 mm thick. A circular template for marking a 182 mm (7.1 in) diameter hole is included with the loudspeaker.

Terminal Block

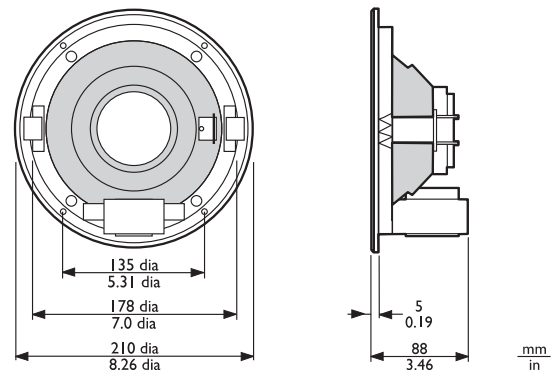
The unit has a two-way terminal block with push connections suitable for loop-through wiring. Three primary taps are provided on the matching transformer to allow selection of nominal full-power, half-power or quarter-power radiation (i.e. in 3 dB steps).

LBC 3091/01 Surface Mounting Box

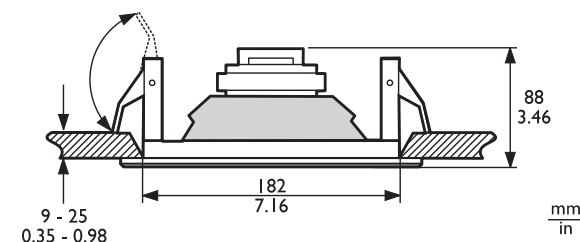
For mounting onto the surface of a wall or ceiling, the color-matched surface mounting box LBC 3091/01 is available.

LBC 3080/01 Fire Dome

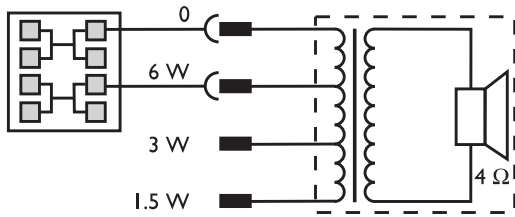
During a fire, the ceiling cavity can allow fire or smoke to spread throughout a building. To inhibit fire entering the cavity via the ceiling loudspeaker, it can be fitted with an LBC 3080/01 steel fire dome. This is mounted on the loudspeaker assembly using four self-tapping screws supplied with the fire dome. The fire-dome has knock-out holes for two grommets (supplied) and two cable glands (PG 13).



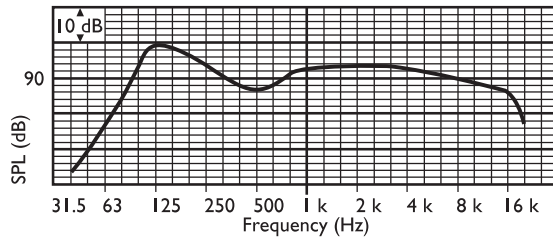
Dimensions in mm (in)



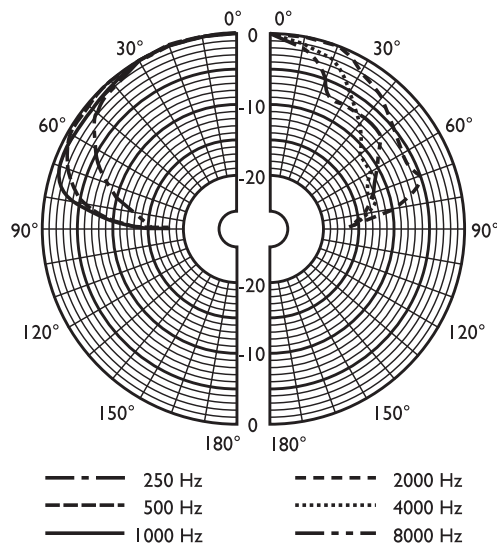
Dimensions in mm (in)



Circuit diagram



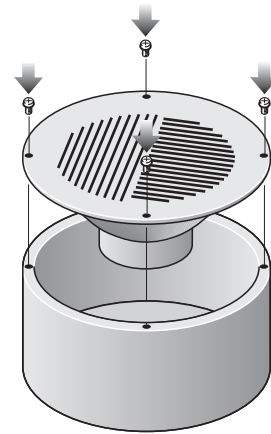
Frequency response



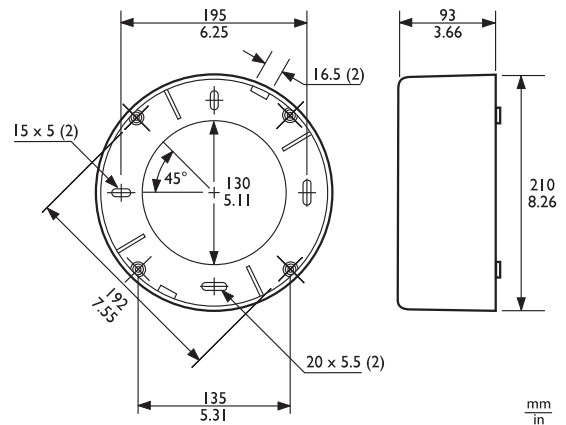
Polar diagram (measured with pink noise)

	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
SPL 1.1	94	91	89	91	93	95	89
SPL max.	102	99	97	99	101	103	97
Q-factor	4.8	5	3	3.4	6.3	18	20
Efficiency	0.66	0.32	0.34	0.46	0.4	0.22	0.05
H. angle	150	140	180	160	140	55	45
V. angle	150	140	180	160	140	55	45

Acoustical performance specified per octave

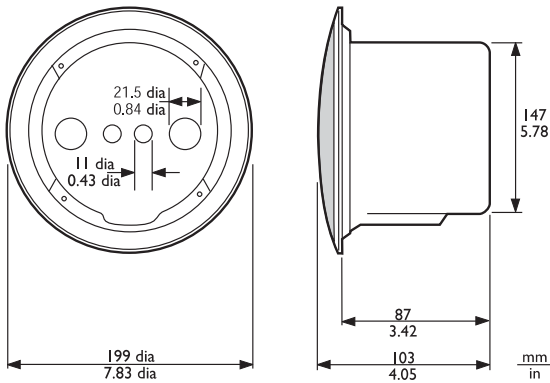
LBC 3091/01 Surface Mounting Box

LBC 3090/01 and LBC 3091/01 assembly



Dimensions in mm (in)

LBC 3080/01 Fire Dome



LBC 3090/01 + LBC 3080/01 fire dome assembly dimensions in mm (in)

Parts included

Quantity	Component
1	LBC 3090/01 Ceiling Loudspeaker
1	182 mm circular template

Technical specifications

Electrical*

Maximum power	9 W
Rated power	6 / 3 / 1.5 W
Sound pressure level at 6 W / 1 W (1 kHz, 1 m)	99 dB / 91 dB (SPL)
Sound pressure level at 6 W / 1 W (4 kHz, 1 m)	103 dB / 95 dB (SPL)
Effective frequency range (-10 dB)	70 Hz to 18 kHz
Opening angle at 1 kHz/4 kHz (-6 dB)	160° / 55°
Rated voltage	100 V
Rated impedance	1667 ohm
Connector	2-pole push-in terminal block

* Technical performance data acc. to IEC 60268-5

Mechanical

Diameter	210 mm (8.3 in)
Maximum depth	88 mm (3.5 in)
Mounting cut-out	182 + 5 mm (7.2 in)
Speaker diameter	152.4 mm (6 in)
Weight	1.1 kg (2.4 lb)
Color	White (RAL 9010)
Magnet weight	150 g (5.3 oz)

Environmental

Operating temperature	-25 °C to +55 °C (-13 °F to +131 °F)
Storage temperature	-40 °C to +70 °C (-40 °F to +158 °F)
Relative humidity	<95%

LBC 3091/01

Diameter	210 mm (8.3 in)
Maximum depth	93 mm (3.6 in)
Weight	290 g (0.6 lb)
Color	White (RAL 9010)

LBC 3080/01

Diameter	147 mm (5.8 in)
Maximum depth	87 mm (3.4 in)
Weight	360 g (0.8 lb)
Color	Flame red (RAL 3000)
Certified B15	acc. to DIN 4102

Ordering information

LBC 3090/01 Ceiling Loudspeaker

Ceiling loudspeaker, 6 W, ABS grille, two spring-loaded clamps for ceiling mounting, protective dust cover, two-way push terminal block, white RAL 9010.

Order number **LBC3090/01**

Accessories

LBC 3091/01 Surface Mounting Box

Surface mounting box for securing ceiling loudspeaker LBC3090/01 to walls or hard ceilings.

Order number **LBC 3091/01**

LBC 1256/00 EVAC Connection Adapter

Emergency connection adapter, 3-pole screw ceramic connector with a pre-mounted thermal fuse, to be installed in series with the 100 V primary connection of a loudspeaker unit, set of 100 pieces.

Order number **LBC1256/00**

LBC 3080/01 Fire Dome

Metal fire dome for the LBC 3087/41, LBC 3090/01, LBC 3090/31, LHM 0606/00, LHM 0606/10, and LHM 0626/00 ceiling loudspeakers, EN54-24 certified, flame red RAL 3000.

Order number **LBC 3080/01**

LBC 3080/11 Fire Dome

Metal fire dome for LBC 3087/41, LBC 3090/01, LBC 3090/31, LHM 0606/00, LHM 0606/10 and LHM 0626/00 ceiling loudspeakers, white RAL 9010.

Order number **LBC3080/11**

LBC 3090/31 Ceiling Loudspeaker



Features

- ▶ Suitable for speech and music reproduction
- ▶ Increased sensitivity
- ▶ Flush-mounting in ceiling cavity
- ▶ Easy to install
- ▶ Simple power setting

Bosch loudspeakers offer a combination of quality, performance and innovation in public address. They are the result of over half a century's experience in professional audio, and meet virtually all sound reinforcement system requirements.

Functions

A flush-mounting ceiling loudspeaker is available for general purpose applications. This full-range loudspeaker offers a high sound pressure level and a wide frequency range, and is suitable for both speech and music reproduction in shops, department stores, schools, offices, sports halls, hotels and restaurants.

The loudspeaker assembly consists of a single-piece, 6 W dual-cone loudspeaker and frame, with a 100 V matching transformer mounted on the back. A circular metal grille is integrated with the front. The appearance and neutral white colour have been selected to be unobtrusive in virtually all interiors. A dust cover protects the rear.

Certifications and approvals

All Bosch loudspeakers are designed to withstand operating at their rated power for 100 hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. Bosch has also developed the Simulated Acoustical Feedback Exposure (SAFE) test to demonstrate that they can withstand two times their rated power for short durations. This ensures extra reliability under ex-

treme conditions, leading to higher customer satisfaction, longer operating life, and much less chance of failure or performance deterioration.

Safety	acc. to EN 60065
Ball-proof	acc. to DIN VDE 0710 part-13
Region	Certification
Europe	CE

Installation/configuration notes

Installation

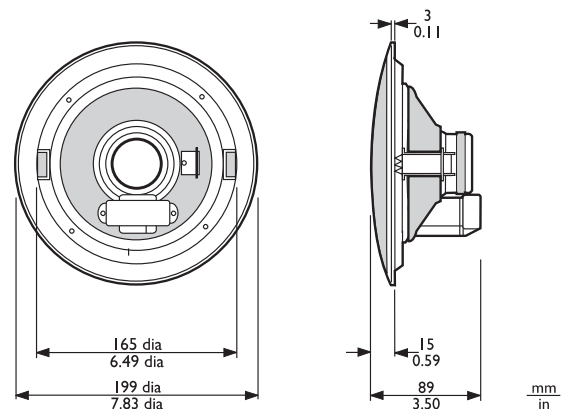
The assembly can be simply and quickly installed into a hole in the ceiling cavity and secured by two integral spring-loaded ceiling locking clamps (for ceilings and wall boards from 9 to 25 mm thick). A circular template for marking a 172 mm (6.7 in) diameter hole is included with the loudspeaker.

Terminal Block

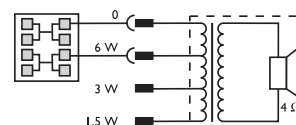
The unit has a two-way terminal block with push connections suitable for loop-through wiring. Three primary taps are provided on the matching transformer to allow selection of nominal full-power, half-power or quarter-power radiation (i.e. in 3 dB steps).

LBC 3080/01 Fire Dome

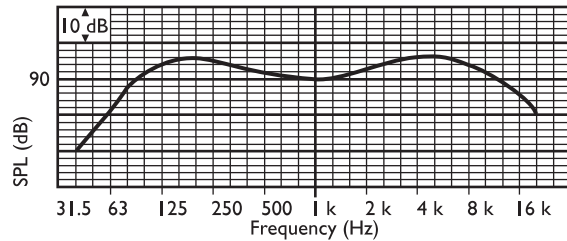
During a fire, the ceiling cavity can allow fire or smoke to spread throughout a building. To inhibit fire entering the cavity via the ceiling loudspeaker, it can be fitted with an LBC 3080/01 steel fire dome. This is mounted on the loudspeaker assembly using four self-tapping screws supplied with the fire dome. The fire-dome has knock-out holes for two grommets (supplied) and two cable glands (PG 13).



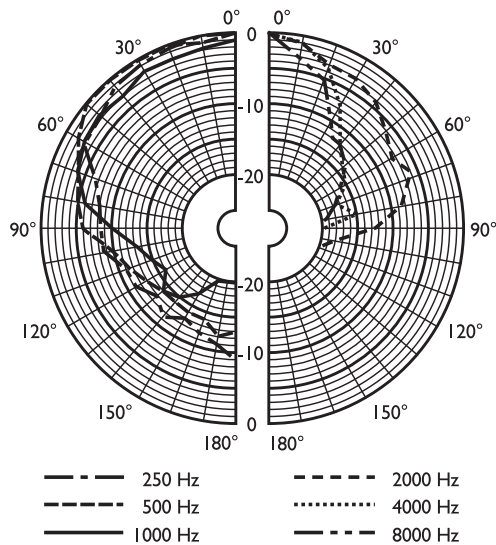
Dimensions in mm (in)



Circuit diagram



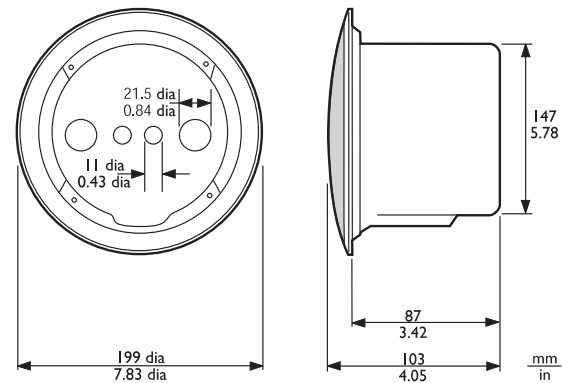
Frequency response



Polar diagram (measured with pink noise)

	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
SPL 1.1	94	91	88	91	93	96	92
SPL max.	102	99	96	99	101	104	100
Q-factor	4.8	5	3	3.4	6.3	18	20
Efficiency	0.66	0.32	0.27	0.47	0.4	0.28	0.1
H. angle	150	140	180	160	140	55	45
V. angle	150	140	180	160	140	55	45

Acoustical performance specified per octave

LBC 3080/01 Fire Dome**LBC 3080/01**

LBC 3090/31 + LBC 3080/01 fire dome assembly dimensions in mm (in)

Parts included

Quantity	Component
1	LBC 3090/31 Ceiling Loudspeaker
1	172 mm circular template

Technical specifications**Electrical***

Maximum power	9 W
Rated power	6 / 3 / 1.5 W
Sound pressure level at 6 W / 1 W (1 kHz, 1 m)	99 dB / 91 dB (SPL)
Sound pressure level at 6 W / 1 W (4 kHz, 1 m)	104 dB / 96 dB (SPL)
Effective frequency range (-10 dB)	70 Hz to 18 kHz
Opening angle at 1 kHz/4 kHz (-6 dB)	160° / 55°
Rated voltage	100 V
Rated impedance	1667 ohm
Connector	2-pole push-in terminal block

* Technical performance data acc. to IEC 60268-5

Mechanical

Diameter	199 mm (7.8 in)
Maximum depth	89 mm (3.5 in)
Mounting cut-out	172 mm (6.5 in)
Speaker diameter	152.4 mm (6 in)
Weight	990 g (2.2 lb)
Color	White (RAL 9010)
Magnet weight	150 g (5.3 oz)

Environmental

Operating temperature	-25 °C to +55 °C (-13 °F to +131 °F)
Storage temperature	-40 °C to +70 °C (-40 °F to +158 °F)
Relative humidity	<95%

LBC 3080/01

Diameter	147 mm (5.8 in)
Maximum depth	87 mm (3.4 in)
Weight	360 g (0.8 lb)
Color	Flame red (RAL 3000)
Certified B15	acc. to DIN 4102

Ordering information**LBC 3090/31 Ceiling Loudspeaker**

Ceiling loudspeaker, 6 W, integrated circular metal grille, two spring-loaded clamps for ceiling mounting, protective dust cover, two-way push terminal block, white RAL 9010.

Order number **LBC3090/31**

Accessories**LBC 1256/00 EVAC Connection Adapter**

Emergency connection adapter, 3-pole screw ceramic connector with a pre-mounted thermal fuse, to be installed in series with the 100 V primary connection of a loudspeaker unit, set of 100 pieces.

Order number **LBC1256/00**

LBC 3080/01 Fire Dome

Metal fire dome for the LBC 3087/41, LBC 3090/01, LBC 3090/31, LHM 0606/00, LHM 0606/10, and LHM 0626/00 ceiling loudspeakers, EN54-24 certified, flame red RAL 3000.

Order number **LBC 3080/01**

LBC 3080/11 Fire Dome

Metal fire dome for LBC 3087/41, LBC 3090/01, LBC 3090/31, LHM 0606/00, LHM 0606/10 and LHM 0626/00 ceiling loudspeakers, white RAL 9010.

Order number **LBC3080/11**

LBC 3099/41 Ceiling Loudspeaker

4



Features

- ▶ Excellent speech and music reproduction
- ▶ High sound pressure level
- ▶ Ideal for high-ceiling applications
- ▶ Flush mounted in ceilings
- ▶ Clamp mounting

The LBC 3099/41 is a flush-mounting ceiling loudspeaker for applications where extra power is required, such as rooms with high ceilings. It delivers a high sound pressure level and has a wide frequency range to ensure excellent speech intelligibility and good quality music reproduction. It is used in applications like shops, department stores, schools, offices, sports halls, hotels and restaurants.

Functions

The LBC 3099/41 has a single-piece, 24 W, dual-cone loudspeaker. A 100 V matching transformer is mounted on the back of the frame. An attractive metal grille is integrated with the front, and finished in an unobtrusive white color (RAL 9010).

Voice alarm loudspeaker

Voice alarm loudspeakers are specifically designed for use in buildings where performance of systems for verbal evacuation announcements is governed by regulations. The LBC 3099/41 is designed for use in voice alarm systems and is compliant with emergency standards.

The loudspeaker has built-in protection to ensure that, in the event of a fire, damage to the loudspeaker does not result in failure of the circuit to which it is connected. In this way, system integrity is maintained, ensuring loudspeakers in other areas can still be used to inform people of the situation. The loudspeaker has a ceramic terminal block, thermal fuse and heat resistant, high-temperature wiring.

It can also be fitted with an optional fire-dome LBC 3082/00 to increase protection of the cable termination.

Certifications and approvals

All Bosch loudspeakers are designed to withstand operating at their rated power for 100 hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. Bosch has also developed the Simulated Acoustical Feedback Exposure (SAFE) test to demonstrate that they can withstand two times their rated power for short durations. This ensures extra reliability under extreme conditions, leading to higher customer satisfaction, longer operating life, and much less chance of failure or performance deterioration.

Safety	acc. to EN 60065
Emergency	acc. to BS 5839-8 / EN 60849
Ball-proof	acc. to DIN VDE 0710 part 13

Region	Certification
Europe	CE

Installation/configuration notes

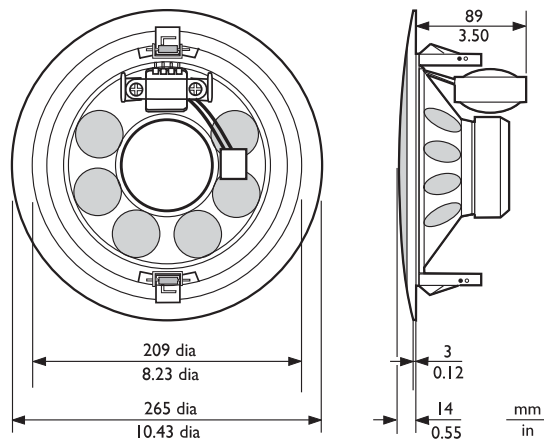


LBC 3099/41 with LBC 3082/00 fire dome assembly

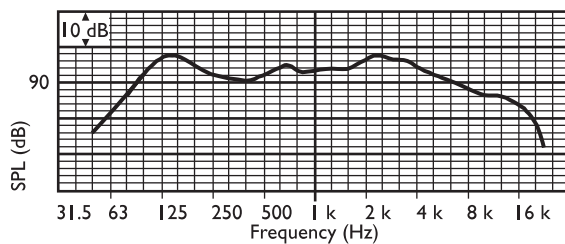
The unit has two built-in spring-loaded locking clamps to secure it into a hole in suspended ceilings and wall-boards from 9 to 25 mm (0.35 to 1.0 in) thick. A circular template for marking a 210 mm (8.3 in) diameter hole is included with the loudspeaker.

Terminal Block

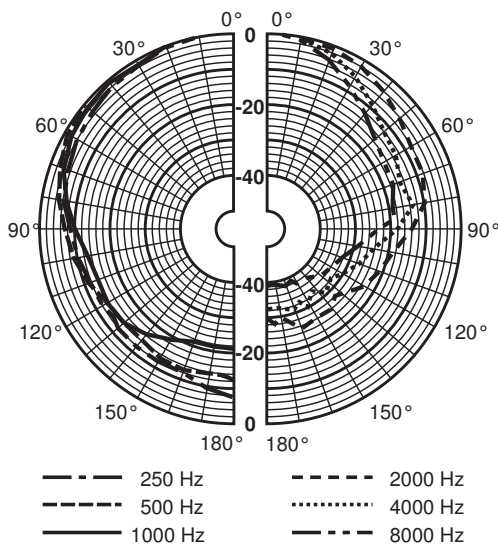
The unit has a three-way terminal block with screw connections (including earth) suitable for loop-through wiring. Three primary taps are provided on the matching transformer to allow selection of nominal full-power, half-power or quarter-power radiation (in 3 dB steps).



Dimensions in mm (in)



Frequency response

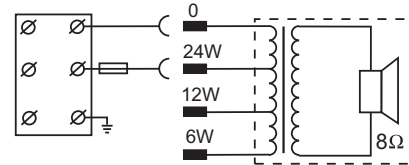


Polar diagram (measured with pink noise)

	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
SPL 1.1	94	92	90	92	94	93	86
SPL max.	108	106	104	106	108	107	100
Q-factor	3.7	4.5	2.8	5.2	8.9	17.4	34
Efficiency	0.85	0.44	0.63	0.38	0.36	0.14	0.02

H. angle	180	180	180	160	90	60	40
V. angle	180	180	180	160	90	60	40

Acoustical performance specified per octave



Circuit diagram

Parts included

Quantity	Components
1	LBC 3099/41 Ceiling Loudspeaker
1	210 mm (8.3 in) circular template

Technical specifications

Electrical*

Maximum power	36 W
Rated power (PHC)	24 / 12 / 6 W
Sound pressure level at 24 W / 1 W (1 kHz, 1 m)	106 dB / 92 dB (SPL)
Sound pressure level at 24 W / 1 W (4 kHz, 1 m)	107 dB / 93 dB (SPL)
Effective frequency range (-10 dB)	60 Hz to 18 kHz
Opening angle at 1 kHz / 4 kHz (-6 dB)	160° / 60°
Rated voltage	100 V
Rated impedance	417 ohm
Connector	3-pole screw terminal block

* Technical performance data acc. to IEC 60268-5

Mechanical

Diameter	265 mm (10.4 in)
Maximum depth	89 mm (3.5 in)
Mounting cut-out	210 mm (8.3 in)
Speaker diameter	203.2 mm (8 in)
Weight	1.8 kg (4 lb)
Color	White (RAL 9010)
Magnet weight	283 g (10 oz)

Environmental

Operating temperature	-25 °C to +55 °C (-13 °F to +131 °F)
Storage temperature	-40 °C to +70 °C (-40 °F to +158 °F)
Relative humidity	<95%

Ordering information**LBC 3099/41 Ceiling Loudspeaker**

Ceiling loudspeaker, 24 W, integrated circular metal grille, two spring-loaded clamps for ceiling mounting, three-way screw terminal block, white RAL 9010.

Order number **LBC3099/41**

Accessories**LBC 3082/00 Fire Dome**

Metal fire dome for LBC 3099/41 ceiling loudspeaker, Flame red RAL 3000.

Order number **LBC 3082/00**

LC1 Modular Ceiling Loudspeaker Range



Features

- ▶ Excellent speech and music reproduction
- ▶ Easy installation with one grille size and one complete set of accessories
- ▶ Choice of different ceiling mounting methods
- ▶ Optional Pilot Tone indication
- ▶ EN 54-24, UL 2043. UL 1480 certified

The LC1 Modular Ceiling Loudspeaker range can be used for a wide variety of ceiling environments. They provide excellent speech and music in indoor public address applications. The range offers a choice of five loudspeakers distinguished by input power, opening angle and sound reproduction. It includes three 6 W single cone loudspeakers offering a choice of opening angle and two high performance 12 W and 24 W coaxial loudspeaker drivers. They all have the same grille size and can be used in combination with the same mounting accessories.

The loudspeakers are suitable for use in air-handling spaces when installed with the LC1-MFD enclosure. The loudspeaker frame includes provision for mounting the optional pilot-tone indication board or WLS board and has standard a light conductor to indicate the pilot-tone status.

Functions

Voice Alarm applications

Voice alarm loudspeakers are specifically designed for use in buildings where system performance for verbal evacuation announcements is governed by regulations. The LC1 Modular Ceiling Loudspeaker range is designed for use in voice alarm systems and is EN 54-24 certified and compliant with British standard BS 5839-8.

Protection

The loudspeakers have built-in protection to ensure that fire damage to the loudspeakers does not cause failure of the connected circuit. In this way system integrity is maintained, ensuring loudspeakers in other areas can still be used to inform people of the situation.

The loudspeakers can also be used in combination with a metal fire-dome to increase protection of the cable termination.

Connections

The loudspeakers have a ceramic screw-terminal connection block, thermal fuse and heat-resistant, high-temperature wiring.

Certifications and approvals

All Bosch loudspeakers are designed to withstand operating at their rated power for 100 hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards.

Bosch has also developed the Simulated Acoustical Feedback Exposure (SAFE) test to demonstrate that they can withstand two times their rated power for short durations.

This ensures extra reliability under extreme conditions, leading to higher customer satisfaction, longer operating life, and much less chance of failure or performance deterioration. All plastic parts are self extinguishing according to UL 94 V0.

Safety	According to EN 60065
*Emergency	According to BS 5839-8
	According to EN 54-24
	According to EN 60849
UL listed	1480/2043
Ball-proof	According to DIN VDE 0710 part 13
** Water and dust protection	According to EN 60529 IP21
*** Water and dust protection	According to EN 60529 IP33
**** Salt mist	According to IEC-68-2-11 Ka

* Only in combination with the LC1-MFD.

** Only in combination with the LC1-MFD or LC1-CMR including LC1-CBB.

*** and **** only LC1-WC06E8 with LC1-CMR including LC1-CBB.

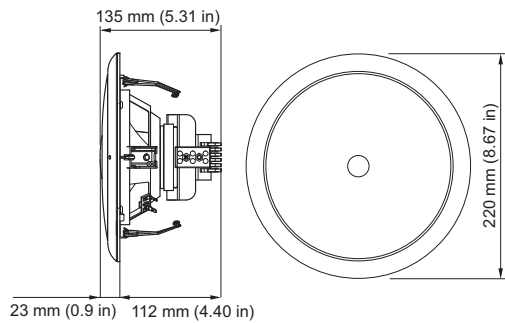


Notice

UL 1480 requires installation with the LC1-MFD or LC1-CSMB, or the LC1-CMR including LC1-CBB. LC1-UM06E8 and LC1-UM12E8 have UL 1480 F certification listed for use in Fire Alarm and/or Emergency Communication Systems.

Region	Certification
Europe	CPD
Poland	CNBOP
USA	UL

Installation/configuration notes

**LC1-UM24E Dimensions****Installation**

The LC1 Modular Ceiling Loudspeaker range is very installation friendly. The loudspeaker consists of a frame with the loudspeaker driver and metal or ABS grille with integrated light conductor, matching transformer and ceramic screw terminal connection block. On the loudspeaker are provisions for mounting the optional pilot-tone indication board and optional line/loudspeaker surveillance board.

Power tapping on the 70 V / 100 V matching transformer allows selection of full-power, half-power, quarter-power and eight-power radiation.

Ordering information

Due to the modular concept of this system, it is important to order not only the ceiling loudspeaker LC1-xMxxE, but also the flush ceiling mounting accessory of your choice, as mentioned here below. The loudspeakers can be flush mounted into the ceiling by means of the "U" shaped Metal Mounting support bracket LC1-MMSB or the ABS Ceiling Mounting ring LC1-CMR with optional Back Box LC1-CBB.

In order to take full advantage of the modular architecture, all parts are separately packaged in the order in which they are required for installation.

LC1-MMSB Mounting Support Bracket

The metal Mounting Support Bracket has two ceiling clamps, which are secured with thumb screws in the ceiling hole. The bracket is also provided with two 4 mm holes for mounting the bracket with two screws into thin (metal) ceilings. Two spring catchers (for accepting the V-shaped loudspeaker springs) are provided. The bracket provides a provision for attaching an optional safety steel cord.

*LC1-MMSB Metal Mounting Support Bracket***LC1-CMR Mounting Ring**

The LC1-CMR is an alternative for the ceiling mounting support bracket. The ABS Mounting Ring has two screw driving clamps to fix the mounting ring into the ceiling board. Inside the ring, two spring catchers (for accepting the V-shaped loudspeaker springs) are provided.

LC1-CBB Back Box

On top of the mounting ring, provisions are present to "click-on" the optional Back Box. The combination of Mounting Ring and Back Box prevents sound traveling via the ceiling cavity to adjacent areas, and fully protects the loudspeaker from dust, falling objects.

The Back Box has knock-out holes for two grommets (11 mm/0.80 in) and for two cable glands (20.5 mm/0.80 in)

*LC1-CMR and LC1-CBB Ceiling Mounting Ring and Back Box assembly***LC1-CSMB Surface Mounting Box**

This ABS Surface Mounting Box is available for securing the ceiling loudspeaker to walls or hard ceilings. The Surface Mounting Box has at the side two holes standard covered opposite positioned and four knock-out holes on the rear side. For optional single point suspension of the assembly of Ceiling Loudspeaker and Surface Mounting Box, a separate metal suspension kit, LC1-MSK is available.

*LC1-CSMB Surface Mounting Box***LC1-MSK Metal Suspension Kit**

This kit contains a tri-angled metal plate to be attached by three screws (supplied) onto the rear of the Surface Mounting Box and includes three suspension chains, converged in an eye-hook.



LC1-MSK Metal Suspension Kit

LC1-MFD Metal Fire Dome

Ease of installation for individual loudspeaker and loudspeaker/fire-dome combinations. The Fire Dome mounting is fixed in the ceiling, prior to the ceiling speaker mounting. The Fire Dome has a dual connection entry, enabling loop-through cabling and provision for attaching an optional safety steel cord.

Connections are made using an innovative ceramic screw terminal connection block on the metal fire dome with loop-through facility.

Suitable for use in air-handling spaces.



LC1-MFD Metal Fire Dome with innovative ceramic connector

LC1-PIB Pilot-tone Indication Board

The loudspeakers have provision for optional mounting of the Pilot-tone Indication Board. This small PCB with LED can be fixed into a holder, connected to a light conductor standard fitted. The presence of the pilot-tone can be visually checked by means of the flashing of the LED, integrated in the front grille rim. The required level of the pilot tone signal is 4 V rms @ 20 kHz and the load to the amplifier from these boards is negligible.



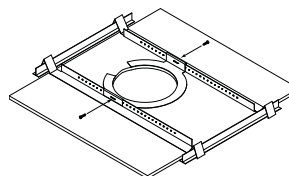
LC1-PIB fitted on the loudspeaker and showing the light conductor



Rear view LC1-WM06E8 showing the optional mounting for LC1-PIB and line/loudspeaker supervision board

LM1-TB Tile bridge / C-ring

This accessory consists of a C-ring and two tile rails, to be used for reinforce the ceiling material and to spread out the pressure from the ceiling speaker clamps. The C-ring can be guided through the cut-out opening in the ceiling and placed on the back side of the hole before inserting the loudspeaker. The tile rails are suitable for 600 mm distance ceiling tile support rails.



LM1-TB Tile bridge / C-Ring

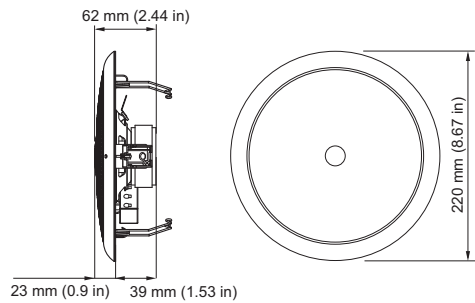
Type number overview

LC1-WC06E8	Ceiling Loudspeaker (6 W)
LC1-WM06E8	Ceiling Loudspeaker (6 W)
LC1-UM06E8	Ceiling Loudspeaker (6 W)
LC1-UM12E8	Ceiling Loudspeaker (12 W)
LC1-UM24E8	Ceiling Loudspeaker (24 W)
LC1-MMSB	Mounting support bracket
LC1-CMR	Mounting Ring
LC1-CBB	Back Box
LC1-CSMB	Surface Mounting Box
LC1-MSK	Metal Suspension Kit
LC1-MFD	Metal Fire Dome

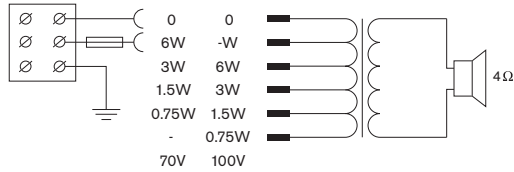
LC1-PIB	Pilot-Tone Indication Board
LM1-TB	Tile bridge / C-ring



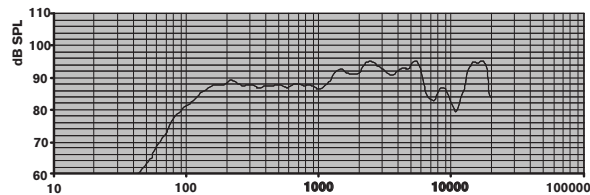
LC1 Modular Ceiling Loudspeaker Range overview



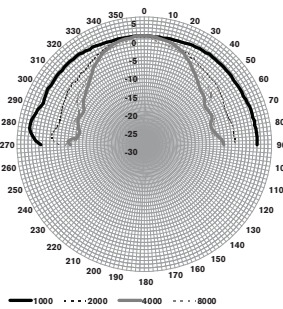
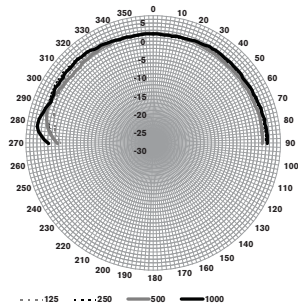
LC1-WC06E8 Dimensions in mm (in)



LC1-WC06E8 Circuit diagram



LC1-WC06E8_Frequency response



LC1-WC06E8 Polar diagrams

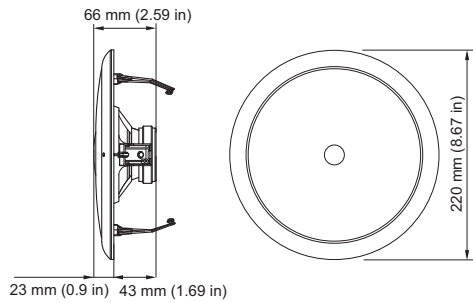
Octave band sensitivity LC1-WC06E8

	Octave SPL 1W/1m	Total octave SPL 1W/1m	Total octave SPL Pmax/1m
125 Hz	85.3	-	-
250 Hz	88.3	-	-
500 Hz	87.5	-	-
1000 Hz	88.4	-	-
2000 Hz	93.4	-	-
4000 Hz	93.8	-	-
8000 Hz	88.0	-	-
A-weighted	-	89.0	106.2
Lin-weighted	-	89.7	107.1

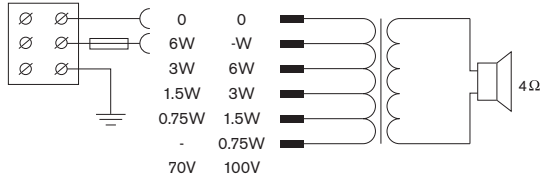
Octave band opening angles LC1-WC06E8

	Horizontal	Vertical	
125 Hz	180	180	
250 Hz	180	180	
500 Hz	180	180	
1000 Hz	180	180	
2000 Hz	180	180	
4000 Hz	75	75	
8000 Hz	96	96	

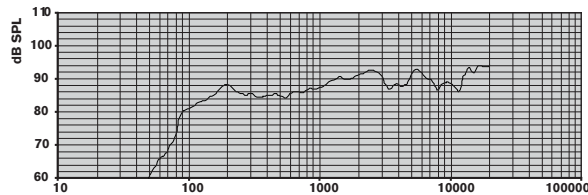
LC1-WC06E8 Acoustical performance specified per octave.
 * (all measurements are done with a pink noise signal;
 the values are in dB SPL).



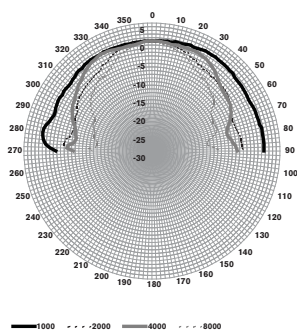
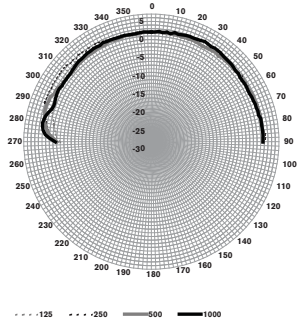
LC1-WM06E8 Dimensions in mm (in)



LC1-WM06E8 Circuit diagram



LC1-WM06E8 Frequency response



LC1-WM06E8 Polar diagrams

Octave band sensitivity LC1-WM06E8

Octave SPL 1W/1m	Total octave SPL 1W/1m	Total octave SPL Pmax/1m

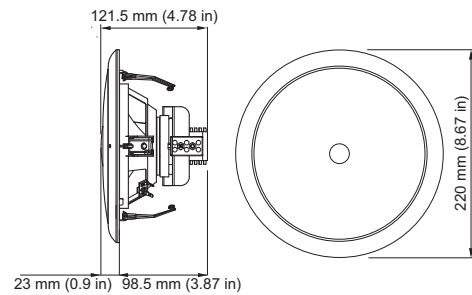
125 Hz	83.4	-	-
250 Hz	86.1	-	-
500 Hz	85.1	-	-
1000 Hz	87.8	-	-
2000 Hz	91.2	-	-
4000 Hz	89.7	-	-
8000 Hz	89.3	-	-
A-weighted	-	86.9	94.2
Lin-weighted	-	88.1	94.9

4

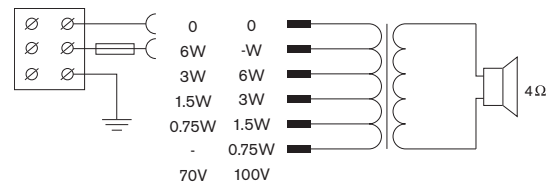
Octave band opening angles LC1-WM06E8

	Horizontal	Vertical
125 Hz	180	180
250 Hz	180	180
500 Hz	180	180
1000 Hz	180	180
2000 Hz	120	120
4000 Hz	128	128
8000 Hz	75	75

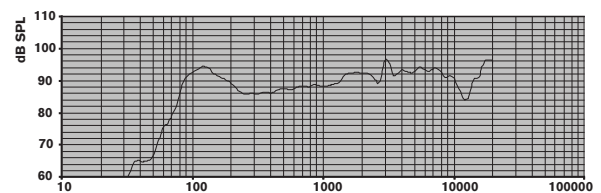
LC1-WM06E8 Acoustical performance specified per octave. * (all measurements are done with a pink noise signal; the values are in dB SPL).



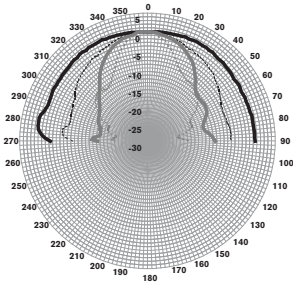
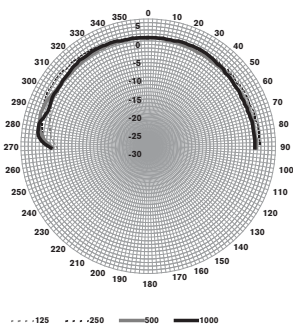
LC1-UM06E8 Dimensions in mm (in)



LC1-UM06E8 Circuit diagram



LC1-UM06E8 Frequency response



LC1-UM06E8 Polar diagrams

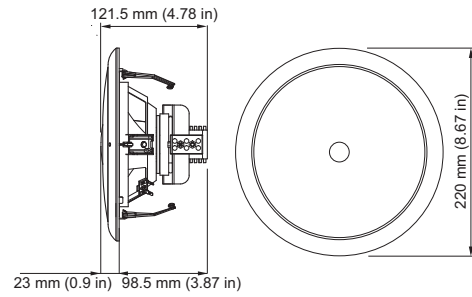
Octave band sensitivity LC1-UM06E8

	Octave SPL 1W/1m	Total octave SPL 1W/1m	Total octave SPL Pmax/1m
125 Hz	93.4	-	-
250 Hz	88.4	-	-
500 Hz	86.3	-	-
1000 Hz	88.5	-	-
2000 Hz	91.4	-	-
4000 Hz	93.9	-	-
8000 Hz	92.6	-	-
A-weighted	-	88.9	95.8
Lin-weighted	-	90.4	96.5

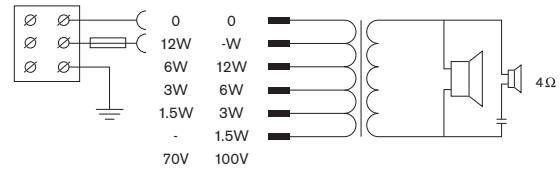
Octave band opening angles LC1-UM06E8

	Horizontal	Vertical
125 Hz	180	180
250 Hz	180	180
500 Hz	180	180
1000 Hz	180	180
2000 Hz	108	108
4000 Hz	62	62
8000 Hz	38	38

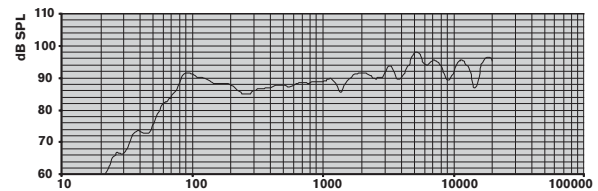
LC1-UM06E8 Acoustical performance specified per octave.
* (all measurements are done with a pink noise signal;
the values are in dB SPL).



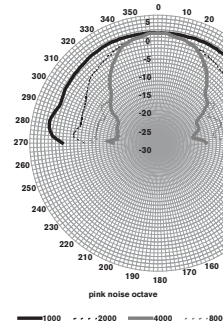
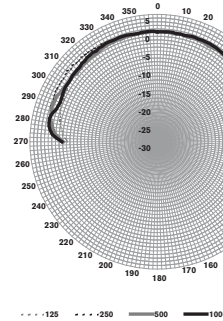
LC1-UM12E8 Dimensions in mm (in)



LC1-UM12E8 Circuit diagram



LC1-UM12E8 Frequency response



LC1-UM12E8 Polar diagrams

Octave band sensitivity LC1-UM12E8

	Octave SPL 1W/1m	Total octave SPL 1W/1m	Total octave SPL Pmax/1m
125 Hz	93.4	-	-
250 Hz	88.4	-	-
500 Hz	86.3	-	-
1000 Hz	88.5	-	-
2000 Hz	91.4	-	-
4000 Hz	93.9	-	-
8000 Hz	92.6	-	-
A-weighted	-	88.9	95.8
Lin-weighted	-	90.4	96.5

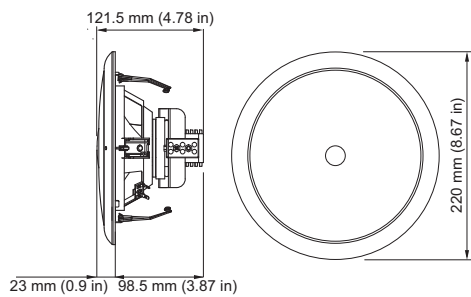
125 Hz	89.4	-	-
250 Hz	87.3	-	-
500 Hz	86.5	-	-
1000 Hz	88.6	-	-
2000 Hz	90.0	-	-
4000 Hz	94.0	-	-
8000 Hz	93.7	-	-
A-weighted	-	88.9	99.3
Lin-weighted	-	90.3	100.2

Octave band opening angles LC1-UM12E8

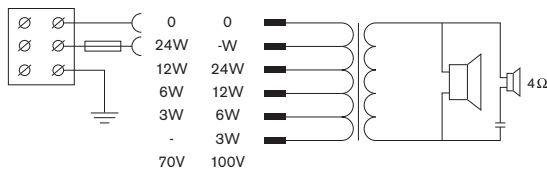
	Horizontal	Vertical	
125 Hz	180	180	
250 Hz	180	180	
500 Hz	180	180	
1000 Hz	180	180	
2000 Hz	108	108	
4000 Hz	64	64	
8000 Hz	62	62	

LC1-UM12E8 Acoustical performance specified per octave.

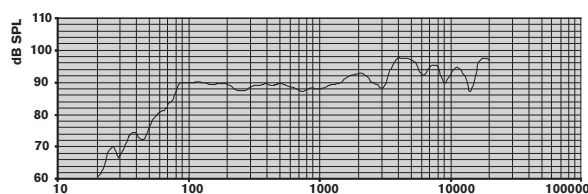
* (all measurements are done with a pink noise signal; the values are in dBSPL).



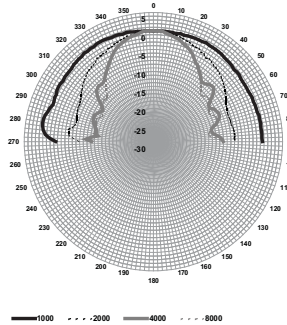
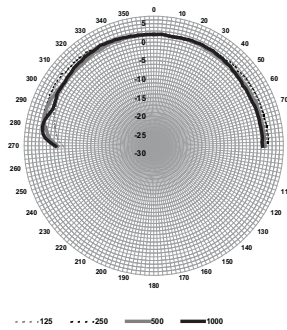
LC1-UM24E8 Dimensions in mm (in)



LC1-UM24E8 Circuit diagram



LC1-UM24E8 Frequency response



LC1-UM24E8 Polar diagrams

Octave band sensitivity LC1-UM24E8

	Octave SPL 1W/1m	Total octave SPL 1W/1m	Total octave SPL Pmax/1m
125 Hz	89.9	-	-
250 Hz	88.3	-	-
500 Hz	89.0	-	-
1000 Hz	88.6	-	-
2000 Hz	91.5	-	-
4000 Hz	95.6	-	-
8000 Hz	93.8	-	-
A-weighted	-	90.0	103.1
Lin-weighted	-	91.3	103.8

Octave band opening angles LC1-UM24E8

	Horizontal	Vertical	
125 Hz	180	180	
250 Hz	180	180	
500 Hz	180	180	
1000 Hz	180	180	
2000 Hz	106	106	
4000 Hz	58	58	
8000 Hz	57	57	

LC1-UM24E8 Acoustical performance specified per octave.

* (all measurements are done with a pink noise signal; the values are in dBSPL).

Parts included

Quantity	Components
1	LC1 Ceiling Loudspeaker
1	Installation instruction

Technical specifications

Electrical*

	LC1-WC06E8	
Description	Ceiling loudspeaker	
Maximum power	9 W	
Rated power	6 W (6 / 3 / 1.5 / 0.75 W)	
Sound Pressure Level at rated power / 1 W (1 kHz, 1 m)	96 dB / 88 dB	
Opening angle at 1 kHz / 4 kHz (-6 dB)	180° / 75°	
Effective frequency range (-10 dB)	85 Hz to 20 kHz	
Rated voltage	70 V / 100 V	
Rated impedance	835 / 1667 Ohm	
Connector	3-pole screw-terminal block	
	LC1-WM06E8	LC1-UM06E8
Description	Ceiling loudspeaker	Ceiling loudspeaker
Maximum power	9 W	9 W
Rated power	6 W (6 / 3 / 1.5 / 0.75 W)	6 W (6 / 3 / 1.5 / 0.75 W)
Sound Pressure Level at rated power / 1 W (1 kHz, 1 m)	96 dB / 88 dB	97 dB / 89 dB
Opening angle at 1 kHz / 4 kHz (-6 dB)	180° / 128°	180° / 62°
Effective frequency range (-10 dB)	85 Hz to 20 kHz	70 Hz to 20 kHz
Rated voltage	70 V / 100 V	70 V / 100 V
Rated impedance	835 / 1667 Ohm	835 / 1667 Ohm
Connector	3-pole screw-terminal block	3-pole screw-terminal block

	LC1-UM12E8	LC1-UM24E8
Description	Ceiling loudspeaker	Ceiling loudspeaker
Maximum power	18 W	36 W
Rated power	12 W (12 / 6 / 3 / 1.5 W)	24 W (24 / 12 / 6 / 3 W)
Sound Pressure Level at rated power / 1 W (1 kHz, 1 m)	100 dB / 89 dB	103 dB / 89 dB
Opening angle at 1 kHz / 4 kHz (-6 dB)	180° / 64°	180° / 58°
Effective frequency range (-10 dB)	55 Hz to 20 kHz	55 Hz to 20 kHz
Rated voltage	70 V / 100 V	70 V / 100 V
Rated impedance	418 / 833 Ohm	208 / 417 Ohm
Connector	3-pole screw-terminal block	3-pole screw-terminal block

* Technical performance data acc. to IEC 60268-5

Mechanical

	LC1-WC06E8	
Description	Ceiling loudspeaker	
Diameter	220 mm (8.67 in)	
Maximum depth*	125 mm (4.92 in)	
Color	White (RAL 9010)	
Material (frame / front grille)	ABS	
Weight	820 g (1.81 lb)	
	LC1-WM06E8	LC1-UM06E8
Description	Ceiling loudspeaker	Ceiling loudspeaker
Diameter	220 mm (8.67 in)	220 mm (8.67 in)
Maximum depth*	125 mm (4.92 in)	125 mm (4.92 in)
Color	White (RAL 9010)	White (RAL 9010)
Material (frame / front grille)	Steel	Steel
Weight	1.18 kg (2.6 lb)	1.16 kg (2.56 lb)
	LC1-UM12E8	LC1-UM24E8
Description	Ceiling loudspeaker	Ceiling loudspeaker
Diameter	220 mm (8.67 in)	220 mm (8.67 in)
Maximum depth*	125 mm (4.92 in)	125 mm (4.927 in)
Color	White (RAL 9010)	White (RAL 9010)

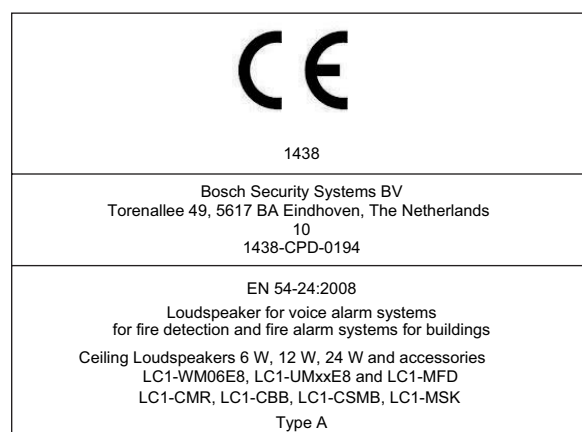
Material (frame / front grille)	Steel	Steel
Weight	1.3 kg (2.86 lb)	1.75 kg (3.86 lb)
	LC1-MMSB	LC1-CMR
Description	Mounting Support Bracket	Ceiling Mounting Ring
Dimensions	215 x 125 x 56 mm (8.47 x 4.92 x 2.2 in)	215 x 70 mm (8.47 x 2.75 in)
Mounting cut-out	190 mm (7.48 in)	200 mm (7.88 in)
	Cut-out template included	Cut-out template included
Max. ceiling thickness	50 mm (1.97 in)	25 mm (0.98 in)
Material	Steel	ABS
Color	Zinc plated	White (RAL 9010)
Weight	390 g (0.70 lb)	210 g (0.46 lb)
	LC1-CBB	LC1-CSMB
Description	Back Box	Surface Mounting Box
Dimensions	196 x 70 mm (7.72 x 2.75 in)	220 x 128 mm (8.67 x 5.04 in)
Material	ABS	ABS
Color	White (RAL 9010)	White (RAL 9010)
Weight	174 g (0.38 lb)	690 g (1.52 lb)
	LC1-MFD	LC1-PIB
Description	Metal Fire Dome (including ceramic connector)	Pilot-tone Indication Board
Dimensions	215 x 155 mm (8.47 x 6.1 in)	20 x 30 mm (0.78 x 1.18 in)
Mounting cut-out	190 mm (7.48 in)	n.a.
	Cut-out template included	n.a.
Material	Steel	n.a.
Color	Flame red (RAL 3000)	n.a.
Certified B15	According to DIN4102-8	n.a.
Weight	1 kg (2.20 lb)	3 g (0.006 lb)
	LM1-TB	LC1-MSK
Description	Tile Bridge / C-Ring	Metal Suspension Kit
Dimensions		

Chain length	n.a	320 mm (12.59 in)
Tile rails	643 x 34 mm (25.33 x 1.34 in)	n.a
C-Ring	250 x 30 mm (9.85 x 1.18 in)	n.a
Material	Steel	Steel
Color	Zinc plated	Zinc plated
Weight	939 g (2.07 lb)	174 g (0.38 lb)

* including LC1-MMSB

Environmental

Operating temperature	-25 °C to +55 °C (-13 °F to +131 °F)
Storage temperature	-40 °C to +70 °C (-40 °F to +158 °F)
Relative humidity	<95%

**Ordering information****LC1-WC06E8 Ceiling Loudspeaker 6 W**

Ceiling loudspeaker, 6 W, ABS circular grille, 4-inch driver, without flush ceiling-mounting accessory, EN54-24 certified, white RAL 9010.

Order number **LC1-WC06E8****LC1-WM06E8 Ceiling Loudspeaker 6 W**

Ceiling loudspeaker, 6 W, integrated circular metal grille, 4-inch driver, without flush ceiling-mounting accessory, EN54-24 certified, white RAL 9010.

Order number **LC1-WM06E8****LC1-UM06E8 Ceiling Loudspeaker 6 W**

Ceiling loudspeaker, 6 W, integrated circular metal grille, 6-inch driver, without flush ceiling-mounting accessory, EN54-24 certified, white RAL 9010.

Order number **LC1-UM06E8****LC1-UM12E8 Ceiling Loudspeaker 12 W**

Ceiling loudspeaker, 12 W, integrated circular metal grille, 6-inch coax (two-way system) driver, without flush ceiling-mounting accessory, EN54-24 certified, white RAL 9010.

Order number **LC1-UM12E8**

LC1-UM24E8 Ceiling Loudspeaker 24 W

Ceiling loudspeaker, 24 W, integrated circular metal grille, 6-inch coax (two-way system) driver, without flush ceiling-mounting accessory, EN54-24 certified, white RAL 9010.

Order number **LC1-UM24E8**

Accessories**LC1-MMSB Mounting Support Bracket**

Metal mounting support bracket with two ceiling clamps for securing LC1 ceiling loudspeakers in the ceiling.

Order number **LC1-MMSB**

LC1-CMR Mounting Ring

Ceiling mounting ring with screw driving ceiling clamps for securing the LC1 ceiling loudspeakers in the ceiling, EN54-24 certified, white RAL 9010.

Order number **LC1-CMR**

LC1-CBB Back Box

Back box for mounting onto the LC1-CMR, fully protects the LC1 loudspeaker from dust and dripping water, makes the unit vermin proof and prevents sound traveling via the ceiling cavity to adjacent areas, EN54-24 certified, white RAL 9010.

Order number **LC1-CBB**

LC1-MFD Metal Fire Dome

Metal fire dome for use with the LC1 ceiling loudspeakers, including ceramic terminal connector with cable loop-through facility, EN54-24 certified, flame red RAL 3000.

Order number **LC1-MFD**

LC1-CSMB Surface Mounting Box

Surface mounting box, ABS, for securing LC1 ceiling loudspeaker to walls or hard ceilings.

Order number **LC1-CSMB**

LC1-MSK Metal Suspension Kit

Metal suspension kit for single-point suspension of LC1 ceiling loudspeaker and LC1-CSMB surface mounting box assembly.

Order number **LC1-MSK**

LC1-PIB Pilot Tone Indication Board

Pilot-tone indication board for mounting in LC1 ceiling loudspeakers, enables optional visualization of presence of pilot tone (set of six pieces).

Order number **LC1-PIB**

LM1-TB Tile Bridge / C-Ring

Tile bridge/C-ring, an installation accessory for reinforcing the ceiling material and distributing the pressure from the ceiling speaker clamps (set of two pieces).

Order number **LM1-TB**

LC4 Ceiling Loudspeaker Range



Features

- Innovative CosCone full range driver
- Excellent speech and music reproduction
- Unrivalled opening angle for all octave frequencies
- Paintable grille
- EN 54-24, UL2043, UL1480 certified

The LC4 Ceiling Loudspeaker Range can be used for a wide variety of ceiling environments. They provide excellent speech and music in indoor public address applications. New CosCone driver technology, used in this range, stands for delivering outstanding sound quality from a small sized unit. It ensures a wide and equal spread of all octave frequencies and eliminates high-frequency beaming. Fewer loudspeakers are needed to cover a given area, and the noticeable “fading” that can occur as a listener walks from one loudspeaker to another area is eliminated.

The LC4-UCxxE ceiling loudspeaker is a light and compact unit with an unobtrusive, neutral designed front grille. The range offers a choice of three loudspeakers distinguished by input power of: 6 W, 12 W and 24 W with the same wide opening angle, ensuring a wide and equal spread of the important frequency octaves for speech intelligibility and music clarity. The LC4 range also includes a back-box and metal fire-dome.

Certifications and approvals

All Bosch loudspeakers are designed to withstand operating at their rated power for 100 hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. Bosch has also developed the Simulated Acoustical Feedback Exposure (SAFE) test to demonstrate that they can withstand two times their rated power for short durations. This ensures extra reliability under extreme conditions, leading to higher customer satisfaction, longer operating life, and much less chance of failure or performance deterioration.

The LC4 range has UL1480F certification listed for use in Fire Alarm and/or Emergency Communication Systems.

Safety	According to EN 60065
Water and dust protected *	According to EN 60529 IP 21
Emergency *	According to BS 5839 part 8 According to EN 54-24

* With LC4-CBB back-box or LC4-MFD fire-dome

Region	Certification
Europe	CE
	CPD
USA	UL

Installation/configuration notes

The LC4 range is very installation friendly. A cutting template is supplied with each unit, and the loudspeaker is secured in ceilings up to 50 mm (2 in) thick using two integral screw driven clamps.

Connections are made using a screw terminal block on the frame, where each incoming and outgoing conductor of the same potential can be connected to a separate screw on a terminal block.

Power tapping on both 70 V and 100 V allows selection of full-power, half-power, quarter-power, eight-power radiation and 8 Ohm.

A selector at the front of the frame simplifies the required selection of the power setting.

The loudspeaker grille, standard supplied, can be secured to the loudspeaker unit with a quick bayonet fitting after installation of the loudspeaker into the ceiling.

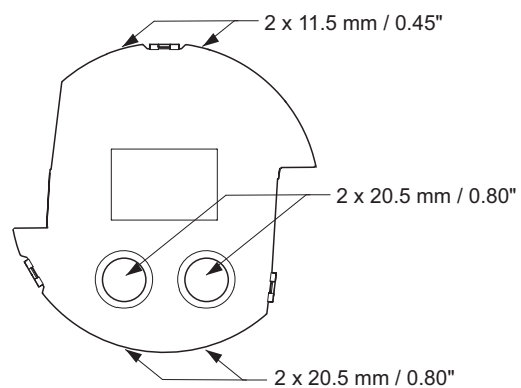
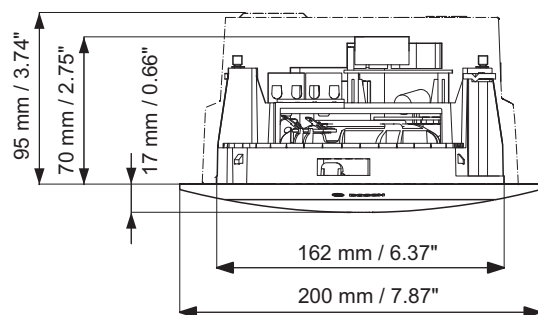
The optional back-box (LC4-CBB), protects the rear of the loudspeaker from dust, falling objects, makes the unit vermin proof and prevents sound traveling via the ceiling cavity to adjacent areas.

The back-box is assembled with the loudspeaker by means of a snap-in construction and has knock-out holes for two grommets (11.5 mm) and for two cable glands (20.5 mm) aside and on the top.

Ease of installation for individual loudspeaker and loudspeaker / fire-dome combinations. The metal fire-dome (LC4-MFD) mounting is fixed in the ceiling prior to the ceiling speaker mounting. The fire-dome is provided with a safety cord allowing the installer to temporarily hang the loudspeaker in the fire-dome, while connecting. Connections are made using an innovative ceramic screw terminal connector on top of the metal fire-dome with loop-through facility.

The loudspeaker has a provision also for adding a capacitor in case the loudspeaker is used in systems with DC supervision.

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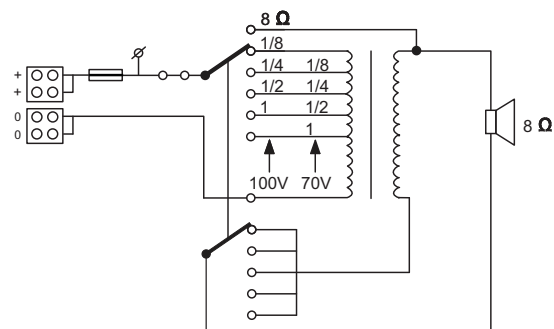
Mechanical diagram LC4-UCxxE and LC4-CBB



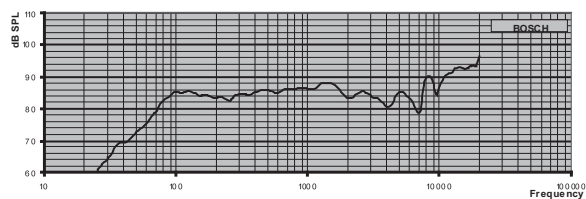
Rear view LC4-UCxxE including LC4-CBB



Rear view LC4-UCxxE including LC4-MFD, showing the ceramic connector



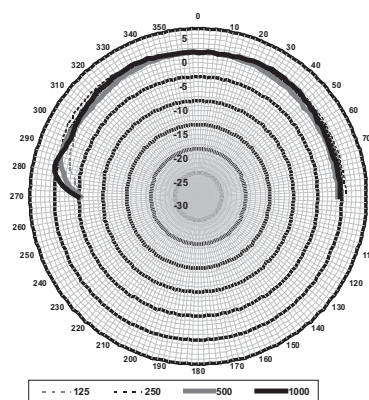
Circuit diagram LC4-UCxxE



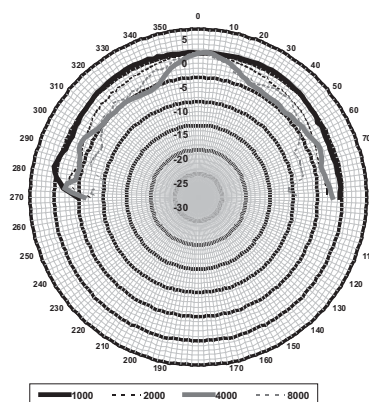
Frequency response LC4-UCxxE



LC4 ceiling loudspeaker range overview



LC4-UCxxE horizontal/vertical polar diagram (low frequency). Normalized at 0-degrees axis.



LC4-UCxxE horizontal/vertical polar diagram (low frequency). Normalized at 0-degrees axis.

Octave band sensitivity LC4-UC06E *

	Octave SPL 1W/1m	Total octave SPL 1W/1m	Total octave SPL Pmax/1m
125 Hz	85.9	-	-

250 Hz	83.5	-	-
500 Hz	86.1	-	-
1000 Hz	86.6	-	-
2000 Hz	89.4	-	-
4000 Hz	90.1	-	-
8000 Hz	91.1	-	-
A-weighted	-	86.4	93.5
Lin-weighted	-	88.2	95.4

Octave band sensitivity LC4-UC12E *

	Octave SPL 1W/1m	Total octave SPL 1W/1m	Total octave SPL Pmax/1m
125 Hz	85.9	-	-
250 Hz	83.7	-	-
500 Hz	86.1	-	-
1000 Hz	86.8	-	-
2000 Hz	89.4	-	-
4000 Hz	88.5	-	-
8000 Hz	90.5	-	-
A-weighted	-	85.9	95.1
Lin-weighted	-	88.0	97.4

Octave band sensitivity LC4-UC24E *

	Octave SPL 1W/1m	Total octave SPL 1W/1m	Total octave SPL Pmax/1m
125 Hz	86.3	-	-
250 Hz	83.3	-	-
500 Hz	86.0	-	-
1000 Hz	86.5	-	-
2000 Hz	88.9	-	-
4000 Hz	88.3	-	-
8000 Hz	89.3	-	-
A-weighted	-	85.6	97.7
Lin-weighted	-	87.6	100.4

Octave band opening angles LC4-UCxxE *

	Horizontal	Vertical	
125 Hz	180	180	
250 Hz	180	180	
500 Hz	180	180	
1000 Hz	180	180	

2000 Hz	180	180	
4000 Hz	180	180	
8000 Hz	128	128	

Acoustical performance specified per octave
(all measurements are done with a pink noise signal; the values are in dBSPL)

Parts included

Quantity	Components
1	LC4-UCxxE Ceiling Loudspeaker
1	Installation Instruction
1	Ceiling cut-out template

Technical specifications

Electrical *

	LC4-UC06E	LC4-UC12E
Description	Ceiling loudspeaker	
Maximum power	9 W	18 W
Rated power	6 W (6/3/1.5/0.75 W)	12 W (12/6/3/1.5 W)
Sound pressure level at 6 W power / 1 W (1 kHz, 1 m)	95 dB / 87 dB (SPL)	98 dB / 87 dB (SPL)
Opening angle at 1 kHz / 4 kHz (-6 dB)	180° / 180°	180° / 180°
Effective frequency range (-10 dB)	65 Hz to 20 kHz	65 Hz to 20 kHz
Rated voltage	6.93 / 70 / 100 V	9.8 / 70 / 100 V
Rated impedance	8 / 835 / 1667 Ohm	8 / 418 / 833 Ohm
Electrical connection	4-way screw terminal block	
Acceptable wire gauge	0.5 – 3 mm ²	

	LC4-UC24E
Description	Ceiling loudspeaker
Maximum power	36 W
Rated power	24 W (24/12/6/3 W)
Sound pressure level at 6 W power / 1 W (1 kHz, 1 m)	101 dB / 87 dB (SPL)
Opening angle at 1 kHz / 4 kHz (-6 dB)	180° / 180°
Effective frequency range (-10 dB)	65 Hz to 20 kHz
Rated voltage	13.9 / 70 / 100 V

Rated impedance	8 / 208 / 417 Ohm
Electrical connection	4-way screw terminal block
Acceptable wire gauge	0.5 – 3 mm ²

* Technical performance according to IEC 60268-5

Mechanical

	LC4-UC06E	LC4-UC12E	LC4-UC24E
Description	Ceiling Loudspeaker		
Diameter	200 mm (7.87 in)		
Mounting cut-out	162 mm (6.38 in)		
Min./Max. ceiling thickness	5 to 50 mm (0.19 to 1.97 in)		
Maximum depth	70 mm (2.75 in)		
Material (Loudspeaker unit)	ABS (V 0)		
Material (front grille)	Steel mesh with ABS (V 0) rim		
Weight	800 g (1.77 lb)	840 g (1.86 lb)	990 g (2.18 lb)
Color (loudspeaker unit)	Black (RAL 9011)		
Color (front grille)	White (RAL 9003)		

	LC4-CBB	LC4-MFD
Description	Back-Box	Metal Fire-dome
Diameter	160 mm (6.29 in)	197 / 175 mm (7.75 / 6.88 in)
Maximum depth	78 mm (3.07 in)	156 mm (6.14 in)
Mounting cut-out	n.a.	178 mm (7.00 in)
Min./Max. ceiling thickness	n.a.	5 to 50 mm (0.19 to 1.97 in)
Material	ABS (V 0)	Steel
Weight	160 g (0.35 lb)	998 g (2.20 lb)
Color	Black (RAL 9011)	Flame red (RAL 3000)

Environmental

Operating temperature	-25 °C to +55 °C (-13 °F to +131 °F)
Storage temperature	-40 °C to +70 °C (-40 °F to +158 °F)
Relative humidity	<95%



Bosch Security Systems BV
Torenallee 49, 5617BA Eindhoven, The Netherlands
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1438-CPD-0321

EN 54-24:2008

Loudspeaker for voice alarm systems
for fire detection and fire alarm systems for buildings

Ceiling loudspeaker 6 W, 12 W, 24 W and accessories
LC4-UC06E, LC4-UC12E, LC4-UC24E, LC4-CBB, LC4-MFD
Type A

4

Ordering information

LC4-UC06E Ceiling Loudspeaker 6 W

Ceiling loudspeaker 6 W, wide-opening angle for all octave frequencies, separate ABS grille with metal grille, two screw-driven clamp ceiling mounting, EN54-24 certified, white RAL 9003.

Order number **LC4-UC06E**

LC4-UC12E Ceiling Loudspeaker 12 W

Ceiling loudspeaker 12 W, wide-opening angle for all octave frequencies, separate ABS grille with metal grille, two screw-driven clamp ceiling mounting, EN54-24 certified, white RAL 9003.

Order number **LC4-UC12E**

LC4-UC24E Ceiling Loudspeaker 24 W

Ceiling loudspeaker 24 W, wide-opening angle for all octave frequencies, separate ABS grille with metal grille, two screw-driven clamp ceiling mounting, EN54-24 certified, white RAL 9003.

Order number **LC4-UC24E**

Accessories

LC4-CBB Back-box

Back box for mounting onto the LC4 loudspeaker, protects the rear of the loudspeaker from dust and dripping water, makes the unit vermin proof, and prevents sound traveling via the ceiling cavity to adjacent areas, EN 54-24 certified, black RAL 9011.

Order number **LC4-CBB**

LC4-MFD Metal Fire-dome

Metal fire dome for use with LC4 ceiling loudspeakers, includes ceramic terminal connector with cable loop-through facility, EN54-24 certified, flame red RAL 3000.

Order number **LC4-MFD**

LC2-PC30G6-4 Premium-sound Ceiling Loudspeaker 30W

4



Features

- ▶ 4-inch coaxial two-way
- ▶ Waveguide coupled Ti tweeter
- ▶ Full bandwidth overload protection
- ▶ Front baffle wattage tap adjustment
- ▶ BS 5839-8 and EN 60849 compliant

The LC2-PC30G6-4 is a 4-inch two-way Premium-sound Ceiling Loudspeaker which provides; wide dispersion, high efficiency, high maximum output, ease-of-installation, and wide-range reproduction of music and voice. It consists of a baffle assembly, grille, back-can enclosure, 4-inch coax two-way loudspeaker and internal output-power matching transformer. The loudspeaker features a waveguide coupled titanium coated dome tweeter.

The rear enclosure provides an optimum internal volume for extended low frequency performance.

The loudspeaker utilizes a second order crossover network at 3.3 kHz, with a comprehensive protection circuit to protect the network, woofer, and tweeter drivers from excessive power levels.

The loudspeaker can be installed optionally with the LC2-PC60G6-10 ceiling subwoofer to enhance the low frequency reproduction down to 45 Hz.

Functions

Voice alarm loudspeaker

Voice alarm loudspeakers are specifically designed for use in buildings where performance of systems for verbal evacuation announcements is governed by regulations. The LC2-PC30G6-4 is designed for use in voice alarm systems and is compliant with British Standard BS 5839-8 and EN 60849.

Protection

The loudspeaker has built-in protection to ensure that, in the event of a fire, damage to the loudspeaker does not result in failure of the circuit to which it is connected. In this way, system integrity is maintained; ensuring

loudspeakers in other areas can still be used to inform people of the situation. It is standard fitted with a back-can enclosure to increase protection of the cable termination.

The loudspeaker has an emergency compliant ceramic screw-terminal block and thermal fuse.

Certifications and approvals

All Bosch loudspeakers are designed to withstand operating at their rated power for 100 continuous hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. Bosch has also developed the Simulated Acoustical Feedback Exposure (SAFE) test to demonstrate that they can withstand two times their rated power for short durations. This ensures improved reliability under extreme conditions, leading to higher customer satisfaction, longer operating life, and lessens the chance of failure or performance deterioration.

Safety	according to EN 60065
Emergency	according to BS 5839-8 / EN 60849

Region	Certification
Europe	CE

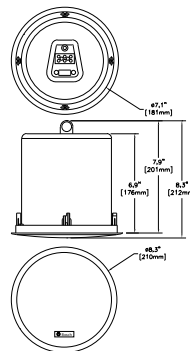
Installation/configuration notes

Mounting

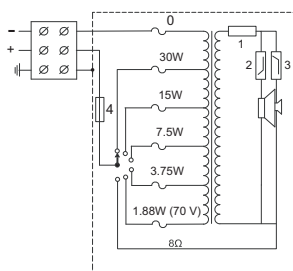
The loudspeaker is secured in ceilings using three integral toggle anchors, and has been designed to work together in a wide range of different ceiling constructions. A tile bridge / C-ring is included for safe suspension in a drop ceiling that uses mineral wool, or other fiber-based ceiling tiles from 4 to 25 mm (0.16 to 1.0 in.) thick. A circular template for marking a 183 mm (7.188 in.) diameter hole is included with the loudspeaker.

Power setting

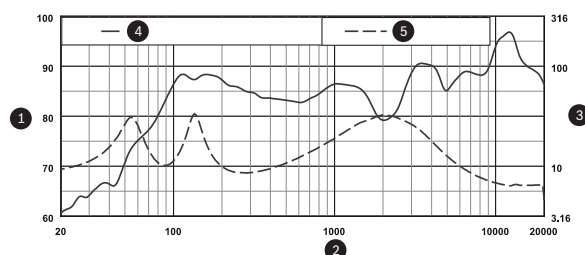
The unit has a three-way emergency compliant ceramic terminal block with screw connections (including earth) suitable for loop-through wiring. Four 100 V, and five 70 V, primary taps are provided on the matching transformer to allow selection of nominal full-power, half-power, quarter-power, eighth-power radiation (in 3 dB steps) and eight ohm. Selection is done via a convenient switch on the front baffle.



Dimensions in Inch / [mm]

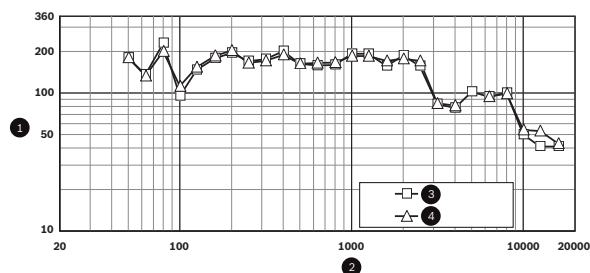


Circuit diagram (1: Passive Limiter, 2: Low Pass Filter, 3: High Pass Filter, 4: Thermal fuse)



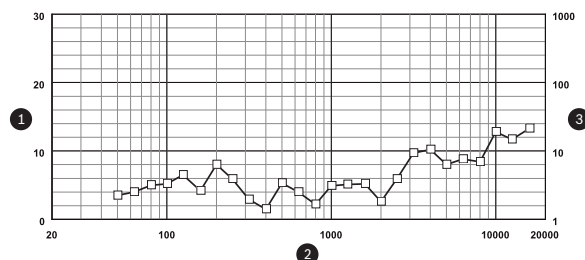
1	SPL, 1W/1m (db)
2	Frequency (Hz)
3	Impedance (Ohms)
4	Frequency response, half space
5	Impedance

Frequency response



1	-6dB Beamwidth (degrees)
2	Frequency (Hz)
3	Horizontal
4	Vertical

Beam width



1	Directivity Index (DI), dB
2	Frequency (Hz)
3	Directivity Factor (Q)

Directivity

Parts included

Quantity	Components
2	LC2-PC30G6-4 Premium-sound Ceiling Loudspeaker
1	183 mm (7.188 in.) circular cut-out template
1	Tile bridge / C-ring
1	Paint shield
1	Installation instruction

Technical specifications

Electrical

Maximum power	50 W
Rated power	30 / 15 / 7.5 / 3.75 W (1.88 W only, 70 V).
Sound pressure level at 30 W / 1 W (1 kHz, 1 m)	101 / 86 dB (SPL)
Effective frequency range (-10 dB)	65 Hz to 20 kHz
Coverage (conical)	130°
Rated voltage	70 V or 100 V
Rated impedance	167 or 333 or 8 ohm
LF transducer	100 mm (4 in.) Polypropylene cone
HF transducer	19 mm (0.75 in.) Ti Mylar laminate
Connector	3-pole screw terminal block

Mechanical

Diameter	210 mm (8.3 in)
Maximum depth	176 mm (6.9 in)
Ceiling thickness	4 to 25 mm (0.16 to 1.00 in.)
Mounting cut-out	183 + 5 mm (7.188 + 0.20 in.)
Material	
Baffle	ABS (UL94V0)
Back-can	Zinc-plated steel
Grille	Powder coated steel
Weight	2.7 kg (6.0 lb)
Color	White (RAL 9010)

Environmental

Operating temperature	-25 °C to +55 °C (-13 °F to +131 °F)
Storage temperature	-40 °C to +70 °C (-40 °F to +158 °F)
Relative humidity	<95%

Ordering information

4

LC2-PC30G6-4 Premium-sound Ceiling Loudspeaker 30W

Ceiling loudspeaker 30 W, circular, metal grille, integrated metal back-cover, 4-inch coax (two-way system) driver, 3-way ceramic screw terminal block, supplied with tile bridge/C-ring, white RAL 9010 (set of 2 pieces).

Order number **LC2-PC30G6-4**

LC2-PC30G6-8 Premium-sound Ceiling Loudspeaker 30W



Features

- ▶ 8-inch coaxial two-way
- ▶ Waveguide coupled Ti tweeter
- ▶ Full bandwidth overload protection
- ▶ Front baffle wattage tap adjustment
- ▶ BS 5839-8 and EN 60849 compliant

The LC2-PC30G6-8 is a 8-inch two-way Premium-sound Ceiling Loudspeaker which provides; wide dispersion, high efficiency, high maximum output, ease-of-installation, and wide-range reproduction of music and voice. It consists of a baffle assembly, grille, back-can enclosure, 8-inch coax two-way loudspeaker and internal output-power matching transformer. The loudspeaker features a waveguide coupled titanium coated dome tweeter.

The rear enclosure provides an optimum internal volume for extended low frequency performance.

The loudspeaker utilizes a second order crossover network at 3.3 kHz, with a comprehensive protection circuit to protect the network, woofer, and tweeter drivers from excessive power levels.

The loudspeaker can be installed optionally with the LC2-PC60G6-10 ceiling subwoofer to enhance the low frequency reproduction down to 45 Hz.

Functions

Voice alarm loudspeaker

Voice alarm loudspeakers are specifically designed for use in buildings where performance of systems for verbal evacuation announcements is governed by regulations. The LC2-PC30G6-8 is designed for use in voice alarm systems and is compliant with British Standard BS 5839-8 and EN 60849.

Protection

The loudspeaker has built-in protection to ensure that, in the event of a fire, damage to the loudspeaker does not result in failure of the circuit to which it is connected. In this way, system integrity is maintained; ensuring

loudspeakers in other areas can still be used to inform people of the situation. It is standard fitted with a back-can enclosure to increase protection of the cable termination.

The loudspeaker has an emergency compliant ceramic screw-terminal block and thermal fuse.

Certifications and approvals

All Bosch loudspeakers are designed to withstand operating at their rated power for 100 continuous hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. Bosch has also developed the Simulated Acoustical Feedback Exposure (SAFE) test to demonstrate that they can withstand two times their rated power for short durations. This ensures improved reliability under extreme conditions, leading to higher customer satisfaction, longer operating life, and lessens the chance of failure or performance deterioration.

Safety	according to EN 60065
Emergency	according to BS 5839-8 / EN 60849

Region	Certification
Europe	CE

Installation/configuration notes

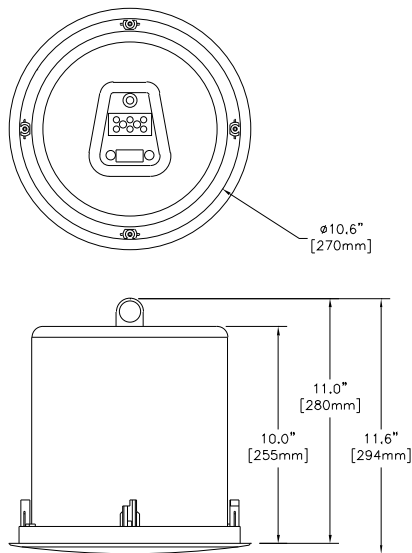
Mounting

The loudspeaker is secured in ceilings using four integral toggle anchors, and has been designed to work together in a wide range of different ceiling constructions. A tile bridge / C-ring is included for safe suspension in a drop ceiling that uses mineral wool, or other fiber-based ceiling tiles from 4 to 25 mm (0.16 to 1.0 in.) thick. A circular template for marking a 272 mm (10.75 in.) diameter hole is included with the loudspeaker.

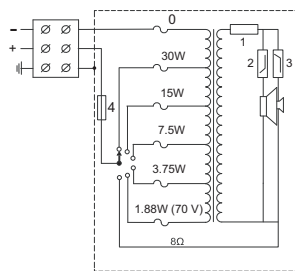
Power setting

The unit has a three-way emergency compliant ceramic terminal block with screw connections (including earth) suitable for loop-through wiring. Four 100 V, and five 70 V, primary taps are provided on the matching transformer to allow selection of nominal full-power, half-power, quarter-power, eighth-power radiation (in 3 dB steps) and eight ohm. Selection is done via a convenient switch on the front baffle.

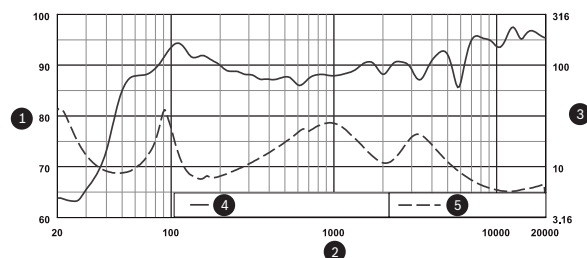
4



Dimensions in Inch / [mm]



Circuit diagram (1: Passive Limiter, 2: Low Pass Filter, 3: High Pass Filter, 4: Thermal fuse)

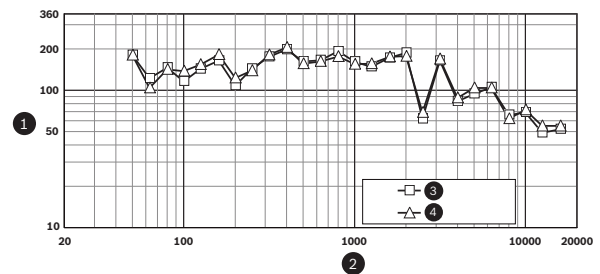


1	SPL, 1W/1m (dB)
2	Frequency (Hz)
3	Impedance (Ohms)

4 Frequency Response, half space

5 Impedance

Frequency response



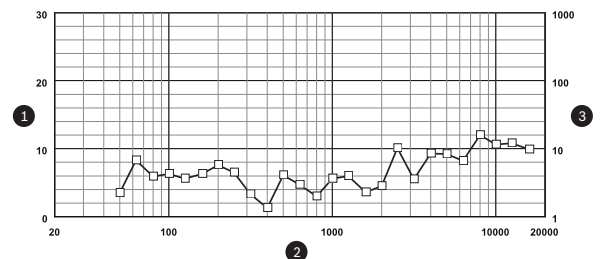
1 -6dB Beamwidth (degrees)

2 Frequency (Hz)

3 Horizontal

4 Vertical

Beam width



1 Directivity Index (DI), dB

2 Frequency (Hz)

3 Directivity Factor (Q)

Directivity

Parts included

Quantity	Components
2	LC2-PC30G6-8 Premium-sound Ceiling Loudspeaker
1	272 mm (10.75 in.) circular cut-out template
1	Tile bridge / C-ring
1	Paint shield
1	Installation instruction

Technical specifications

Electrical

Maximum power	75 W
Rated power	30 / 15 / 7.5 / 3.75 W (1.88 W only, 70 V).
Sound pressure level at 30 W / 1 W (1 kHz, 1 m)	106 / 91 dB (SPL)

Effective frequency range (-10 dB)	50 Hz to 20 kHz
Coverage (conical)	110°
Rated voltage	70 V or 100 V
Rated impedance	167 or 333 or 8 ohm
LF transducer	200 mm (8 in.) Polypropylene cone
HF transducer	25 mm (1 in.) Ti Mylar laminate
Connector	3-pole ceramic screw terminal block

Mechanical

Diameter	300 mm (11.8 in)
Maximum depth	255 mm (10 in)
Ceiling thickness	4 to 25 mm (0.16 to 1.00 in.)
Mounting cut-out	272 + 5 mm (10.75 + 0.20 in.)
Material	
Baffle	ABS (UL94V0)
Back-can	Zinc-plated steel
Grille	Powder coated steel
Weight	5 kg (11 lb)
Color	White (RAL 9010)

Environmental

Operating temperature	-25 °C to +55 °C (-13 °F to +131 °F)
Storage temperature	-40 °C to +70 °C (-40 °F to +158 °F)
Relative humidity	<95%

Ordering information

LC2-PC30G6-8 Premium-sound Ceiling Loudspeaker 30W

Ceiling loudspeaker 30 W, circular, metal grille, integrated metal back-cover, 8-inch coax (two-way system) driver, 3-way ceramic screw terminal block, supplied with tile bridge/C-ring, white RAL 9010 (set of 2 pieces).

Order number **LC2-PC30G6-8**

LC2-PC30G6-8L

Premium-sound Ceiling Loudspeaker 30W



4

Features

- ▶ 8-inch coaxial two-way
- ▶ Waveguide coupled Ti tweeter
- ▶ Full bandwidth overload protection
- ▶ Front baffle wattage tap adjustment
- ▶ BS 5839-8 and EN 60849 compliant

The LC2-PC30G6-8L is a 8-inch two-way Premium-sound Ceiling Loudspeaker which provides, wide dispersion, high efficiency, high maximum output, ease-of-installation, low profile install space and wide-range reproduction of music and voice.

It consists of a baffle assembly, grille, back-can enclosure 8-inch coax two-way loudspeaker and internal output-power matching transformer. The loudspeaker features a waveguide coupled titanium coated dome tweeter.

The rear enclosure provides an optimum internal volume for extended low frequency performance.

The loudspeaker utilizes a second order crossover network at 2.5 kHz, with a comprehensive protection circuit to protect the network, woofer, and tweeter drivers from excessive power levels.

The loudspeaker can be installed optionally with the LC2-PC60G6-10 ceiling subwoofer to enhance the low frequency reproduction down to 45 Hz.

Functions

Voice alarm loudspeaker

Voice alarm loudspeakers are specifically designed for use in buildings where performance of systems for verbal evacuation announcements is governed by regulations. The LC2-PC30G6-8L is designed for use in voice alarm systems and is compliant with British Standard BS 5839-8 and EN 60849.

Protection

The loudspeaker has built-in protection to ensure that, in the event of a fire, damage to the loudspeaker does not result in failure of the circuit to which it is connected. In this way, system integrity is maintained; ensuring loudspeakers in other areas can still be used to inform people of the situation. It is standard fitted with a back-can enclosure to increase protection of the cable termination.

The loudspeaker has an emergency compliant ceramic screw-terminal block and thermal fuse.

Certifications and approvals

All Bosch loudspeakers are designed to withstand operating at their rated power for 100 continuous hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. Bosch has also developed the Simulated Acoustical Feedback Exposure (SAFE) test to demonstrate that they can withstand two times their rated power for short durations. This ensures improved reliability under extreme conditions, leading to higher customer satisfaction, longer operating life, and lessens the chance of failure or performance deterioration.

Safety	according to EN 60065
Emergency	according to BS 5839_8 / EN 60849

Region	Certification
Europe	CE

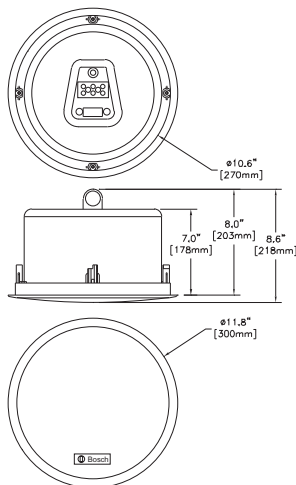
Installation/configuration notes

Mounting

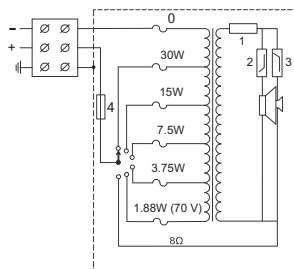
The loudspeaker is secured in ceilings using four integral toggle anchors, and has been designed to work together in a wide range of different ceiling constructions. A tile bridge / C-ring is included for safe suspension in a drop ceiling that uses mineral wool, or other fiber-based ceiling tiles from 4 to 25 mm (0.16 to 1.0 in.) thick. A circular template for marking a 272 mm (10.75 in.) diameter hole is included with the loudspeaker.

Power setting

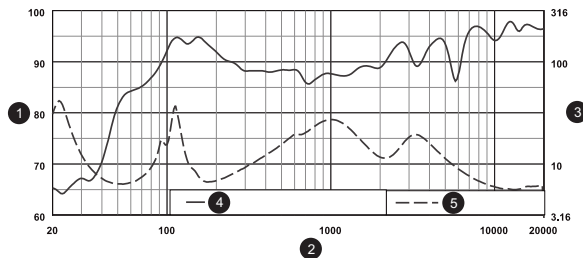
The unit has a three-way emergency compliant ceramic terminal block with screw connections (including earth) suitable for loop-through wiring. Four 100 V, and five 70 V, primary taps are provided on the matching transformer to allow selection of nominal full-power, half-power, quarter-power, eighth-power radiation (in 3 dB steps) and eight ohm. Selection is done via a convenient switch on the front baffle.



Dimensions in Inch / [mm]

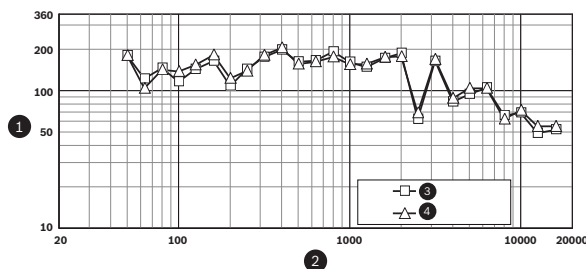


Circuit diagram (1: Passive Limiter, 2: Low Pass Filter, 3: High Pass Filter, 4: Thermal fuse)



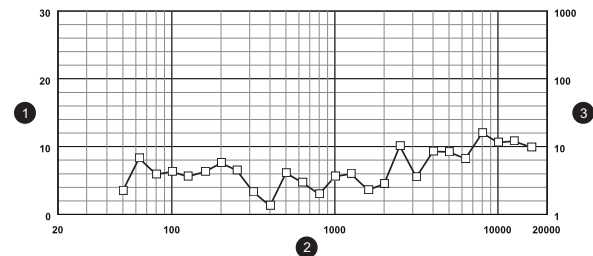
1	SPL, 1W/1m (dB)
2	Frequency (Hz)
3	Impedance (Ohms)
4	Frequency Response, half space
5	Impedance

Frequency response



1	-6dB Beamwidth (degrees)
2	Frequency (Hz)
3	Horizontal
4	Vertical

Beam width



1	Directivity Index (DI), dB
2	Frequency (Hz)
3	Directivity Factor (Q)

Directivity

Parts included

Quantity	Components
2	LC2-PC30G6-8L Premium-sound Ceiling Loudspeaker
1	272 mm (10.75 in.) circular cut-out template
1	Tile bridge / C-ring
1	Paint shield
1	Installation instruction

Technical specifications

Electrical

Maximum power	75 W
Rated power	30 / 15 / 7.5 / 3.75 W (1.88 W only, 70 V).
Sound pressure level at 30 W / 1 W (1 kHz, 1 m)	106 / 91 dB (SPL)
Effective frequency range (-10 dB)	50 Hz to 20 kHz
Coverage (conical)	110°
Rated voltage	70 V or 100 V
Rated impedance	167 or 333 or 8 ohm
LF transducer	200 mm (8 in.) Polypropylene cone
HF transducer	25 mm (1 in.) Ti Mylar laminate
Connector	3-pole ceramic screw terminal block

Mechanical

Diameter	300 mm (11.8 in)
Maximum depth	178 mm (7 in)
Ceiling thickness	4 to 25 mm (0.16 to 1.00 in.)
Mounting cut-out	272 + 5 mm (10.75 + 0.20 in.)
Material	
Baffle	ABS (UL94V0)
Back-can	Zinc-plated steel
Grille	Powder coated steel
Weight	5 kg (11 lb)
Color	White (RAL 9010)

Environmental

Operating temperature	-25 °C to +55 °C (-13 °F to +131 °F)
Storage temperature	-40 °C to +70 °C (-40 °F to +158 °F)
Relative humidity	<95%

Ordering information**LC2-PC30G6-8L Premium-sound Ceiling Loudspeaker 30W**

Ceiling loudspeaker 30 W, circular, metal grille, integrated metal back-cover, low profile installation space, 8-inch coax (two-way system) driver, 3-way ceramic screw terminal block, supplied with tile bridge/C-ring, white RAL 9010 (set of 2 pieces).

Order number **LC2-PC30G6-8L**

LC2-PC60G6-8H

Premium-sound High Ceiling Loudspeaker 60W



Features

- ▶ 8-inch coaxial two-way with dual integrated waveguides
- ▶ Waveguide coupled Ti tweeter
- ▶ Full bandwidth overload protection
- ▶ Front baffle wattage tap adjustment
- ▶ BS 5839-8 and EN 60849 compliant

The LC2-PC60G6-8H is an 8-inch two-way Premium-sound Ceiling Loudspeaker which provides, wide dispersion, high efficiency, high maximum output, ease-of-installation, innovative dual waveguide that provides directivity control to 1 kHz and wide-range reproduction of music and voice.

It consists of a baffle/waveguide assembly, grille, back-can enclosure, 8-inch coax two-way loudspeaker and internal output-power matching transformer. The loudspeaker features a waveguide coupled titanium coated dome tweeter.

It provides much better music fidelity and speech intelligibility in spaces with high ceiling heights than typical flush units are capable of.

The rear enclosure provides an optimum internal volume for extended low frequency performance.

The loudspeaker utilizes a second order crossover network at 2.5 kHz, with a comprehensive protection circuit to protect the network, woofer, and tweeter drivers from excessive power levels.

The loudspeaker can be installed optionally with the LC2-PC60G6-10 ceiling subwoofer to enhance the low frequency reproduction down to 45 Hz.

Functions

Voice alarm loudspeaker

Voice alarm loudspeakers are specifically designed for use in buildings where performance of systems for verbal evacuation announcements is governed by regula-

tions. The LC2-PC60G6-8H is designed for use in voice alarm systems and is compliant with British Standard BS 5839-8 and EN 60849.

Protection

The loudspeaker has built-in protection to ensure that, in the event of a fire, damage to the loudspeaker does not result in failure of the circuit to which it is connected. In this way, system integrity is maintained; ensuring loudspeakers in other areas can still be used to inform people of the situation. It is standard fitted with a back-can enclosure to increase protection of the cable termination.

The loudspeaker has an emergency compliant ceramic screw-terminal block and thermal fuse.

Certifications and approvals

All Bosch loudspeakers are designed to withstand operating at their rated power for 100 continuous hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. Bosch has also developed the Simulated Acoustical Feedback Exposure (SAFE) test to demonstrate that they can withstand two times their rated power for short durations. This ensures improved reliability under extreme conditions, leading to higher customer satisfaction, longer operating life, and lessens the chance of failure or performance deterioration.

Safety	according to EN 60065
Emergency	according to BS 5839-8 / EN 60849

Region	Certification
Europe	CE

Installation/configuration notes

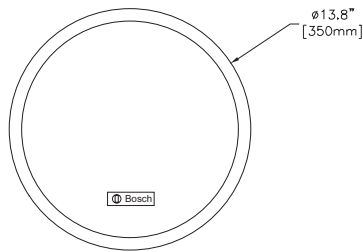
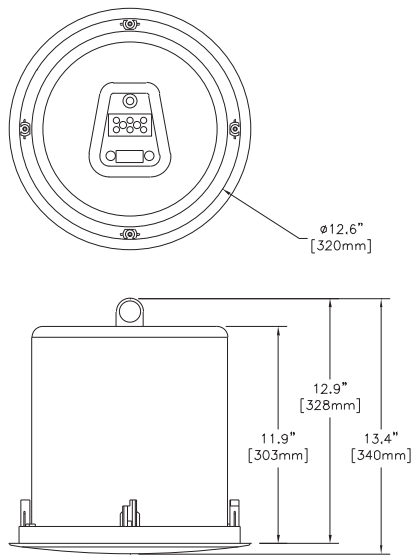
Mounting

The loudspeaker is secured in ceilings using four integral toggle anchors, and has been designed to work together in a wide range of different ceiling constructions. A tile bridge / C-ring is included for safe suspension in a drop ceiling that uses mineral wool, or other fiber-based ceiling tiles from 4 to 25 mm (0.16 to 1.0 in.) thick. A circular template for marking a 322 mm (12.625 in.) diameter hole is included with the loudspeaker.

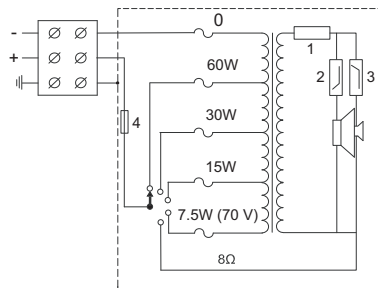
Power setting

The unit has a three-way emergency compliant ceramic terminal block with screw connections (including earth) suitable for loop-through wiring. Three 100 V, and four 70 V, primary taps are provided on the matching transformer to allow selection of nominal full-power, half-power, quarter-power, eighth-power radiation (in 3 dB steps) and eight ohm. Selection is done via a convenient switch on the front baffle.

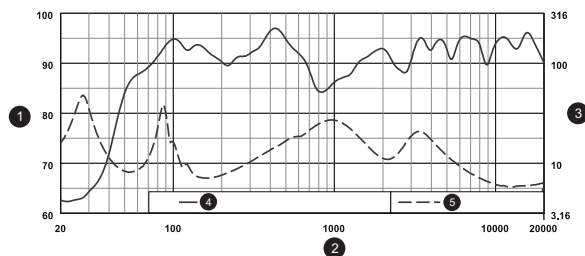
4



Dimensions in Inch / [mm]



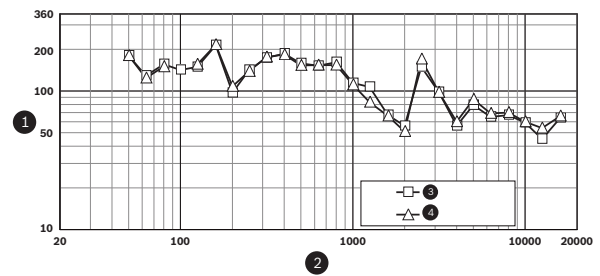
Circuit diagram (1: Passive Limiter, 2: Low Pass Filter, 3: High Pass Filter, 4: Thermal fuse)



1	SPL, 1W/1m (dB)
2	Frequency (Hz)
3	Impedance (Ohms)

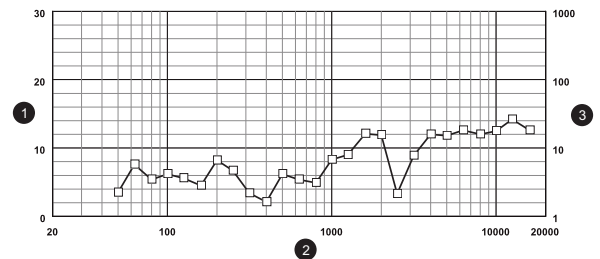
4	Frequency Response, half space
5	Impedance

Frequency response



1	-6dB Beam width (degrees)
2	Frequency (Hz)
3	Horizontal
4	Vertical

Beam width



1	Directivity Index (DI), dB
2	Frequency (Hz)
3	Directivity Factor (Q)

Directivity

Parts included

Quantity	Components
2	LC2-PC60G6-8H Premium-sound Ceiling Loudspeaker
1	322 mm (12.625 in.) circular cut-out template
1	Tile bridge / C-ring
1	Paint shield
1	Installation instruction

Technical specifications

Electrical

Maximum power	75 W
Rated power	60 / 30 / 15 / (7.5 W only, 70 V).
Sound pressure level at 60 W / 1 W (1 kHz, 1 m)	111 / 93 dB (SPL)
Effective frequency range (-10 dB)	50 Hz to 20 kHz

Coverage (conical)	75° (above 1kHz)
Rated voltage	70 V or 100 V
Rated impedance	83 or 167 or 8 ohm
LF transducer	200 mm (8 in.) Polypropylene cone
HF transducer	25 mm (1 in.) Ti Mylar laminate
Connector	3-pole ceramic screw terminal block

Mechanical

Diameter	350 mm (13.8 in)
Maximum depth	303 mm (11.9 in)
Ceiling thickness	4 to 25 mm (0.16 to 1.00 in.)
Mounting cut-out	322 + 5 mm (10.75 + 0.20 in.)
Material	
Baffle	ABS (UL94V0)
Back-can	Zinc-plated steel
Grille	Powder coated steel
Weight	6 kg (13.2 lb)
Color	White (RAL 9010)

Environmental

Operating temperature	-25 °C to +55 °C (-13 °F to +131 °F)
Storage temperature	-40 °C to +70 °C (-40 °F to +158 °F)
Relative humidity	<95%

Ordering information

LC2-PC60G6-8H Premium-sound High Ceiling Loudspeaker 60W

Ceiling loudspeaker 60 W, circular, metal grille, integrated metal back-cover, 8-inch coax (two-way system) driver with dual integrated waveguides, 3-way ceramic screw terminal block, supplied with tile bridge/C-ring, white RAL9010 (set of 2 pieces).

Order number **LC2-PC60G6-8H**

LC2-PC60G6-10

Premium-sound Subwoofer Ceiling Loudspeaker 60W

4



Features

- ▶ 10-inch high-excursion loudspeaker for extended LF
- ▶ Low pass network with overload protection
- ▶ Front baffle wattage tap adjustment
- ▶ Includes tile bridge and mounting ring for easy installation
- ▶ BS 5839-8 and EN 60849 compliant

The LC2-PC60G6-10 is an 10-inch Premium-sound Subwoofer Ceiling Loudspeaker which is designed to augment the low frequency response of any LC2 Premium-sound full range ceiling loudspeaker. It consists of a baffle assembly, grille, back-can enclosure, 10-inch coax high-excursion LF loudspeaker and internal output-power matching transformer. The rear enclosure and loudspeaker provides an optimum internal volume for extended low frequency performance.

The loudspeaker utilizes a second order crossover network to provide the correct band-pass frequency response for use with any LC2 Premium-sound full range ceiling loudspeaker.

Functions

Voice alarm loudspeaker

Voice alarm loudspeakers are specifically designed for use in buildings where performance of systems for verbal evacuation announcements is governed by regulations. The LC2-PC60G6-10 is designed for use in voice alarm systems and is compliant with British Standard BS 5839-8 and EN 60849.

Protection

The loudspeaker has built-in protection to ensure that, in the event of a fire, damage to the loudspeaker does not result in failure of the circuit to which it is connected. In this way, system integrity is maintained; ensuring

loudspeakers in other areas can still be used to inform people of the situation. It is standard fitted with a back-can enclosure to increase protection of the cable termination.

The loudspeaker has an emergency compliant ceramic screw-terminal block and thermal fuse.

Certifications and approvals

All Bosch loudspeakers are designed to withstand operating at their rated power for 100 continuous hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. Bosch has also developed the Simulated Acoustical Feedback Exposure (SAFE) test to demonstrate that they can withstand two times their rated power for short durations. This ensures improved reliability under extreme conditions, leading to higher customer satisfaction, longer operating life, and lessens the chance of failure or performance deterioration.

Safety	according to EN 60065
Emergency	according to BS 5839-8 / EN 60849
Region	Certification
Europe	CE

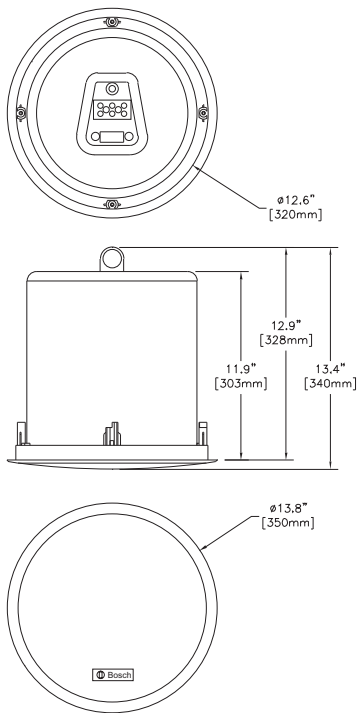
Installation/configuration notes

Mounting

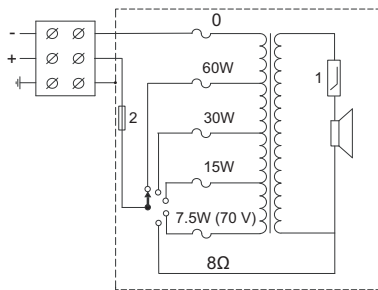
The loudspeaker is secured in ceilings using four integral toggle anchors, and has been designed to work together in a wide range of different ceiling constructions. A tile bridge / C-ring is included for safe suspension in a drop ceiling that uses mineral wool, or other fiber-based ceiling tiles from 4 to 25 mm (0.16 to 1.0 in.) thick. A circular template for marking a 322 mm (12.625 in.) diameter hole is included with the loudspeaker.

Power setting

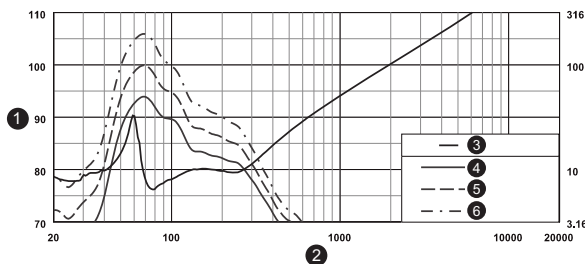
The unit has a three-way emergency compliant ceramic terminal block with screw connections (including earth) suitable for loop-through wiring. three 100 V, and four 70 V, primary taps are provided on the matching transformer to allow selection of nominal full-power, half-power, quarter-power, eighth-power radiation (in 3 dB steps) and eight ohm. Selection is done via a convenient switch on the front baffle.



Dimensions in Inch / [mm]



Circuit diagram (1: Low Pass Filter, 2: Thermal fuse)



1	SPL, 1W/1m (dB)
2	Frequency (Hz)
3	Impedance (Ohms)
4	Frequency response, half space
5	Frequency response, quarter space
6	Frequency response, eight space

Frequency response

Parts included

Quantity	Components
2	LC2-PC60G6-10 Premium-sound Subwoofer Ceiling Loudspeaker
1	322 mm (12.625 in.) circular cut-out template
1	Tile bridge / C-ring
1	Paint shield
1	Installation instruction

Technical specifications

Electrical

Maximum power	100 W
Rated power	60 / 30 / 15 / (7.5 W only, 70 V).
Sound pressure level at 60 W / 1 W (70 Hz, 1 m)	112 / 94 dB (SPL)
Effective frequency range (-10 dB)	45 Hz to 150 Hz
Coverage (conical)	180°
Rated voltage	70 V or 100 V
Rated impedance	83 or 167 or 8 ohm
LF transducer	254 mm (10 in.) Polypropylene cone
Connector	3-pole ceramic screw terminal block

Mechanical

Diameter	350 mm (13.8 in)
Maximum depth	303 mm (11.9 in)
Ceiling thickness	4 to 25 mm (0.16 to 1.00 in.)
Mounting cut-out	322 + 5 mm (10.75 + 0.20 in.)
Material	
Baffle	ABS (UL94V0)
Back-can	Zinc-plated steel
Grille	Powder coated steel
Weight	7 kg (15.5 lb)
Color	White (RAL 9010)

Environmental

Operating temperature	-25 °C to +55 °C (-13 °F to +131 °F)
Storage temperature	-40 °C to +70 °C (-40 °F to +158 °F)
Relative humidity	<95%

Ordering information**LC2-PC60G6-10 Premium-sound Subwoofer Ceiling Loudspeaker 60W**

Subwoofer ceiling loudspeaker 60 W, 10-inch high-excursion driver, low pass network with overload protection, 3-way ceramic screw terminal block, supplied with tile bridge/C-ring, white RAL 9010 (set of 2 pieces).

Order number **LC2-PC60G6-10**

LC2-PC60G6-12

Premium-sound Ceiling Loudspeaker 64W



Features

- ▶ High efficiency 12-inch coaxial two-way driver
- ▶ Full bandwidth overload protection
- ▶ Front baffle wattage tap adjustment
- ▶ Includes tile bridge and mounting ring for easy installation
- ▶ BS 5839-8 and EN 60849 compliant

The LC2-PC60G6-12 is a 12-inch two-way Premium-sound Ceiling Loudspeaker which provides, wide dispersion, high efficiency, high maximum output, ease-of-installation and wide-range reproduction of music and voice. It is intended for high ceiling applications. It consists of a baffle assembly, grille, back-can enclosure, 12-inch coax two-way loudspeaker and internal output-power matching transformer.

The rear enclosure provides an optimum internal volume for extended low frequency performance.

The loudspeaker utilizes a comprehensive protection circuit to protect the network, woofer, and tweeter drivers from excessive power levels.

Functions

Voice alarm loudspeaker

Voice alarm loudspeakers are specifically designed for use in buildings where performance of systems for verbal evacuation announcements is governed by regulations. The LC2-PC60G6-12 is designed for use in voice alarm systems and is compliant with British Standard BS 5839-8 and EN 60849.

Protection

The loudspeaker has built-in protection to ensure that, in the event of a fire, damage to the loudspeaker does not result in failure of the circuit to which it is connected. In this way, system integrity is maintained; ensuring loudspeakers in other areas can still be used to inform

people of the situation. It is standard fitted with a back-can enclosure to increase protection of the cable termination.

The loudspeaker has an emergency compliant ceramic screw-terminal block and thermal fuse.

Certifications and approvals

All Bosch loudspeakers are designed to withstand operating at their rated power for 100 continuous hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. Bosch has also developed the Simulated Acoustical Feedback Exposure (SAFE) test to demonstrate that they can withstand two times their rated power for short durations. This ensures improved reliability under extreme conditions, leading to higher customer satisfaction, longer operating life, and lessens the chance of failure or performance deterioration.

Safety	according to EN 60065
Emergency	according to BS 5839-8 / EN 60849

Region	Certification
Europe	CE

Installation/configuration notes

Mounting

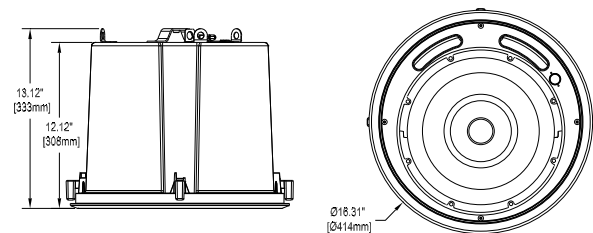
The loudspeaker is secured in ceilings using four integral toggle anchors, and has been designed to work together in a wide range of different ceiling constructions. A tile bridge / C-ring is included for safe suspension in a drop ceiling that uses mineral wool, or other fiber-based ceiling tiles from 4 to 25 mm (0.16 to 1.0 in.) thick.

The LC2-PC60G6-12 can be suspended in open ceiling installations by an integrated 3/8-inch rigging point for use with threaded rod, or it can be mounted using the three pendant mount tabs on the rear enclosure.

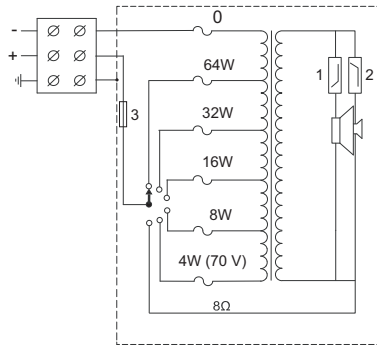
A circular template for marking a 386 mm (15.20 in.) diameter hole is included with the loudspeaker.

Power setting

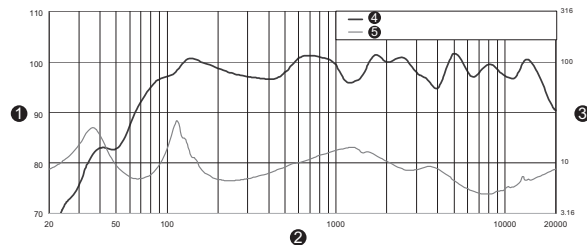
The unit has a three-way emergency compliant ceramic terminal block with screw connections (including earth) suitable for loop-through wiring. Four 100 V, and five 70 V, primary taps are provided on the matching transformer to allow selection of nominal full-power, half-power, quarter-power, eighth-power radiation (in 3 dB steps) and eight ohm. Selection is done via a convenient switch on the front baffle.



Dimensions in Inch / [mm]

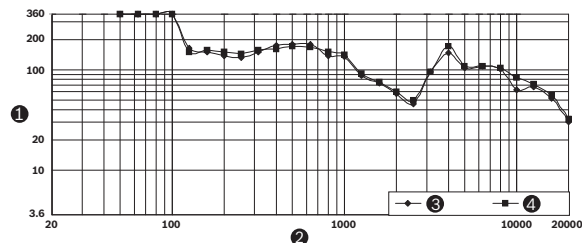


Circuit diagram (1: Low Pass Filter, 2: High Pass Filter, 3: Thermal fuse)



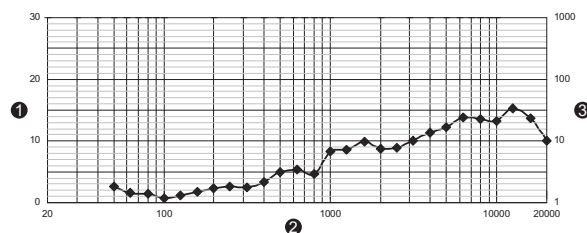
1	SPL, 1W/1m (dB)
2	Frequency (Hz)
3	Impedance (Ohms)
4	Frequency Response, half space
5	Impedance

Frequency response



1	-6dB Beam width (degrees)
2	Frequency (Hz)
3	Horizontal
4	Vertical

Beam width



1	Directivity Index (DI), dB
2	Frequency (Hz)
3	Directivity Factor (Q)

Directivity

Parts included

Quantity	Components
1	LC2-PC60G6-12 Premium-sound Ceiling Loudspeaker
1	386 mm (15.20 in.) circular cut-out template
1	Tile bridge / C-ring
1	Paint shield
1	Installation instruction

Technical specifications

Electrical

Maximum power	100 W
Rated power	64 / 32 / 16 / 8 / (4 W only, 70 V).
Sound pressure level at 64 W / 1 W (1 kHz, 1 m)	118 / 100 dB (SPL)
Effective frequency range (-10 dB)	65 Hz to 20 kHz
Crossover frequency	2 kHz
High-pass frequency	60 Hz
Rated voltage	70 V or 100 V
Rated impedance	83 or 167 or 8 ohm
Coax transducer	305 mm (12 in.)
Connector	3-pole ceramic screw terminal block

Mechanical

Diameter	414 mm (16.31 in)
Maximum depth	333 mm (13.12 in)
Ceiling thickness	4 to 25 mm (0.16 to 1.00 in.)
Mounting cut-out	386 + 5 mm (15.20 + 0.20 in.)
Material	
Baffle	ABS (UL94V0)
Back-can	Zinc-plated steel
Grille	Powder coated steel
Weight	13.3 kg (29.3 lb)
Color	White (RAL 9010)

Environmental

Operating temperature	-25 °C to +55 °C (-13 °F to +131 °F)
Storage temperature	-40 °C to +70 °C (-40 °F to +158 °F)
Relative humidity	<95%

Ordering information**LC2-PC60G6-12 Premium-sound Ceiling Loudspeaker 64W**

Ceiling loudspeaker 64 W, circular, metal grille, integrated metal back-cover, 12-inch coax (two-way system) driver, 3-way ceramic screw terminal block, supplied with tile bridge/C-ring, white RAL 9010.

Order number **LC2-PC60G6-12**

LC20-PC60G6-6 Premium Ceiling Speaker 60 W

safe suspension of the LC20-PC60G6-6 ceiling systems in a drop ceiling that uses mineral wool, or other fiber-based ceiling tiles.

4



Features

- ▶ High output true compression driver for wide dispersion and superior coverage control out to 10 kHz
- ▶ Long throw 6.5 inch (165 mm) woofer housed in a large vented steel enclosure for extended LF performance down to 50 Hz
- ▶ 200 watt power handling provides for 113 dB maximum SPL
- ▶ Front baffle transformer tap adjustment switch
- ▶ Includes tile rails and “C” mounting ring

The LC20-PC60G6-6 speaker system from Electro-Voice is a complete high performance two-way ceiling speaker package. The LC20-PC60G6-6 is ideal for background and foreground music, voice evacuation, paging, and sound reinforcement applications. The EVID Premium Ceiling Speaker provides a unique combination of high acoustic output, superb coverage control, high power handling and wide dispersion, to cover virtually any size listening area. The LC20-PC60G6-6 comes completely assembled with an integrated bezel assembly, grille, rear enclosure, 8-inch (200 mm) coaxial two-way speaker and internal high power line-matching transformer. The speaker features a waveguide coupled true compression HF driver and a long excursion 8-inch (200 mm) woofer. The LC20-PC60G6-6 utilizes a transformer that offers a selection of 7.5 W (70-V only), 15, 30 or 60 watts delivered to the speaker system using either 7.5-V or 100-V lines, or 8 ohm bypass. Selection is via a convenient switch on the front baffle. The perforated grille is fully zinc plated and finished in semi-gloss white powder-coated enamel. The baffle and bezel are constructed from fire rated ABS. The rear enclosure is constructed from zinc-plated, heavy gauge steel. The rear enclosure, with fiberglass damping material, provides an optimum internal volume for extended low-frequency performance. A rear cover, with provisions for a junction box fitting, provides access to a 4-pin terminal block that allows direct connection to the speaker with up to 12 gauge wire and provides pass through to additional speakers. For special voice evacuation installations a ceramic terminal block is provided and attaches to the speaker back can enclosure under the rear connector cover. Two (2) adjustable metal tile bridges and metal “C” ring are included for

Certifications and approvals

Region	Certification
Europe	CE

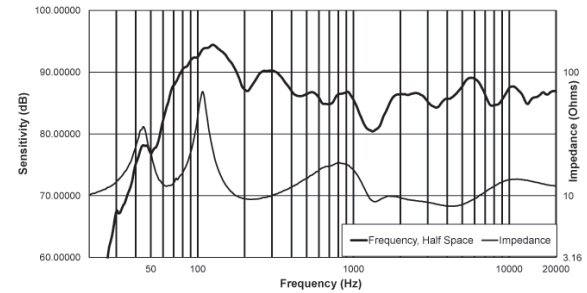
Technical specifications

Frequency Range (-10 dB):	50 Hz - 20 kHz
Coverage (Conical):	100°
HF Power Handling:	200 W Program, 100 W Pink Noise
Sensitivity (SPL 1 W/1 m):	87 dB
Max Calculated SPL:	107 dB Avg, 113 dB Peak
Impedance:	10 ohms
LF Transducer:	165 mm (6.5 in)
HF Transducer:	35 mm Compression Driver
Transformer Taps:	70V: 60W, 30W, 15W, 7.5W, 8 ohm 100V: 60W, 30W, 15W, 8 ohm
Connectors:	Removable locking 4-Pin (Phoenix) 2.5 mm (12 AWG) max wire size
Enclosure:	ABS Plastic (UL94V-0) Baffle, steel back can
Grille:	Color matched steel grille with fabric
Dimensions (H x Dia):	260 mm x 280 mm
Cutout Size:	248 mm (9.76 in)
Net Weight:	7.0 kg (15.4 lb)
Shipping Weight:	16.83 kg (37.1 lb)
Support Hardware:	C Ring, Tile Bridge
Approvals:	UL1480, 2043; CE

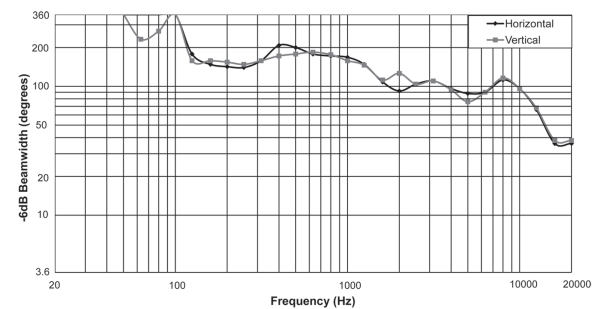
Architects' & Engineers' Specifications:

The EVID PC6.2 speaker system shall be comprised of a UL 94V-0 fire rated ABS baffle/bezel assembly, zinc plated steel rear enclosure, powder coated grille with safety tether, transformer with 8 ohm bypass, and 6.5-inch long excursion low frequency transducer with coaxially-mounted true compression HF driver. The speaker shall meet the following criteria: power rating shall be 100 watts of IEC 268-5 pink noise (6 dB crest factor). Frequency response, uniform from 50 Hz - 20 kHz. Pressure sensitivity, 87 dB SPL at 1 meter (3.3 feet) on axis with 1 watt of pink noise (ref. 20μPa). Minimum impedance, 6.5 ohms. The speaker shall be 260 mm (10.4 in) deep and 280 mm (11.0 in) in diameter. Weight shall be 7.0 kg (15.4 lb). The coaxial ceiling speaker shall be the model EVID PC6.2 from Electro-Voice.

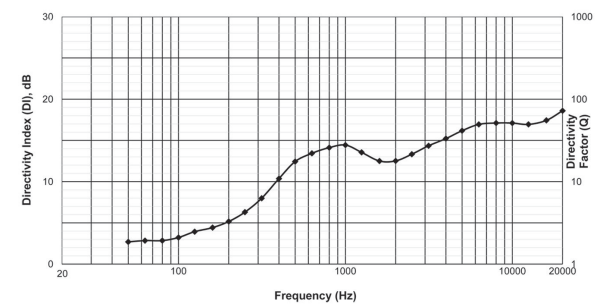
Frequency Response and Impedance:



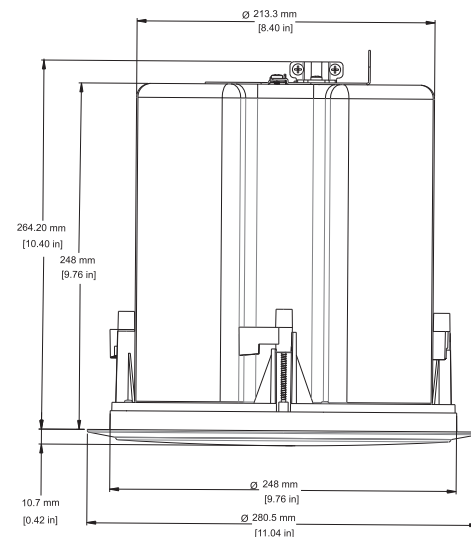
Beamwidth:



Directivity:



Dimensions:



Ordering information

LC20-PC60G6-6 Premium Ceiling Speaker 60 W

Ultra high performance 6-inch two-way ceiling mount loudspeaker system with concentric compression driver and integrated housing and mounting system (set of 2 pieces); white

Order number **LC20-PC60G6-6**

LC20-PC60G6-8 Premium Ceiling Speaker 60 W



is provided and attaches to the speaker back can enclosure under the rear connector cover. Two (2) adjustable metal tile bridges and metal “C” ring are included for safe suspension of the LC20-PC60G6-6 ceiling systems in a drop ceiling that uses mineral wool, or other fiber-based ceiling tiles.

4

Features

- ▶ High output true compression driver for wide dispersion and superior coverage control out to 10 kHz
- ▶ Long throw 8-inch (200 mm) woofer housed in a large vented 14 gauge steel enclosure for extended LF performance down to 40 Hz
- ▶ 200 watt power handling provides for 114 dB maximum SPL
- ▶ Front baffle transformer tap adjustment switch
- ▶ Includes tile rails and “C” mounting ring

The LC20-PC60G6-6 speaker system from Electro-Voice is a complete high performance two-way ceiling speaker package. The LC20-PC60G6-6 is ideal for background and foreground music, voice evacuation, paging, and sound reinforcement applications. The EVID Premium Ceiling Speaker provides a unique combination of high acoustic output, superb coverage control, high power handling and wide dispersion, to cover virtually any size listening area. The LC20-PC60G6-6 comes completely assembled with an integrated bezel assembly, grille, rear enclosure, 8-inch (200 mm) coaxial two-way speaker and internal high power line-matching transformer. The speaker features a waveguide coupled true compression HF driver and a long excursion 8-inch (200 mm) woofer. The LC20-PC60G6-6 speaker utilizes a 2nd order crossover network at 2.5 kHz, with a comprehensive protection circuit to protect the network, woofer, and tweeter drivers from excessive power levels. The LC20-PC60G6-6 utilizes a transformer that offers a selection of 7.5 W (70-V only), 15, 30 or 60 watts delivered to the speaker system using either 70-V or 100-V lines, or 8 ohm bypass. Selection is via a convenient switch on the front baffle. The perforated grille is fully zinc plated and finished in semi-gloss white powder-coated enamel. The baffle and bezel are constructed from fire rated ABS. The rear enclosure is constructed from zinc-plated, heavy gauge steel. The rear enclosure, with fiberglass damping material, provides an optimum internal volume for extended low-frequency performance. A rear cover, with provisions for a junction box fitting, provides access to a 4-pin terminal block that allows direct connection to the speaker with up to 12 gauge wire and provides pass through to additional speakers. For special voice evacuation installations a ceramic terminal block

Certifications and approvals

Region	Certification
Europe	CE

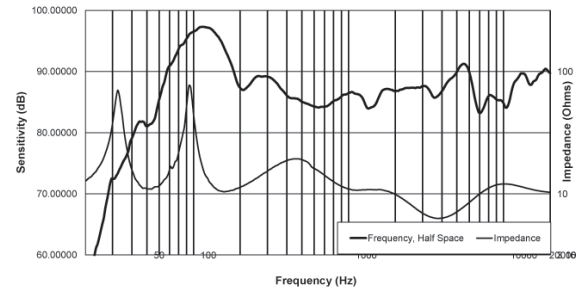
Technical specifications

Frequency Range (-10 dB):	40 Hz - 20 kHz
Coverage (Conical):	120°
HF Power Handling:	200 W Program, 100 W Pink Noise
Sensitivity (SPL 1 W/1 m):	88 dB
Max Calculated SPL:	108 dB Avg, 114 dB Peak
Impedance:	10 ohms
LF Transducer:	200 mm (8 in)
HF Transducer:	35 mm Compression Driver
Transformer Taps:	70V: 60W, 30W, 15W, 7.5W, 8 ohm 100V: 60W, 30W, 15W, 8 ohm
Connectors:	Removable locking 4-Pin (Phoenix) 2.5 mm (12 AWG) max wire size
Enclosure:	ABS Plastic (UL94V-0) Baffle, steel back can
Grille:	Color matched steel grille with fabric
Dimensions (H x Dia):	324 mm x 327 mm
Cutout Size:	294.3 mm (11.59 in)
Net Weight:	8.0 kg (17.6 lb)
Shipping Weight:	20.23 kg (44.6 lb)
Support Hardware:	C Ring, Tile Bridge
Approvals:	UL1480, 2043; CE

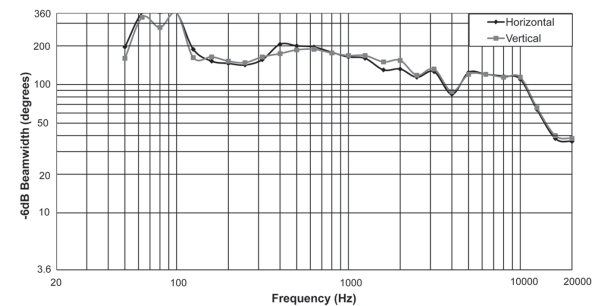
Architects' & Engineers' Specifications:

The EVID PC8.2 speaker system shall be comprised of a UL 94V-0 fire rated ABS baffle/bezel assembly, zinc plated steel rear enclosure, powder coated grille with safety tether, transformer with 8 ohm bypass, and 8-inch long excursion low frequency transducer with coaxially-mounted true compression HF driver. The speaker shall meet the following criteria: power rating shall be 100 watts of IEC 268-5 pink noise (6 dB crest factor). Frequency response, uniform from 40 Hz - 20 kHz. Pressure sensitivity, 88 dB SPL at 1 meter (3.3 feet) on axis with 1 watt of pink noise (ref. 20μPa). Minimum impedance, 6.0 ohms. The speaker shall be 324 mm (12.76 in) deep and 327 mm (12.87 in) in diameter. Weight shall be 8.0 kg (17.6 lb). The coaxial ceiling speaker shall be the model EVID PC8.2 from Electro-Voice.

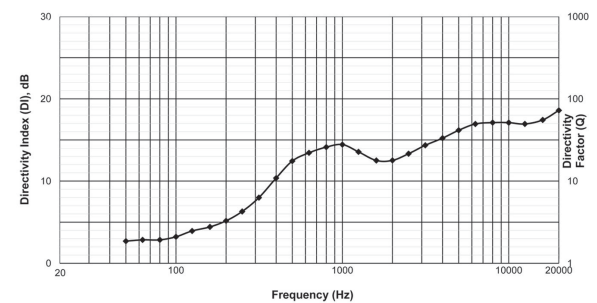
Frequency Response and Impedance:



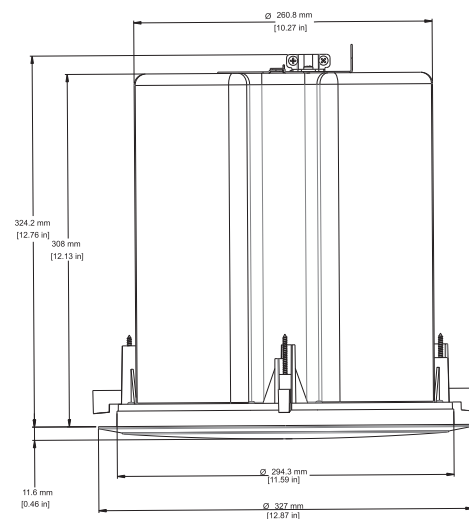
Beamwidth:



Directivity:



Dimensions:



Ordering information

LC20-PC60G6-8 Premium Ceiling Speaker 60 W

Ultra high performance 8-inch two-way ceiling mount loudspeaker system with concentric compression driver and integrated housing and mounting system (set of 2 pieces); white

Order number **LC20-PC60G6-8**

LBC 3941/11 Sound Projector



Features

- ▶ Excellent speech and music reproduction
- ▶ Very wide opening angle
- ▶ Modern unobtrusive styling
- ▶ Simple power setting
- ▶ Splash – waterproof

The LBC 3941/11 is a 6 W cost-effective sound projector. It features a very wide opening angle and unobtrusive styling. Water and dust protection to IP 65 make it suitable for indoor and outdoor use.

Functions

The sound projector features a very wide opening angle (90 degrees) which means fewer units are required to cover a given area. Its wide frequency range also results in better speech and music reproduction, while the directivity ensures that the sound is accurately projected to where it is needed most.

The LBC 3941/11 sound projector is finished in an attractive white color, and its unobtrusive appearance complements today's interior lighting. The color and styling of the front grille matches an existing Bosch ceiling loudspeaker (LBC 3951/11).

Certifications and approvals

All Bosch loudspeakers are designed to withstand operating at their rated power for 100 hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. Bosch has also developed the Simulated Acoustical Feedback Exposure (SAFE) test to demonstrate that they can withstand two times their rated power for short durations. This ensures extra reliability under extreme conditions, leading to higher customer satisfaction, longer operating life, and much less chance of failure or performance deterioration.

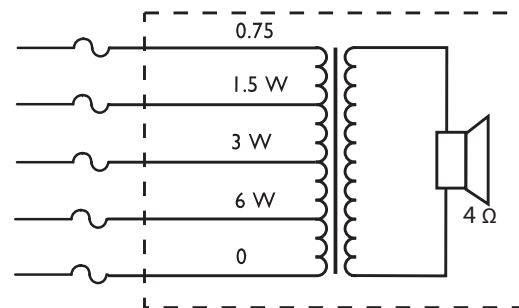
The enclosures are made from high-impact self-extinguishing ABS (according to class UL 94 V0).

Safety	acc. to EN 60065
Water and dust protection	acc. to EN 60529, IP 65
Self-Extinguishing	acc. to UL 94 V0

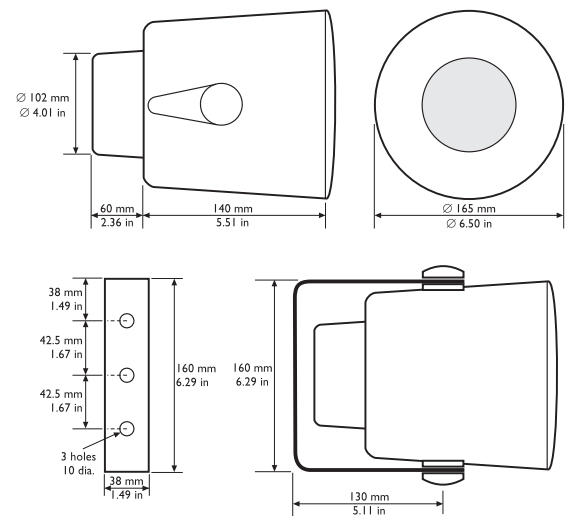
Region	Certification
Europe	CE

Installation/configuration notes

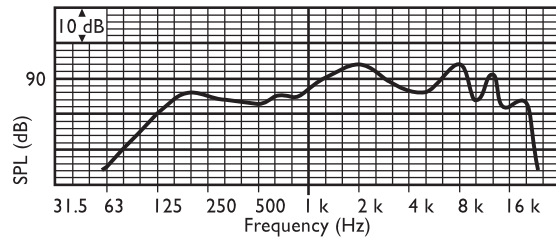
The sound projector is supplied with a steel mounting bracket painted in white. The bracket has three 10 mm holes, which can be used to easily mount the projector to walls and ceilings. The direction of the projector can be adjusted by means of two screws covered with white plastic covers. The unit is supplied with a 2 m color-coded five-core cable, with each color connected to a different primary tap on the matching transformer. This makes it easy to select full-power, half-power, quarter-power and eighth-power radiation without opening the unit during installation.



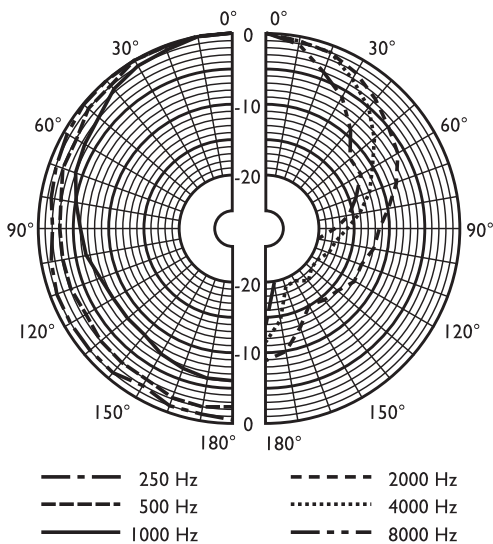
Circuit diagram



Dimensions in mm (in)



Frequency response



Polar diagram (measured with pink noise)

	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
SPL 1.1	82	84	83	88	92	88	88
SPL max.	90	92	91	96	100	96	96
Q-factor	1.2	1.2	1.6	2.9	5.1	8.5	18
Efficiency	0.17	0.26	0.16	0.28	0.39	0.09	0.04
H. angle	360	360	360	180	120	90	60
V. angle	360	360	360	180	120	90	60

Acoustical performance specified per octave

Technical specifications

Electrical*

Maximum power	9 W
Rated power	6 / 3 / 1.5 / 0.75 W
Sound pressure level at 6 W / 1 W (1 kHz, 1 m)	96 dB / 88 dB (SPL)

Sound pressure level at 6 W / 1 W (2 kHz, 1 m)	100 dB / 92 dB (SPL)
Opening angle at 1 kHz / 4 kHz (-6 dB)	180° / 90°
Effective frequency range (-10 dB)	130 Hz to 18 kHz
Rated voltage	100 V
Rated impedance	1667 ohm
Connection	2 m 5-wire cable

* Technical performance data acc. to IEC 60268-5

Mechanical

Dimensions (D x L)	165 x 200 mm (6.50 x 7.87 in)
Speaker diameter	100 mm (4 in)
Weight	1.5 kg (3.3 lb)
Color	White (RAL 9010)
Magnet weight	101 g (3.57 oz)

Environmental

Operating temperature	-25 °C to +55 °C (-13 °F to +131 °F)
Storage temperature	-40 °C to +70 °C (-40 °F to +158 °F)
Relative humidity	<95%

Ordering information

LBC 3941/11 Sound Projector

Sound projector 6 W, white ABS enclosure, wide opening angle, water and dust protected IP65, fixed 2 m connection cable.

Order number **LBC3941/11**

LBC 3094/15 Sound Projector



Features

- Suitable for speech and music reproduction
- Simple power setting
- 2 m fixed connection cable
- Splash-waterproof
- Robust self-extinguishing ABS enclosure to UL 94 V0

The LBC 3094/15 is a sound projector for speech and background music reproduction in indoor or outdoor applications such as shopping centers, factory grounds and sports fields.

Functions

Sound projectors are intended for applications where directing the sound beam is desirable. Similar in concept to a spotlight, a sound projector can be used to provide localized sound reproduction. Typical examples include restaurants, exhibitions, factory grounds and shopping centers.

The sound projectors are splash waterproof and suitable for outdoor use and in environments with high humidity levels.

The enclosures are made from high-impact self-extinguishing ABS (acc. to class UL 94 V0). The sound projector enclosures are colored white and supplied with steel mounting brackets painted in white. They are suitable for mounting onto walls or ceilings.

Certifications and approvals

All Bosch loudspeakers are designed to withstand operating at their rated power for 100 hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. Bosch has also developed the Simulated Acoustical Feedback Exposure (SAFE) test to demonstrate that they can withstand two times their rated power for short durations. This ensures extra reliability under ex-

treme conditions, leading to higher customer satisfaction, longer operating life, and much less chance of failure or performance deterioration.

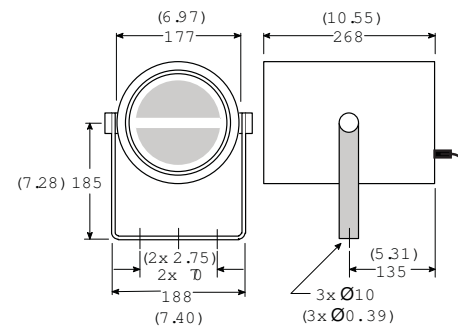
All plastic parts are manufactured from self-extinguishing high-impact ABS material (according to UL 94 V0). In common with all Bosch products, care is taken to meet high safety standards. These sound projectors comply with all the relevant safety and installation regulations of EN 60065.

Water and dust protection	acc. to EN 60529, IP 63
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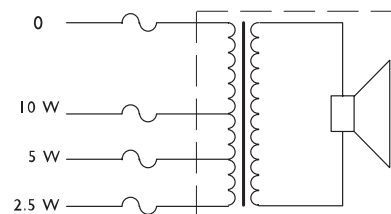
Region	Certification
Europe	CE

Installation/configuration notes

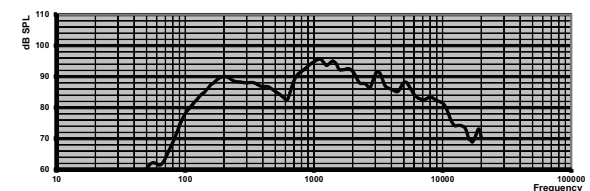
All units are supplied with a color-coded four-core connecting cable with each color connected to a different primary tap on the 100 V matching transformer. This allows nominal full-power, half-power or quarter-power radiation to be selected (in 3 dB steps).



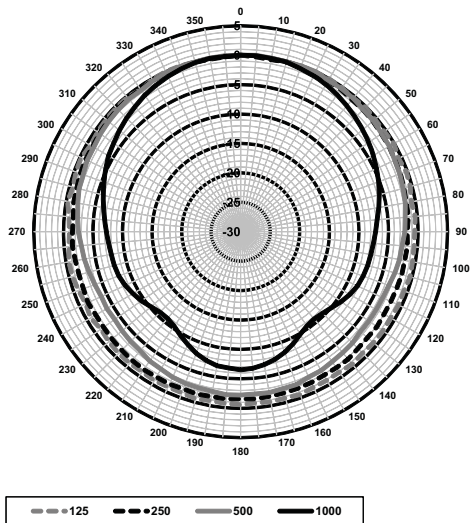
Dimensions in mm (in)



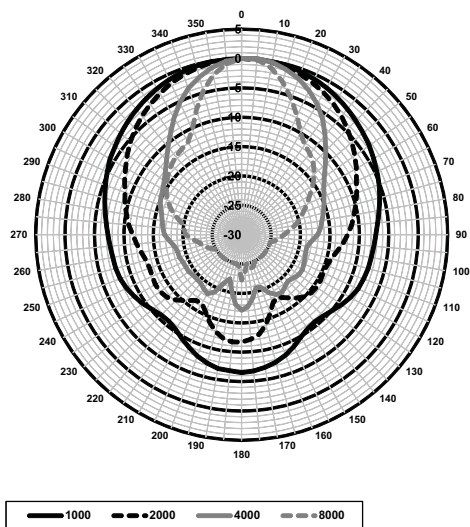
Circuit diagram



Frequency response



Polar diagram (measured with pink noise)



Polar diagram (measured with pink noise)

Octave band sensitivity*

	Octave SPL 1W/1m	Total octave SPL 1W/1m	Total octave SPL Pmax/1m
125 Hz	84.7	-	-
250 Hz	88.4	-	-
500 Hz	85.7	-	-
1000 Hz	94.0	-	-
2000 Hz	91.6	-	-
4000 Hz	88.9	-	-
8000 Hz	84.1	-	-
A-weighted	-	87.7	97.1
Lin-weighted	-	88.1	97.6

Octave band opening angles

	Horizontal	Vertical	
125 Hz	360	360	
250 Hz	360	360	
500 Hz	360	360	
1000 Hz	152	152	
2000 Hz	106	106	
4000 Hz	60	60	
8000 Hz	38	38	

Acoustical performance specified per octave * (all measurements are done with a pink noise signal; the values are in dB SPL).

Technical specifications

Electrical*

Maximum power	15 W
Rated power (PHC)	10 W
Power tapping	10 / 5 / 2.5 W
Sound pressure level at 10 W / 1 W (1 kHz, 1 m)	104 dB / 94 dB (SPL)
Effective frequency range (-10 dB)	140 Hz to 10 kHz
Opening angle at 1 kHz / 4 kHz (-6 dB)	152° / 60°
Rated input voltage	100 V
Rated impedance	1000 ohm
Electrical connection	2 m (78.74 in) 4-core fixed cable

* Technical performance data acc. to IEC 60268-5

Mechanical

Dimensions (D x L)	177 x 268 mm (6.97 x 10.55 in)
Weight	2.2 kg (4.8 lb)
Color	White (RAL 9010)
Material:	
Enclosure	ABS
Bracket	Steel

Environmental

Operating temperature	-25 °C to +55 °C (-13 °F to +131 °F)
Storage temperature	-40 °C to +70 °C (-40 °F to +158 °F)
Relative humidity	<95%

Ordering information**LBC 3094/15 Sound Projector**

Sound projector 10 W, white ABS enclosure, water and dust protected IP63, fixed 2 m connection cable.

Order number **LBC3094/15**

Accessories**LBC 1256/00 EVAC Connection Adapter**

Emergency connection adapter, 3-pole screw ceramic connector with a pre-mounted thermal fuse, to be installed in series with the 100 V primary connection of a loudspeaker unit, set of 100 pieces.

Order number **LBC1256/00**

LBC 3095/15 Pendant Sphere Loudspeaker

4



Features

- Suitable for speech and music reproduction
- Simple power setting
- 5 m fixed connection cable
- Splash-waterproof type
- Robust self-extinguishing ABS enclosure to UL 94 V0

The LBC 3095/15 is a pendant sphere designed to be suspended from the ceiling via its connecting cable. The pleasing shape and neutral color make the pendant sphere models interesting architectural features in their own right.

Functions

The pendant sphere is splash waterproof and suitable for outdoor use and in environments with high humidity levels such as swimming pools.

Their excellent sound spread makes them ideal for use in buildings with high ceilings such as hypermarkets and superstores.

The enclosures are made from high-impact self-extinguishing ABS (according to class UL 94 V0) and are colored off-white. The pendant sphere is designed to be suspended from its color-matched connecting cable (easy to shorten for desired height). A cable clamp and ceiling cover are supplied.

They are not recommended for use in windy environments.

Certifications and approvals

All Bosch loudspeakers are designed to withstand operating at their rated power for 100 hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. Bosch has also developed the Simulated Acoustical Feedback Exposure (SAFE) test to demonstrate that they can withstand two times their rated power for short durations. This ensures extra reliability under extreme conditions, leading to higher customer satisfaction, longer operating life, and much less chance of failure or performance deterioration.

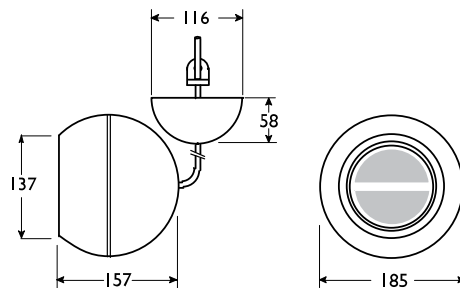
All plastic parts are manufactured from self-extinguishing high-impact ABS material (according to UL 94 V0). In common with all Bosch products, care is taken to meet high safety standards. These sound projectors comply with all the relevant safety and installation regulations of EN 60065.

Water protected	acc. to EN 60529, IP 63
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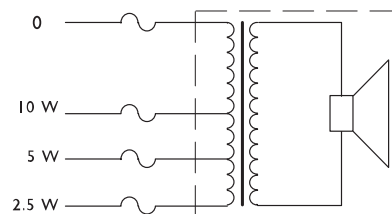
Region	Certification
Europe	CE

Installation/configuration notes

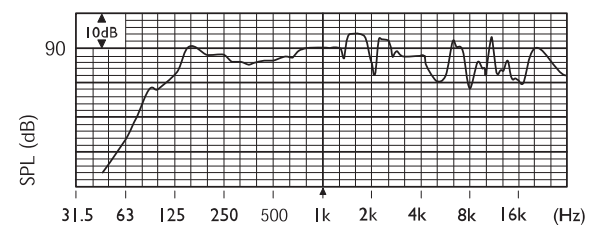
All units are supplied with a color-coded four-core connecting cable with each color connected to a different primary tap on the 100 V matching transformer. This allows nominal full-power, half-power or quarter-power radiation to be selected (in 3 dB steps).



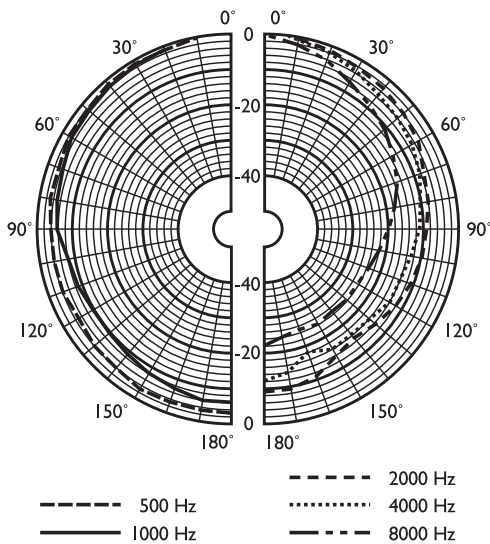
Dimensions (in mm)



Circuit diagram



Frequency response



Polar diagram (measured with pink noise)

	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
SPL 1.1	80	85	84	89	89	85	85
SPL max.	90	95	94	99	99	95	95
Q-factor	1.2	1.3	1.8	3.1	5.2	8.5	18
Efficiency	0.1	0.3	0.2	0.3	0.2	0.05	0.02
H. angle	360	360	360	180	125	90	55
V. angle	360	360	360	180	125	90	55

Acoustical performance specified per octave

Parts included

Quantity	Components
1	LBC 3095/15
1	Cable clamp
1	Ceiling cover

Technical specifications

Electrical*

Maximum power	15 W
Rated power	10 / 5 / 2.5 W
Sound pressure level at 10 W / 1 W (1 kHz, 1 m)	99 dB / 89 dB (SPL)
Opening angle at 1 kHz / 4 kHz (-6 dB)	180° / 90°
Effective frequency range (-10 dB)	130 Hz to 20 kHz

Rated voltage	100 V
Rated impedance	1000 ohm
Connection	5 m 4-wire cable

Mechanical

Dimensions (D x L)	185 x 157 mm (7.3 x 6.2 in)
Weight	2.5 kg (5.5 lb)
Color	White (RAL 9010)

Environmental

Operating temperature	-25 °C to +55 °C (-13 °F to +131 °F)
Storage temperature	-40 °C to +70 °C (-40 °F to +158 °F)
Relative humidity	<95%

Ordering information

LBC 3095/15 Pendant Sphere Loudspeaker

Pendant sphere, 10 W, white ABS enclosure, wide opening angle, water and dust protected IP63, fixed 5 m connection cable, cable clamp, and ceiling cover included. Order number **LBC3095/15**

Accessories

LBC 1256/00 EVAC Connection Adapter

Emergency connection adapter, 3-pole screw ceramic connector with a pre-mounted thermal fuse, to be installed in series with the 100 V primary connection of a loudspeaker unit, set of 100 pieces. Order number **LBC1256/00**

LP1-BC10E-1 Bidirectional Sound Projector

4



Features

- ▶ Superb speech and music reproduction
- ▶ Integrated connection cable
- ▶ Ceiling or wall mounting
- ▶ Water and dust protected to IP 65
- ▶ EN 54-24 certified

The LP1-BC10E-1 is a powerful 10 W bidirectional sound projector intended for high quality speech and music reproduction in indoor and outdoor applications. The two loudspeakers facing in opposite directions are ideally suited to applications such as tunnels, long corridors and shopping arcades. The state-of-the-art design is matched to both modern and traditional style environments. The sound projector is suitable for use in voice alarm systems.

Functions

Superb sound quality

The use of high-quality drivers in combination with advanced filtering has resulted in a very natural sound reproduction.

Voice alarm loudspeaker

Voice alarm loudspeakers are specifically designed for use in buildings where performance of systems for verbal communication announcements is governed by regulations. The LP1-BC10E-1 is designed for use in voice alarm systems. The sound projector is pre-wired for use with an optional line/loudspeaker supervision board externally mounted. The loudspeaker has built-in protection to secure that, in the event of a fire; damage to the loudspeaker does not result in failure of the circuit to which it is connected. In this way, system integrity is maintained; ensuring loudspeakers in other areas can still be used to inform people of the situation. The loudspeaker has a ceramic terminal block, thermal fuse and heat resistant, high-temperature wiring.

The sound projector is made from high-impact self-extinguishing ABS according to class UL 94 V 0, finished in white.

Certifications and approvals

Quality assurance

All Bosch loudspeakers are designed to withstand operating at their rated power for 100 continuous hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. Bosch has also developed the Simulated Acoustical Feedback Exposure (SAFE) test to demonstrate that they can withstand two times their rated power for short durations. This ensures improved reliability under extreme conditions, leading to higher customer satisfaction, longer operating life, and lessens the chance of failure or performance deterioration.

Safety aspects

In common with all Bosch products, care is taken to meet high safety standards. This sound projector complies with the relevant safety and installation regulations of EN 60065. All ABS parts are self-extinguishing (according to UL 94 V 0)

Water and dust protection	according to IEC 60529, IP 65
Emergency	according to EN 54-24 / BS 5839-8 / EN 60849

Region	Certification	
Europe	CE	
	CE	DOP
	CPD	
Poland	CNBOP	

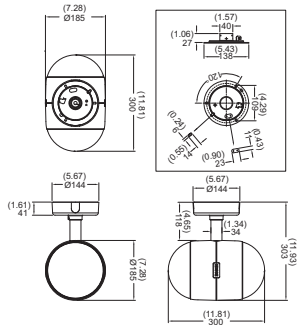
Installation/configuration notes

Mounting

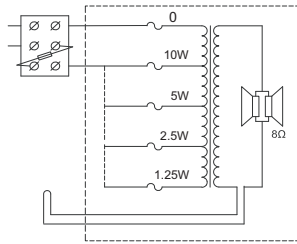
Ease of installation is realized in the way of mounting: first the mounting plate is fixed to the wall or ceiling, secondly a safety cord is attached to the mounting plate, allowing the installer temporarily hang the loudspeaker during installation. After making the connections, the sound projector can be fixed to the mounting plate by means of a fixing screw nut and the horizontal direction can be fixed. A cover plate covers screws and electrical wiring. The versatile mounting bracket allows the sound projector to be horizontal directed. The cover plate is provided with two cable – or 16 mm (0.63 inch) conduit entries (covered as standard supplied) in opposite position, suitable for loop-through cabling.

Power setting

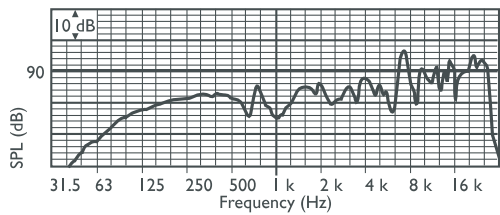
A ceramic terminal for electrical connection is provided. The loudspeaker is standard connected to full power. Half-power, quarter-power or eighth-power can be selected by connecting the appropriate color coded wire to the terminal block.



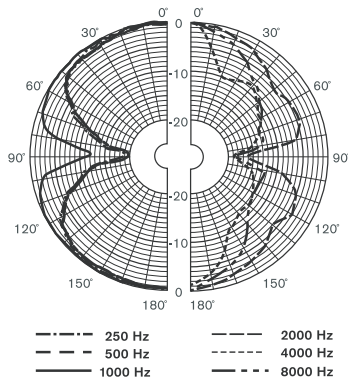
Dimensions in mm / (in)



Circuit diagram



Frequency response



Polar diagram (measured with pink noise)

Octave band sensitivity*

	Octave SPL 1W/1m	Total octave SPL 1W/1m	Total octave SPL Pmax/1m
125 Hz	75.4	-	-
250 Hz	80.3	-	-
500 Hz	81.3	-	-

1000 Hz	80.5	-	-
2000 Hz	83.5	-	-
4000 Hz	85.4	-	-
8000 Hz	89.2	-	-
A-weighted	-	83.0	92.4
Lin-weighted	-	85.3	93.5

Octave band opening angles

	Horizontal	Vertical	
125 Hz	120	120	
250 Hz	120	120	
500 Hz	132	132	
1000 Hz	162	162	
2000 Hz	153	153	
4000 Hz	62	62	
8000 Hz	35	35	

Acoustical performance specified per octave * (all measurements are done with a pink noise signal; the values are in dBSPL).

Technical specifications

Electrical*

Maximum power	15 W
Rated power	10 / 5 / 2.5 / 1.25 W
Sound pressure level at 10 W / 1 W (1 kHz, 1 m)	90 dB / 80 dB (SPL)
Opening angle at 1 kHz / 4 kHz (-6 dB)	165° / 60°
Effective frequency range (-10 dB)	75 Hz to 20 kHz
Rated voltage	100 V
Rated impedance	1000 ohm
Connector	3-pole screw terminal

* Technical performance data according to IEC 60268-5


Mechanical

Dimensions (D x L)	185 x 297 mm (7.3 x 11.7 in)
Weight	3 kg (6.6 lb)
Color	White (RAL 9010)
Material	ABS

Environmental

Operating temperature	-25 °C to +55 °C (-13 °F to +131 °F)
Storage temperature	-40 °C to +70 °C (-40 °F to +158 °F)
Relative humidity	<95%

4

 1438
Bosch Security Systems BV Torenallee 49, 5617BA Eindhoven, The Netherlands 10 1438-CPD-0258
EN 54-24:2008 Loudspeaker for voice alarm systems for fire detection and fire alarm systems for buildings Bidirectional Sound Projector 10W LP1-BC10E-1 Type B

Ordering information**LP1-BC10E-1 Bidirectional Sound Projector**

Sound projector 10 W, bidirectional, white ABS enclosure with metal grilles, water and dust protected IP65, EN54-24 certified, white RAL 9010.

Order number **LP1-BC10E-1**

LP1-UC10E-1 Unidirectional Sound Projector



Features

- ▶ Superb speech and music reproduction
- ▶ Integrated connection cable
- ▶ Ceiling or wall mounting
- ▶ Water and dust protected to IP 65
- ▶ EN 54-24 certified

The LP1-UC10E-1 is a powerful, 10 W sound projector intended for high quality speech and music reproduction in indoor and outdoor applications. The state-of-the-art design is matched to both modern and traditional style environments. The sound projector is suitable for use in voice alarm systems.

Functions

Superb sound quality

The use of a high-quality driver in combination with advanced filtering has resulted in a very natural sound reproduction with excellent bass response.

Voice alarm loudspeaker

Voice alarm loudspeakers are specifically designed for use in buildings where performance of systems for verbal communication announcements is governed by regulations. The LP1-UC10E-1 is designed for use in voice alarm systems. The sound projector is pre-wired for use with an optional line/loudspeaker supervision board external mounted. The loudspeaker has built-in protection to secure that, in the event of a fire; damage to the loudspeaker does not result in failure of the circuit to which it is connected. In this way, system integrity is maintained; ensuring loudspeakers in other areas can still be used to inform people of the situation. The loudspeaker has a ceramic terminal block, thermal fuse and heat resistant, high-temperature wiring.

The sound projector is made from high-impact self-extinguishing ABS according to class UL 94 V0, finished in white.

Certifications and approvals

Quality assurance

All Bosch loudspeakers are designed to withstand operating at their rated power for 100 continuous hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. Bosch has also developed the Simulated Acoustical Feedback Exposure (SAFE) test to demonstrate that they can withstand two times their rated power for short durations. This ensures improved reliability under extreme conditions, leading to higher customer satisfaction, longer operating life, and lessens the chance of failure or performance deterioration.

Safety aspects

In common with all Bosch products, care is taken to meet high safety standards. All ABS parts are self-extinguishing (according to UL 94 V 0). This sound projector complies with the relevant safety and installation regulations of EN 60065.

Water and dust protection	according to IEC 60529, IP 65
Emergency	according to EN 54-24 / BS 5839-8 / EN 60849

Region	Certification	
Europe	CE	
	CE	DOP
	CPD	
Poland	CNBOP	

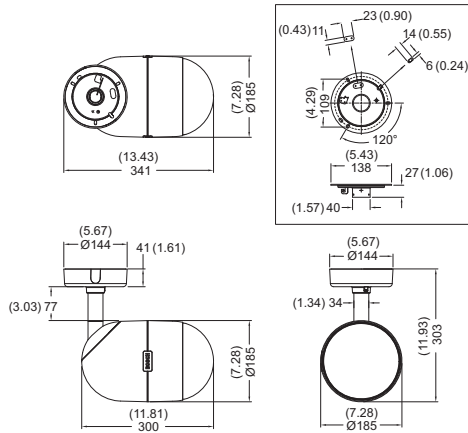
Installation/configuration notes

Mounting

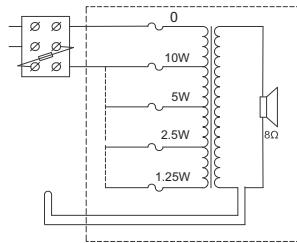
Ease of installation is realized in the way of mounting: first the mounting plate is fixed to the wall or ceiling, secondly a safety cord is attached to the mounting plate, allowing the installer temporarily hang the loudspeaker during installation. After making the connections, the sound projector can be fixed to the mounting plate, by means of a fixing screw nut, and the horizontal direction can be fixed. A cover plate covers screws and electrical wiring. The versatile mounting bracket allows the sound projector to be horizontal and vertical directed. The vertical direction can be permanent fixed with a recessed socket head screw via a small hole located in the rear housing. The cover plate is provided with two cable – or 16 mm (0.63 inch) conduit entries (covered as standard supplied) in opposite position, suitable for loop-through cabling.

Power setting

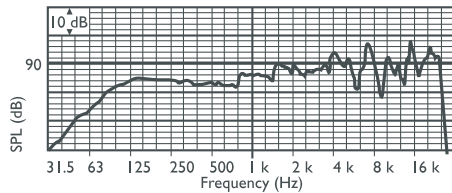
A ceramic terminal for electrical connection is provided. The loudspeaker is standard connected to full power. Half-power, quarter-power or eighth-power can be selected by connecting the appropriate color-coded wire to the terminal block.



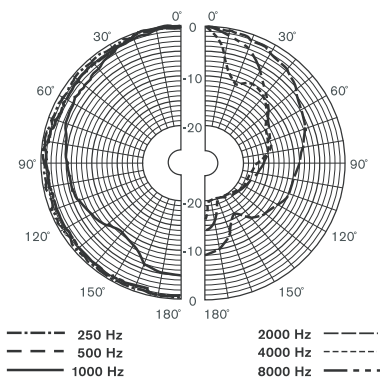
Dimensions in mm / (in)



Circuit diagram



Frequency response



Polar diagram (measured in pink noise)

Octave band sensitivity*

	Octave SPL 1W/1m	Total octave SPL 1W/1m	Total octave SPL Pmax/1m
125 Hz	84.0	-	-

250 Hz	84.3	-	-
500 Hz	84.4	-	-
1000 Hz	86.0	-	-
2000 Hz	89.4	-	-
4000 Hz	91.1	-	-
8000 Hz	94.3	-	-
A-weighted	-	88.2	97.7
Lin-weighted	-	89.9	98.8

Octave band opening angles

	Horizontal	Vertical	
125 Hz	360	360	
250 Hz	360	360	
500 Hz	360	360	
1000 Hz	224	224	
2000 Hz	124	124	
4000 Hz	63	63	
8000 Hz	35	35	

Acoustical performance specified per octave * (all measurements are done with a pink noise signal; the values are in dB SPL).

Technical specifications

Electrical*

Maximum power	15 W
Rated power	10 / 5 / 2.5 / 1.25 W
Sound pressure level at 10 W / 1 W (1 kHz, 1 m)	96 dB / 86 dB (SPL)
Opening angle at 1 kHz / 4 kHz (-6 dB)	220° / 65°
Effective frequency range (-10 dB)	75 Hz to 20 kHz
Rated voltage	100 V
Rated impedance	1000 ohm
Connector	3-pole screw terminal

* Technical performance data according to IEC 60268-5

Mechanical

Dimensions (D x L)	185 x 300 mm (7.3 x 11.8 in.)
Weight	3 kg (6.6 lb)
Color	White (RAL 9010)
Material	ABS

Environmental

Operating temperature	-25 °C to +55 °C (-13 °F to +131 °F)
Storage temperature	-40 °C to +70 °C (-40 °F to +158 °F)
Relative humidity	<95%



1438

Bosch Security Systems BV
Torenallee 49, 5617BA Eindhoven, The Netherlands
10
1438-CPD-0258

EN 54-24:2008

Loudspeaker for voice alarm systems
for fire detection and fire alarm systems for buildings

Unidirectional Sound Projector 10W
LP1-UC10E-1
Type B

4

Ordering information**LP1-UC10E-1 Unidirectional Sound Projector**

Sound projector 10 W, unidirectional, white ABS enclosure with metal grilles, water and dust protected IP65, EN54-24 certified, white RAL 9010.

Order number **LP1-UC10E-1**

LP1-UC20E-1 Unidirectional Sound Projector

4



Features

- ▶ Superb speech and music reproduction
- ▶ Integrated connection cable
- ▶ Ceiling or wall mounting
- ▶ Water and dust protected to IP 65
- ▶ EN 54-24 certified

The LP1-UC20E-1 is a powerful 20 W sound projector intended for high quality speech and music reproduction in indoor and outdoor applications. The state-of-the-art design is matched to both modern and traditional style environments. The sound projector is suitable for use in voice alarm systems.

Functions

Superb sound quality

The use of a high-quality driver in combination with advanced filtering has resulted in a very natural sound reproduction with excellent bass response.

Voice alarm loudspeaker

Voice alarm loudspeakers are specifically designed for use in buildings where performance of systems for verbal communication announcements is governed by regulations. The LP1-UC20E-1 is designed for use in voice alarm systems, is EN 54-24 certified and compliant with BS 5839-8 and EN 60849. The sound projector is pre-wired for use with an optional line/loudspeaker supervision board external mounted. The loudspeaker has built-in protection to secure that, in the event of a fire; damage to the loudspeaker does not result in failure of the circuit to which it is connected. In this way, system integrity is maintained; ensuring loudspeakers in other areas can still be used to inform people of the situation. The loudspeaker has a ceramic terminal block, thermal fuse and heat resistant, high-temperature wiring. The sound projector is made from high-impact self-extinguishing ABS according to class UL 94 V 0, finished in white.

Certifications and approvals

All Bosch loudspeakers are designed to withstand operating at their rated power for 100 continuous hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. Bosch has also developed the Simulated Acoustical Feedback Exposure (SAFE) test to demonstrate that they can withstand two times their rated power for short durations. This ensures improved reliability under extreme conditions, leading to higher customer satisfaction, longer operating life and lessens the chance of failure or performance deterioration.

Safety aspects

In common with all Bosch products, care is taken to meet high safety standards.

All ABS parts are self-extinguishing (according to UL 94 V 0). This sound projector complies with the relevant safety and installation regulations of EN 60065.

Water and dust protection	according to IEC 60529, IP 65
Emergency	according to EN 54-24 / BS 5839-8 / EN 60849

Region	Certification
Europe	CE
	CE DOP
	CPD
Poland	CNBOP

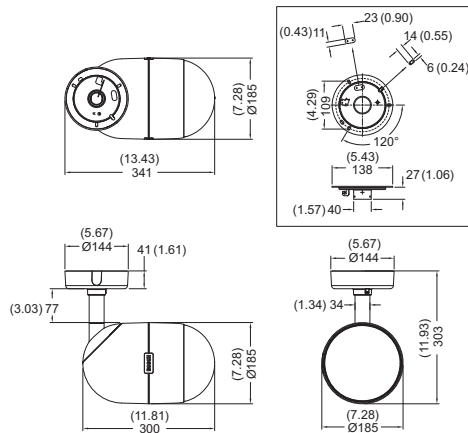
Installation/configuration notes

Mounting

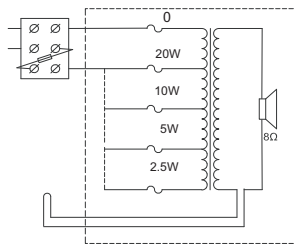
Ease of installation is realized in the way of mounting: first the mounting plate is fixed to the wall or ceiling, secondly a safety cord is attached to the mounting plate, allowing the installer temporarily hang the loudspeaker during installation. After making the connections, the sound projector can be fixed to the mounting plate, by means of a fixing screw nut, and the horizontal direction can be fixed. A cover plate covers screws and wiring. The versatile mounting bracket allows the sound projector to be horizontal and vertical directed. The vertical direction can be permanent fixed with a recessed socket head screw via a small hole located in the rear panel. The cover plate is provided with two cable – or 16 mm (0.63 inch) conduit entries (covered as standard supplied) in opposite position, suitable for loop-through cabling.

Power setting

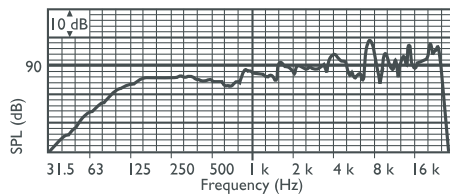
A ceramic terminal for electrical connection is provided. The loudspeaker is standard connected to full power. Half-power, quarter-power or eighth-power can be selected by connecting the appropriate color-coded wire to the terminal block.



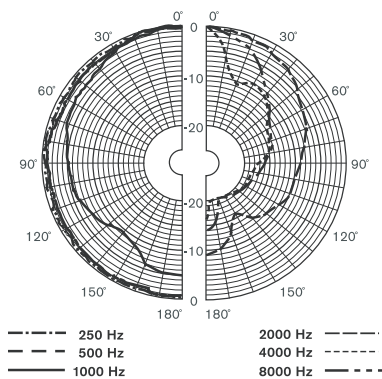
Dimensions in mm / (in)



Circuit diagram



Frequency response



Polar diagram (measured with pink noise)

Octave band sensitivity*

	Octave SPL 1W/1m	Total octave SPL 1W/1m	Total octave SPL Pmax/1m
125 Hz	84.5	-	-

250 Hz	85.5	-	-
500 Hz	84.7	-	-
1000 Hz	87.2	-	-
2000 Hz	90.2	-	-
4000 Hz	92.1	-	-
8000 Hz	95.9	-	-
A-weighted	-	89.4	101.0
Lin-weighted	-	91.3	102.3

Octave band opening angles

	Horizontal	Vertical	
125 Hz	360	360	
250 Hz	360	360	
500 Hz	360	360	
1000 Hz	226	226	
2000 Hz	124	124	
4000 Hz	65	65	
8000 Hz	34	34	

Acoustical performance specified per octave * (all measurements are done with a pink noise signal; the values are in dBSPL).

Technical specifications

Electrical*

Maximum power	30 W
Rated power	20 / 10 / 5 / 2.5 W
Sound pressure level at 20 W / 1 W (1 kHz, 1 m)	100 dB / 87 dB (SPL)
Opening angle at 1 kHz / 4 kHz (-6 dB)	220° / 65°
Effective frequency range (-10 dB)	75 Hz to 20 kHz
Rated voltage	100 V
Rated impedance	500 ohm
Connector	3-pole screw terminal

* Technical performance data accordance to IEC 60268-5


Mechanical

Dimensions (D x L)	185 x 300 mm (7.3 x 11.8 in.)
Weight	3 kg (6.6 lb)
Color	White (RAL 9010)
Material	ABS

Environmental

Operating temperature	-25 °C to +55 °C (-13 °F to +131 °F)
Storage temperature	-40 °C to +70 °C (-40 °F to +158 °F)
Relative humidity	<95%

4

 1438
Bosch Security Systems BV Torenallee 49, 5617BA Eindhoven, The Netherlands 10 1438-CPD-0258
EN 54-24:2008 Loudspeaker for voice alarm systems for fire detection and fire alarm systems for buildings Unidirectional Sound Projector 20W LP1-UC20E-1 Type B

Ordering information**LP1-UC20E-1 Unidirectional Sound Projector**

Sound projector 20 W, unidirectional, white ABS enclosure with metal grilles, water and dust protected IP65, EN54-24 certified, white RAL 9010.

Order number **LP1-UC20E-1**

LS1-UC20E-1 Pendant Sphere Loudspeaker



Features

- Superb speech and music reproduction
- 5 m connection cable
- Provision for optional safety cord
- Water and dust protected to IP 65
- EN 54-24 certified

Sound spheres are pendant sound projectors designed to be suspended from the ceiling by their connecting cables. Their excellent sound spread makes them ideal for use in buildings with high ceilings, such as hypermarkets and superstores.

The LS1-UC20E-1 is a powerful 20 W pendant sphere loudspeaker, intended for high quality speech and music reproduction. The state-of-the-art design is matched to both modern and traditional style environments. The loudspeaker is suitable for use in voice evacuation systems.

Functions

Voice Alarm Loudspeaker

Voice alarm loudspeakers are specifically designed for use in buildings where performance of systems for verbal communication announcements is governed by regulations. The LS1-UC20E-1 is designed for use in voice alarm systems and is EN 54-24 certified and compliant with BS 5839-8 and EN 60849.

The loudspeaker has built-in protection to ensure that, in the event of a fire, damage to the loudspeaker does not result in failure of the circuit to which it is connected. In this way, system integrity is maintained; ensuring loudspeakers in other areas can still be used to inform people of the situation. The loudspeaker is supplied with a ceramic terminal block and thermal fuse.

Superb Sound Quality

The use of a high-quality driver in combination with advanced filtering, have resulted in a very natural sound reproduction with excellent bass response.

Certifications and approvals

All Bosch loudspeakers are designed to withstand operating at their rated power for 100 continuous hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. Bosch has also developed the Simulated Acoustical Feedback Exposure (SAFE) test to demonstrate that they can withstand two times their rated power for short durations. This ensures improved reliability under extreme conditions, leading to higher customer satisfaction, longer operating life, and lessens the chance of failure or performance deterioration.

Safety Aspects

In common with all Bosch products, care is taken to meet high safety standards. All ABS parts are self-extinguishing (according to UL 94 V 0). This sound projector complies with the relevant safety and installation regulations of EN 60065.

Water and dust protection	according to IEC 60529, IP 65
Emergency	according to EN 54-24 / BS 5839-8 / EN 60849

Region	Certification	
Europe	CE	
	CE	DOP
	CPD	

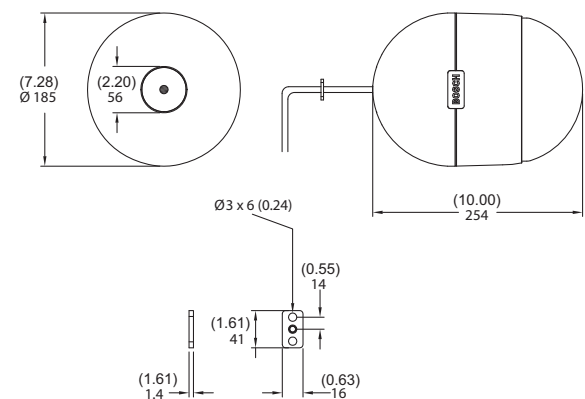
Installation/configuration notes

Mounting

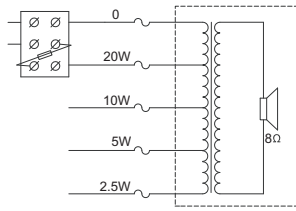
The loudspeaker is suspended from the ceiling via its five meter, five-core connecting cable, which is easy to shorten for the desired height. For optional safety, a steel safety cord can be attached.

Power Setting

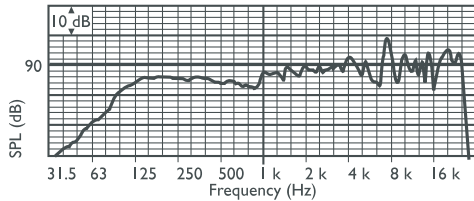
The loudspeaker is supplied with a five meter color-coded, five-core connecting cable with each color connected to a different primary tap on the 100 V matching transformer. This allows nominal full-power, half-power, quarter-power or eighth-power radiation to be selected (in 3 dB steps).



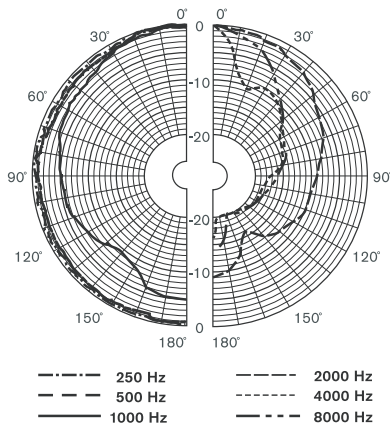
Dimensions in mm / (in)



Circuit diagram



Frequency response



Polar diagram (measured with pink noise)

Octave band sensitivity*

	Octave SPL 1W/1m	Total octave SPL 1W/1m	Total octave SPL Pmax/1m
125 Hz	84.1	-	-
250 Hz	84.7	-	-
500 Hz	84.3	-	-
1000 Hz	85.3	-	-
2000 Hz	88.3	-	-
4000 Hz	90.7	-	-
8000 Hz	90.7	-	-
A-weighted	-	87.4	99.3
Lin-weighted	-	89.4	101.0

Octave band opening angles

	Horizontal	Vertical

125 Hz	360	360
250 Hz	360	360
500 Hz	360	360
1000 Hz	220	220
2000 Hz	122	122
4000 Hz	67	67
8000 Hz	37	37

Acoustical performance specified per octave * (all measurements are done with a pink noise signal; the values are in dB SPL).

Parts included

Quantity	Components
1	LS1-UC20E-1 Pendant Sphere Loudspeaker
1	Cable clamp

Technical specifications

Electrical*

Maximum power	30 W
Rated power	20 / 10 / 5 / 2.5 W
Sound pressure level at 20 W / 1 W (1 kHz, 1 m)	99 dB / 86 dB (SPL)
Opening angle at 1 kHz / 4 kHz (-6 dB)	220° / 65°
Effective frequency range (-10 dB)	80 Hz to 20 kHz
Rated voltage	100 V
Rated impedance	500 ohm
Connector	3-pole screw terminal

* Technical performance data acc. to IEC 60268-5

Mechanical

Dimensions (D x L)	185 x 254 mm (7.3 x 10 in)
Weight	3 kg (6.6 lb)
Color	White (RAL 9010)
Material	ABS

Environmental

Operating temperature	-25 °C to +55 °C (-13 °F to +131 °F)
Storage temperature	-40 °C to +70 °C (-40 °F to +158 °F)
Relative humidity	<95%



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1438-CPD-0258

EN 54-24:2008

Loudspeaker for voice alarm systems
for fire detection and fire alarm systems for buildings

Pendant Sphere Loudspeaker 20W
LS1-UC20E-1
Type B

4

Ordering information

LS1-UC20E-1 Pendant Sphere Loudspeaker

Pendant sphere loudspeaker, 20 W, white ABS enclosure with metal grille, fixed 5 m, 5-core connection cable and cable suspension clamp, EN54-24 certified, white RAL 9010.

Order number **LS1-UC20E-1**

LBC 3430/03 Bidirectional Sound Projector

4



Features

- ▶ Excellent speech and music reproduction
- ▶ Ceiling and/or wall mounting
- ▶ Robust aluminum extrusion enclosure
- ▶ Water and dust protected to IP 55
- ▶ EN 54-24 certified

The LBC 3430/03 is a 12 W bidirectional sound projector intended for speech and music reproduction in indoor and outdoor applications. The two loudspeakers facing in opposite directions are ideally suited to applications such as subway tunnels, long corridors and shopping arcades. The sturdy, aluminum enclosure is finished in the color white. It has provisions for cable loop-through connection and inside mounting of a line- or loudspeaker- supervision board. The sound projector is suitable for use in voice alarm systems.

Functions

Voice alarm loudspeakers are specifically designed for use in buildings where performance of systems for verbal communication announcements is governed by regulations. The LBC 3430/03 is designed for use in voice alarm systems and is compliant with British Standard BS 5839-8 and EN 60849.

The loudspeaker has built-in protection to secure that, in the event of a fire; damage to the loudspeaker does not result in failure of the circuit to which it is connected. In this way, system integrity is maintained; ensuring loudspeakers in other areas can still be used to inform people of the situation. The loudspeaker has a ceramic terminal block, thermal fuse and heat resistant, high-temperature wiring.

The sound projector is constructed from extruded aluminum and finished in white. The front-grills and bracket are made from aluminum to increase corrosion resistance.

Certifications and approvals

Quality assurance

All Bosch loudspeakers are designed to withstand operating at their rated power for 100 hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. Bosch has also developed the Simulated Acoustical Feedback Exposure (SAFE) test to demonstrate that they can withstand two times their rated power for short durations. This ensures improved reliability under extreme conditions, leading to higher customer satisfaction, longer operating life, and lessens the chance of failure or performance deterioration.

Safety	Acc. to EN 60065
Emergency	Acc. to EN 54-24 / BS 5839-8 / EN 60849
Water and dust protection	Acc. to IEC 60529, IP 55

Region	Certification	
Europe	CE	
	CE	DOP
	CPD	

Installation/configuration notes

Mounting

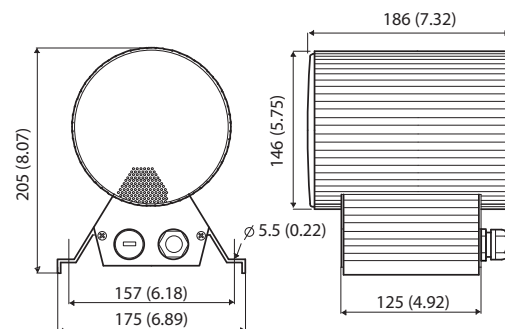
The sound projector can be mounted to the ceiling or wall by means of two screws. The connection cable is fed out through an ABS cable gland (PG13.5) in the base of the mounting bracket. The wires can be terminated on the inside ceramic screw terminal block. For loop-through connection, the cover plate is fitted with a second hole (covered as standard supplied).

Power Setting

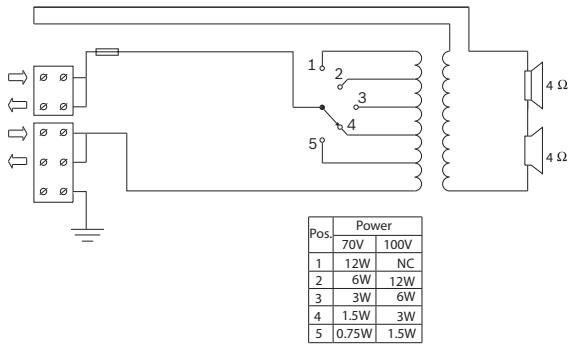
The loudspeaker includes a transformer for both 70 V and 100 V with taps on the primary winding for different power settings.

The required power radiation (in 3 dB steps) can easily be selected via a rotary vari-tap switch, located close to the screw terminal block.

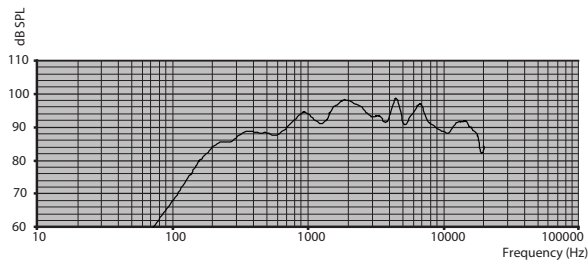
The sound projector has an provision for inside mounting of the optional line-/loudspeaker- supervision board.



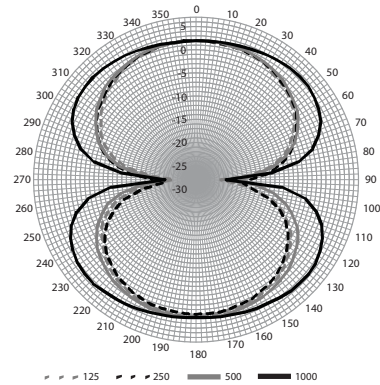
Dimensions in mm/(in)



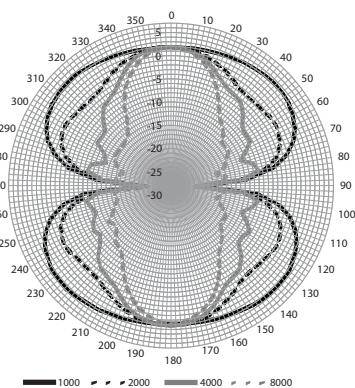
Circuit diagram



Frequency response



Polar diagram



Polar diagram

Octave band sensitivity *

	Octave SPL 1W/1m	Total octave SPL 1W/1m	Total octave SPL Pmax/1m
125 Hz	76.2	-	-
250 Hz	86.6	-	-
500 Hz	88.2	-	-
1000 Hz	93.3	-	-
2000 Hz	97.5	-	-
4000 Hz	96.0	-	-
8000 Hz	95.0	-	-
A-weighted	-	92.5	102.7
Lin-weighted	-	92.4	102.7

Octave band opening angles

	Horizontal	Vertical
125 Hz	118	118
250 Hz	119	119
500 Hz	130	130
1000 Hz	158	158
2000 Hz	146	146
4000 Hz	58	58
8000 Hz	48	48

Acoustical performance specified per octave

* (all measurements are done with a pink noise signal; the values are in dB SPL)

Technical specifications

Electrical*

Maximum power	18 W
Rated power (PHC)	12 W
Power tapping	12 / 6 / 3 / 1.5 W (0.75 W, 70 V only)
Sound pressure level at 12 W / 1 W (1 kHz, 1 m)	104 dB / 93 dB (SPL)
Opening angle at 1 kHz / 4 kHz (-6 dB)	158° / 58°
Effective frequency range (-10 dB)	190 Hz to 20 kHz
Rated voltage	70 V / 100 V
Rated impedance	416 / 833 ohm

* Technical performance data acc. to IEC 60268-5

Mechanical

Dimensions (D x L)	146 x 186 mm (5.7 x 7.3 in)
Weight	3.5 kg (7.72 lb)
Color	White (RAL 9010)
Material	Aluminum
Connection	Screw terminal block
Cable diameter	6-12 mm (0.24-0.47 in)

Environmental

Operating temperature	-25 °C to +55 °C (-13 °F to +131 °F)
Storage temperature	-40 °C to +70 °C (-40 °F to +158 °F)
Relative humidity	<95%
Water/dust protected	According to EN 60529 IP55



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EN 54-24:2008

Loudspeaker for voice alarm systems
for fire detection and fire alarm systems for buildings

Sound Projector 12 W
LBC3430/03
Type B

Ordering information**LBC 3430/03 Bidirectional Sound Projector**

Sound projector 12 W, bidirectional, aluminum extruded enclosure, water and dust protected IP55, EN54-24 certified, white RAL 9010.

Order number **LBC3430/03**

LBC 3432/03 Unidirectional Sound Projector



Features

- ▶ Excellent speech and music reproduction
- ▶ Provision for supervision board mounting
- ▶ (Suspended) ceiling and/or wall mounting
- ▶ Water and dust protected to IP 66
- ▶ EN 54-24 certified

The LBC 3432/03 is a powerful 20 W sound projector intended for speech and music reproduction in indoor and outdoor applications. The sturdy, aluminum enclosure is finished in the color white. It has provisions for cable loop through connection and inside mounting of a line- or loudspeaker- supervision board. The sound projector is suitable for use in voice alarm systems.

Functions

Voice alarm loudspeakers are specifically designed for use in buildings where performance of systems for verbal communication announcements is governed by regulations. The LBC 3432/03 is designed for use in voice alarm systems and is compliant with British Standard BS 5839-8 and EN 60849.

The sound projector has provision inside for mounting an optional line/loudspeaker supervision board.

The loudspeaker has built-in protection to secure that, in the event of a fire; damage to the loudspeaker does not result in failure of the circuit to which it is connected. In this way, system integrity is maintained; ensuring loudspeakers in other areas can still be used to inform people of the situation. The loudspeaker has a ceramic terminal block, thermal fuse and heat resistant, high-temperature wiring.

The sound projector is constructed from extruded aluminum and finished in white. The front-grill, rear cover and bracket are made from aluminum to increase corrosion resistance.

Certifications and approvals

Quality assurance

All Bosch loudspeakers are designed to withstand operating at their rated power for 100 hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. Bosch has also developed the Simulated Acoustical Feedback Exposure (SAFE) test to demonstrate that they can withstand two times their rated power for short durations. This ensures improved reliability under extreme conditions, leading to higher customer satisfaction, longer operating life, and lessens the chance of failure or performance deterioration.

Safety	acc. to EN 60065
Emergency	acc. to EN 54-24 / BS 5839-8 / EN 60849
Water and dust protection	acc. to IEC 60529, IP 66

Region	Certification	
Europe	CE	
	CE	DOP
	CPD	

Installation/configuration notes

Mounting

A sturdy aluminum mounting bracket is supplied to allow easy mounting and directing in virtually any position. The sound projector may also be suspended using the bracket.

Power Setting

The loudspeaker includes a transformer for both 70 V and 100 V with taps on the primary winding for different power settings.

The required power radiation (in 3 dB steps) can easily be selected by connecting to the appropriate tap.

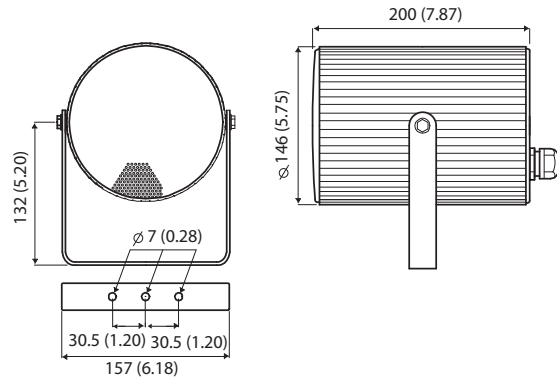
The connection cable is fed out through an ABS cable gland (PG13.5) in the rear cover.

The wires can be terminated on the ceramic screw terminal.

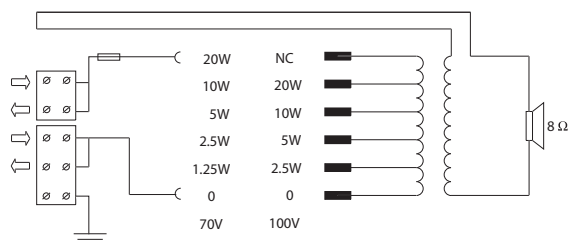
For loop-through connection, the rear cover is fitted with a second hole (covered as standard supplied).

In the rear cover, an provision for inside mounting of the optional line-/loudspeaker- supervision board is available.

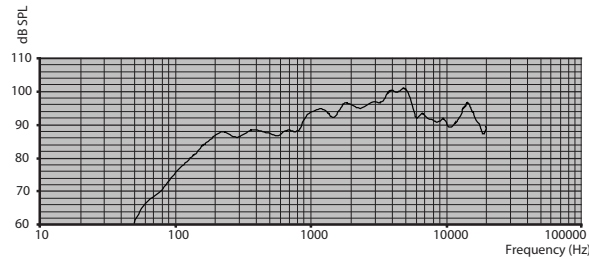
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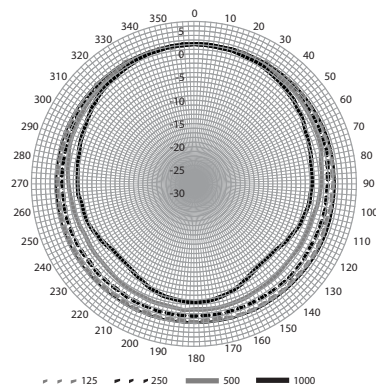
Dimensions in mm / (in)



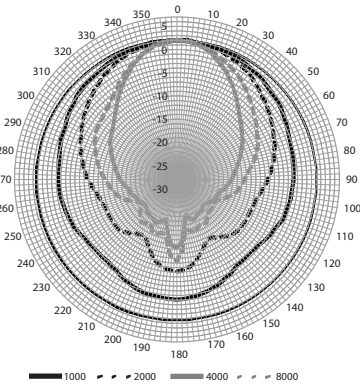
Circuit diagram



Frequency response



Polar diagram



Polar diagram

Octave band sensitivity *

	Octave SPL 1W/1m	Total octave SPL 1W/1m	Total octave SPL Pmax/1m
125 Hz	81.1	-	-
250 Hz	88.6	-	-
500 Hz	88.3	-	-
1000 Hz	93.8	-	-
2000 Hz	96	-	-
4000 Hz	100.4	-	-
8000 Hz	94.5	-	-
A-weighted	-	93.8	105.3
Lin-weighted	-	93.8	105.7

Octave band opening angles

	Horizontal	Vertical
125 Hz	360	360
250 Hz	360	360
500 Hz	360	360
1000 Hz	224	224
2000 Hz	110	110
4000 Hz	56	56
8000 Hz	70	70

Acoustical performance specified per octave

* (all measurements are done with a pink noise signal; the values are in dB SPL)

Technical specifications

Electrical*

Maximum power	30 W
Rated power (PHC)	20 W

Power tapping	20 / 10 / 5 / 2.5 W (1.25 W, 70 V only)
Sound pressure level at 20 W / 1 W (1 kHz, 1 m)	107 / 94 dB (SPL)
Opening angle at 1 kHz / 4 kHz (-6 dB)	224° / 56°
Effective frequency range (-10 dB)	170 Hz to 20 kHz
Rated voltage	70 V / 100 V
Rated impedance	250 / 500 ohm


* Technical performance data acc. to IEC 60268-5

Mechanical

Dimensions (D x L)	146 x 200 mm (5.7 x 7.9 in)
Weight	2.6 kg (5.7 lb)
Color	White (RAL 9010)
Material	Aluminum
Connector	Screw terminal block
Cable diameter	6-12 mm (0.24-0.47 in)

Environmental

Operating temperature	-25 °C to +55 °C (-13 °F to +131 °F)
Storage temperature	-40 °C to +70 °C (-40 °F to +158 °F)
Relative humidity	<95%
Water/dust protected	According to EN 60529 IP66

 1438
Bosch Security Systems BV Torenallee 49, 5617 BA Eindhoven, The Netherlands 10 1438-CPD-0328
EN 54-24:2008 Loudspeaker for voice alarm systems for fire detection and fire alarm systems for buildings Sound Projector 20 W LBC3432/03 Type B

Ordering information

LBC 3432/03 Unidirectional Sound Projector

Sound projector 20 W, unidirectional, aluminum extruded enclosure, U-bracket mounting, water and dust protected IP66, EN54-24 certified, white RAL 9010.

Order number **LBC3432/03**

LS1-OC100E-1

Hemi-directional Loudspeaker



4

Features

- ▶ For large area, high-ceiling applications
- ▶ Optional bracket for fixed mounting
- ▶ Self-restoring tweeter overload protection
- ▶ Provision for internal mounting of the optional line/loudspeaker supervision board
- ▶ EN 54-24 certified

The Bosch Hemi-directional Loudspeaker is an easy to install, innovative loudspeaker which projects consistent and high quality sound, ensuring superb reproduction of background music and high speech intelligibility for paging or emergency calls. The speaker's opening angle and high sound pressure level allows it to cover at least 700 m², making it extremely suitable for indoor high-ceiling areas like warehouses, transport and exhibition halls, mega stores and swimming pools.

Functions

Voice alarm loudspeaker

The LS1-OC100E-1 is used in voice alarm systems and is compliant with emergency standards. The loudspeaker has built-in protection to ensure that a fire-damaged loudspeaker does not cause failure of the connected circuit. This ensures system integrity, meaning loudspeakers in other areas can still be used to inform people of the fire. The loudspeaker has ceramic terminal blocks, a thermal fuse and heat-resistant, high-temperature wiring.

Materials

The loudspeaker is made of high-impact ABS TSG, self-extinguishing according to class UL 94 V 0 and with the highest flame retardant rating (UL 94 5VA). The loudspeaker has a white and silver finish; the metal grille has a silver finish. All metal parts are zinc plated.

Drivers

This acoustically innovative loudspeaker accommodates 14 drivers in combination with advanced positioning and filtering.

Certifications and approvals

Safety	acc. to EN 60065
Emergency	acc. to EN 54-24 / BS 5839-8 / EN 60849
Self-extinguishing	acc. to UL 94 V 0
Flame retardant	acc. to UL 94 5VA
Water and dust protection	acc. to EN 60529 IP 42
Chlorine resistant	acc. to IEC 60068/2-60
Mechanical impact	acc. to EN 50102 IK 07

Region	Certification	
Europe	CE	
	CE	DOP
	CPD	

Installation/configuration notes

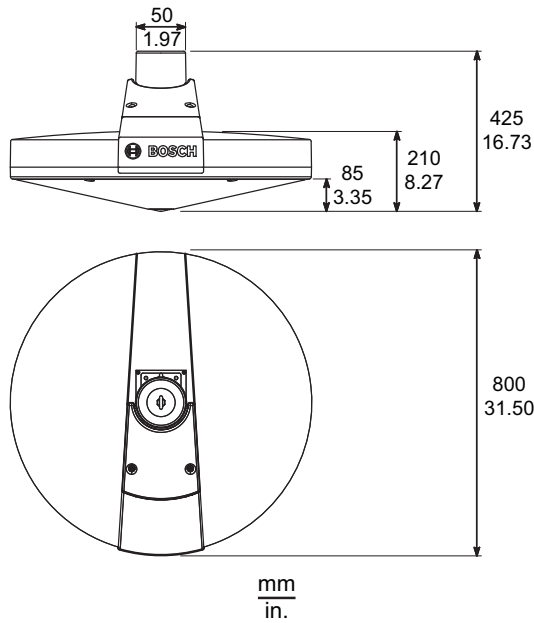
The loudspeaker can be suspended from a steel wire or chain using Dee shackles (not supplied). A separate accessory, LM1-MSB-1, is available for applications where fixed suspension is required to avoid any loudspeaker movement (such as rotation, wobbling). This accessory uses a set of zinc plated steel mounting plates:

- one plate for mounting centrally onto the loudspeaker (with fixing provisions)
- one plate for fixing onto the ceiling or roof construction
- four fixing pins and spring clips
- four fixing screws

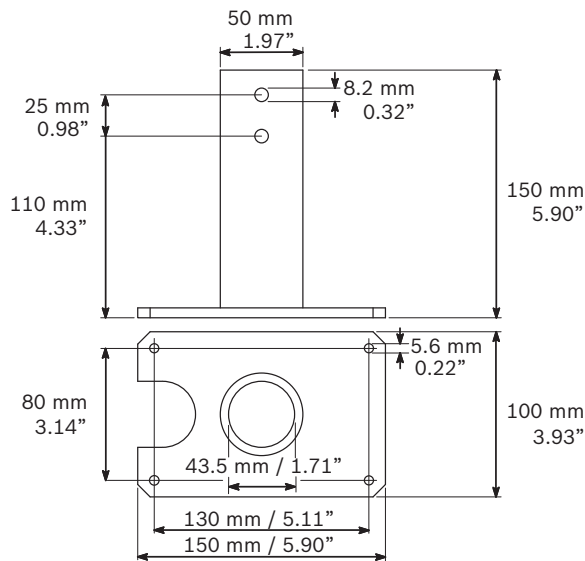
The mounting plates can be mechanically connected with a standard 42.4 mm (DIN EN 10255) dia. tube (not supplied by Bosch, but generally available in any required length).

For extra safety, the loudspeaker has an eye bolt (M8 x13) with a maximum tensile strain of 1500 N for attaching an optional safety cord.

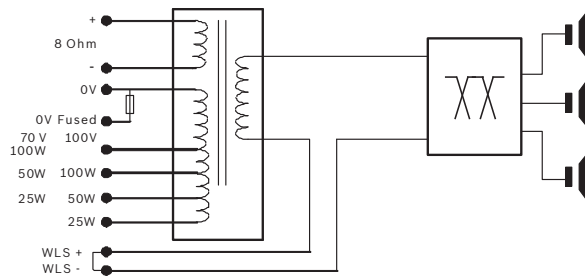
The electrical connection box, under the suspension cover, provides connection of the installation cable, allowing loop through and provision for internally mounting the optional line/loudspeaker supervision board.



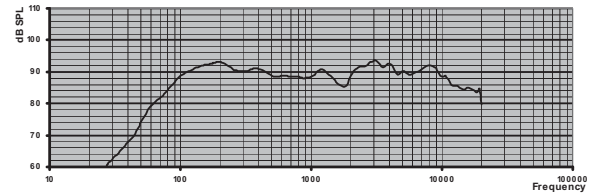
Dimensions LS1-OC100E-1



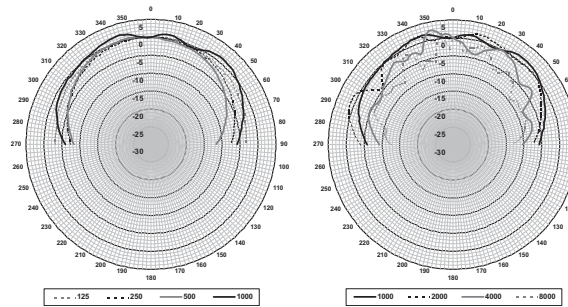
Dimensions LM1-MSB-1



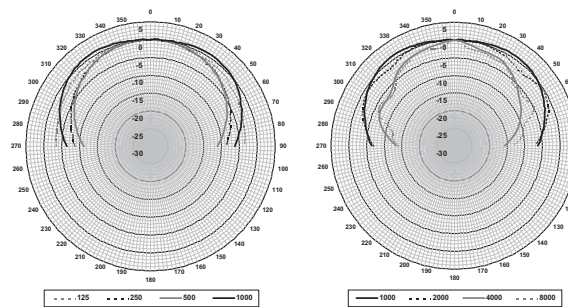
Circuit diagram



Frequency response



Vertical polar diagram of LS1-OC100E-1 (pink noise octave, normalized at 0° axis)



Horizontal polar diagram of LS1-OC100E-1 (pink noise octave, normalized at 0° axis)

Octave band sensitivity *

	Octave SPL 1W/1m	Total octave SPL 1W/1m	Total octave SPL Pmax/1m
125 Hz	91.2	-	-
250 Hz	92.1	-	-
500 Hz	90.5	-	-
1000 Hz	89.5	-	-
2000 Hz	90.1	-	-
4000 Hz	92.1	-	-
8000 Hz	91.8	-	-
A-weighted	-	88.0	107.1
Lin-weighted	-	89.7	109.0

Octave band opening angles

	Horizontal	Vertical	
125 Hz	>180	>180	
250 Hz	139	153	
500 Hz	127	136	
1000 Hz	175	180	
2000 Hz	172	180	
4000 Hz	96	137	
8000 Hz	111	80	

Acoustical performance specified per octave

* (all measurements are done with a pink noise signal; the values are in dBSPL)

Parts included

Quantity	Components
1	LS1-OC100E-1
1	Installation Instructions

Technical specifications

Electrical*

Maximum power	150 W
Rated power	100 W (100 – 50 – 25 W)
Sound pressure level at 100 W / 1 W (1 kHz, 1 m)	110 / 90 dB
Opening angle at 1 kHz / 4 kHz (-6 dB)	175° / 96° (horizontal) 180° / 137° (vertical)
Effective frequency range (-10 dB)	60 Hz to 20 kHz
Rated voltage	100 V, 70 V and 28.3 V
Rated impedance	100 ohm, 50 ohm and 8 ohm
Connector	Ceramic screw terminal

* Technical performance data acc. to IEC 60268-5

Mechanical

LS1-OC100E-1	
Dimensions (dia. x H)	800 x 425 mm (31.50 x 16.74 in)
Weight	27 kg (59.52 lb)
Color baffle	White (RAL 9010)
Color top cover	Pearl dark gray (RAL 9023)
Color grille	White aluminum (RAL 9006)
Material	ABS TSG

LM1-MSB-1

Dimensions (H x W x D)	150 x 100 x 150 mm (5.90 x 3.94 x 5.90 in)
Weight	2.9 kg (6.39 lb)
Color	Pearl dark gray (RAL 9023)
Material	Zinc plated steel

Environmental

Operating temperature	-25 to +55 °C (-13 to 131 °F)
Storage temperature	-40 to +70 °C (-40 to +158 °F)
Relative humidity	<95%



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EN 54-24:2008

Loudspeaker for voice alarm systems
for fire detection and fire alarm systems for buildings

Hemi-directional loudspeaker
LS1-OC100E-1
Type A

Ordering information

LS1-OC100E-1 Hemi-directional Loudspeaker

Hemi-directional loudspeaker, 100 W, high-impact ABS enclosure, metal grille, suspended mounted for large areas/high-ceilings, self-restoring tweeter overload protection, chlorine resistant, water and dust protected IP 42, white/silver finish.

Order number **LS1-OC100E-1**

Accessories

LM1-MSB-1 Metal Suspension Bracket Adaptor Set

Metal suspension bracket adaptor set for fixed suspension of the Hemi-directional Loudspeaker LS1-OC100E-1, prevents loudspeaker movement, zinc-plated steel, supplied with 4 fixing pins and screws.

Order number **LM1-MSB-1**

LBC 34xx/12 Horn Loudspeakers



Features

- ▶ High efficiency drivers
- ▶ Up to 45 W (max. power)
- ▶ Wide opening angle
- ▶ Excellent speech reproduction
- ▶ Simple power setting

Bosch high-efficiency horn loudspeakers provide excellent speech reproduction and sound distribution for a wide scope of outdoor applications. They are ideal for sports grounds, parks, exhibitions, factories and swimming pools.

System overview

The LBC 3481/12 is a circular horn loudspeaker, and the LBC 3491/12 is a rectangular model. Both are 10 W, and are made from ABS.

The LBC 3492/12 is a circular, 20 W horn loudspeaker with a large horn measuring 354 mm in diameter. It is made from a combination of aluminum with ABS for optimum strength and low weight. The edge of the horn is covered with a PVC profile for protection against impact damage.

The LBC 3493/12 is a circular, 30 W horn loudspeaker with a large horn measuring 400 mm in diameter. It is made from a combination of aluminum with ABS for optimum strength and low weight. The edge of the horn is covered with PVC for protection against impact damage.

Functions

All four models are for direct connection to a 100 V line output and are finished in light grey (RAL 7035). The horns are water and dust protected.

The horn loudspeakers include a 100 V transformer with taps on the primary winding to allow different power settings. Nominal full-power, half-power or quarter-power radiation (in 3 dB steps) can easily be selected by connecting the amplifier output to the appropriate tap.

A 2 m four-core cable is fitted to the horns. Each core is a different color, and is connected to one of the primary taps on the transformer.

The horn loudspeakers are supplied complete with sturdy adjustable mounting brackets, allowing the sound beam to be accurately directed.

Certifications and approvals

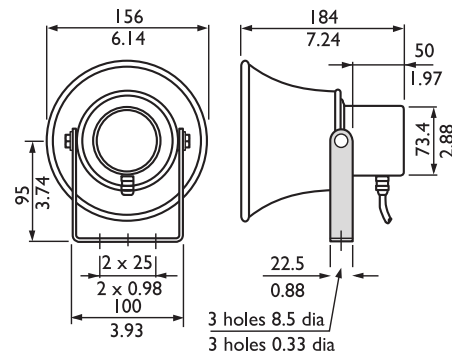
All Bosch loudspeakers are designed to withstand operating at their rated power for 100 hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. Bosch has also developed the Simulated Acoustical Feedback Exposure (SAFE) test to demonstrate that they can withstand two times their rated power for short durations. This ensures extra reliability under extreme conditions, leading to higher customer satisfaction, longer operating life, and much less chance of failure or performance deterioration.

Safety	acc. to EN 60065
Self-extinguishing	acc. to UL 94 V0
Water and dust protection	acc. to EN 60529-IP65

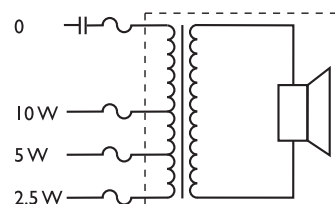
Region	Certification	
Europe	CE	Declaration of Conformity
	CE	

Installation/configuration notes

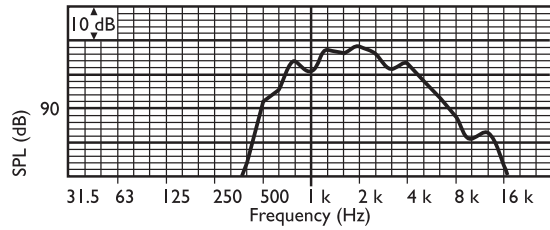
LBC 3481/12



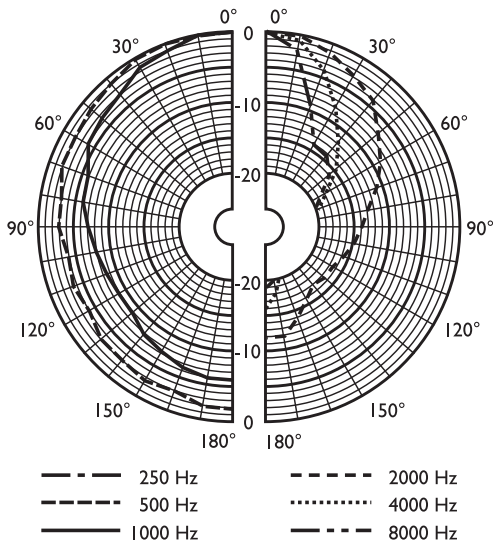
Dimensions in mm (in)



Circuit diagram



Frequency response

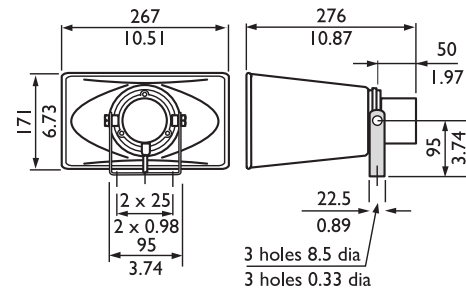


Polar diagram (measured with pink noise)

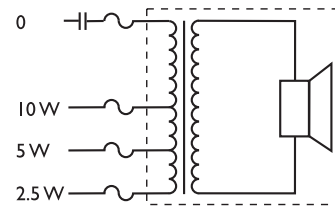
	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
SPL 1.1	-	-	94	10 3	10 5	98	86
SPL max.	-	-	104	11 3	11 5	10 8	96
Q-factor	-	-	1.7	3.5	7.8	25. 7	52. 5
Efficiency	-	-	1.82	7.0 8	5.1 3	0.3 1	0.0 1
H. angle	-	-	180	16 0	95	50	30
V. angle	-	-	180	16 0	95	50	30

Acoustical performance specified per octave

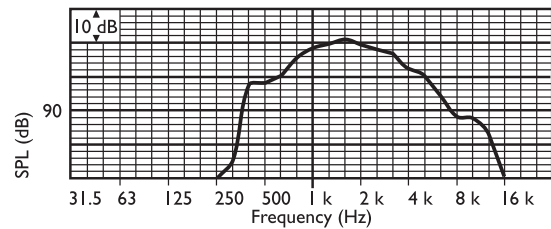
LBC 3491/12



Dimensions in mm (in)



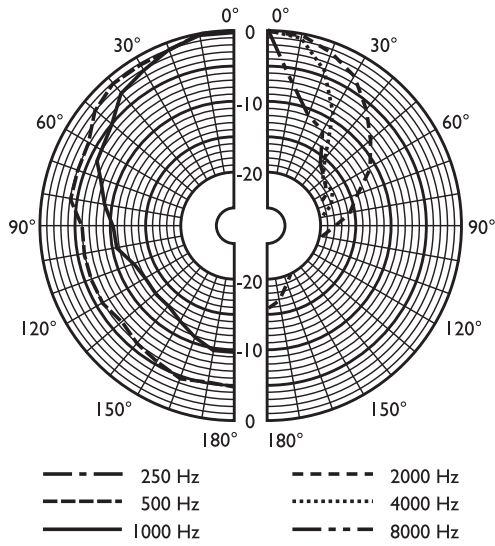
Circuit diagram



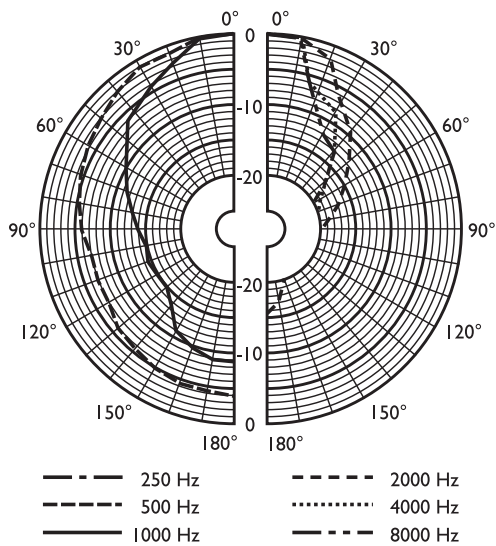
Frequency response

	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
SPL 1.1	-	-	99	10 8	11 1	10 6	97
SPL max.	-	-	109	11 8	12 1	11 6	10 7
Q-factor	-	-	2.7	6.5	15. 8	40. 7	75. 9
Efficiency	-	-	3.72	12. 3	10	1.2 3	0.0 8
H. angle	-	-	180	90	55	40	30
V. angle	-	-	180	13 0	80	45	15

Acoustical performance specified per octave

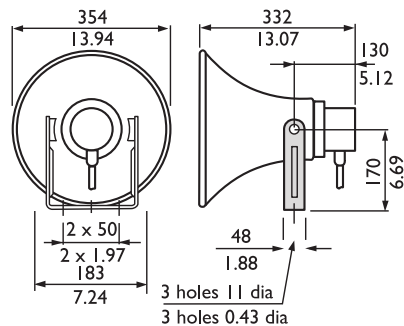


Polar diagram vertical (measured with pink noise)

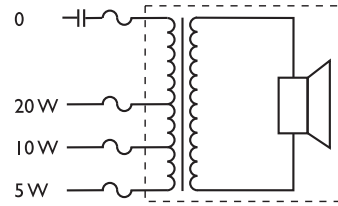


Polar diagram horizontal (measured with pink noise)

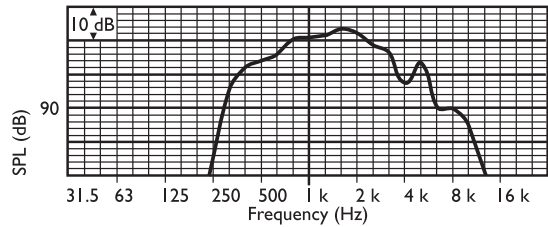
LBC 3492/12



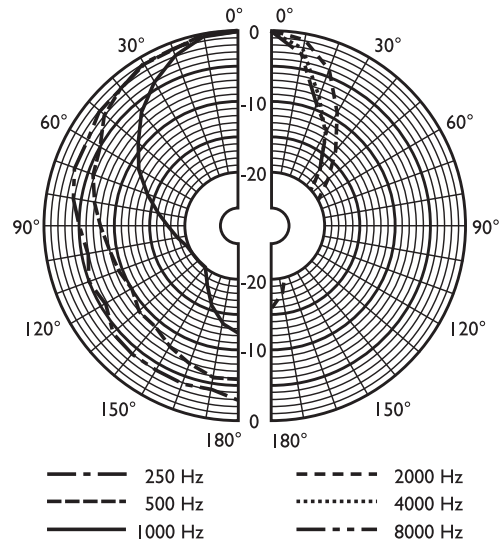
Dimensions in mm (in)



Circuit diagram



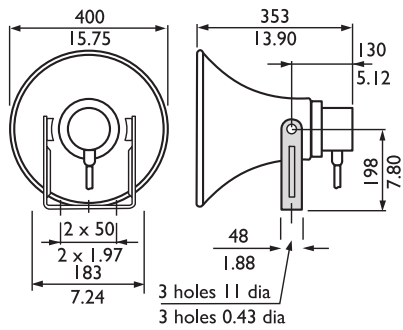
Frequency response



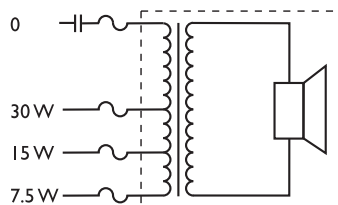
Polar diagram (measured with pink noise)

	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
SPL 1.1	-	93	105	11 0	11 2	10 4	90
SPL max.	-	106	118	12 3	12 5	11 7	10 3
Q-factor	-	2.2	3.5	10.7	30.9	57.5	75.9
Efficiency	-	1.15	11.2 2	11.75	6.4 6	0.5 5	0.0 2
H. angle	-	180	145	80	45	35	30
V. angle	-	180	145	80	45	35	30

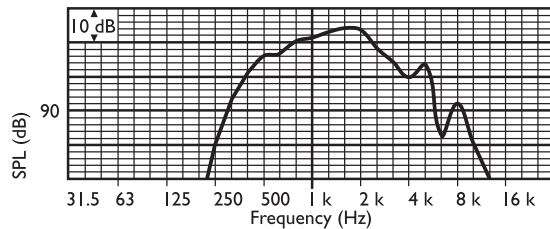
Acoustical performance specified per octave

LBC 3493/12

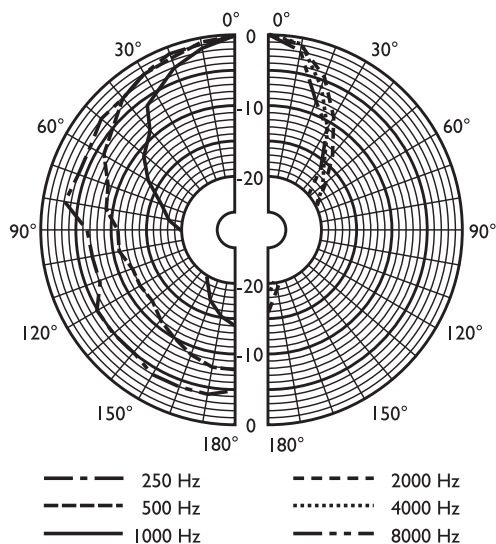
Dimensions in mm (in)



Circuit diagram



Frequency response



Polar diagram (measured with pink noise)

	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
SPL 1.1	-	92	105	111	112	104	90
SPL max.	-	107	120	126	127	119	105
Q-factor	-	2.6	5.1	15.1	37.2	61.7	74.1
Efficiency	-	0.78	7.76	10.47	5.37	0.41	0.02
H. angle	-	180	120	70	45	40	30
V. angle	-	180	120	70	45	40	30

Acoustical performance specified per octave

Ordering information**LBC 3481/12 Horn Loudspeaker, Circular, 10 W**

Horn loudspeaker 10 W, circular, ABS material, water and dust protected according IP65, fixed 2 m, 4-wire connection cable, light gray RAL 7035.

Order number **LBC3481/12****LBC 3491/12 Horn Loudspeaker, Rectangular, 10 W**

Horn loudspeaker 10 W, rectangular, ABS material, water and dust protected according IP65, fixed 2 m, 4-wire connection cable, light gray RAL 7035.

Order number **LBC3491/12****LBC 3492/12 Horn Loudspeaker, Circular, 20 W**

Horn loudspeaker 20 W, circular, aluminum/ABS material, water and dust protected according IP65, fixed 2 m, 4-wire connection cable, light gray RAL 7035.

Order number **LBC3492/12****LBC 3493/12 Horn Loudspeaker, Circular, 30 W**





Horn loudspeaker 30 W, circular, aluminum/ABS material, water and dust protected according IP65, fixed 2 m, 4-wire connection cable, light gray RAL 7035.

Order number **LBC3493/12****Accessories****LBC 1256/00 EVAC Connection Adapter**

Emergency connection adapter, 3-pole screw ceramic connector with a pre-mounted thermal fuse, to be installed in series with the 100 V primary connection of a loudspeaker unit, set of 100 pieces.

Order number **LBC1256/00**

Technical Specifications

	LBC 3481/12 Horn Loudspeaker, Circular, 10 W	LBC 3491/12 Horn Loudspeaker, Rectangular, 10 W	LBC 3492/12 Horn Loudspeaker, Circular, 20 W	LBC 3493/12 Horn Loudspeaker, Circular, 30 W
				
Electrical				
Max power	15 W	15 W	30 W	45 W
Rated power (PHC)	10 / 5 / 2.5 W	10 / 5 / 2.5 W	20 / 10 / 5 W	30 / 15 / 7.5 W
Sound pressure level at rated power / 1 W (1 kHz, 1 m)	113 dB / 103 dB (SPL)	118 dB / 108 dB (SPL)	123 dB / 110 dB (SPL)	126 dB / 111 dB (SPL)
Sound pressure level at rated power / 1 W (2 kHz, 1 m)	115 dB / 105 dB (SPL)	121 dB / 111 dB (SPL)	125 dB / 112 dB (SPL)	127 dB / 112 dB (SPL)
Effective frequency range (-10 dB)	500Hz to 7kHz	480Hz to 5.5kHz	380Hz to 5.5kHz	380Hz to 5kHz
Opening angle horizontal vertical	1 kHz / 4 kHz (-6 dB) 160° / 50° 160° / 50°	1 kHz / 4 kHz (-6 dB) 90° / 40° 130° / 45°	1 kHz / 4 kHz (-6 dB) 80° / 35° 80° / 35°	1 kHz / 4 kHz (-6 dB) 70° / 40° 70° / 40°
Rated voltage	100 V	100 V	100 V	100 V
Rated impedance	1000 ohm	1000 ohm	500 ohm	333 ohm
Connection	2 m, 4-wire cable	2 m, 4-wire cable	2 m, 4-wire cable	2 m, 4-wire cable
Mechanical				
Dimensions (L x W)	-	267 x 171 mm 10.51 x 6.73 in	-	-
Aperture (L x W)	-	-	-	-
Aperture diameter	156 mm (6.14 in)	171 x 267 mm (6.73 x 10.51 in)	354 mm (13.94 in)	400 mm (15.75 in)
Overall length	184 mm (7.24 in)	276 mm (10.87 in)	332 mm (13.07 in)	353 mm (13.90 in)
Color	Light grey (RAL 7035)	Light grey (RAL 7035)	Light grey (RAL 7035)	Light grey (RAL 7035)
Weight	1.25 kg (2.75 lb)	1.4 kg (3.08 lb)	2.65 kg (5.83 lb)	3 kg (6.6 lb)
Environmental				
Operating temperature	-25 °C to +55 °C (-13 °F to +131 °F)	-25 °C to +55 °C (-13 °F to +131 °F)	-25 °C to +55 °C (-13 °F to +131 °F)	-25 °C to +55 °C (-13 °F to +131 °F)
Storage temperature	-40 °C to +70 °C (-40 °F to +158 °F)	-40 °C to +70 °C (-40 °F to +158 °F)	-40 °C to +70 °C (-40 °F to +158 °F)	-40 °C to +70 °C (-40 °F to +158 °F)
Relative humidity	<95%	<95%	<95%	<95%

LH1-10M10E Horn Loudspeaker



4

Features

- High efficiency driver
- Excellent speech reproduction
- Provision for inside mounting of the optional line / loudspeaker supervision board
- Water-and dust protected to IP 65
- EN 54-24 certified

The LH1-10M10E high-efficiency horn loudspeaker, provide excellent speech reproduction and sound distribution for a wide scope of indoor and outdoor applications. It is ideal for sports grounds, parks, exhibitions, factories and swimming pools.

The LH1-10M10E is a rectangular shaped 10 W horn loudspeaker, made from aluminum. The edge of the horn is covered with a PVC profile for protection against impact damage. The rear cover of the horn is made from self-extinguishing ABS (acc. to class UL 94 V0). The housing color is light grey (RAL 7035), and is water and dust protected.

Functions

Voice Alarm

Voice alarm loudspeakers are specifically designed for use in buildings, where the performance of PA systems is subject to official regulations. The LH1-10M10E is designed for voice alarm systems and is EN 54-24 certified and compliant with BS 5839-8 and EN 60849.

Protection

The horn loudspeaker has built-in protection to ensure that in the event of a fire damage does not cause failure of the connected circuit. In this way, system integrity is maintained, ensuring loudspeakers in other areas can still be used to inform people of the situation.

Connections and Safety

The horn loudspeaker has a ceramic terminal block, thermal fuse, and heat-resistant, high-temperature wiring. Four primary taps are provided on the built-in matching transformer to allow selection of the output power.

The horn loudspeaker has a provision for internally mounting the optional line/loudspeaker supervision board.

Certifications and approvals

All Bosch loudspeakers are designed to withstand operating at their rated power for 100 hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. Bosch has also developed the Simulated Acoustical Feedback Exposure (SAFE) test to demonstrate that the speakers can withstand two times their rated power for short durations. This ensures extra reliability under extreme conditions, leading to greater customer satisfaction, longer operating life, and much less chance of failure or performance deterioration.

Safety	acc. to EN 60065
Emergency	acc. to EN 54-24 / BS 5839-8 / EN 60849
Water and dust protection	acc. to IEC 60529, IP 65
Wind-force	acc. to NEN 6702 : 2007 + A1 : 2008, Bft 11

Region	Certification	
Europe	CE	
	CE	DOP

Installation/configuration notes

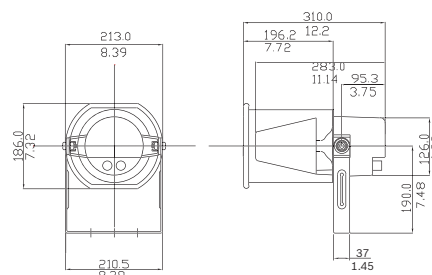
The connection cable could be fed through a cable gland (PG 13.5) in the rear cover. For loop-through connection, the rear cover is fitted with a second hole (covered as standard supplied).

Mounting

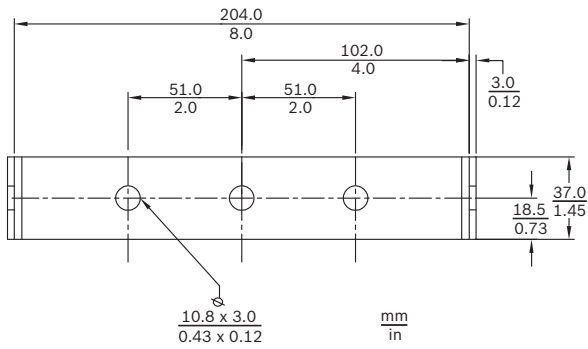
The horn loudspeaker is supplied, complete with sturdy adjustable steel U-shape bracket for mounting onto walls or ceilings, allowing the sound beam to be accurately directed.

Simple Power Setting

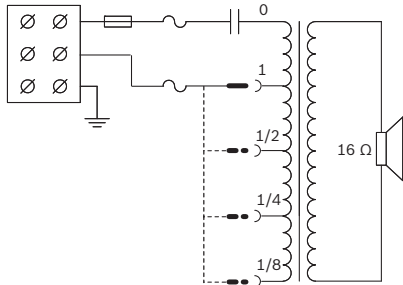
The horn has a three-way ceramic terminal block with screw connection (including earth). Four primary taps are provided on the matching transformer to allow selection of nominal full-power, half-power or quarter-power and eighth-power radiation (in 3 dB steps).



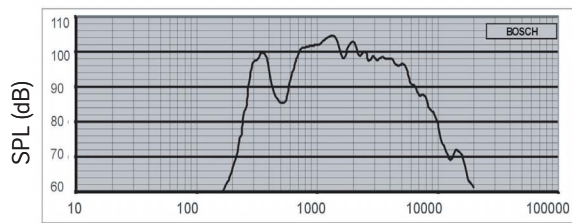
Dimensions in mm (in)



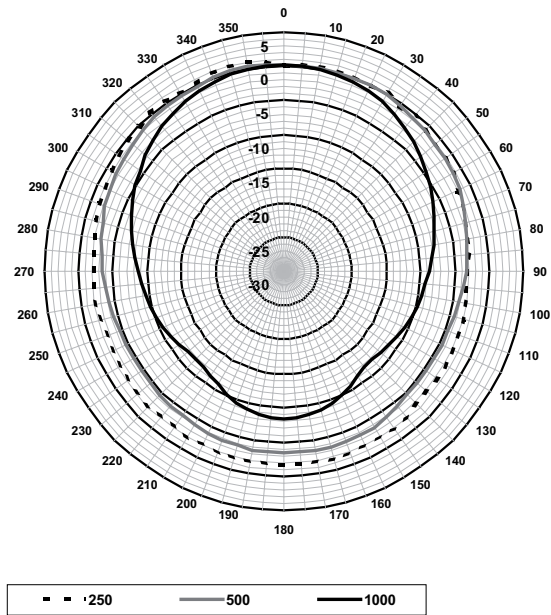
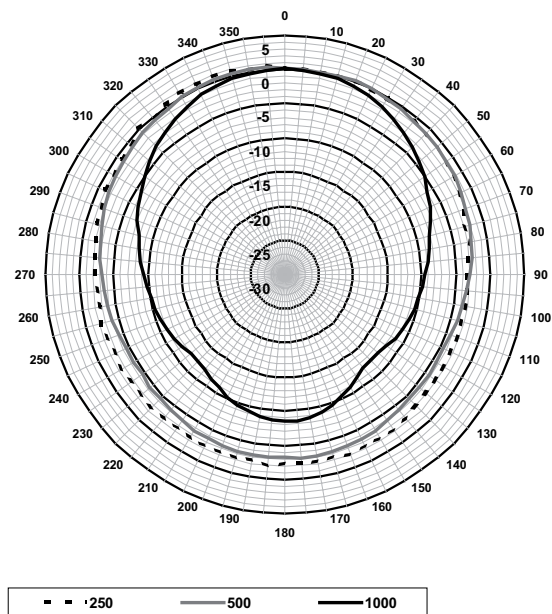
Mounting bracket. Dimensions in mm (in)



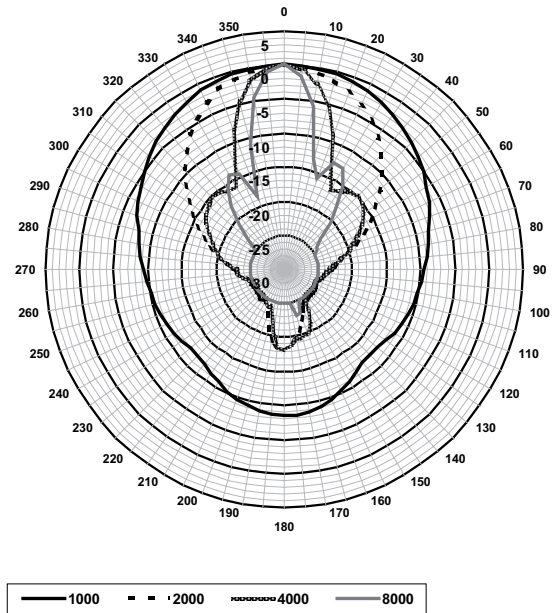
Circuit diagram

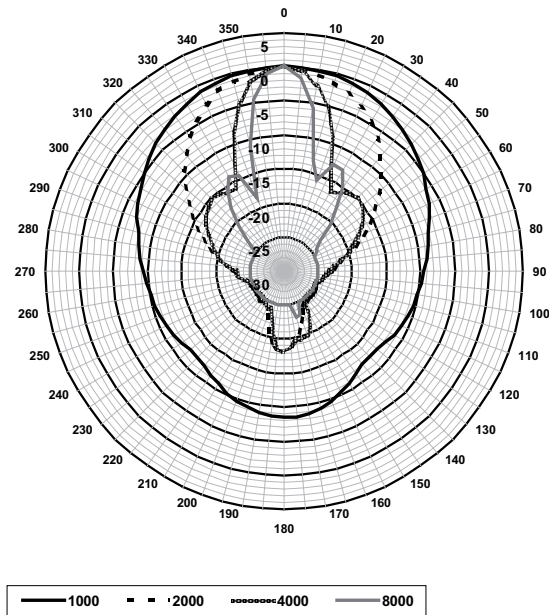


Frequency response



Polar diagrams (Horizontal and Vertical, measured with pink noise)





Polar diagrams (Horizontal and Vertical, measured with pink noise)

Octave band sensitivity *

	Octave SPL 1W/1m	Total octave SPL 1W/1m	Total octave SPL Pmax/1m
125 Hz	55.1	-	-
250 Hz	93.1	-	-
500 Hz	93.9	-	-
1000 Hz	102.0	-	-
2000 Hz	100.1	-	-
4000 Hz	97.2	-	-
8000 Hz	87.4	-	-
A-weighted	-	95.8	105.7
Lin-weighted	-	95.6	104.6

Octave band opening angles

	Horizontal	Vertical	
125 Hz	-	-	
250 Hz	360	360	
500 Hz	360	360	
1000 Hz	120	125	
2000 Hz	72	76	
4000 Hz	35	36	
8000 Hz	22	24	

Acoustical performance specified per octave

* (all measurements are done with a pink noise signal; the values are in dB SPL)

Parts included

1	LH1-10M10E Horn Loudspeaker
1	PG 13.5 cable gland (fitted)

Technical specifications

Electrical*

Maximum power	15 W
Rated power (PHC)	10 W
Power tapping	10 / 5 / 2.5 / 1.25 W
Sound pressure level at 10 W / 1 W (1 kHz, 1 m)	112 / 102 dB (SPL)
Effective frequency range (- 10 dB)	280 Hz to 5800 Hz
Opening angle at 1 kHz / 4 kHz (-6 dB)	
Horizontal	120° / 35°
Vertical	125° / 35°
Rated input voltage	100 V
Rated impedance	1000 ohm
Connector	Screw terminal block

* Technical performance data acc. to IEC 60268-5

Mechanical

Dimensions (W x D)	(213 x 186) x 310 mm (8.39 x 7.32) x 12.2 in)
Weight	3.6 kg (7.93 lb)
Color	Light grey (RAL 7035)
Material (horn / rear cover)	Aluminum / ABS
Cable diameter	6 mm to 12 mm (0.24 in to 0.47 in)

Environmental

Operating temperature	-25 °C to +55 °C (-13 °F to +131 °F)
Storage temperature	-40 °C to +70 °C (-40 °F to +158 °F)
Relative humidity	<95%



1438

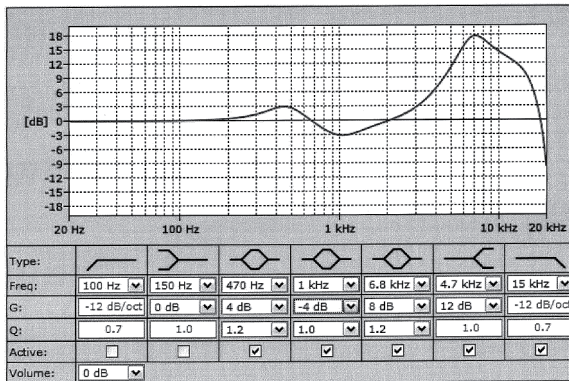
Bosch Security Systems BV
Torenallee 49, 5617BA Eindhoven, The Netherlands
10
1438-CPD-0260

EN 54-24:2008

Loudspeaker for voice alarm systems
for fire detection and fire alarm systems for buildings

Horn Loudspeaker 10W
LH1-10M10E
Type B

4



Specified active equalization, required for EN54-24

Ordering information

LH1-10M10E Horn Loudspeaker

Horn loudspeaker 10 W, rectangular, 8 x 7", aluminum/ABS material, U-bracket mounting, water and dust protected IP 65, EN54-24 certified, light gray RAL 7035.

Order number **LH1-10M10E**

LBC 347x/00 Horn and Driver Loudspeaker Range

4



Features

- ▶ High efficiency drivers
- ▶ Excellent speech reproduction
- ▶ Easy assembly
- ▶ Water- and dust protected to IP 65
- ▶ Provision for inside mounting of optional supervision boards

Bosch high-efficiency horn loudspeakers provide excellent speech reproduction and sound distribution for a wide scope of outdoor applications. They are ideal for sports grounds, parks, exhibitions, factories and swimming pools.

System overview

This range includes two circular type horns with aperture diameters of 355 mm (14 in) and 490 mm (20 in) and three driver units of 25 W, 35 W and 50 W. The assembly of the horn with the driver (separate ordered) results in an integrated horn loudspeaker. In this way the assembly of horn and driver, LBC3472/00 and LBC3478/00 is identical to the integrated horn loudspeaker LBC3482/00.

The assembly of LBC3473/00 and LBC3479/00 is identical to the integrated horn loudspeaker LBC3483/00. The assembly of LBC3474/00 and LBC3479/00 is identical to the integrated horn loudspeaker LBC3484/00.

The horns LBC3478/00 and LBC3479/00 are made from aluminum and the edges of the horns are covered with a PVC profile for protection against impact damage. The driver units LBC3472/00, LBC3473/00 and LBC3474/00 have an aluminum inner cone and are provided with steel mounting brackets. The rear cover of the driver units is made from self-extinguishing ABS (Acc. to class UL 94 V 0).

Both horns and drivers are finished in light grey (RAL 7035).



Notice

To reduce packaging volume and cost, the drivers as well as the horns are packaged 6 per box. The minimum order quantity is therefore 6 drivers and 6 horns.

Drivers and horns to be ordered separately.

Certifications and approvals

Quality assurance

All Bosch loudspeakers are designed to withstand operating at their rated power for 100 hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. Bosch has also developed the Simulated Acoustical Feedback Exposure (SAFE) test to demonstrate that they can withstand two times their rated power for short durations. This ensures improved reliability under extreme conditions, leading to higher customer satisfaction, longer operating life, and lessens the chance of failure or performance deterioration.

Safety	Acc. to EN 60065
Water and dust protection	Acc. to IEC 60529, IP 65
Emergency	Acc. to EN 54-24 / BS 5839-8

Installation/configuration notes

Assembly

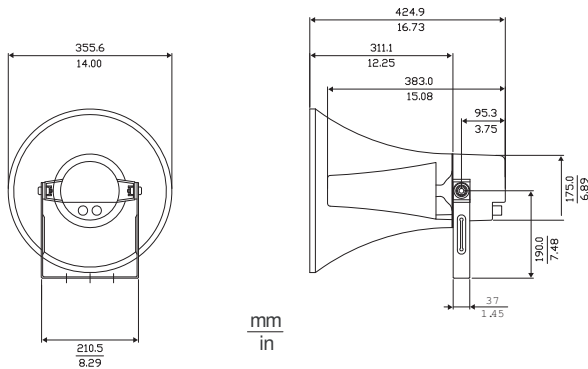
The horn and the driver are assembled by means of 3 screws (standard supplied). A steel mounting bracket is standard fitted onto the driver unit, allowing the sound beam to be accurately directed.

The connection cable is fed out through an ABS cable gland (PG 13.5) in the rear cover of the driver unit. For loop through connection, the rear cover is fitted with a second hole (covered as standard supplied).

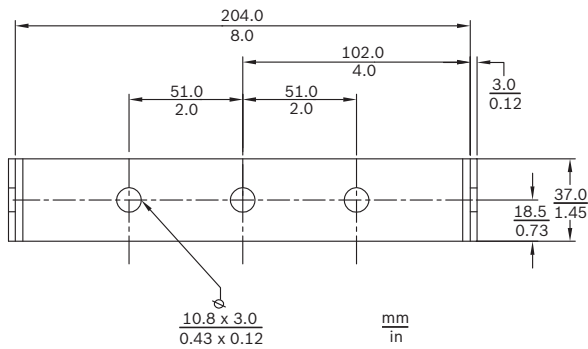
The drivers have provision for mounting the optional line/loudspeaker supervision board.

Simple power setting

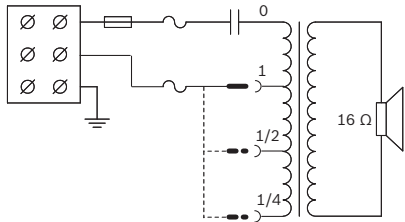
The horn driver has a three-way terminal block with screw connection (including earth). Three primary taps are provided on the matching transformer to allow selection of nominal full-power, half-power or quarter-power radiation (i.e. in 3 dB steps).



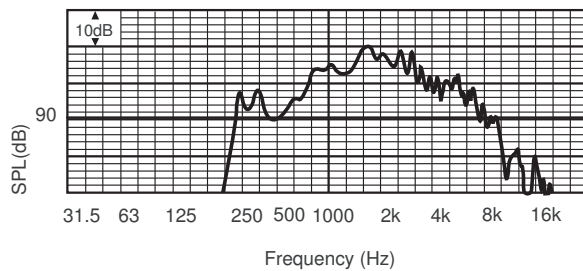
LBC3472/00 with LBC3478/00 dimensions in mm (in)



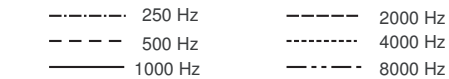
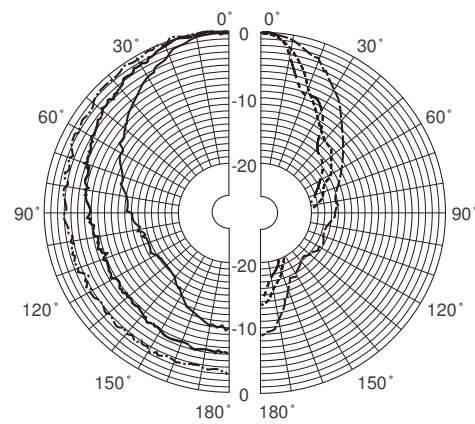
LBC3472/00 bracket dimensions in mm (in)



LBC3472/00 circuit diagram



LBC3472/00 with LBC3478/00 frequency response



LBC3472/00 with LBC3478/00 polar diagram (measured in pink noise)

Octave band sensitivity *

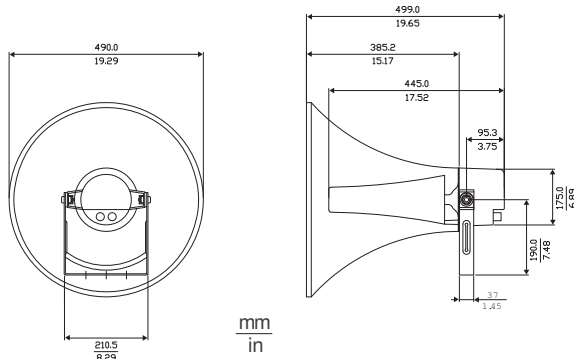
	Octave SPL 1W/1m	Total octave SPL 1W/1m	Total octave SPL Pmax/1m
125 Hz	60.1	-	-
250 Hz	86.6	-	-
500 Hz	100.2	-	-
1000 Hz	106.9	-	-
2000 Hz	104.1	-	-
4000 Hz	99.4	-	-
8000 Hz	87.8	-	-
A-weighted	-	100.1	113.0
Lin-weighted	-	99.8	111.8

Octave band opening angles

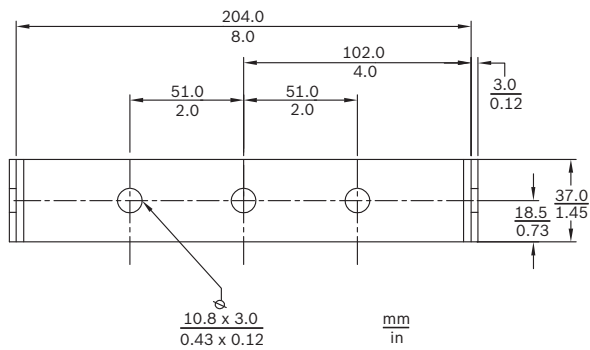
	Horizontal	Vertical
125 Hz	-	-
250 Hz	360	360
500 Hz	120	120
1000 Hz	75	75
2000 Hz	43	43
4000 Hz	25	25
8000 Hz	22	22

LBC3472/00 with LBC3478/00. Acoustical performance specified per octave

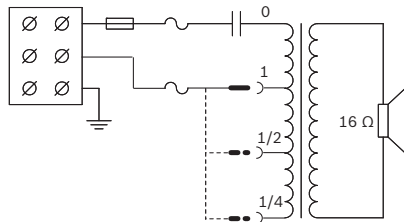
- * All measurements are done with a pink noise signal; the values are in dB SPL.



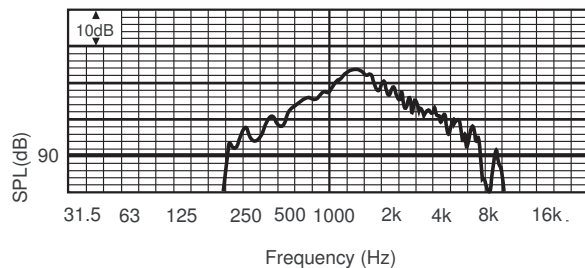
LBC3473/00 with LBC3479/00 dimensions in mm (in)



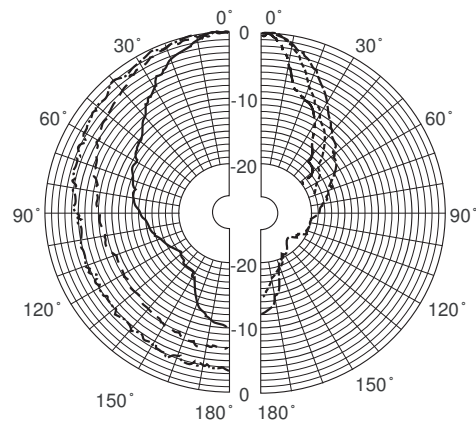
LBC3473/00 bracket dimensions in mm (in)



LBC3473/00 circuit diagram



LBC3473/00 with LBC3479/00 frequency response



LBC 3473/00 with LBC3479/00 polar diagram (measured in pink noise)

Octave band sensitivity *

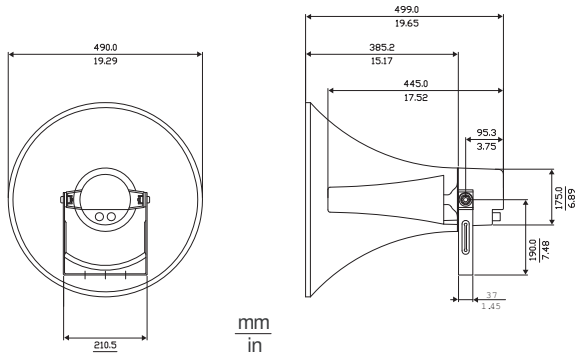
	Octave SPL 1W/1m	Total octave SPL 1W/1m	Total octave SPL Pmax/1m
125 Hz	74.0	-	-
250 Hz	91.7	-	-
500 Hz	102.5	-	-
1000 Hz	111.3	-	-
2000 Hz	106.5	-	-
4000 Hz	99.9	-	-
8000 Hz	92.6	-	-
A-weighted	-	103.5	117.1
Lin-weighted	-	103.4	115.6

Octave band opening angles

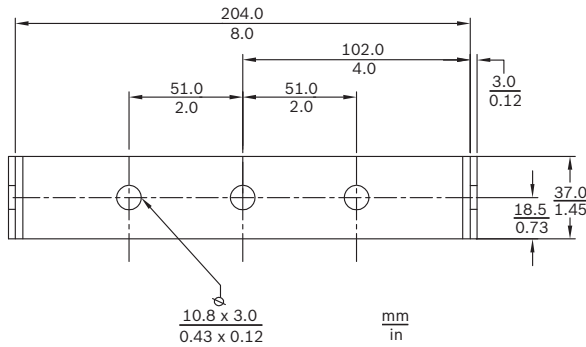
	Horizontal	Vertical
125 Hz	-	-
250 Hz	179	179
500 Hz	93	93
1000 Hz	55	55
2000 Hz	37	37
4000 Hz	26	26
8000 Hz	15	15

LBC3473/00 with LBC3479/00 Acoustical performance specified per octave

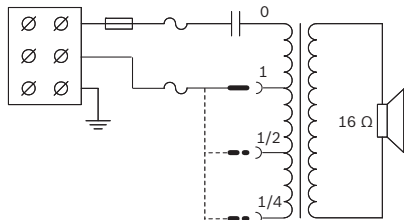
- * All measurements are done with a pink noise signal; the values are in dB SPL.



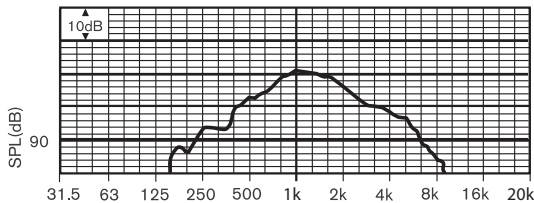
LBC3474/00 with LBC3479/00 dimensions in mm (in)



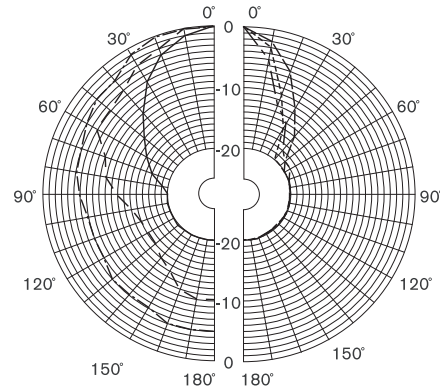
LBC3474/00 bracket dimensions in mm (in)



LBC3474/00 circuit diagram



LBC3474/00 with LBC3479/00 frequency response



LBC3474/00 with LBC3479/00 polar diagram (measured in pink noise)

Octave band sensitivity *

	Octave SPL 1W/1m	Total octave SPL 1W/1m	Total octave SPL Pmax/1m
125 Hz	84.3	-	-
250 Hz	99.0	-	-
500 Hz	105.2	-	-
1000 Hz	111.0	-	-
2000 Hz	106.2	-	-
4000 Hz	99.2	-	-
8000 Hz	91.2	-	-
A-weighted	-	103.3	117.7
Lin-weighted	-	103.5	116.3

Octave band opening angles

	Horizontal	Vertical
125 Hz	-	-
250 Hz	179	179
500 Hz	93	93
1000 Hz	55	55
2000 Hz	37	37
4000 Hz	26	26
8000 Hz	15	15

LBC3474/00 with LBC3479/00 acoustical performance specified per octave

- * All measurements are done with a pink noise signal; the values are in dB SPL.

Parts included

Quantity	Component
1	LBC 347x/00
1	Installation instruction (only valid for LBC3472/00, LBC3473/00 and LBC3474/00)
1	PG 13.5 cable gland (fitted) (only valid for LBC3472/00, LBC3473/00 and LBC3474/00)

Technical specifications

LBC3472/00 and LBC3478/00

Electrical*

Maximum power	37.5 W
Rated power	25 / 12.5 / 6.25 W
Sound pressure level at 25 W / 1 W (1 kHz, 1 m)	121 dB / 107 dB (SPL)
Effective frequency range (-10 dB)	550 Hz to 5 kHz
Opening angle at 1 kHz/4 kHz (-6 dB)	70° / 25°
Rated voltage	100 V
Rated impedance	400 ohm
Connector	Screw terminal block

* Technical performance data according to IEC 60268-5

Mechanical

Dimensions (L x Dmax)	Horn: 355 x 311 mm (14 x 12.2 in) Driver: 383 x 175 mm (15 x 6.9 in)
Weight	Horn: 0.7 kg (1.54 lb) Driver: 2.9 kg (6.38 lb)
Color	Light grey (RAL 7035)
Cable diameter	6 mm to 12 mm (0.24 in to 0.47 in)

Environmental

Operating temperature	-25 °C to +55 °C (-13 °F to +131 °F)
Storage temperature	-40 °C to +70 °C (-40 °F to +158 °F)
Relative humidity	<95%

LBC3473/00 and LBC3479/00

Electrical*

Maximum power	52.5 W
Rated power	35 / 17.5 / 8.75 W
Sound pressure level at 35 W / 1 W (1 kHz, 1 m)	127 dB / 112 dB (SPL)
Effective frequency range (-10 dB)	380 Hz to 5 kHz
Opening angle at 1 kHz/4 kHz (-6 dB)	50° / 25°
Rated voltage	100 V
Rated impedance	286 ohm
Connector	Screw terminal block

* Technical performance data according to IEC 60268-5

Mechanical

Dimensions (L x Dmax)	Horn: 499 x 385 mm (19.64 x 15.16 in) Driver: 445 x 175 mm (17.5 x 6.88 in)
Weight	Horn: 1 kg (2.20 lb) Driver: 3.5 kg (7.70 lb)
Color	Light grey (RAL 7035)
Cable diameter	6 mm to 12 mm (0.24 in to 0.47 in)

Environmental

Operating temperature	-25 °C to +55 °C (-13 °F to +131 °F)
Storage temperature	-40 °C to +70 °C (-40 °F to +158 °F)
Relative humidity	<95%

LBC3474/00 and LBC 3479/00

Electrical *

Maximum power	75 W
Rated power	50 / 25 / 12.5 W
Sound pressure level at 50 W / 1 W (1 kHz, 1 m)	127 dB / 110 dB (SPL)
Effective frequency range (-10 dB)	350 Hz to 4 kHz
Opening angle at 1 kHz/4 kHz (-6 dB)	60° / 28°
Rated voltage	100 V
Rated impedance	200 ohm
Connector	Screw terminal block

* Technical performance data according to IEC 60268-5

Mechanical

Dimensions (L x Dmax)	Horn: 499 x 385 mm (19.64 x 15.16 in) Driver: 445 x 175 mm (17.5 x 6.88 in)
Weight	Horn: 1 kg (2.20 lb) Driver: 5 kg (11 lb)
Color	Light grey (RAL 7035)
Cable diameter	6 mm to 12 mm (0.24 in to 0.47 in)

Environmental

Operating temperature	-25 °C to +55 °C (-13 °F to +131 °F)
Storage temperature	-40 °C to +70 °C (-40 °F to +158 °F)
Relative humidity	<95%

Ordering information**LBC3472/00 Driver Unit 25 W**

Horn driver 25 W, for use with LBC3478/00 (14") or LBC3479/00 (20") horns, light gray RAL 7035.

Order number **LBC3472/00**

LBC3473/00 Driver Unit 35 W

Horn driver 35 W, for use with LBC3478/00 (14") or LBC3479/00 (20") horns, light gray RAL 7035.

Order number **LBC3473/00**

LBC3474/00 Driver Unit 50 W

Horn driver 50 W, for use with LBC3478/00 (14") or LBC3479/00 (20") horns, light gray RAL 7035.

Order number **LBC3474/00**

LBC3478/00 Horn 14" without driver

Horn 14" without driver, aluminum material, for use with horn drivers LBC3472/00 (25 W), LBC3473/00 (35 W), and LBC3474/00 (50 W), light gray RAL 7035.

Order number **LBC3478/00**

LBC3479/00 Horn 20" without driver

Horn 20" without driver, aluminum material, for use with horn drivers LBC3472/00 (25 W), LBC3473/00 (35 W), and LBC3474/00 (50 W), light gray RAL 7035.

Order number **LBC3479/00**

LBC 3482/00 Horn Loudspeaker

4



Features

- ▶ High efficiency driver
- ▶ Excellent speech reproduction
- ▶ Provision for inside mounting of the optional line/loudspeaker supervision board
- ▶ Water-and dust protected to IP 65
- ▶ EN 54-24 certified

Bosch high-efficiency horn loudspeakers provide excellent speech reproduction and sound distribution for a wide scope of outdoor applications. They are ideal for sports grounds, parks, exhibitions, factories and swimming pools.

The LBC 3482/00 is a circular 25 W horn loudspeaker, measuring 355 mm (14 in) in diameter. They are made from aluminum. The edges of the horns are covered with a PVC profile for protection against impact damage. They are light grey (RAL 7035), and are water and dust protected.

Voice alarm loudspeaker

The LBC 3482/00 is designed for use in voice alarm systems and is compliant with emergency standards. The horn loudspeaker has built-in protection to ensure that, in the event of a fire, damage to the loudspeaker does not result in failure of the circuit to which it is connected. In this way, system integrity is maintained; ensuring loudspeakers in other areas can still be used to inform people of the situation. The horn loudspeaker has a ceramic terminal block, thermal fuse and heat resistant, high-temperature wiring. They have provision for inside mounting the optional line/loudspeaker supervision boards.

Functions

The rear cover on the horn is made from self-extinguishing ABS (acc. to class UL 94 V0). The connection cable is fed out through a cable gland (PG 13.5) in rear cover. For loop through connection, the rear cover is fitted with a second hole (covered as standard supplied). These integrated horns are also available as separate horn and driver, allowing installing any combination of horn and driver. See order information for the type numbers.

Certifications and approvals

All Bosch loudspeakers are designed to withstand operating at their rated power for 100 hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. Bosch has also developed the Simulated Acoustical Feedback Exposure (SAFE) test to demonstrate that they can withstand two times their rated power for short durations. This ensures extra reliability under extreme conditions, leading to higher customer satisfaction, longer operation life, and much less chance of failure or performance deterioration.

Safety	acc. to EN 60065
Water and dust protection	acc. to IEC 60529, IP 65
Emergency	acc. to EN 54-24 / BS 5839-8 / EN 60849
Wind-force	acc. to NEN 6702: 2007 + A1: 2008, Bft11

Region	Certification	
Europe	CE	
	CPR	EU_CPR
	CE	EU_DOP

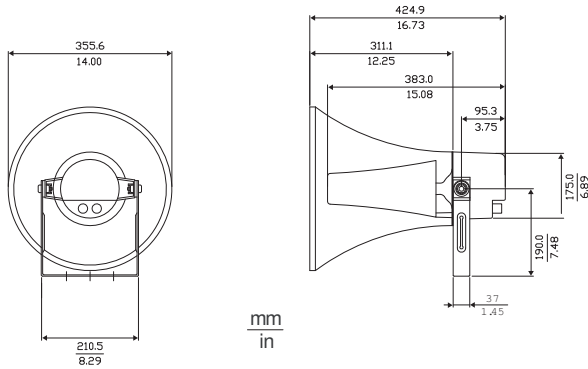
Installation/configuration notes

Simple Power Setting

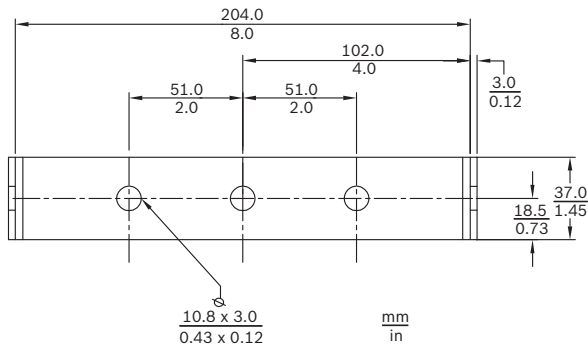
The horn has a three-way terminal block with screw connection (including earth). Three primary taps are provided on the matching transformer to allow selection of nominal full-power, half-power or quarter-power radiation (in 3 dB steps).

Mounting

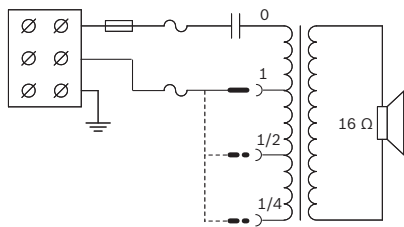
The horn loudspeakers are supplied, complete with sturdy adjustable steel mounting brackets, allowing the sound beam to be accurately directed.



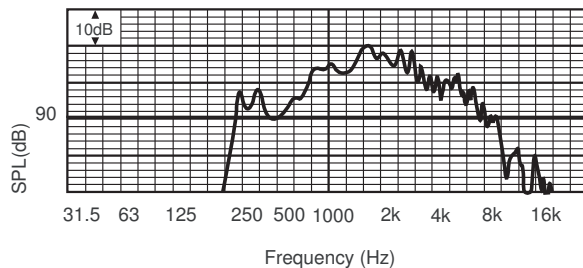
Dimensions in mm (in)



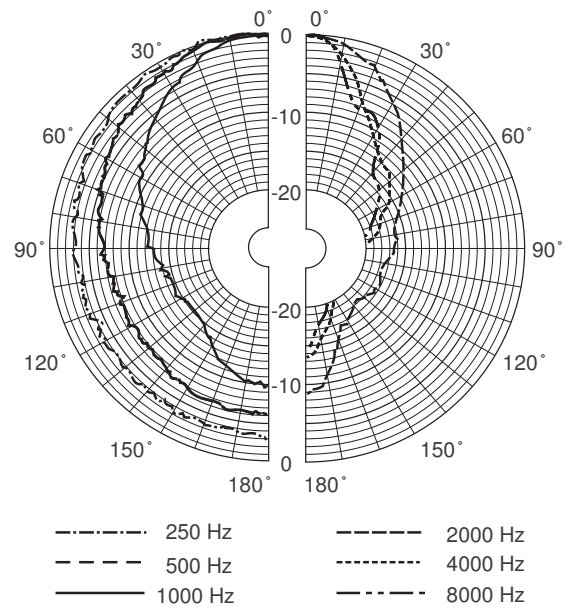
Bracket dimensions



Circuit diagram



Frequency response



Polar diagram (measured in pink noise)

Octave band sensitivity *

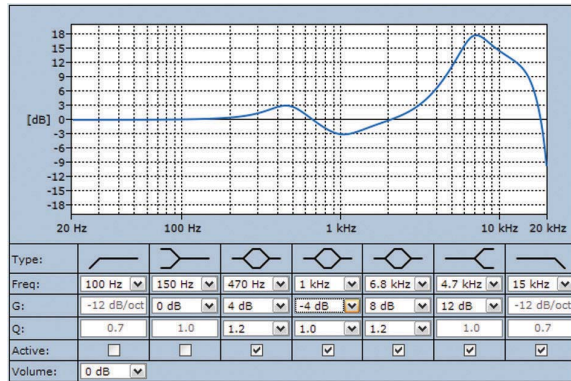
	Octave SPL 1W/1m	Total octave SPL 1W/1m	Total octave SPL Pmax/1m
125 Hz	60.1	-	-
250 Hz	86.6	-	-
500 Hz	100.2	-	-
1000 Hz	106.9	-	-
2000 Hz	104.1	-	-
4000 Hz	99.4	-	-
8000 Hz	87.8	-	-
A-weighted	-	100.1	113.0
Lin-weighted	-	99.8	111.8

Octave band opening angles

	Horizontal	Vertical
125 Hz	-	-
250 Hz	360	360
500 Hz	120	120
1000 Hz	75	75
2000 Hz	43	43
4000 Hz	25	25
8000 Hz	22	22

Acoustical performance specified per octave

- (all measurements are done with a pink noise signal; the values are in dB SPL)



Specified active equalization, required for EN54-24

Parts included

Quantity	Component
1	LBC 3482/00 Horn Loudspeaker
1	PG 13.5 cable gland (fitted)

Technical specifications

Electrical*

Maximum power	37.5 W
Rated power	25 / 12.5 / 6.25 W
Sound pressure level at 25 W / 1 W (1 kHz, 1 m)	121 dB / 107 dB (SPL)
Effective frequency range (-10 dB)	550 Hz to 5 kHz
Opening angle at 1 kHz/4 kHz (-6 dB)	70° / 25°
Rated voltage	100 V
Rated impedance	400 ohm
Connector	Screw terminal block

* Technical performance data acc. to IEC 60268-5


Mechanical

Dimensions (L x Dmax)	425 x 355 mm (16.7 x 14 in)
Weight	3.6 kg (8 lb)
Color	Light grey (RAL 7035)
Cable diameter	6 mm to 12 mm (0.24 in to 0.47 in)

Environmental

Operating temperature	-25 °C to +55 °C (-13 °F to +131 °F)
Storage temperature	-40 °C to +70 °C (-40 °F to +158 °F)
Relative humidity	<95%

Other parameters are available in CNBOP test report nr 4786/BA/10.


1438
Bosch Security Systems BV Kapittelweg 10, 4827 HG Breda, The Netherlands 10 1438-CPD-0192
EN 54-24:2008 Loudspeaker for voice alarm systems for fire detection and fire alarm systems for buildings Horn Loudspeaker 25 W LBC3482/00 Type B

Ordering information

LBC 3482/00 Horn Loudspeaker

Horn loudspeaker 25 W, circular, 14", aluminum/ABS material, U-bracket mounting, water and dust protected IP 65, EN54-24 certified, light gray RAL 7035. Order number **LBC3482/00**

Accessories

LBC 3478/00 Horn, 14" without Driver

Horn 14" without driver, aluminum material, for use with horn drivers LBC3472/00 (25 W), LBC3473/00 (35 W), and LBC3474/00 (50 W), light gray RAL 7035. Order number **LBC 3478/00**

LBC 3479/00 Horn, 20" without Driver

Horn 20" without driver, aluminum material, for use with horn drivers LBC3472/00 (25 W), LBC3473/00 (35 W), and LBC3474/00 (50 W), light gray RAL 7035. Order number **LBC 3479/00**

LBC 3472/00 Driver Unit

Horn driver 25 W, for use with LBC3478/00 (14") or LBC3479/00 (20") horns, light gray RAL 7035. Order number **LBC 3472/00**

LBC 3473/00 Driver Unit

Horn driver 35 W, for use with LBC3478/00 (14") or LBC3479/00 (20") horns, light gray RAL 7035. Order number **LBC 3473/00**

LBC 3483/00 Horn Loudspeaker



Features

- ▶ High efficiency driver
- ▶ Excellent speech reproduction
- ▶ Provision for inside mounting of the optional line/loudspeaker supervision board
- ▶ Water-and dust protected to IP 65
- ▶ EN 54-24 certified

Bosch high-efficiency horn loudspeakers provide excellent speech reproduction and sound distribution for a wide scope of outdoor applications. They are ideal for sports grounds, parks, exhibitions, factories and swimming pools.

The LBC 3483/00 is a circular, 35 W horn loudspeaker, measuring 490 mm (19.6 in) in diameter. They are made from aluminum. The edges of the horns are covered with a PVC profile for protection against impact damage. They are light grey (RAL 7035), and are water and dust protected.

Voice alarm loudspeaker

The LBC 3483/00 is designed for use in voice alarm systems and is compliant with emergency standards. The horn loudspeaker has built-in protection to ensure that, in the event of a fire, damage to the loudspeaker does not result in failure of the circuit to which it is connected. In this way, system integrity is maintained; ensuring loudspeakers in other areas can still be used to inform people of the situation. The Horn loudspeaker has a ceramic terminal block, thermal fuse and heat resistant, high-temperature wiring. They have provision for inside mounting the optional line/loudspeaker supervision boards.

Functions

The rear cover on the horn is made from self-extinguishing ABS (acc. to class UL 94 V0). The connection cable is fed out through a cable gland (PG 13.5) in rear cover. For loop through connection, the rear cover is fitted with a second hole (covered as standard supplied). These integrated horns are also available as separate horn and driver, allowing installing any combination of horn and driver. See order information for the type numbers.

Certifications and approvals

All Bosch loudspeakers are designed to withstand operating at their rated power for 100 hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. Bosch has also developed the Simulated Acoustical Feedback Exposure (SAFE) test to demonstrate that they can withstand two times their rated power for short durations. This ensures extra reliability under extreme conditions, leading to higher customer satisfaction, longer operation life, and much less chance of failure or performance deterioration.

Safety	acc. to EN 60065
Water and dust protection	acc. to IEC 60529, IP 65
Emergency	acc. to EN 54-24 / BS 5839-8 / EN 60849
Wind-force	acc. to NEN 6702: 2007 + A1: 2008, Bft11

Region	Certification
Europe	CE
	CPD
Poland	CNBOP
	CNBOP

Installation/configuration notes

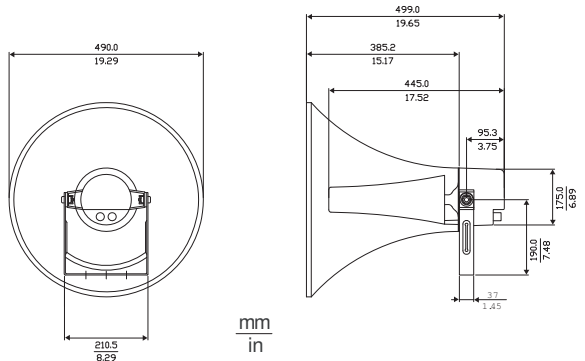
Simple Power Setting

The horn has a three-way terminal block with screw connection (including earth). Three primary taps are provided on the matching transformer to allow selection of nominal full-power, half-power or quarter-power radiation (in 3 dB steps).

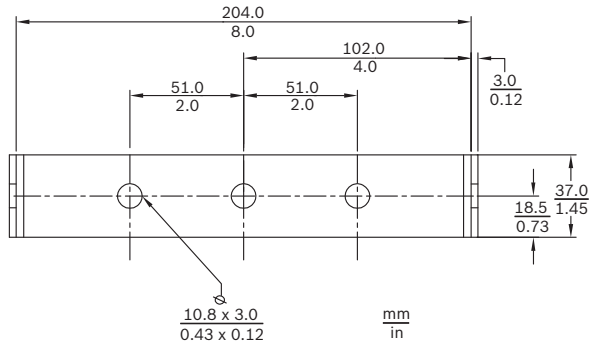
Mounting

The horn loudspeakers are supplied complete with sturdy adjustable steel mounting brackets, allowing the sound beam to be accurately directed.

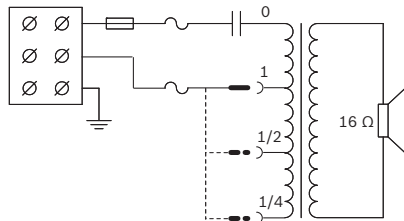
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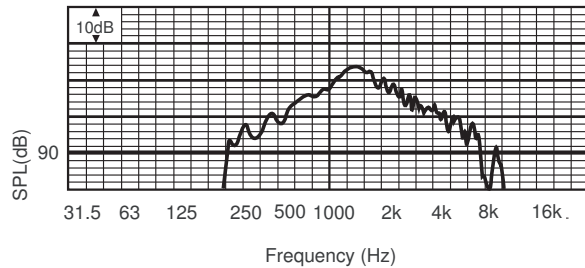
Dimensions in mm (in)



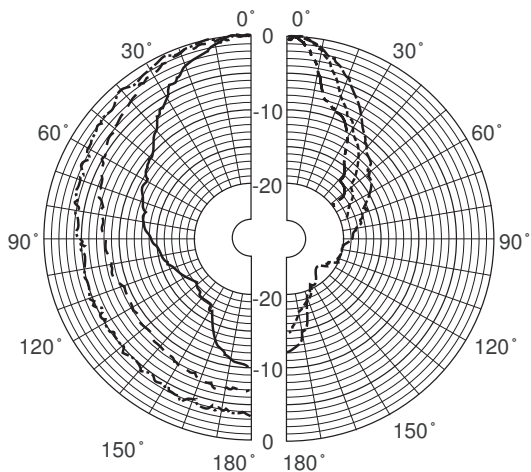
Bracket dimensions



Circuit diagram



Frequency response



Polar diagram (measured in pink noise)

Octave band sensitivity *

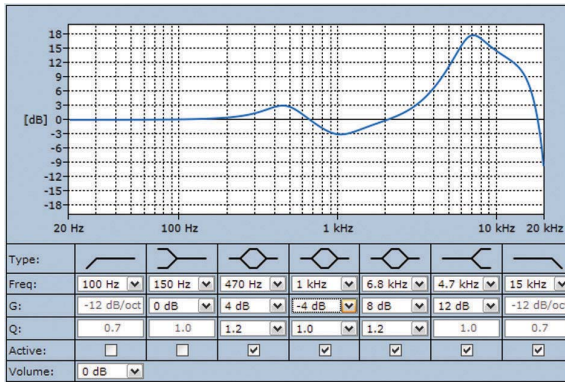
	Octave SPL 1W/1m	Total octave SPL 1W/1m	Total octave SPL Pmax/1m
125 Hz	74.0	-	-
250 Hz	91.7	-	-
500 Hz	102.5	-	-
1000 Hz	111.3	-	-
2000 Hz	106.5	-	-
4000 Hz	99.9	-	-
8000 Hz	92.6	-	-
A-weighted	-	103.5	117.1
Lin-weighted	-	103.4	115.6

Octave band opening angles

	Horizontal	Vertical
125 Hz	-	-
250 Hz	179	179
500 Hz	93	93
1000 Hz	55	55
2000 Hz	37	37
4000 Hz	26	26
8000 Hz	15	15

Acoustical performance specified per octave

- (all measurements are done with a pink noise signal; the values are in dB SPL)



Specified active equalization, required for EN54-24

Parts included

Quantity	Component
1	LBC 3483/00 Horn Loudspeaker
1	PG 13.5 cable gland (fitted)

Technical specifications

Electrical*

Maximum power	52.5 W
Rated power	35 / 17.5 / 8.75 W
Sound pressure level at 35 W / 1 W (1 kHz, 1 m)	127 dB / 112 dB (SPL)
Effective frequency range (-10 dB)	380 Hz to 5 kHz
Opening angle at 1 kHz/4 kHz (-6 dB)	50° / 25°
Rated voltage	100 V
Rated impedance	286 ohm
Connector	Screw terminal block

* Technical performance data acc. to IEC 60268-5

Mechanical

Dimensions (L x Dmax)	499 x 490 mm (20 x 19.6 in)
Weight	4.5 kg (9.9 lb)
Color	Light grey (RAL 7035)
Cable diameter	6 mm to 12 mm (0.24 in to 0.47 in)

Environmental

Operating temperature	-25 °C to +55 °C (-13 °F to +131 °F)
Storage temperature	-40 °C to +70 °C (-40 °F to +158 °F)
Relative humidity	<95%

Other parameters are available in CNBOP test report nr 4787/BA/10.



1438

Bosch Security Systems BV
Kapittelweg 10, 4827 HG Breda, The Netherlands
10
1438-CPD-0191

EN 54-24:2008

Loudspeaker for voice alarm systems
for fire detection and fire alarm systems for buildings

Horn Loudspeaker 35 W
LBC3483/00
Type B

Ordering information

LBC 3483/00 Horn Loudspeaker

Horn loudspeaker 35 W, circular 20", aluminum/ABS material, U-bracket mounting, water and dust protected IP65, EN54-24 certified, light gray RAL 7035.
Order number **LBC3483/00**

Accessories

LBC 3472/00 Driver Unit

Horn driver 25 W, for use with LBC3478/00 (14") or LBC3479/00 (20") horns, light gray RAL 7035.
Order number **LBC 3472/00**

LBC 3473/00 Driver Unit

Horn driver 35 W, for use with LBC3478/00 (14") or LBC3479/00 (20") horns, light gray RAL 7035.
Order number **LBC 3473/00**

LBC 3478/00 Horn, 14" without Driver

Horn 14" without driver, aluminum material, for use with horn drivers LBC3472/00 (25 W), LBC3473/00 (35 W), and LBC3474/00 (50 W), light gray RAL 7035.
Order number **LBC 3478/00**

LBC 3479/00 Horn, 20" without Driver

Horn 20" without driver, aluminum material, for use with horn drivers LBC3472/00 (25 W), LBC3473/00 (35 W), and LBC3474/00 (50 W), light gray RAL 7035.
Order number **LBC 3479/00**

LBC 3484/00 Horn Loudspeaker

4



Features

- ▶ High efficiency driver
- ▶ Excellent speech reproduction
- ▶ Provision for inside mounting of the optional line/loudspeaker supervision board
- ▶ Water-and dust protected to IP 65
- ▶ BS 5839-8 and EN 60849 compliant

Bosch high-efficiency horn loudspeakers provide excellent speech reproduction and sound distribution for a wide scope of outdoor applications. They are ideal for sports grounds, parks, exhibitions, factories and swimming pools.

The LBC 3484/00 is a circular 50 W horn loudspeaker, measuring 490 mm (19.6 in) in diameter. They are made from aluminum. The edges of the horns are covered with a PVC profile for protection against impact damage. They are light grey (RAL 7035), and are water and dust protected.

Voice alarm loudspeaker

The LBC 3484/00 is designed for use in voice alarm systems and is compliant with emergency standards. The Horn loudspeaker has built-in protection to ensure that, in the event of a fire, damage to the loudspeaker does not result in failure of the circuit to which it is connected. In this way, system integrity is maintained; ensuring loudspeakers in other areas can still be used to inform people of the situation. The Horn loudspeaker has a ceramic terminal block, thermal fuse and heat resistant, high-temperature wiring. They have provision for inside mounting the optional line/loudspeaker supervision boards.

Functions

The rear cover on the horn is made from self-extinguishing ABS (acc. to class UL 94 V0). The connection cable is fed out through a cable gland (PG 13.5) in rear cover. For loop through connection, the rear cover is fitted with a second hole (covered as standard supplied). These integrated horns are also available as separate horn and driver, allowing installing any combination of horn and driver. See order information for the type numbers.

Certifications and approvals

All Bosch loudspeakers are designed to withstand operating at their rated power for 100 hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. Bosch has also developed the Simulated Acoustical Feedback Exposure (SAFE) test to demonstrate that they can withstand two times their rated power for short durations. This ensures extra reliability under extreme conditions, leading to higher customer satisfaction, longer operation life, and much less chance of failure or performance deterioration.

Safety	acc. to EN 60065
Water and dust protection	acc. to IEC 60529, IP 65
Emergency	acc. to BS 5839-8 / EN 60849
Wind-force	acc. to NEN 6702: 2007 + A1: 2008, Bft11

Region	Certification
Europe	CE

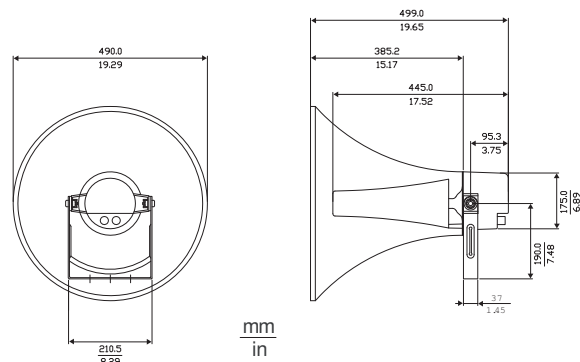
Installation/configuration notes

Simple Power Setting

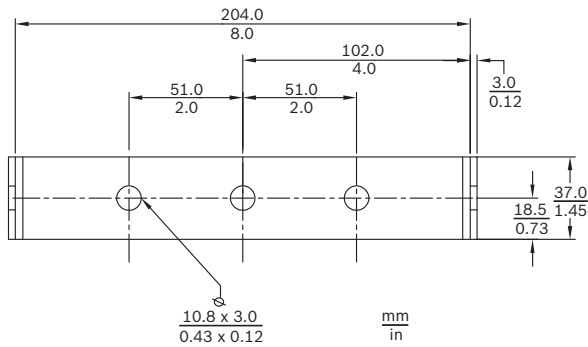
The horn has a three-way terminal block with screw connection (including earth). Three primary taps are provided on the matching transformer to allow selection of nominal full-power, half-power or quarter-power radiation (in 3 dB steps).

Mounting

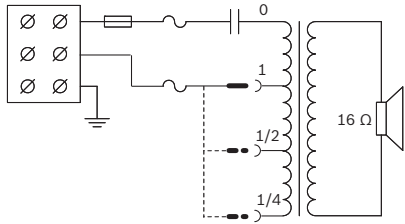
The horn loudspeakers are supplied complete with sturdy adjustable steel mounting brackets, allowing the sound beam to be accurately directed.



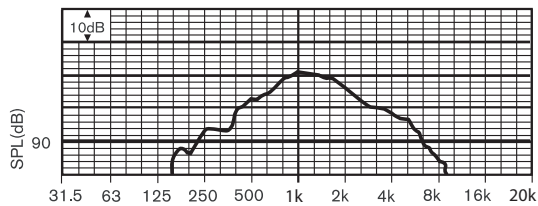
Dimensions in mm (in)



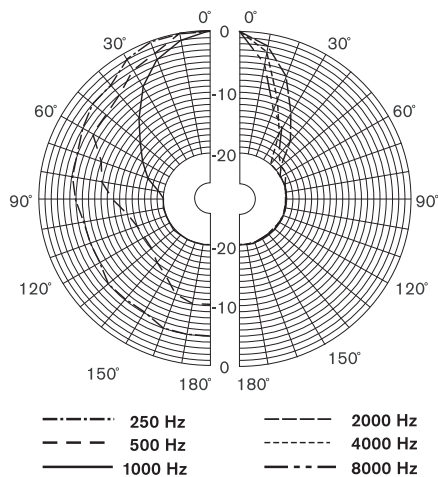
Bracket dimensions in mm (in)



Circuit diagram



Frequency response



Polar diagram (measured in pink noise)

Octave band sensitivity *

	Octave SPL 1W/1m	Total octave SPL 1W/1m	Total octave SPL Pmax/1m
125 Hz	84.3	-	-
250 Hz	99.0	-	-
500 Hz	105.2	-	-

1000 Hz	111.0	-	-
2000 Hz	106.2	-	-
4000 Hz	99.2	-	-
8000 Hz	91.2	-	-
A-weighted	-	103.3	117.7
Lin-weighted	-	103.5	116.3

Octave band opening angles

	Horizontal	Vertical	
125 Hz	-	-	
250 Hz	179	179	
500 Hz	93	93	
1000 Hz	55	55	
2000 Hz	37	37	
4000 Hz	26	26	
8000 Hz	15	15	

Acoustical performance specified per octave

* (all measurements are done with a pink noise signal; the values are in dB SPL)

Parts included

Quantity	Components
1	LBC 3484/00 Horn Loudspeaker
1	PG 13.5 cable gland (fitted)

Technical specifications

Electrical *

Maximum power	75 W
Rated power	50 / 25 / 12.5 W
Sound pressure level at 50 W / 1 W (1 kHz, 1 m)	127 dB / 110 dB (SPL)
Effective frequency range (-10 dB)	350 Hz to 4 kHz
Opening angle at 1 kHz/4 kHz (-6 dB)	60° / 28°
Rated voltage	100 V
Rated impedance	200 ohm
Connector	Screw terminal block

Mechanical

Dimensions (L x Dmax)	499 x 490 mm (20 x 19.6 in)
Weight	6 kg (13.22 lb)

Color	Light grey (RAL 7035)
Cable diameter	6 mm to 12 mm (0.24 in to 0.47 in)

Environmental

Operating temperature	-25 °C to +55 °C (-13 °F to +131 °F)
Storage temperature	-40 °C to +70 °C (-40 °F to +158 °F)
Relative humidity	<95%

Ordering information

LBC 3484/00 Horn Loudspeaker

Horn loudspeaker 50 W, circular 20", aluminum/ABS material, U-bracket mounting, water and dust protected IP65, light gray RAL 7035.

Order number **LBC3484/00**

Accessories

LBC 3472/00 Driver Unit

Horn driver 25 W, for use with LBC3478/00 (14") or LBC3479/00 (20") horns, light gray RAL 7035.

Order number **LBC 3472/00**

LBC 3473/00 Driver Unit

Horn driver 35 W, for use with LBC3478/00 (14") or LBC3479/00 (20") horns, light gray RAL 7035.

Order number **LBC 3473/00**

LBC 3478/00 Horn, 14" without Driver

Horn 14" without driver, aluminum material, for use with horn drivers LBC3472/00 (25 W), LBC3473/00 (35 W), and LBC3474/00 (50 W), light gray RAL 7035.

Order number **LBC 3478/00**

LBC 3479/00 Horn, 20" without Driver

Horn 20" without driver, aluminum material, for use with horn drivers LBC3472/00 (25 W), LBC3473/00 (35 W), and LBC3474/00 (50 W), light gray RAL 7035.

Order number **LBC 3479/00**

LBC 340x/16 Horn Loudspeakers



Features

- ▶ Excellent acoustic properties
- ▶ Choice of driver units
- ▶ Water and dust protected to IP 65
- ▶ Versatile mounting bracket
- ▶ UV light resistant

The Bosch professional horn loudspeaker system allows a range of different driver units to be installed into the various horns. The system includes four horns, three circular types with aperture diameters of 255, 380 and 510 mm and a rectangular model with an opening measuring 390 x 235 mm.

Functions

The drivers (ordered separately) are mounted inside the horn, and the connection cable is fed out through a cable gland in the cover plate. This makes the loudspeaker horn/driver unit splash-waterproof, and therefore ideal for outdoor sound reinforcement applications. Three driver units are available, a 15 W, 30 W and a 50 W type for 100 V lines only. See separate datasheet.

In the construction of the horns, maximum use has been made of standard parts in a modular concept. The screw thread for securing the driver units is a standard 1 3/8-inch thread (1 3/8" - 18 UNEF-2A). The shape of the cover plate gives the horns a distinctive and easily recognizable style.

The cover plates have provision on their inside face for mounting the optional line/loudspeaker supervision board (and for mounting the emergency Connection Adapter).

There is also an extra knock-out hole to enable loop-through cabling (if loop-through is used, an extra optional cable gland PG 13.5 must be fitted).

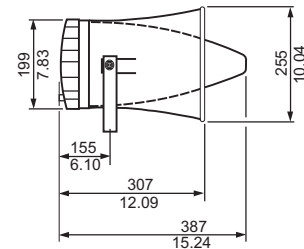
They are made from flame-retardant, high-impact plastic combining strength with low weight. This rugged material is resistant to ultraviolet light, aggressive environments and most industrial chemicals. The horns (incl.

brackets) are finished in light grey. The sturdy steel mounting bracket (ST 37-2 DIN 1652) allows easy mounting and directing of the horn.

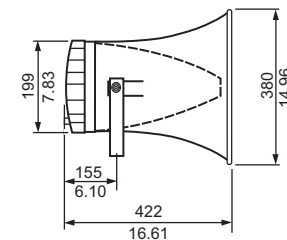
Certifications and approvals

Water and dust protection	acc. to IEC 60529, IP 65 (all models)
Self-extinguishing	acc. to UL 94 Vo

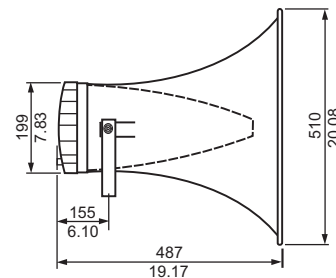
Installation/configuration notes



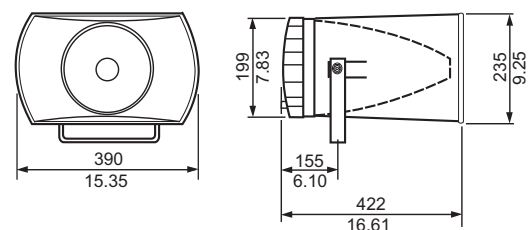
LBC 3403/16 Dimensions in mm (in)



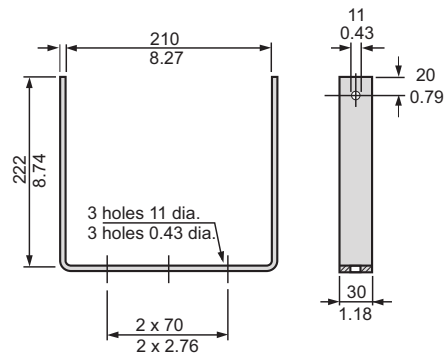
LBC 3404/16 Dimensions in mm (in)



LBC 3405/16 Dimensions in mm (in)



LBC 3406/16 Dimensions in mm (in)



All models mounting bracket dimensions in mm (in)

LBN 9003/00 Driver Unit, 50 W

Horn driver 50 W, for use with LBC3403/16 (10"), LBC3404/16 (14"), LBC3405/16 (20"), and LBC3406/16 (15 x 9") horns.

Order number **LBN9003/00**

Ordering information

LBC 3403/16 Horn, Circular, 10" without Driver

Horn 10" without driver unit, circular, high-impact ABS material, suitable for use with horn drivers LBN9000/00 (15 W), LBN 9001/00 (30 W), and LBN9003/00 (50 W), light gray RAL 7035.

Order number **LBC3403/16**

LBC 3404/16 Horn, Circular, 15" without Driver

Horn 14" without driver unit, circular, high-impact ABS material, suitable for use with horn drivers LBN9000/00 (15 W), LBN 9001/00 (30 W), and LBN9003/00 (50 W), light gray RAL 7035.

Order number **LBC3404/16**

LBC 3405/16 Horn, Circular, 20" without Driver

Horn 20" without driver unit, circular, high-impact ABS material, suitable for use with horn drivers LBN9000/00 (15 W), LBN 9001/00 (30 W), and LBN9003/00 (50 W), light gray RAL 7035.

Order number **LBC3405/16**

LBC 3406/16 Horn, Rectangular, 9 x 15" without Driver

Horn 15 x 9" without driver unit, rectangular, high-impact ABS material, suitable for use with horn drivers LBN9000/00 (15 W), LBN 9001/00 (30 W), and LBN9003/00 (50 W), light gray RAL 7035.

Order number **LBC3406/16**

Accessories

LBC 1256/00 EVAC Connection Adapter

Emergency connection adapter, 3-pole screw ceramic connector with a pre-mounted thermal fuse, to be installed in series with the 100 V primary connection of a loudspeaker unit, set of 100 pieces.

Order number **LBC1256/00**

LBN 9000/00 Driver Unit, 15 W

Horn driver 15 W, for use with LBC3403/16 (10"), LBC3404/16 (14"), LBC3405/16 (20"), and LBC3406/16 (15 x 9") horns.

Order number **LBN9000/00**

LBN 9001/00 Driver Unit, 30 W

Horn driver 30 W, for use with LBC3403/16 (10"), LBC3404/16 (14"), LBC3405/16 (20"), and LBC3406/16 (15 x 9") horns.

Order number **LBN9001/00**

LBN 900x/00 Driver Units



Features

- ▶ High efficiency
- ▶ 15 W, 30 W and 50 W versions
- ▶ 1 3/8" screw thread
- ▶ Simple power setting
- ▶ Complies with international installation and safety regulations

The Bosch professional horn loudspeaker system comprises a range of three high-efficiency driver units that can be installed into one of the compatible circular and rectangular horns (supplied separately without drivers). A standard 1 3/8" screw thread is used for mounting the drivers into horns. All models are treated against corrosion.

System overview

The LBN 9000/00 is a 15 W driver unit and the LBN 9001/00 is a 30 W driver unit. Connections to 100 V lines are made using push-on spade terminals. The LBN 9003/00 is a more powerful 50 W model. Connections to 100 V lines are made using screw terminals.

Functions

All driver units include a matching transformer to allow power tapping. See circuit diagram overleaf. This feature also allows impedance matching for different amplifier types.

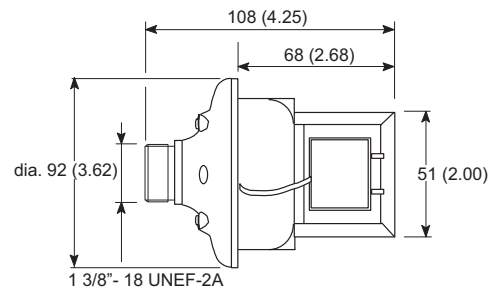
A range of horns is available for these driver units to allow tailor-made solutions for a variety of sound reinforcement applications. Three circular types (LBC 3403, LBC 3404 and LBC 3405 with diameters of 255, 380 and 510 mm respectively) and one rectangular type (LBC 3406, measuring 380 x 235 mm) are available. They are made from flame-retardant, high-impact plastic for high strength and low weight, and are finished in light grey. A sturdy steel mounted bracket is also supplied. See separate datasheet.

Certifications and approvals

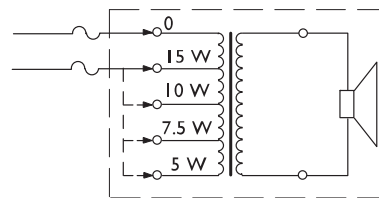
All Bosch loudspeakers are designed to withstand operating at their rated power for 100 hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. Bosch has also developed the Simulated Acoustical Feedback Exposure (SAFE) test to demonstrate that they can withstand two times their rated power for short durations. This ensures extra reliability under extreme conditions, leading to higher customer satisfaction, longer operating life, and much less chance of failure or performance deterioration.

Installation/configuration notes

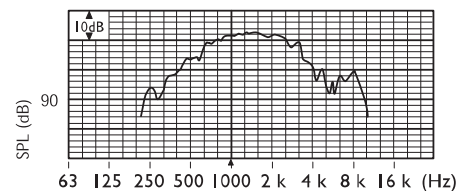
LBN 9000/00



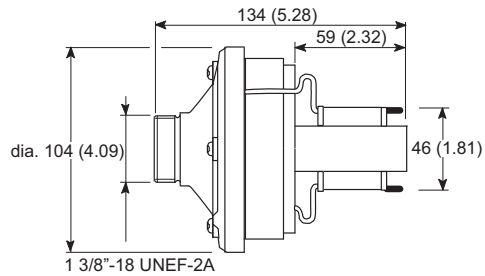
Dimensions in mm (in)



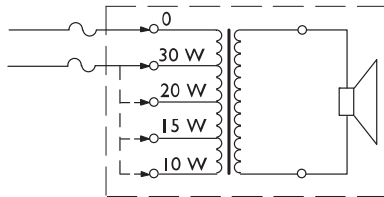
Circuit diagram



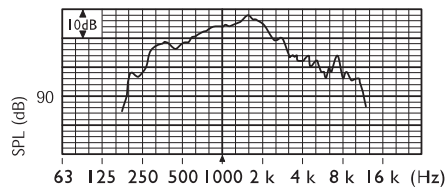
Frequency response

LBN 9001/00

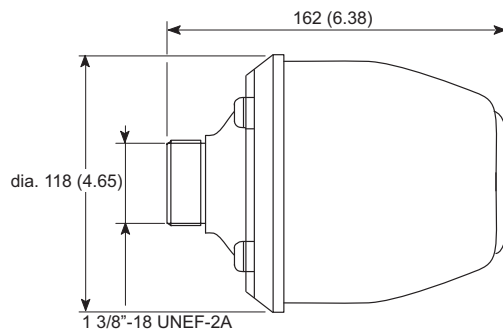
Dimensions in mm (in)



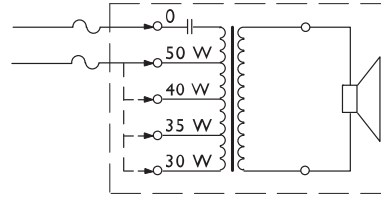
Circuit diagram



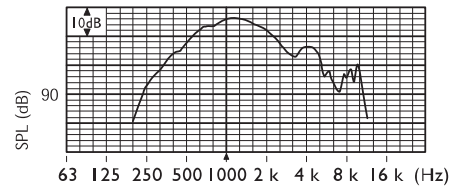
Frequency response

LBN 9003/00

Dimensions in mm (in)



Circuit diagram



Frequency response

Ordering information**LBN 9000/00 Driver Unit, 15 W**

Horn driver 15 W, for use with LBC3403/16 (10"), LBC3404/16 (14"), LBC3405/16 (20"), and LBC3406/16 (15 x 9") horns.

Order number **LBN9000/00**

LBN 9001/00 Driver Unit, 30 W

Horn driver 30 W, for use with LBC3403/16 (10"), LBC3404/16 (14"), LBC3405/16 (20"), and LBC3406/16 (15 x 9") horns.

Order number **LBN9001/00**

LBN 9003/00 Driver Unit, 50 W

Horn driver 50 W, for use with LBC3403/16 (10"), LBC3404/16 (14"), LBC3405/16 (20"), and LBC3406/16 (15 x 9") horns.

Order number **LBN9003/00**

Accessories**LBC 3403/16 Horn, Circular, 10" without Driver**

Horn 10" without driver unit, circular, high-impact ABS material, suitable for use with horn drivers LBN9000/00 (15 W), LBN 9001/00 (30 W), and LBN9003/00 (50 W), light gray RAL 7035.

Order number **LBC3403/16**

LBC 3404/16 Horn, Circular, 15" without Driver

Horn 14" without driver unit, circular, high-impact ABS material, suitable for use with horn drivers LBN9000/00 (15 W), LBN 9001/00 (30 W), and LBN9003/00 (50 W), light gray RAL 7035.

Order number **LBC3404/16**

LBC 3405/16 Horn, Circular, 20" without Driver

Horn 20" without driver unit, circular, high-impact ABS material, suitable for use with horn drivers LBN9000/00 (15 W), LBN 9001/00 (30 W), and LBN9003/00 (50 W), light gray RAL 7035.




Order number **LBC3405/16**

LBC 3406/16 Horn, Rectangular, 9 x 15" without Driver

Horn 15 x 9" without driver unit, rectangular, high-impact ABS material, suitable for use with horn drivers LBN9000/00 (15 W), LBN 9001/00 (30 W), and LBN9003/00 (50 W), light gray RAL 7035.

Order number **LBC3406/16**

LBN 900x/00 Driver Units

	LBN 9000/00 Driver Unit, 15 W	LBN 9001/00 Driver Unit, 30 W	LBN 9003/00 Driver Unit, 50 W
			
Electrical			
Max. power	22.5 W	45 W	75 W
Rated power (PHC)	15 / 10 / 7.5 / 5 W	30 / 20 / 15 / 10 W	50 / 40 / 35 / 30 W
Sound pressure level at rated power / 1 W (1 kHz, 1 m)*	125 / 113 dB (SPL)	129 / 114 dB (SPL)	131 / 114 dB (SPL)
Effective frequency range (-10 dB)*	400 Hz to 9 kHz	300 Hz to 8 kHz	400 Hz to 5 kHz
Rated voltage	100 V	100 V	100 V
Rated impedance	670 ohm	330 ohm	200 ohm
Voice coil impedance	8 ohm	16 ohm	16 ohm
Mechanical			
Dimensions (L x Dmax)	108 x 92 mm (4.25 x 3.62 in)	134 x 104 mm (5.28 x 4.09 in)	162 x 118 mm (6.38 x 4.65 in)
Weight (without horn)	1.3 kg (2.9 lb)	2.1 kg (4.6 lb)	3.2 kg (7.0 lb)
Screw thread	exterior thread, 1 3/8" 18 turns per inch	exterior thread, 1 3/8" 18 turns per inch	exterior thread, 1 3/8" 18 turns per inch
Environmental			
Operating temperature	-25 to +55 °C (-13 °F to +131 °F)	-25 to +55 °C (-13 °F to +131 °F)	-25 to +55 °C (-13 °F to +131 °F)
Storage temperature	-40 to +70 °C (-40 °F to +158 °F)	-40 to +70 °C (-40 °F to +158 °F)	-40 to +70 °C (-40 °F to +158 °F)
Relative humidity	<95%	<95%	<95%

* Measured with horn type LBC 3405

LBC 3428/00 Horn Loudspeaker



Features

- Suitable for marine and industrial applications
- Glass reinforced polyester with strong, fire-retardant qualities
- Reduced maintenance costs
- Corrosion and chemical resistant
- Water-and dust-protected to class IP 66 and IP 67

The Bosch LBC 3428/00 Horn Loudspeaker is specifically designed for excellent sound reproduction in marine applications and other industrial environments. It is rugged, water- and dust-protected, and resistant to the corrosive effects of seawater and most industrial atmospheres. Suitable for both stationary and mobile systems, its strength and good acoustic performance also makes it ideal for general commercial and industrial applications.

Functions

The Horn Loudspeaker is made from a UV-stable, glass-reinforced polyester (GRP). This strong, fire-resistant and corrosion-resistant material is very reliable and reduces maintenance costs. GRP is also chemical resistant and thermally stable, making it ideal for even the harshest environments. The horns are weather-proof, and incorporate stainless steel mounting brackets with cover screws to increase corrosion resistance. They are fitted with dual 20 mm gland entries (one gland is supplied as standard) to facilitate loop-through connection.

Certifications and approvals

All Bosch loudspeakers are designed to withstand operating at their rated power for 100 continuous hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. Bosch has also developed the Simulated Acoustical Feedback Exposure (SAFE) test to demonstrate that they can withstand two times their rated power for short durations. This ensures improved reliability

under extreme conditions, leading to higher customer satisfaction, longer operating life, and lessens the chance of failure or performance deterioration.

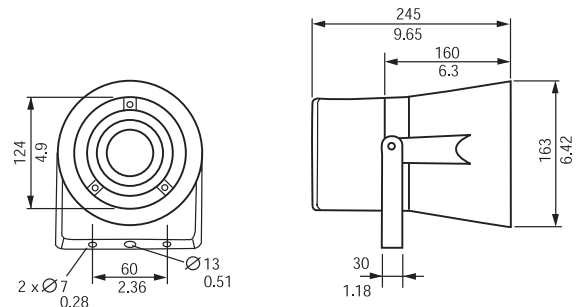
Safety	acc. to EN 60065
Water and dust protection	acc. to IEC 60529, IP 66 and IP 67

Region	Certification
Europe	CE

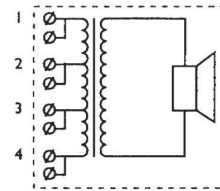
Installation/configuration notes

The Horn Loudspeaker includes a built-in transformer with taps on the primary winding for different power settings.

The Horn Loudspeaker is supplied with a sturdy mounting bracket allowing the sound beam to be accurately directed. The bracket has a ratchet facility to ensure it remains correctly positioned.

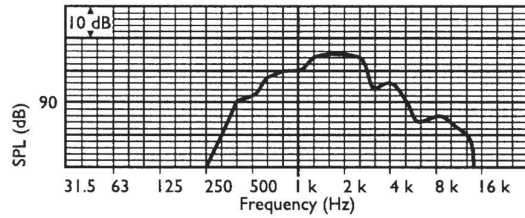


Dimensions in mm (in)

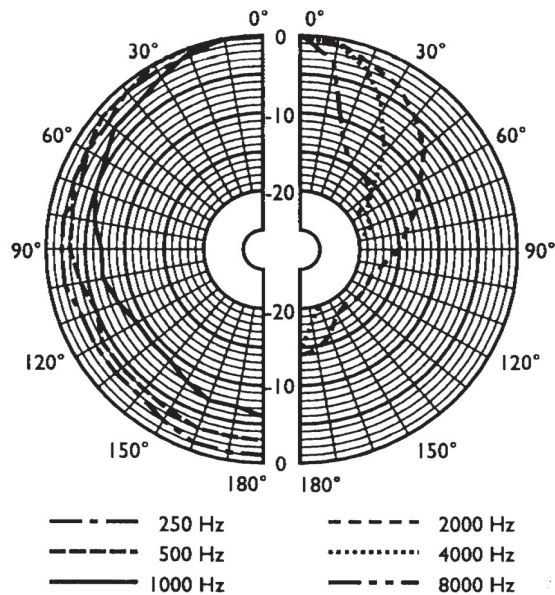


Transformer tapings		Power	
Common	Phase	15 W	
1	2	15.0	
2	3	7.5	
3	4	5.0	
1	3	4.0	
2	4	2.0	
1	4	0.8	

Circuit diagram



Frequency response



Polar diagram (measured with pink noise)

	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
SPL 1.1	-	79	96	10 2	10 5	98	87
SPL max.	-	91	108	11 4	11 7	11 0	99
Q-factor	-	1.5	1.9	3.2	6.8	15. 8	51. 3
Efficiency	-	0.07	2.7	6.2	5.9	0.5	0.1
H. angle	-	360	360	16 0	90	55	25
V. angle	-	360	360	16 0	90	55	25

Acoustical performance specified per octave

Parts included

Quantity	Component
1	LBC 3428/00 Horn Loudspeaker
1	Cable gland

Technical specifications

Electrical*

Maximum power	22.5 W
Rated power	15 / 7.5 / 5 / 4 / 2 / 0.8 W
Sound pressure level at 15 W / 1 W (1 kHz, 1 m)	114 dB / 102 dB (SPL)
Effective frequency range (-10 dB)	380 Hz to 5.5 kHz
Opening angle at 1 kHz/4 kHz (-6 dB)	160° / 55°
Rated voltage	100 V
Rated impedance	667 ohm
Connector	Screw terminal block

* Technical performance data acc. to IEC 60268-5

Mechanical

Dimensions (L x Dmax)	245 x 163 mm (9.6 x 6.4 in)
Weight	2.6 kg (5.72 lb)
Color	Light grey (RAL 7035)
Cable diameter	8 mm to 12 mm (0.31 in to 0.47 in)

Environmental

Operating temperature	-25 °C to +55 °C (-13 °F to +131 °F)
Storage temperature	-40 °C to +70 °C (-40 °F to +158 °F)
Relative humidity	<95%

Ordering information

LBC 3428/00 Horn Loudspeaker

Horn loudspeaker 15 W, circular, GRP material, suitable for marine and industrial applications, water and dust protected IP67, light gray RAL 7035.

Order number **LBC3428/00**

Accessories

LBC 1256/00 EVAC Connection Adapter

Emergency connection adapter, 3-pole screw ceramic connector with a pre-mounted thermal fuse, to be installed in series with the 100 V primary connection of a loudspeaker unit, set of 100 pieces.

Order number **LBC1256/00**

LBC 343x/00 Horn Loudspeakers



Features

- ▶ ATEX approved
- ▶ CENELEC compliant
- ▶ BASEEFA certified
- ▶ Glass reinforced polyester with strong, fire retardant properties
- ▶ Reduced maintenance costs

The Bosch LBC 3437/00 and LBC 3438/00 Horn Loudspeakers are specifically designed and approved for installations where explosive gas-air mixtures are likely to be present. They are suitable for use in all gas groups including hydrogen.

System overview

The LBC 3437/00 has a power rating of 15 W, the LBC 3438/00 has 25 W.

Functions

The flame paths, flare and body of both loudspeakers are constructed from a UV stable glass reinforced polyester (GRP). This strong, fire and corrosion resistant material offers greater reliability and reduced maintenance costs. GRP is also chemical resistant and thermally stable, making it ideal for even the harshest environments. The horns are weather proof, and incorporate stainless steel mounting brackets and captive cover screws, and a stainless steel sinter, to increase their resistance to corrosion. They are supplied with an EExdIIC gland as standard.

Certifications and approvals

All Bosch loudspeakers are designed to withstand operating at their rated power for 100 hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. Bosch has also developed the Simulated Acoustical Feedback Exposure (SAFE) test to demonstrate that

they can withstand two times their rated power for short durations. This ensures extra reliability under extreme conditions, leading to higher customer satisfaction, longer operating life, and much less chance of failure or performance deterioration.

Self-Extinguishing	acc. to class UL 94 V1
Water and dust protection	acc. to EN 60529, IP 66 and IP 67
ATEX	Ex II 2 GD
BASEEFA *	EExd II C T5, zones 1 and 2 (LBC 3437/00) EExd II C T4, zones 1 and 2 (LBC 3438/00) Cert. No. BAS00ATEX2097X
CENELEC **	EN 50014 EN 50018

* BASEEFA = British Approved Service for Electrical Equipment in Flammable Atmospheres

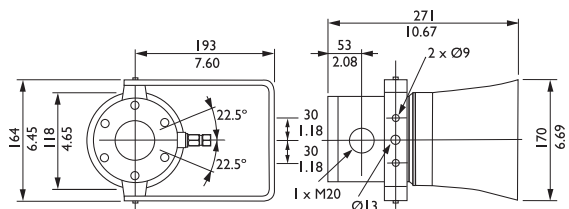
** CENELEC = European Committee for Electrotechnical Standardization

Region	Certification
Europe	CE
	BASEEFA

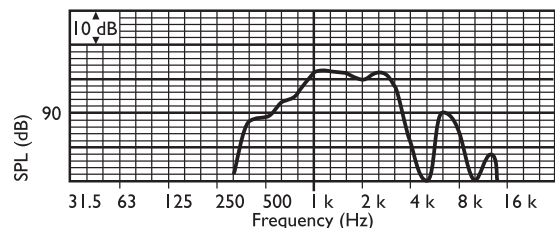
Installation/configuration notes

The horn loudspeakers include a built-in transformer with taps on the primary winding for different power settings.

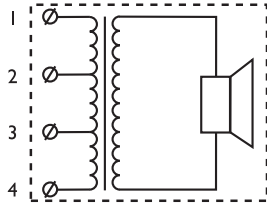
The horn loudspeakers are supplied with a sturdy mounting bracket allowing the sound beam to be accurately directed. The bracket has a ratchet facility to ensure it stays correctly positioned.



Dimensions in mm (in)



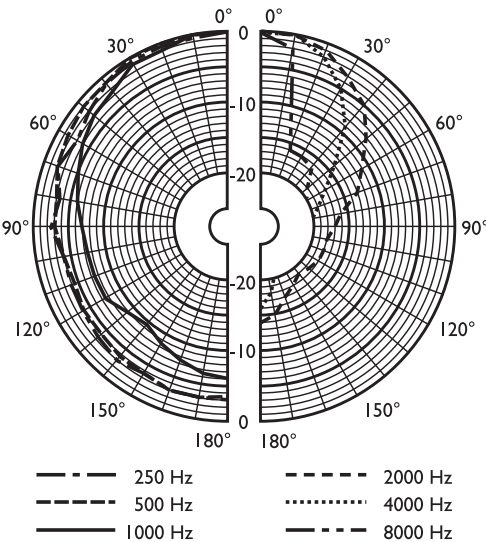
Frequency response



4

Transformer tappings		Rated power	
Com- mon	Phase	15 W	25 W
1	2	15.0	25.0
2	3	7.5	12.5
3	4	5.0	6.0
1	3	4.0	4.0
2	4	2.0	2.0
1	4	0.8	1.0

Circuit diagram



Polar diagram (measured with pink noise)

Parts included

Quantity	Component
1	LBC 343x/00 Horn Loudspeaker
1	EExd II C gland

Technical specifications

Electrical*

Product	LBC 3437/00	LBC 3438/00
Maximum power	22.5 W	37.5 W
Rated power	15/7.5/5/4/2/0.8 W	25/12.5/6/4/2/1 W
SPL at RP / 1 W (1 kHz, 1 m)	112 / 100 dB (SPL)	114 / 100 dB (SPL)
Effective frequency range (-10 dB)	420 Hz to 3.5 kHz	420 Hz to 3.5 kHz
Opening angle at 1 kHz / 4 kHz (-6 dB)	160° / 60°	160° / 60°
Rated voltage	100 V	100 V
Rated impedance	667 ohm	400 ohm
Connector	Screw terminal	Screw terminal

* Technical performance data acc. to IEC 60268-5

Mechanical

Dimensions (L x D max)	271 x 170 mm (10.7 x 6.7 in)	271 x 170 mm (10.7 x 6.7 in)
Weight	5 kg (11 lbs)	5 kg (11 lbs)
Color	Natural black	Natural black
Cable diameter	7.5 mm to 11.9 mm (0.3 in to 0.5 in)	7.5 mm to 11.9 mm (0.3 in to 0.5 in)

Environmental

Operating temperature	-20 °C to +55 °C (-4 °F to +131 °F)	-20 °C to +50 °C (-4 °F to +122 °F)
Storage temperature	-40 °C to +70 °C (-40 °F to +158 °F)	-40 °C to +70 °C (-40 °F to +158 °F)
Relative humidity	<95%	<95%

Ordering information

LBC 3437/00 Horn Loudspeaker

Horn loudspeaker 15 W, circular, GRP material, flame-proof, ATEX EX II 2 GD approved, BASEEFA EExd II C T5, zones 1 and 2, water and dust protected IP67, natural black.

Order number **LBC3437/00**

LBC 3438/00 Horn Loudspeaker

Horn loudspeaker 25 W, circular, GRP material, flame-proof, ATEX EX II 2 GD approved, BASEEFA EExd II C T4, zones 1 and 2, water and dust protected IP67, natural black.

Order number **LBC3438/00**

LH1-UC30E Music Horn Loudspeaker



Features

- ▶ Excellent speech and music reproduction
- ▶ Two-way system
- ▶ Attractive ABS housing
- ▶ Provisions for internal mounting of the optional line / loudspeaker supervision board
- ▶ EN 54-24 certified

The Bosch LH1-UC30E Music Horn Loudspeaker features a two-way system, resulting in an extended frequency range and high sensitivity which makes it ideal for high quality speech and music reproduction.

Functions

The rectangular horn features a unique combination of a re-entrant horn with two transducers, one for low- and the other for high frequencies, resulting in breathtaking sound clarity.

The horn is weather protected and can be used in areas with high humidity. It is therefore suitable for outdoor applications such as sport grounds, sports stadiums, leisure parks, exhibition areas and passenger terminals, as well as for indoor public address.

The ABS horn loudspeaker and aluminum bracket are finished in light grey (RAL 7035).

The LH1-UC30E is designed for use in voice alarm systems and is EN 54-24 certified and compliant with BS 5839-8 and EN 60849.

The horn loudspeaker has built-in protection to ensure that, in the event of a fire, damage to the loudspeaker does not result in failure of the circuit to which it is connected. In this way, system integrity is maintained, ensuring loudspeakers in other areas can still be used to inform people of the situation. The horn loudspeaker has ceramic terminal blocks, thermal fuse and heat resistant high temperature wiring.

It has provision for internal mounting of the optional line / loudspeaker supervision boards.

Certifications and approvals

All Bosch loudspeakers are designed to withstand operating at their rated power for 100 hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. Bosch has also developed the Simulated Acoustical Feedback Exposure (SAFE) test to demonstrate that they can withstand two times their rated power for short durations. This ensures extra reliability under extreme conditions, leading to higher customer satisfaction, longer operating life, and much less chance of failure or performance deterioration.

Safety	acc. to EN 60065
Emergency	acc. to EN 54-24 / BS 5839-8 / EN 60849
Self-extinguishing ABS	acc. to UL 94 V 0
Water and dust protection	acc. to IEC 60529, IP 66
Wind-force	acc. to NEN 6702 + A1, Bft 11

Region	Certification	
Europe	CE	
	CE	DOP
	CPD	

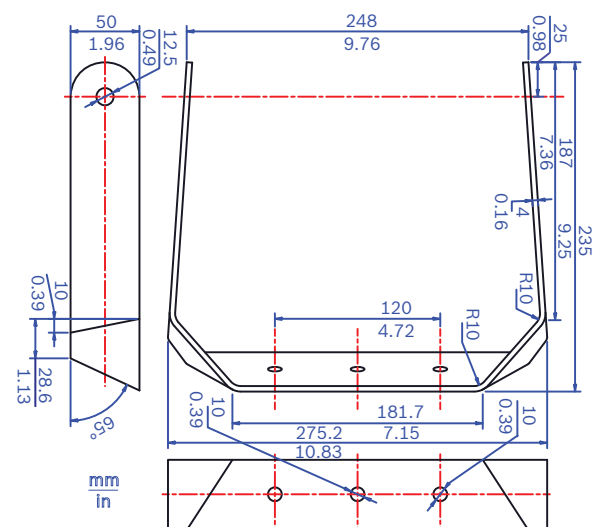
Installation/configuration notes

The horn loudspeaker includes a transformer for both 70 V and 100 V with taps on the primary winding for different power settings.

Nominal full-power, half-power, quarter-power or eight-power radiation (i.e. in 3 dB steps) can easily be selected by connecting to the appropriate tap.

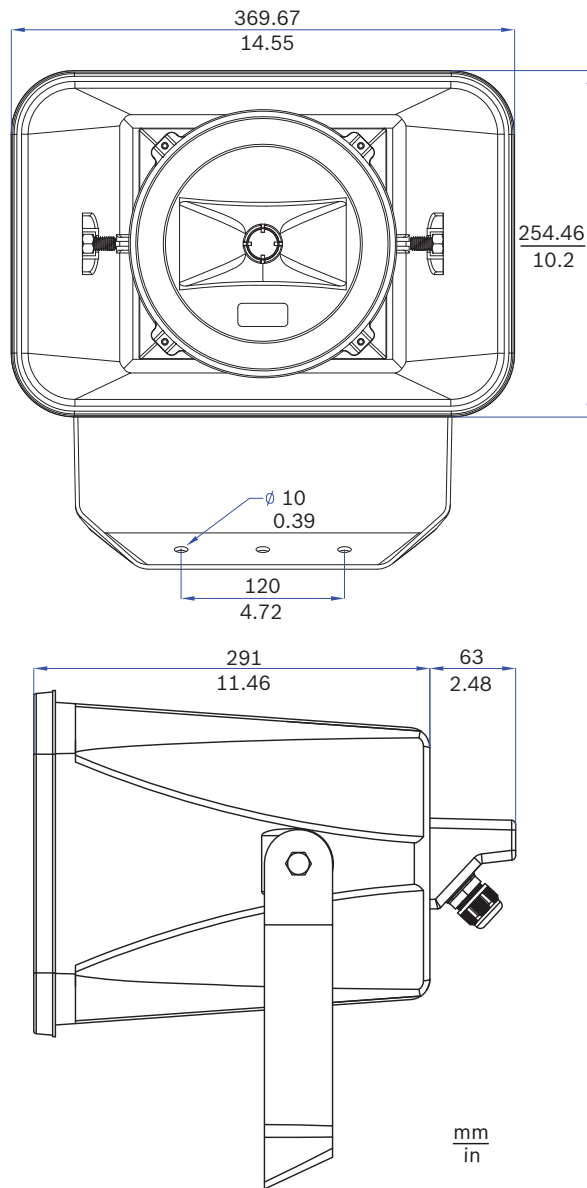
The connection cable is fed out through an ABS cable gland (PG13.5) in the rear cover. For loop through connection, the rear cover is fitted with a second hole (covered as standard supplied)

In the rear cover, an provision for inside mounting of the optional line/ loudspeaker supervision board is available.

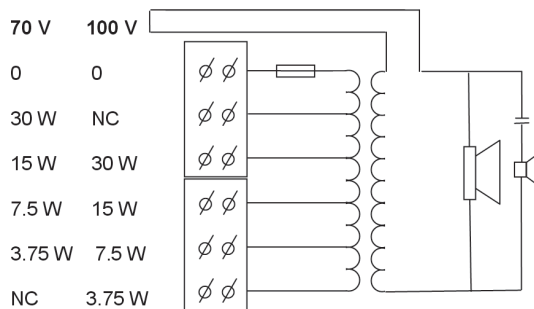


Bracket dimensions

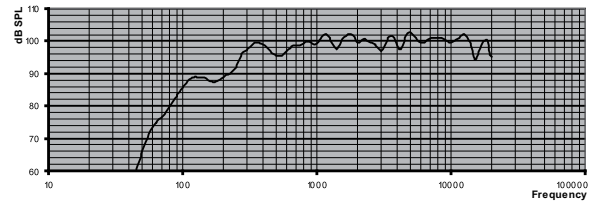
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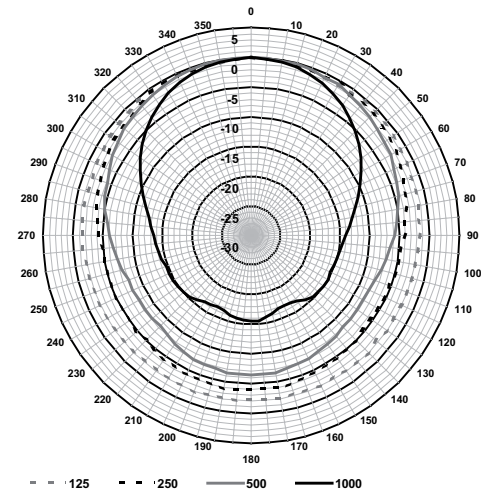
Dimensions



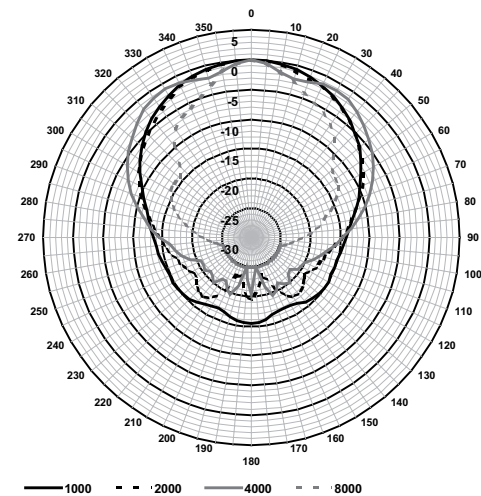
Circuit diagram



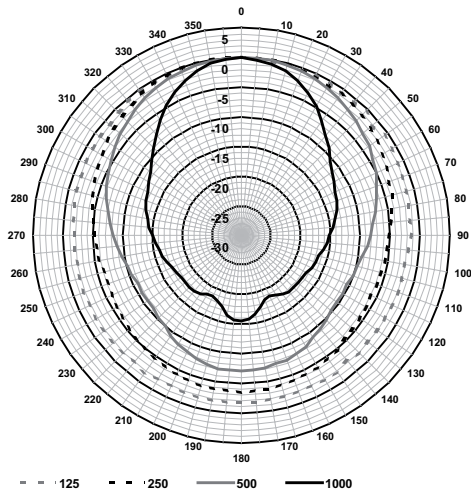
Frequency response



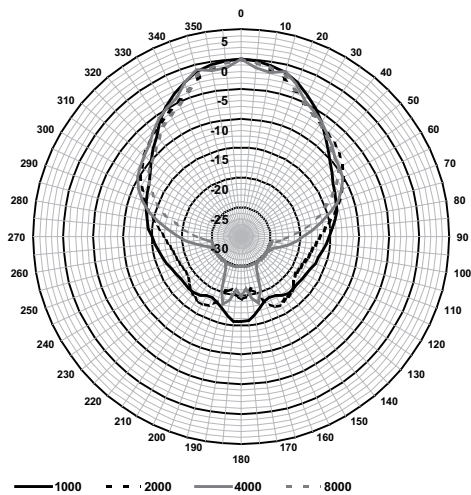
Vertical polar diagram (pink noise octave, normalized at 0° axis)



Vertical polar diagram (pink noise octave, normalized at 0° axis)



Horizontal polar diagram (pink noise octave, normalized at 0° axis)



Horizontal polar diagram (pink noise octave, normalized at 0° axis)

Octave band sensitivity *

	Octave SPL 1W/1m	Total octave SPL 1W/1m	Total octave SPL Pmax/1m
125 Hz	87.8	-	-
250 Hz	95.5	-	-
500 Hz	97.6	-	-
1000 Hz	100.1	-	-
2000 Hz	100.4	-	-
4000 Hz	100.4	-	-
8000 Hz	100.2	-	-
A-weighted	-	97.1	110.6
Lin-weighted	-	97.8	111.7

Octave band opening angles

	Horizontal	Vertical	
125 Hz	360	360	
250 Hz	360	360	
500 Hz	141	180	
1000 Hz	68	98	
2000 Hz	60	96	
4000 Hz	68	118	
8000 Hz	54	55	

Acoustical performance specified per octave

* (all measurements are done with a pink noise signal; the values are in dB SPL).

Parts included

1	LH1-UC30E
1	PG13.5 cable gland (fitted)

Technical specifications

Electrical*

Maximum power	45 W
Rated power (PHC)	30 W
Power tapping	30 / 15 / 7.5 / 3.75 W
Sound pressure level at rated power / 1 W (1 kHz, 1 m)	115 / 100 dB (SPL)
Effective frequency range (- 10 dB)	212 Hz to 20 kHz

Opening angle at 1 kHz / 4 kHz (-6 dB)

Horizontal	68° / 68°
Vertical	98° / 118°
Rated input voltage	70 / 100 V
Rated impedance	167 / 333 ohm
Connector	6-pole screw terminal

* Technical performance data acc. to IEC 60268-5

Mechanical

Dimensions (H x W x D)	255 x 370 x 354 mm (10.04 x 14.56 x 13.93 in)
Weight	5.5 kg (12.45 lb)
Color	Light grey (RAL 7035)
Material (horn / bracket)	ABS / Aluminum
Cable diameter	6 mm to 12 mm (0.24 in to 0.47 in)

Environmental

Operating temperature	-25 °C to +55 °C (-13 °F to +131 °F)
Storage temperature	-40 °C to +70 °C (-40 °F to +158 °F)
Relative humidity	<95%



1438

Bosch Security Systems BV
Torenallee 49, 5617BA Eindhoven, The Netherlands
10
1438-CPD-0252

EN 54-24:2008

Loudspeaker for voice alarm systems
for fire detection and fire alarm systems for buildings

Music Horn Loudspeaker 30W
LH1-UC30E
Type B

4

Ordering information**LH1-UC30E Music Horn Loudspeaker**

Music horn loudspeaker 30 W, ABS material, two-way system for high-quality speech and music reproduction, water and dust protected IP65, EN54-24 certified, light gray RAL 7035.

Order number **LH1-UC30E**

Horn Loudspeaker



Features

- Suitable for marine and industrial applications in humidity-, chlorine- and salty environments
- Tough, high impact ABS material with UL94 V0 fire-retardant properties
- Water- and dust-protected to class IP 67
- Type approval certified EN 60945

The compact Horn Loudspeaker LH2-UC06 is specifically designed for excellent sound reproduction in marine applications and other industrial environments.

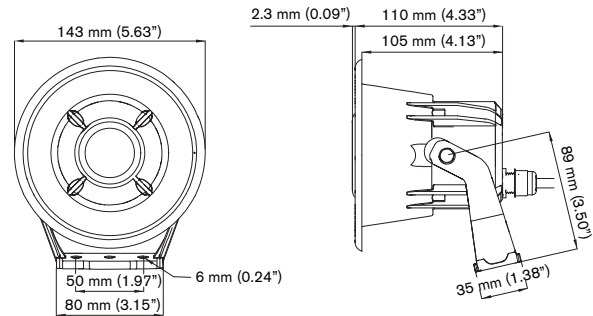
The units are rugged, water- and dust-protected, and resistant to the corrosive effects of seawater and most industrial atmospheres.

The horn loudspeaker is made from a high impact ABS material. This strong, fire-resistant and corrosion resistant material is chemical resistant and thermally stable, making it ideal for even the harshest environments. The horn is standard supplied with corrosion resistant ABS mounting bracket.

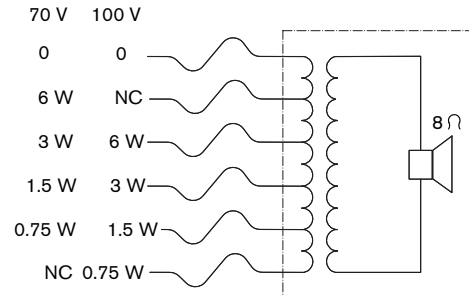
Functions

The horn loudspeaker is standard supplied with a sturdy ABS mounting bracket allowing the sound beam to be accurately directed.

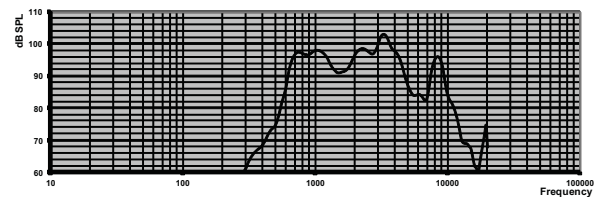
The horn loudspeaker is supplied with a 1 m color-coded 6-core cable, with each color connected to a different primary tap on the matching transformer. This makes it easy to select nominal full-power, half-power, quarter-power or eight-power radiation (i.e. in 3 dB steps) without opening the unit during installation. The horn loudspeaker can be optionally flush mounted in a diameter hole of 110 mm (4.33") in a wall or ceiling by means of 4 screws (not standard supplied). In this case, the bracket is removed and 4 marked holes – at the rear of the horn rim – needs to be drilled.



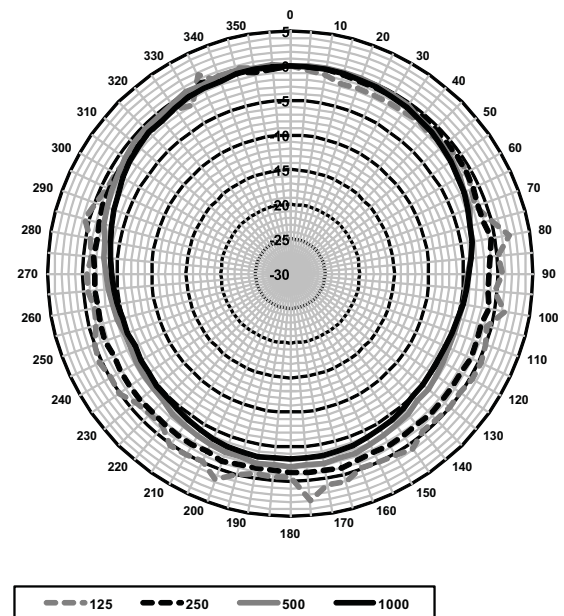
Dimensions in mm and (inch)

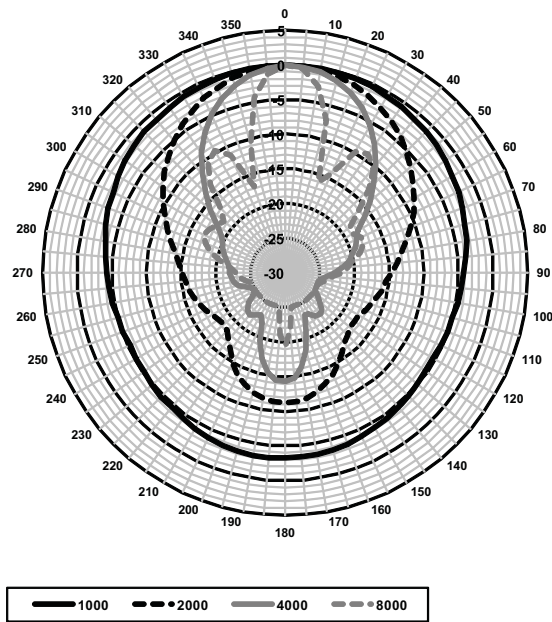


Circuit diagram



Frequency response





Polar diagrams (measured with pink noise)
Acoustical performance specified per octave
* (all measurements are done with a pink noise signal;
the values are in dB SPL).

Octave band sensitivity *

	Octave SPL 1W/1m	Total octave SPL 1W/1m	Total octave SPL Pmax/1m
125 Hz	47.9	-	-
250 Hz	59.7	-	-
500 Hz	87.3	-	-
1000 Hz	97	-	-
2000 Hz	96.1	-	-
4000 Hz	96.8	-	-
8000 Hz	90.8	-	-
A-weighted	-	93.3	100.5
Lin-weighted	-	92.7	100.0

Octave band opening angles

	Horizontal	Vertical	
125 Hz	360	360	
250 Hz	360	360	
500 Hz	360	360	
1000 Hz	360	360	
2000 Hz	92	92	
4000 Hz	59	59	
8000 Hz	25	25	

Acoustical performance specified per octave

* (all measurements are done with a pink noise signal;
the values are in dB SPL).

Certifications and approvals

Quality assurance

All Bosch loudspeakers are designed to withstand operating at their rated power for 100 hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. Bosch has also developed the Simulated Acoustical Feedback Exposure (SAFE) test to demonstrate that they can withstand two times their rated power for short durations. This ensures improved reliability under extreme conditions, leading to higher customer satisfaction, longer operating life, and lessens the chance of failure or performance deterioration.

Safety	According to EN 60065
Type approval certified	According to EN 60945
Water and dust protection	According to EN 60529, IP 67
Salt mist	According to IEC 60068-11
Chlorine resistant	According to IEC 60068-2-60
Wind force resistant	According to Bft 11

Region	Certification	
Europe	CE	(Conformity)
	CE	(Compliance)
	CE	(IP)

Parts included

1	LH2-UC06 Horn Loudspeaker
1	Installation instruction

Technical specifications

Electrical*

Maximum power	9 W
Rated power (PHC)	6 W
Power tapping	6 / 3 / 1.5 / 0.75 W
Sound pressure level at rated power / 1 W (1 kHz, 1 m)	105 / 97 dB (SPL)
Effective frequency range (- 10 dB)	600 Hz to 5 kHz
Opening angle at 1 kHz / 4 kHz (-6 dB)	360° / 60°
Rated input voltage	70 / 100 V
Rated impedance	833 / 1667 ohm
Electrical connection	1 m (39.37 in) 6-core fixed cable

* Technical performance data according to IEC 60268-5

Mechanical

Dimensions (H x W x D)	159 x 143 x 136 mm (6.26 x 5.63 x 5.35 in)
Weight	1.18 kg (2.60 lb)
Color	Light grey (RAL 7035)
Material horn	High impact ABS
Material mounting bracket	High impact ABS

Environmental

Operating temperature	-30 °C to +70 °C (-22 °F to +158 °F)
Storage temperature	-40 °C to +70 °C (-40 °F to +158 °F)
Relative humidity	<95%

Ordering information**Horn Loudspeaker**

Horn Loudspeaker 6 W, ABS IP 67 housing, high-quality speech and music reproduction, IP67 water and dust protected, salt mist and chlorine resistant, EN 60945 certified, light grey RAL7035.
Order number **LH2-UC06**

LBC 1256/00 EVAC Connection Adapter



4

The LBC 1256/00 is an EVAC connection adapter, to be installed in series with the 100 V primary connection of a loudspeaker unit, changing the loudspeaker into a BS 5839-8 compliant unit. This additional connection adapter ensures that, in the event of a fire, damage to the loudspeaker does not result in failure of the circuit to which it is connected. In this way, system integrity is maintained. The connection adapter consists of a 3-pole ceramic screw terminal block with a pre-mounted thermal fuse. It can replace a connection terminal or be mounted in a standard connection box. The LBC 1256/00 consists of 100 pieces.

Certifications and approvals

Region	Certification
Europe	CE

Technical specifications

Mechanical

Approx. dimensions	19 x 37 x 22 mm (0.75 x 1.46 x 0.87 in)
Type	3-pole screw connector
Material	Ceramic
Thermal fuse	150 °C
Pack contents	100 pieces
Weight	40 g (1.4 oz)

Ordering information

LBC 1256/00 EVAC Connection Adapter

Emergency connection adapter, 3-pole screw ceramic connector with a pre-mounted thermal fuse, to be installed in series with the 100 V primary connection of a loudspeaker unit, set of 100 pieces.

Order number **LBC1256/00**

LBC 1259/01 Universal Floorstand



Features

- ▶ Multi-purpose, lightweight aluminum stand
- ▶ For mounting a loudspeaker, wireless access point or Integrus radiator
- ▶ Double-braced folding base
- ▶ Reducer flange for different mountings
- ▶ Hand-adjustable

This universal floorstand provides effective mounting solutions for loudspeaker installations, a Wireless Access Point of the DCN-Wireless system, or a radiator of the Integrus digital language distribution system. They are manufactured and finished to the same high standards as all Bosch products, assuring excellent quality and guaranteed compatibility throughout the range. The LBC 1259/01 is suited to a wide range of applications where a secure yet transportable mounting solution is required.

Functions

Adjustable and safe

The LBC 1259/01 floorstand is hand-adjustable using a spring-loaded locking screw for heights between 1.4 and 2.2 m (4.6 and 7.2 ft). An extra safety bolt on the support can be tightened to ensure the stand remains extended.

This lightweight stand has a double-braced folding base for extra strength, and a wide leg span to ensure stability.

Adaptable

The floorstand is standard supplied with a 36 mm (1.42 in) reducer flange with an M10 x 12 threaded pin to mount different sized equipment, and with an M10 knob to fix the Wireless Access Point mounting bracket.

Accessories

For storage and ease of transport, a carrier bag is available with two inside compartments with separate zippers for holding two universal floorstands (LBC 1259/01). The bag, with Bosch logo, is made from sturdy black weather-proof nylon. Two handles are fitted for carrying the bag by hand or over the shoulder.



LM1-CB Carrier Bag (optional)

Installation/configuration notes



LBC 1259/01 with DCN Wireless Access Point, LBB 451x/00 Infra-red Radiator and XLA 3200 Line Array Loudspeaker

Parts included

Quantity	Component
1	LBC 1259/01 Universal Floorstand
1	36 mm (1.42 in) reducer flange with (M10 x 12) threaded pin
1	M10 securing knob for WAP mounting bracket
2	Metal filler rings

Technical specifications

Mechanical

Length: standing	1.4 to 2.2 m (4.6 to 7.2 ft)
Length: folded	1.24 m (4.06 ft)
Width: legs extended	1.32 m (4.33 ft)
Width: legs folded	130 mm (5.1 in)
Weight	4.8 kg (10.58 lb)
Max. centric load	50 kg (110.2 lb)
Material	Aluminum/steel

Color	White aluminum (RAL 9006) with black parts
Tube diameter	35 mm (1.37 in)
Carrier bag accessory	
Dimensions (L x D)	1.25 m x 27 mm (49 x 1.06 in)
Weight	750 g (1.65 lb)
Color	Black with light grey handles
Material	Nylon

Ordering information

LBC 1259/01 Universal Floorstand

Universal floor stand lightweight aluminum construction, foldable, M10 x 12 reducer flange.

Order number **LBC1259/01**

Accessories

LM1-CB Carrier Bag for two floorstands

Carrying bag for storing and transporting two floor stands.

Order number **LM1-CB**

LBC 14x0/x0 MK Volume Controls and LBC 1430/10 Program Selector



Features

- ▶ 12 W, 36 W and 100 W versions
- ▶ Available in power-save or failsafe versions
- ▶ Built-in 24 VDC override relay
- ▶ Continuous rotating system
- ▶ Suitable for 3-wire and 4-wire systems

Bosch introduces a full range of volume controls and program selectors to provide a complete public address solution.

Functions

Operation

Public address systems are often used for both announcements and background music distribution. Volume controls can be used to adjust the level locally. In addition to volume control, program selectors can also be installed to select five different programs locally. In the event of an (emergency) announcement, the built-in relay ensures that the message is broadcast at a preset level, independent of the local volume setting.

The volume controls come in three versions according to power rating: 12 W, 36 W, and 100 W. The total load of the loudspeakers connected to a volume control may not exceed the rated power.

Each of the three versions is also available in two versions. One is a power-saving, 4-wire volume override (/10 models), where the override relay is activated during an emergency call. The other is a failsafe, 4-wire volume override (/20 models), where the override relay is deactivated during an emergency call.

The design and color are unobtrusive in any interior. Ease of installation, operation and reliability is optimized in the design.

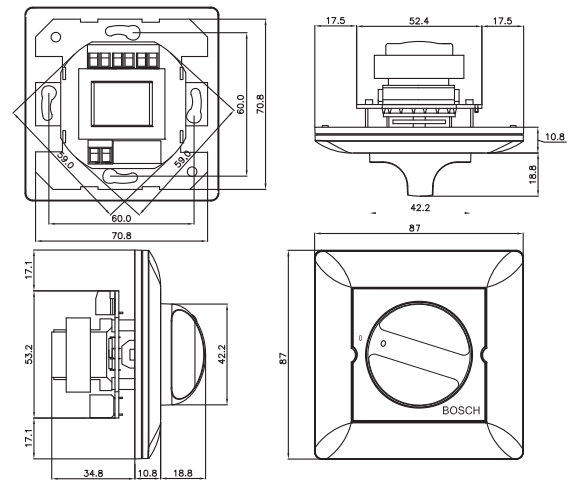
Interconnections

Screw connections

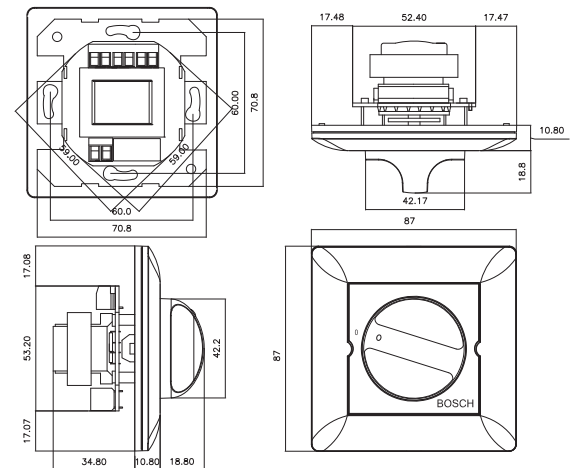
Certifications and approvals

Safety	acc. to EN 60065
Self-extinguishing	acc. to UL 94 V0

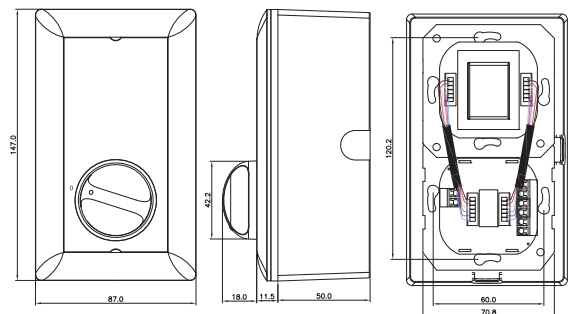
Installation/configuration notes



LBC 1400/10 and LBC 1400/20 dimensions in mm

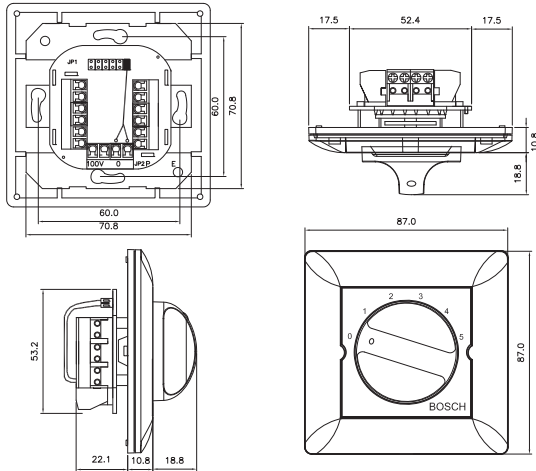


LBC 1410/10 and LBC 1410/20 dimensions in mm

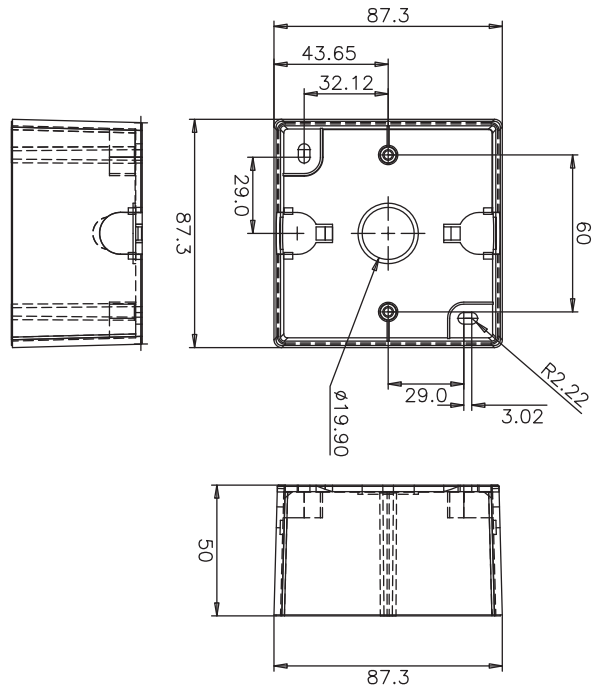


LBC 1420/10 and LBC 1420/20 dimensions in mm

4



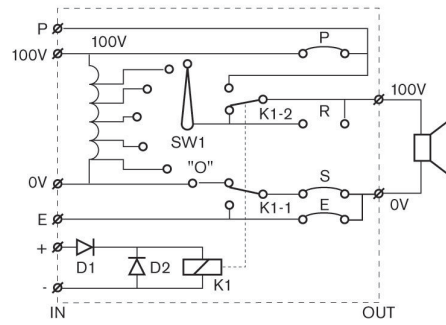
LBC 1430/10 dimensions in mm



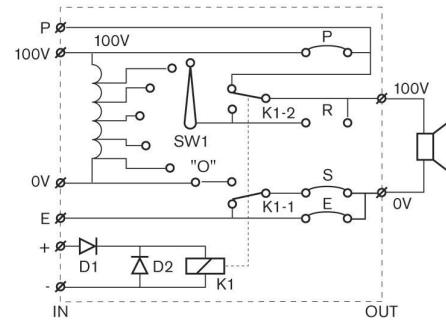
LM1-SMB-MK dimensions in mm



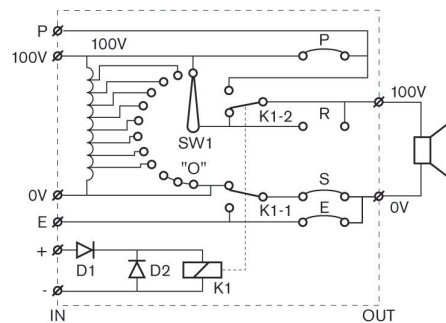
LM1-SMB-MK detail



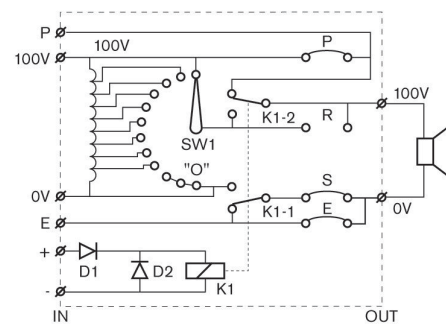
LBC 1400/10 circuit diagram



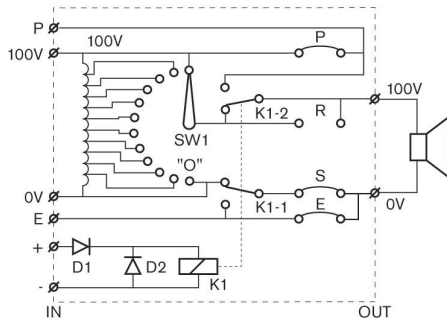
LBC 1400/20 circuit diagram



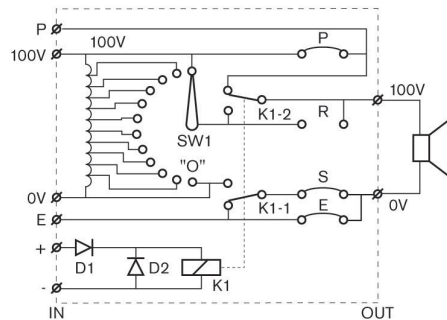
LBC 1410/10 circuit diagram



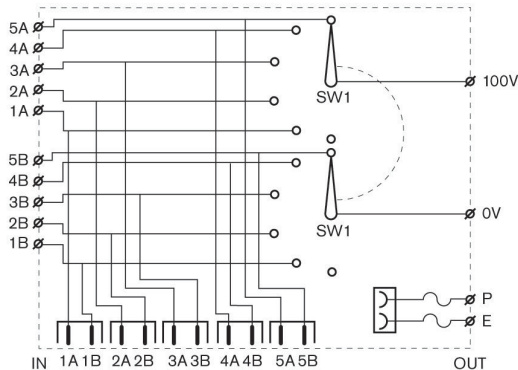
LBC 1410/20 circuit diagram



LBC 1420/10 circuit diagram



LBC 1420/20 circuit diagram



LBC 1430/10 circuit diagram

Technical specifications

Electrical

LBC 1400/10 and /20	
Rated power	12 W
Input voltage	100 V
Attenuation steps	5 x 3 dB + off
Frequency response	50 Hz to 20 kHz (-1 dB)
THD	<0.5%
Current consumption	20 mA at 24 VDC
LBC 1410/10 and /20	

Rated power	36 W
Input voltage	100 V
Attenuation steps	8 x 3 dB + off
Frequency response	50 Hz to 20 kHz (-1 dB)
THD	<0.5%
Current consumption	20 mA at 24 VDC
LBC 1420/10 and /20	
Rated power	100 W
Input voltage	100 V
Attenuation steps	10 x 2 dB + off
Frequency response	50 Hz to 20 kHz (-1 dB)
THD	<0.5%
Current consumption	20 mA at 24 VDC
LBC 1430/10	
Rated power	100 W
Input voltage	100 V
Number of programs	5 programs + off

Mechanical

LBC 1400/10 and /20	
Dimensions (W x H x D)	87 x 87 x 45.6 mm
Weight	226 g
Color	White (RAL 9010)
LBC 1410/10 and /20	
Dimensions (W x H x D)	87 x 87 x 45.6 mm
Weight	227 g
Color	White (RAL 9010)
LBC 1420/10 and /20	
Dimensions (W x H x D)	87 x 147 x 61.5 mm
Weight	512 g (including surface mounting box)
Color	White (RAL 9010)
LBC 1430/10	
Dimensions (W x H x D)	87 x 87 x 32.9 mm
Weight	125 g
Color	White (RAL 9010)
LM1-SMB-MK	
Dimensions (W x H x D)	87.3 x 87.3 x 50 mm
Weight	73 g
Color	White (RAL 9010)

Environmental

Operating temperature	-10 °C to +55 °C (+14 °F to +131 °F)
Storage temperature	-40 °C to +70 °C (-40 °F to +158 °F)
Relative humidity	<95%

Ordering information**LBC 1400/10 Volume Control**

Volume control 12 W, MK installation type, built-in 24 VDC override relay, power-save version, 5 attenuation steps of 3 dB and off, white RAL 9010.

Order number **LBC1400/10**

LBC 1400/20 Volume Control

Volume control 12 W, MK installation type, built-in 24 VDC override relay, failsafe version, 5 attenuation steps of 3 dB and off, white RAL 9010.

Order number **LBC1400/20**

LBC 1410/10 Volume Control

Volume control 36 W, MK installation type, built-in 24 VDC override relay, power-save version, 8 attenuation steps of 3 dB and off, white RAL 9010.

Order number **LBC1410/10**

LBC 1410/20 Volume Control

Volume control 36 W, MK installation type, built-in 24 VDC override relay, failsafe version, 8 attenuation steps of 3 dB and off, white RAL 9010.

Order number **LBC1410/20**

LBC 1420/10 Volume Control

Volume control 100 W, MKD/E2 installation type, built-in 24 VDC override relay, power-save version, 10 attenuation steps of 2 dB and off, white RAL 9010, supplied with surface mounting box.

Order number **LBC1420/10**

LBC 1420/20 Volume Control

Volume control 100 W, MKD/E2 installation type, built-in 24 VDC override relay, failsafe version, 10 attenuation steps of 2 dB and off, white RAL 9010, supplied with surface mounting box.

Order number **LBC1420/20**

LBC 1430/10 Program Selector

Program selector, MK installation type, 5 channel selection, white RAL 9010.

Order number **LBC1430/10**

Accessories**LM1-SMB-MK**

Surface mounting box for volume controls LBC1400/10, LBC1400/20, LBC1410/10, LBC1410/20, and Program Selector LBC1430/10, white RAL 9010.

Order number **LM1-SMB-MK**

LBC 14xx/x0 U40 Volume Controls and LBC 1431/10 Program Selector



Features

- ▶ 12 W, 36 W and 100 W versions
- ▶ Available in power-save or failsafe versions
- ▶ Built-in 24 VDC override relay
- ▶ Continuous rotating system
- ▶ Suitable for 3 and 4-wire systems

Bosch introduces a full range of volume controls and program selectors to provide a complete public address solution.

Functions

Operation

Public address systems are often used for both announcements and background music distribution. Volume controls can be used to adjust the level locally. In addition to volume control, program selectors can also be installed to select five different programs locally. In the event of an (emergency) announcement, the built-in relay ensures that the message is broadcast at a preset level, independent of the local volume setting.

The volume controls come in three versions according to power rating: 12 W, 36 W, and 100 W. The total load of the loudspeakers connected to a volume control may not exceed the rated power.

Each of the three versions is also available in two versions. One is a power-saving, 4-wire volume override (/10 models), where the override relay is activated during an emergency call. The other is a failsafe, 4-wire volume override (/20 models), where the override relay is deactivated during an emergency call.

The design and color are unobtrusive in any interior. Ease of installation, operation and reliability is optimized in the design.

The volume controls and program selectors can be combined with Gira standard 55 system switchers and accessories.

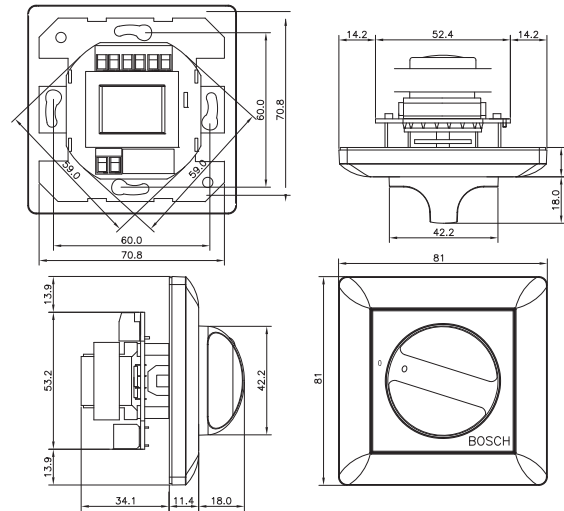
Interconnections

Screw connections

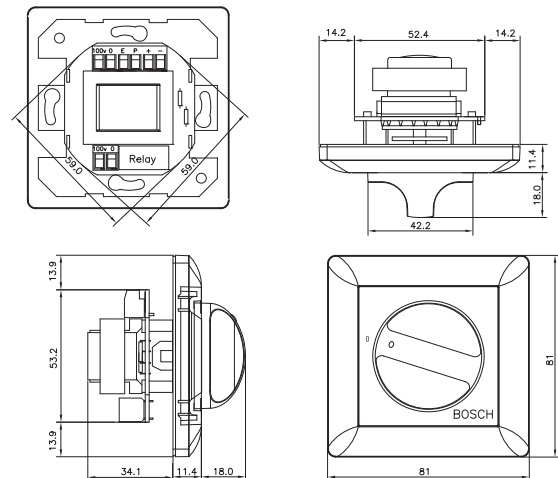
Certifications and approvals

Safety	acc. to EN 60065
Self-extinguishing	acc. to UL 94 V0

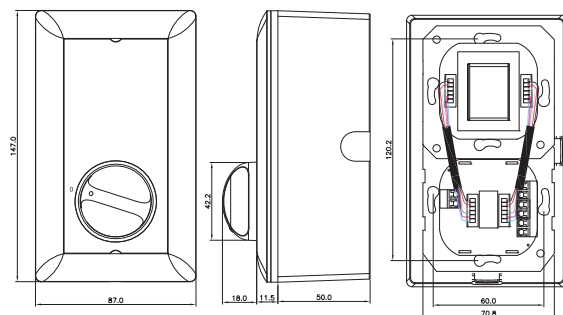
Installation/configuration notes



LBC 1401/10 and LBC 1401/20 dimensions in mm

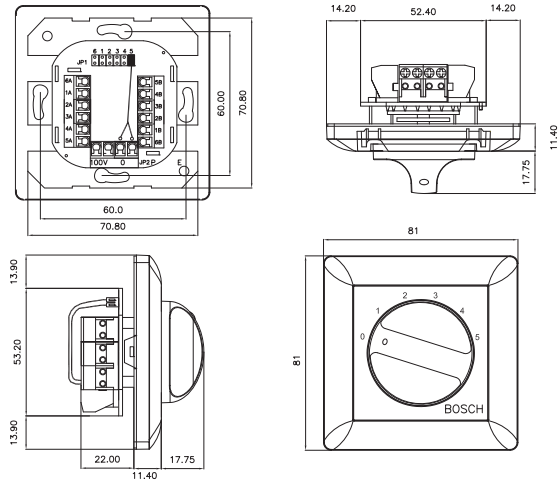


LBC 1411/10 and LBC 1411/20 dimensions in mm

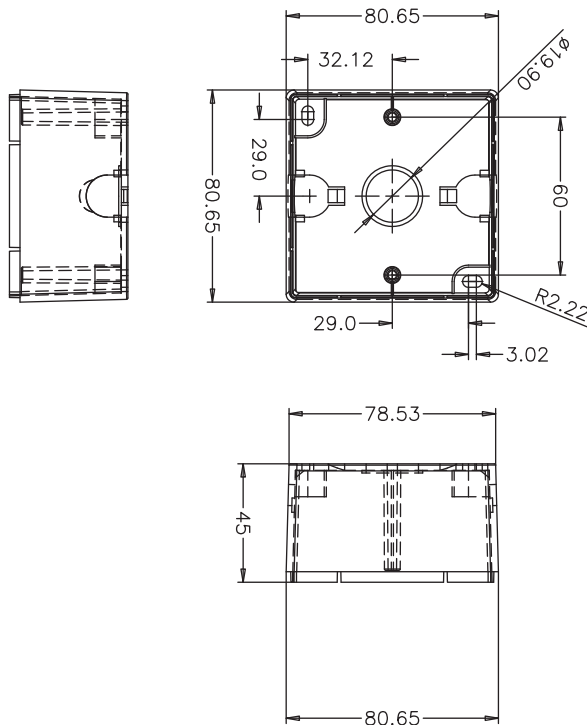


LBC 1420/10 and LBC 1420/20 dimensions in mm

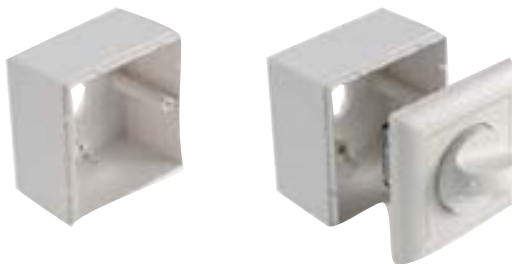
4



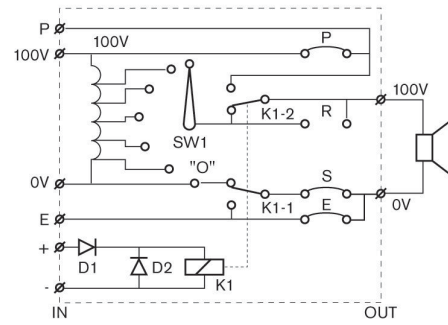
LBC 1431/10 dimensions in mm



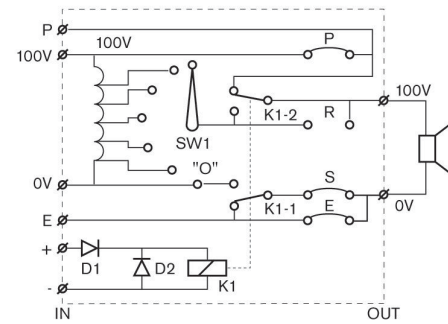
LM1-SMB-U40 dimensions in mm



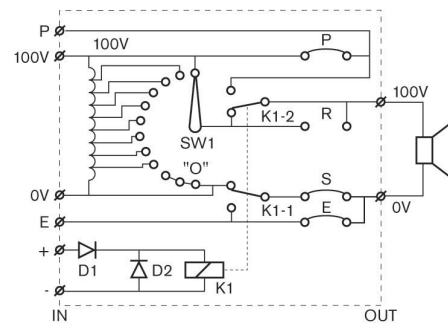
LM1-SMB-U40 detail



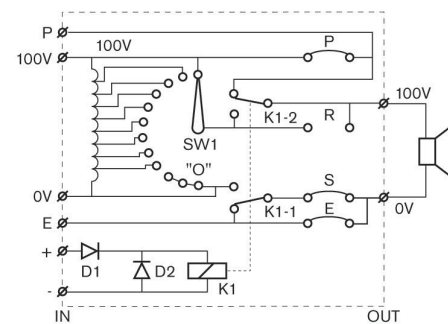
LBC 1401/10 circuit diagram



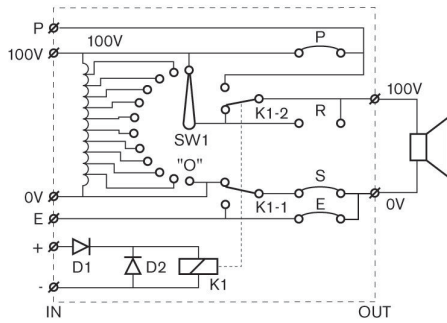
LBC 1401/20 circuit diagram



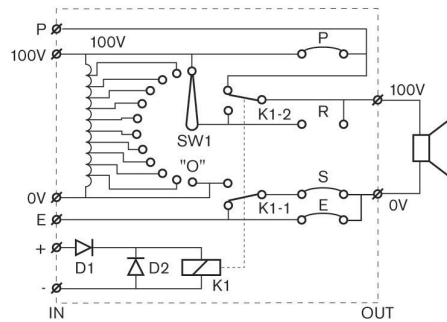
LBC 1411/10 circuit diagram



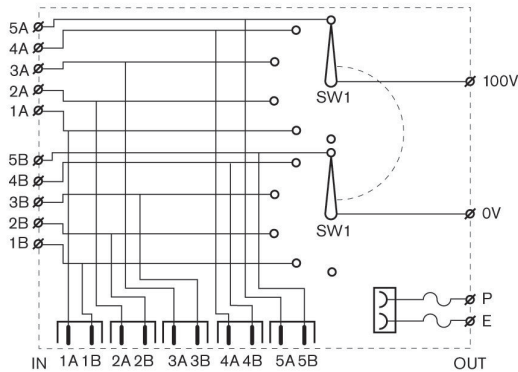
LBC 1411/20 circuit diagram



LBC 1420/10 circuit diagram



LBC 1420/20 circuit diagram



LBC 1431/10 circuit diagram

Technical specifications

Electrical

LBC 1401/10 and /20	
Rated power	12 W
Input voltage	100 V
Attenuation steps	5 x 3 dB + off
Frequency response	50 Hz to 20 kHz (-1 dB)
THD	<0.5%
Current consumption	20 mA at 24 VDC
Connector	Screw terminal

LBC 1411/10 and /20

Rated power	36 W
Input voltage	100 V
Attenuation steps	8 x 3 dB + off
Frequency response	50 Hz to 20 kHz (-1 dB)
THD	<0.5%
Current consumption	20 mA at 24 VDC
Connector	Screw terminal

LBC 1420/10 and /20

Rated power	100 W
Input voltage	100 V
Attenuation steps	10 x 2 dB + off
Frequency response	50 Hz to 20 kHz (-1 dB)
THD	<0.5%
Current consumption	20 mA at 24 VDC
Connector	Screw terminal

LBC 1431/10

Rated power	100 W
Input voltage	100 V
Number of programs	5 programs + off
Connector	Screw terminal

Mechanical

LBC 1401/10 and /20

Dimensions (W x H x D)	81 x 81 x 45.5 mm
Weight	214 g
Color	White (RAL 9010)

LBC 1411/10 and /20

Dimensions (W x H x D)	81 x 81 x 45.5 mm
Weight	217 g
Color	White (RAL 9010)

LBC 1420/10 and /20

Dimensions (W x H x D)	87 x 147 x 61.5 mm
Weight	512 g (including surface mounting box)
Color	White (RAL 9010)

LBC 1431/10

Dimensions (W x H x D)	81 x 81 x 33.4 mm
Weight	110 g
Color	White (RAL 9010)

LM1-SMB-U40

Dimensions (W x H x D)	80.65 x 80.65 x 45 mm
Weight	60 g
Color	White (RAL 9010)

Environmental

Operating temperature	-10 °C to +55 °C (+14 °F to +131 °F)
Storage temperature	-40 °C to +70 °C (-40 °F to +158 °F)
Relative humidity	<95%

4

Ordering information**LBC 1401/10 Volume Control**

Volume control 12 W, U40 installation type, built-in 24 VDC override relay, power-save version, 5 attenuation steps of 3 dB and off, white RAL 9010.

Order number **LBC1401/10**

LBC 1401/20 Volume Control

Volume control 12 W, U40 installation type, built-in 24 VDC override relay, failsafe version, 5 attenuation steps of 3 dB and off, white RAL 9010.

Order number **LBC1401/20**

LBC 1411/10 Volume Control

Volume control 36 W, U40 installation type, built-in 24 VDC override relay, power-save version, 8 attenuation steps of 3 dB and off, white RAL 9010.

Order number **LBC1411/10**

LBC 1411/20 Volume Control

Volume control 36 W, U40 installation type, built-in 24 VDC override relay, failsafe version, 8 attenuation steps of 3 dB and off, white RAL 9010.

Order number **LBC1411/20**

LBC 1420/10 Volume Control

Volume control 100 W, MKD/E2 installation type, built-in 24 VDC override relay, power-save version, 10 attenuation steps of 2 dB and off, white RAL 9010, supplied with surface mounting box.

Order number **LBC1420/10**

LBC 1420/20 Volume Control

Volume control 100 W, MKD/E2 installation type, built-in 24 VDC override relay, failsafe version, 10 attenuation steps of 2 dB and off, white RAL 9010, supplied with surface mounting box.

Order number **LBC1420/20**

LBC 1431/10 Program Selector

Program selector, U40 installation type, 5-channel selection, white RAL 9010.

Order number **LBC1431/10**

Accessories**LM1-SMB-U40**

Surface mounting box for volume controls LBC1401/10, LBC1401/20, LBC1411/10, LBC1411/20, and Program Selector LBC1431/10, white RAL 9010.

Order number **LM1-SMB-U40**

LBC 14x2/x0 Japanese Volume Controls and LBC 1434/10 Program Selector



Features

- ▶ 12 W and 36 W versions
- ▶ Available in power-save or failsafe versions
- ▶ Built-in 24 VDC override relay
- ▶ Suitable for 3-wire and 4-wire systems
- ▶ Program selector with up to five channels

Bosch introduces a full range of volume controls and program selectors to provide a complete public address solution.

Functions

Operation

Public address systems are often used for both announcements and background music distribution. Volume controls can be used to adjust the level locally. In addition to volume control, program selectors can also be installed to select five different programs locally. In the event of an (emergency) announcement, the built-in relay ensures that the message is broadcast at a preset level, independent of the local volume setting. The volume controls come in two versions according to power rating: 12 W and 36 W. The total load of the loudspeakers connected to a volume control may not exceed the rated power.

Each of the three versions is also available in two versions. One is a power-saving, 4-wire volume override (/10 models), where the override relay is activated during an emergency call. The other is a failsafe, 4-wire volume override (/20 models), where the override relay is deactivated during an emergency call. The design and color are unobtrusive in any interior. Ease of installation, operation and reliability is optimized in the design.

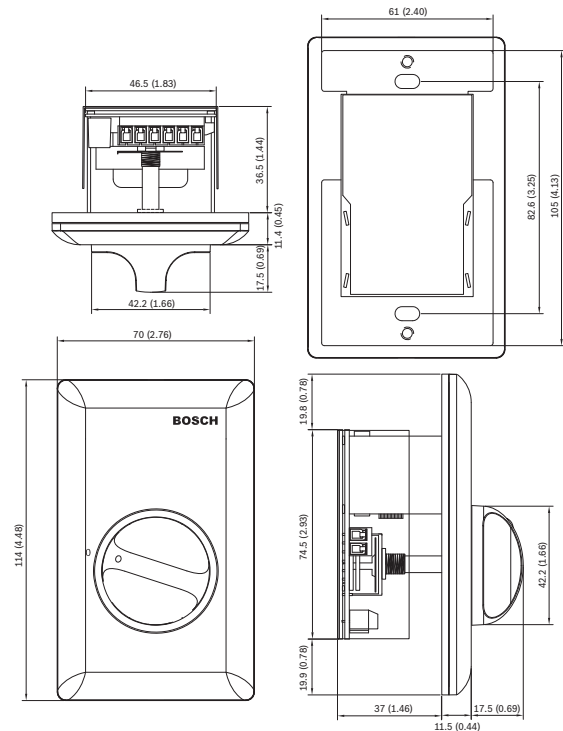
Interconnections

Screw connections

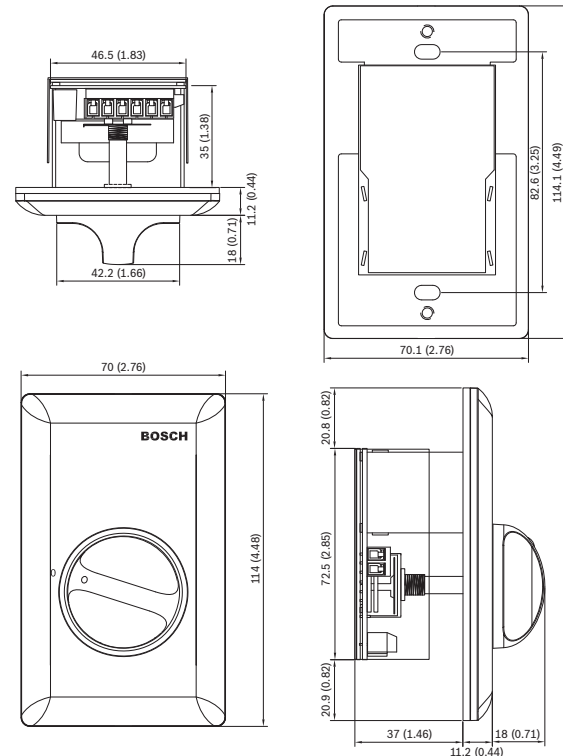
Certifications and approvals

Safety	acc. to EN 60065
Self-extinguishing	acc. to UL 94 V0

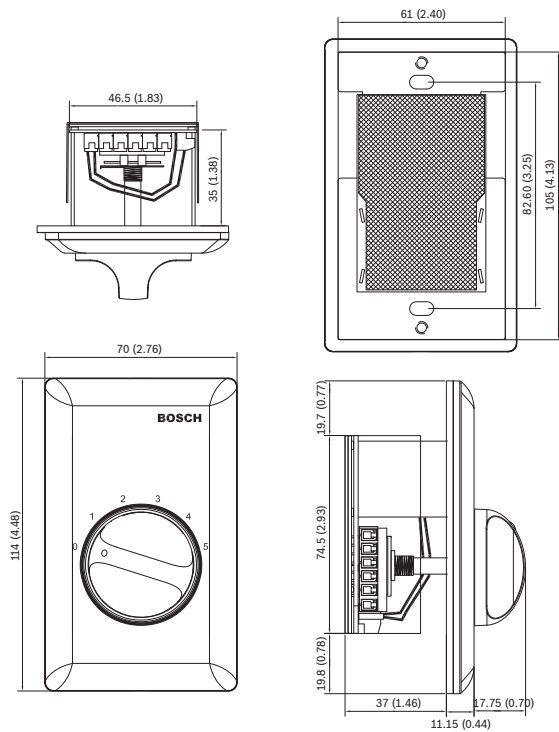
Installation/configuration notes



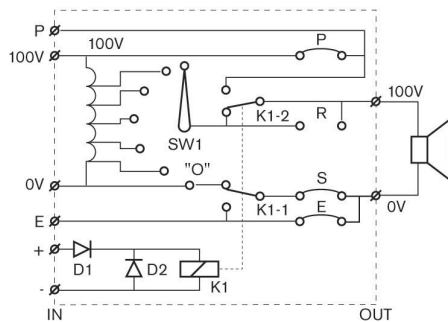
LBC 1402/10 and LBC 1402/20 dimensions in mm



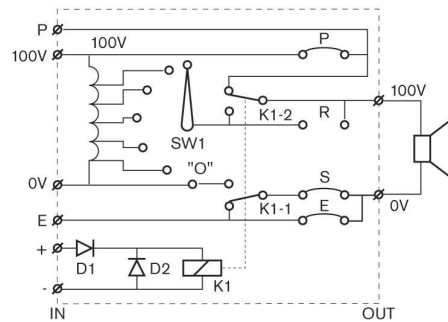
LBC 1412/10 and LBC 1412/20 dimensions in mm



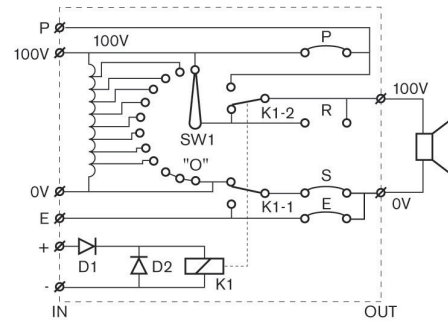
LBC 1434/10 dimensions in mm



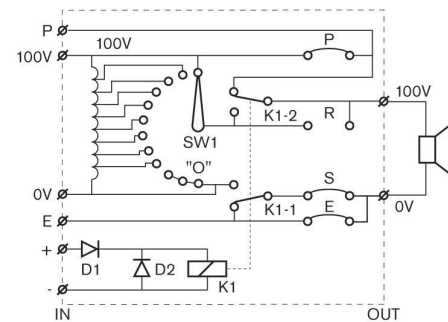
LBC 1402/10 circuit diagram



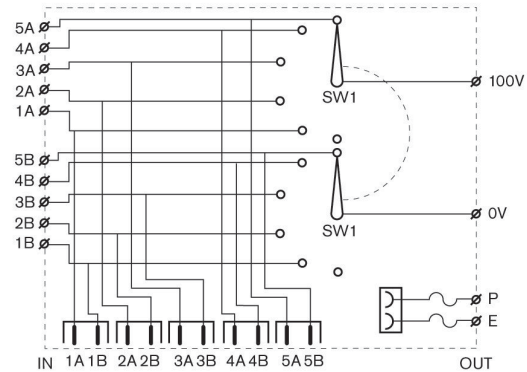
LBC 1402/20 circuit diagram



LBC 1412/10 circuit diagram



LBC 1412/20 circuit diagram



LBC 1434/10 circuit diagram

Technical specifications

Electrical

LBC 1402/10 and /20	
Rated power	12 W
Input voltage	100 V
Attenuation steps	5 x 3 dB + off
Frequency response	50 Hz to 20 kHz (-1 dB)
THD	<0.5%
Current consumption	20 mA at 24 VDC
LBC 1412/10 and /20	

Rated power	36 W
Input voltage	100 V
Attenuation steps	8 x 3 dB + off
Frequency response	50 Hz to 20 kHz (-1 dB)
THD	<0.5%
Current consumption	20 mA at 24 VDC
LBC 1434/10	
Rated power	100 W
Input voltage	100 V
Number of programs	5 programs + off

Mechanical

LBC 1402/10 and /20	
Dimensions (W x H x D)	70 x 114 x 48.2 mm
Weight	210 g
Color	Off-white (RAL 9010)
LBC 1412/10 and /20	
Dimensions (W x H x D)	70 x 114 x 48.2 mm
Weight	260 g
Color	Off-white (RAL 9010)
LBC 1434/10	
Dimensions (W x H x D)	70 x 114 x 48.2 mm
Weight	200 g
Color	Off-white (RAL 9010)

Environmental

Operating temperature	-10 °C to +55 °C (14 °F to +131 °F)
Storage temperature	-40 °C to +70 °C (-40 °F to +158 °F)
Relative humidity	<95%

Ordering information

LBC 1402/10 Volume Control

Volume control 12 W, Japanese installation type, built-in 24 VDC override relay, power-save version, 5 attenuation steps of 3 dB and off, white RAL 9010.

Order number **LBC1402/10**

LBC 1402/20 Volume Control

Volume control 12 W, Japanese installation type, built-in 24 VDC override relay, failsafe version, 5 attenuation steps of 3 dB and off, white RAL 9010.

Order number **LBC1402/20**

LBC 1412/10 Volume Control

Volume control 36 W, Japanese installation type, built-in 24 VDC override relay, power-save version, 8 attenuation steps of 3 dB and off, white RAL9010.

Order number **LBC1412/10**

LBC 1412/20 Volume Control

Volume control 36 W, Japanese installation type, built-in 24 VDC override relay, failsafe version, 8 attenuation steps of 3 dB and off, white RAL 9010.

Order number **LBC1412/20**

LBC 1434/10 Program Selector

Program selector, Japanese installation type, 5 channel selection, white RAL 9010.

Order number **LBC1434/10**

LBC 3080/x1 Fire Dome

4



During a fire, the ceiling cavity can allow fire or smoke to spread throughout a building. To inhibit fire entering the cavity via the ceiling loudspeaker, it can be fitted with an LBC 3080/x1 steel fire dome. This is mounted on the loudspeaker assembly using four self-tapping screws supplied with the fire dome. The fire-dome has knockout holes for two grommets (supplied) and two cable glands (PG 13).

The LBC 3080/x1 Fire dome is available in two color versions: the LBC 3080/01 is flame red (RAL 3000) and the LBC 3080/11 is white (RAL 9010).

This fire dome can only be used with the ceiling speakers: LBC 3087/41, LBC 3090/01, LBC 3090/31, LHM 0606/00 and LHM 0606/10.

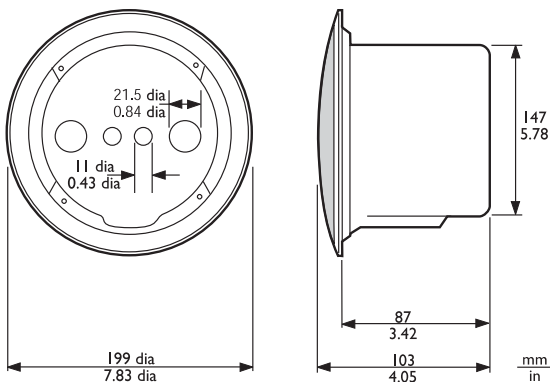
Certifications and approvals

B15 DIN 4102-8

Region Certification

Europe CE

Installation/configuration notes



LBC 3090/01 and LBC 3080/x1 Fire Dome assembly dimensions in mm (in)

Parts included

Quantity	Components
1	LBC 3080/x1 Fire Dome
4	Self tapping screws
2	Rubber grommets

Technical specifications

Mechanical

Dimensions (dia. x max depth)	147 x 87 mm (5.8 x 3.4 in)
Weight	360 g (0.8 lb)
Color	LBC 3080/01 flame red (RAL 3000) LBC 3080/11 white (RAL 9010).

Ordering information

LBC 3080/01 Fire Dome

Metal fire dome for the LBC 3087/41, LBC 3090/01, LBC 3090/31, LHM 0606/00, LHM 0606/10, and LHM 0626/00 ceiling loudspeakers, EN54-24 certified, flame red RAL 3000.

Order number **LBC 3080/01**

LBC 3080/11 Fire Dome

Metal fire dome for LBC 3087/41, LBC 3090/01, LBC 3090/31, LHM 0606/00, LHM 0606/10 and LHM 0626/00 ceiling loudspeakers, white RAL 9010.

Order number **LBC3080/11**

LBC 3081/02 Fire Dome



During a fire, the ceiling cavity in which loudspeakers are installed can allow flames to spread throughout a building. To prevent fire entering the cavity via the loudspeaker, the ceiling loudspeaker can be fitted with a steel fire dome (LBC 3081/02). This optional fire dome is clicked into the mounting-ring via three leaf springs, before the loudspeaker is inserted. For extra convenience, a safety cord from the fire dome allows the installer to temporarily hang the loudspeaker unit during installation. This cord also provides reassurance after installation. The fire-dome has knockout holes for two grommets (supplied) and two cable glands (PG 13). This fire dome can only be used with the LBC 3086/41 Ceiling Loudspeaker.



Notice

Product photo includes LBC 3086/41

Technical specifications

Mechanical

Dimensions (dia. x max. depth)	157 x 70 mm (6.2 x 2.8 in)
Weight	360 g (0.8 lb)
Color	Flame red (RAL 3000)
Certified B15	Acc. to DIN 4102

Ordering information

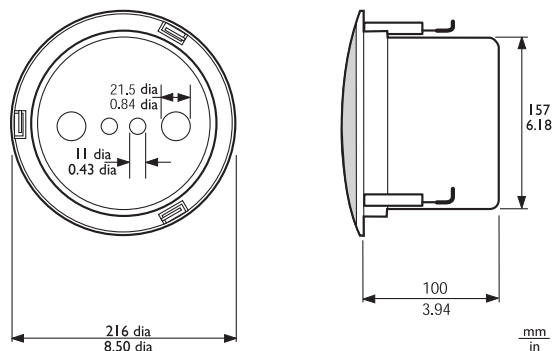
LBC 3081/02 Fire Dome

Metal fire dome for LBC 3086/41 ceiling loudspeaker, flame red RAL 3000.

Order number **LBC3081/02**

4

Installation/configuration notes



LBC3086/41 + LBC 3081/02 fire dome assembly dimensions in mm (in)

Parts included

Quantity	Components
1	LBC 3081/02 Fire Dome
1	Safety cord
2	Rubber grommets

LBC 3082/00 Fire Dome

4



During a fire, the ceiling cavity in which loudspeakers are installed can allow flames to spread throughout a building. To prevent fire entering the cavity via the loudspeaker, the ceiling loudspeaker can be fitted with a steel fire dome. This optional fire dome is mounted on the loudspeaker assembly using four self-tapping screws supplied with the fire dome. The fire dome has knockout holes for two grommets (supplied) and two cable glands (PG 13).

This fire dome can only be used with the LBC 3099/41 Ceiling Loudspeaker.

Certifications and approvals

B15	DIN 4102-8
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Region	Certification
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Europe	CE
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Parts included

Quantity	Components
1	LBC 3082/00 Fire Dome
4	Self tapping screws
2	Rubber grommets

Technical specifications

Mechanical

Dimensions (dia. x max. depth)	182 x 100 mm (7.2 x 3.9 in)
Weight	540 g (1.19 lb)
Color	Flame red (RAL 3000)

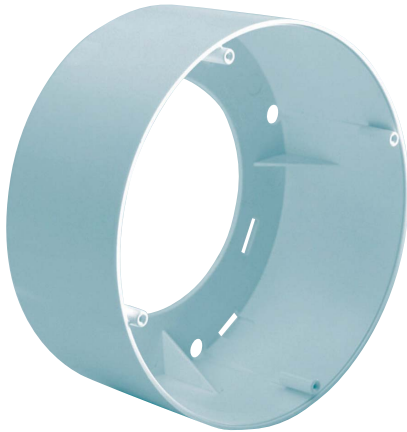
Ordering information

LBC 3082/00 Fire Dome

Metal fire dome for LBC 3099/41 ceiling loudspeaker, Flame red RAL 3000.

Order number **LBC 3082/00**

LBC 3091/01 Surface Mounting Box



For mounting onto the surface of a wall or ceiling, the color-matched surface mounting box LBC 3091/01 is available.

Dimensions (dia. X max. depth)	210 x 93 mm (8.3 x 3.6 in)
Colour	White (RAL 9010)
Weight	290 g (0.6 lb)

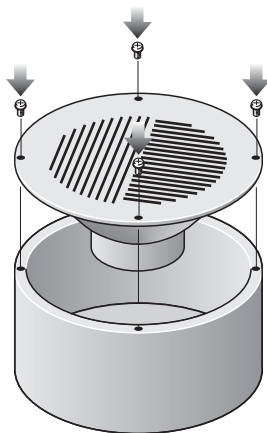
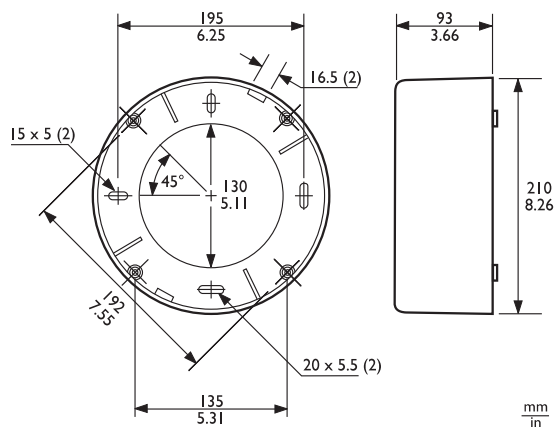
Ordering information

LBC 3091/01 Surface Mounting Box

Surface mounting box for securing ceiling loudspeaker LBC3090/01 to walls or hard ceilings.

Order number **LBC 3091/01**

Technical specifications



IP Rating

A two-digit number (as specified in Australian Standards AS 1939 and EN 60529) is used to provide an IP-rating to a piece of electronic equipment, or to an enclosure for electronic equipment.

The two digits represent three different forms of environmental influence:

- The first digit represents protection against ingress of solid objects
- The second digit represents protection against ingress of liquids

The larger the value of each digit, the greater the protection from that influence. As an example, a product rated as IP 57 would be better protected against environmental factors than another similar product that was only rated as IP 43.

Value	First Digit	Second Digit
	Protection against ingress of solids	Protection against ingress of liquids
0	No protection	No protection
1	Protected against solid objects over 50 mm e.g. hands, large tools.	Protected against vertically falling drops of water.
2	Protected against solid objects over 12 mm e.g. fingertips, large tools.	Protected against direct sprays of water up to 15° from vertical.
3	Protected against solid objects over 2.5 mm e.g. wire, small tools.	Protected against direct sprays of water up to 60° from vertical.
4	Protected against solid objects over 1.0 mm e.g. wires.	Protected against water sprayed from any direction. Limited ingress permitted.
5	Limited protection against dust ingress (no harmful deposit)	Protected against low pressure water jets from any direction. Limited ingress permitted.
6	Totally protected against dust ingress.	Protected against high pressure water jets from any direction. Limited ingress permitted.
7		Protected against immersion between 15 cm and 1m.
8		Protected against long periods of immersion under pressure.