



LC1 Modular Ceiling Loudspeaker Range



BOSCH

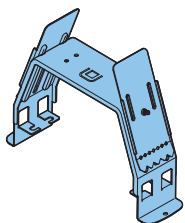
en Installation note

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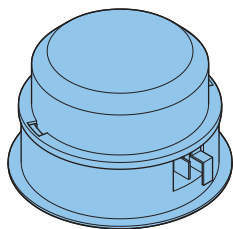
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1 System Overview

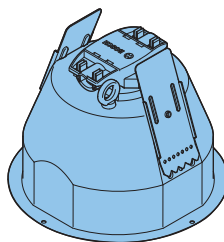
1.1 Housings



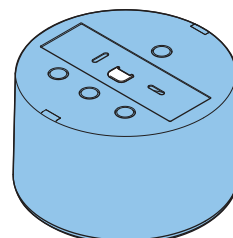
LC1-MMSB



LC1-CMR / LC1-CBB



LC1-MFD



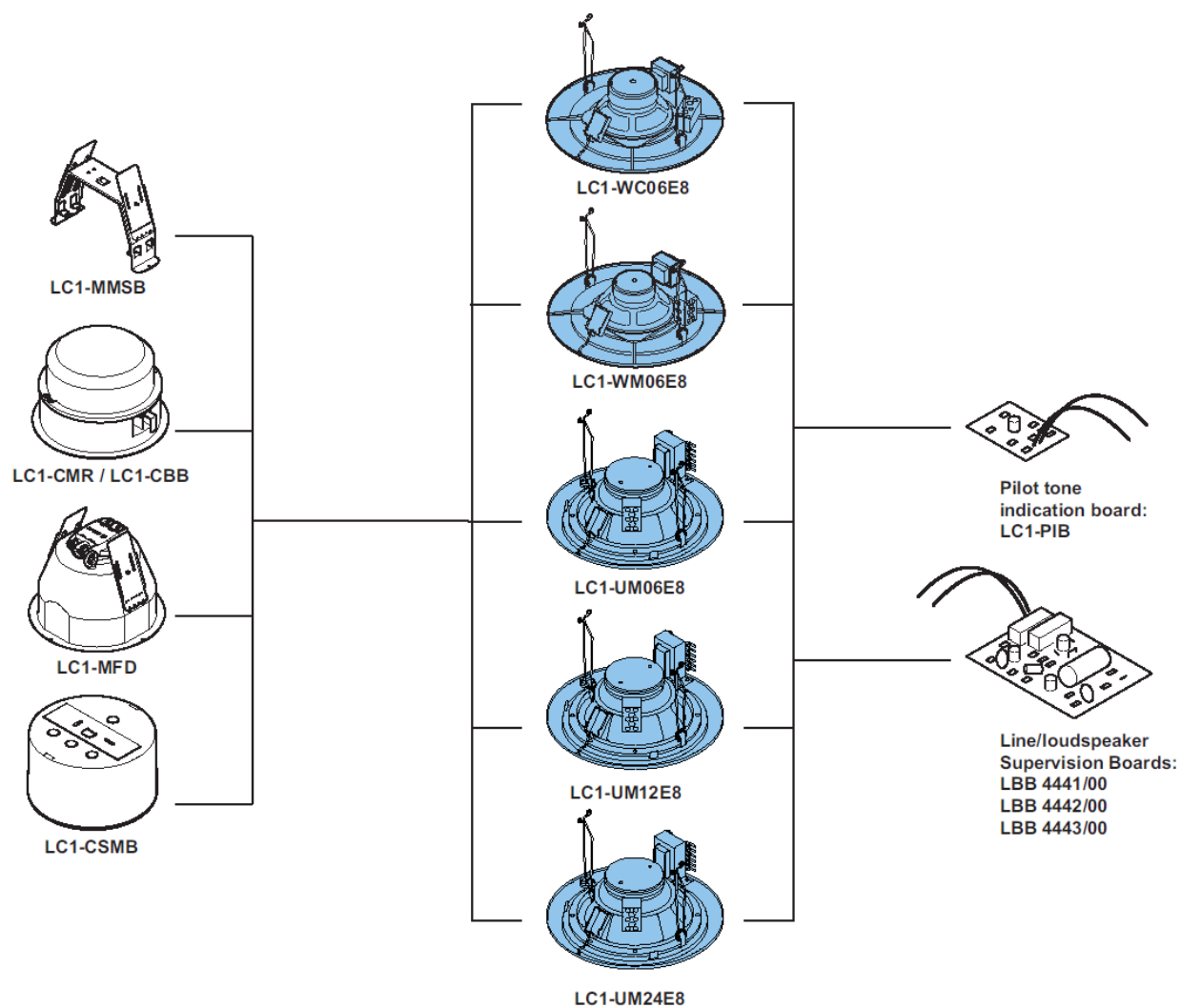
LC1-CSMB



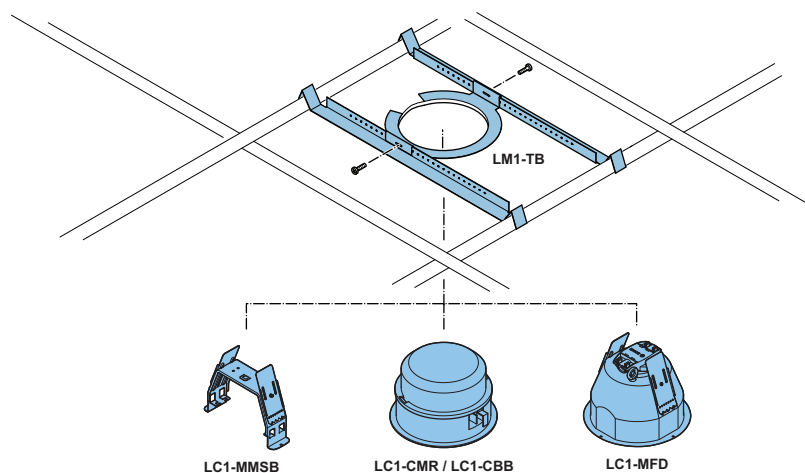
Notice!

To be compliant with UL-1480 the loudspeaker must be installed with the LC1-CMR including LC1-CBB or LC1-MFD or LC1-CSMB.

1.2 Loudspeakers



1.3 Accessories



2 Installation

2.1 LC1-MMSB

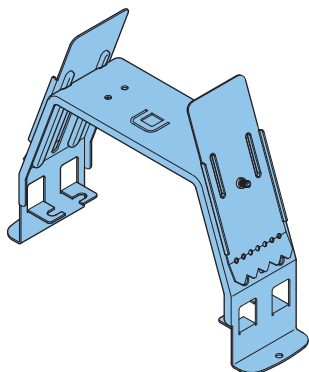


Fig. 1

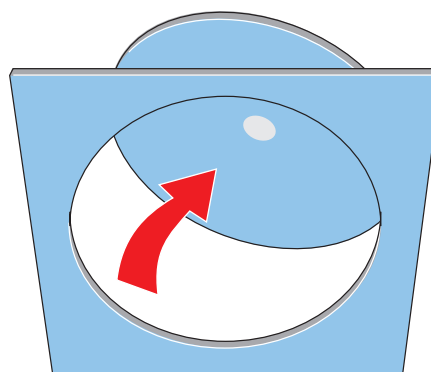


Fig. 2

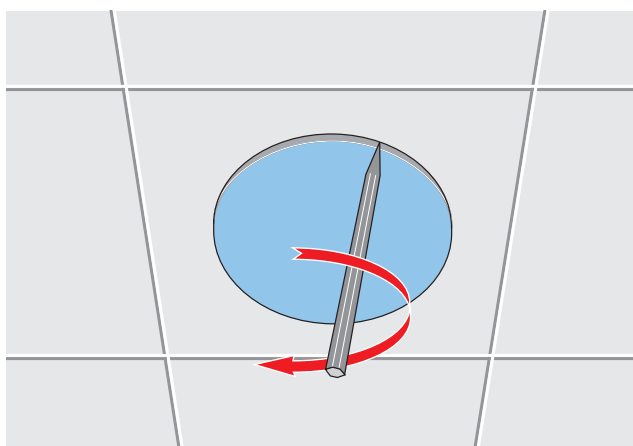


Fig. 3

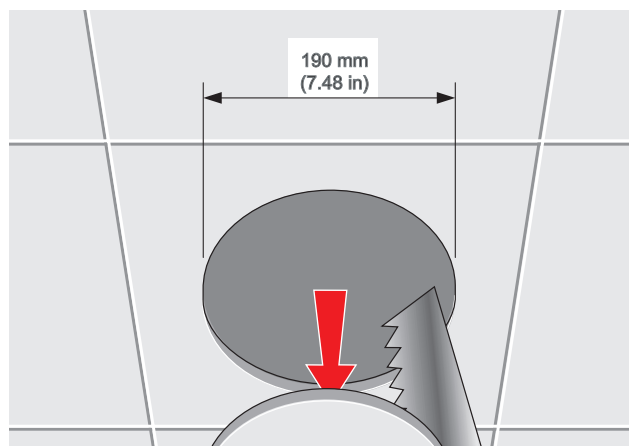


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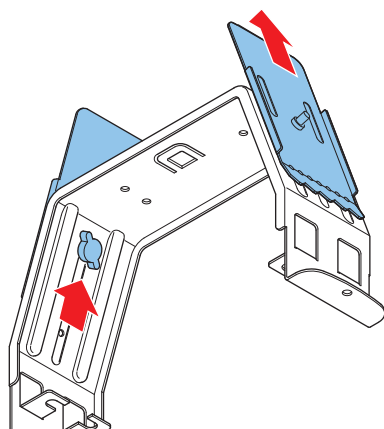


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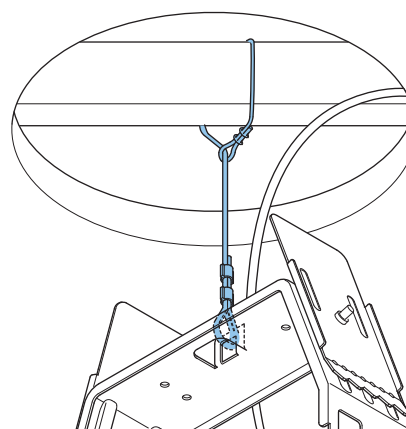


Fig. 6
Optional

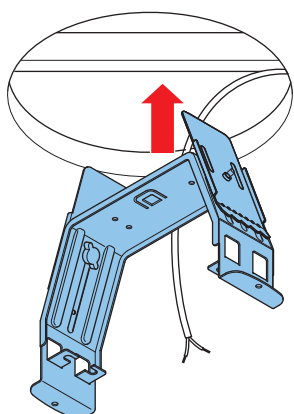


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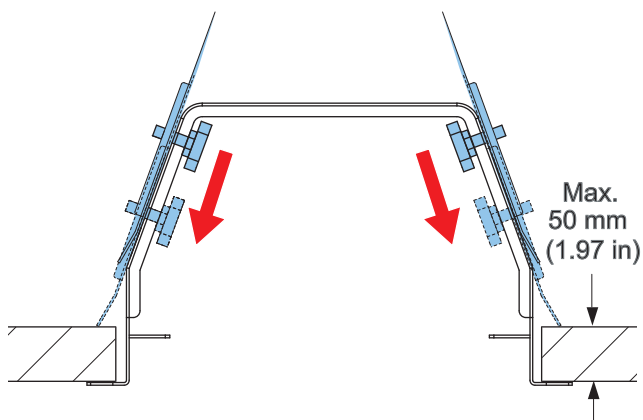


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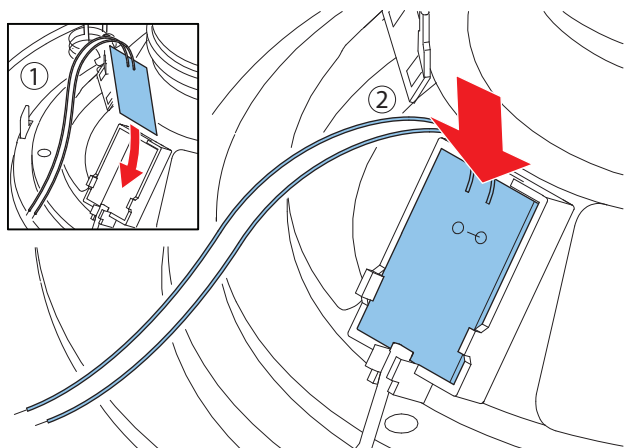


Fig. 9

Optional
Pilot tone indication board: LC1-PIB

Notice! Push until you hear a click.

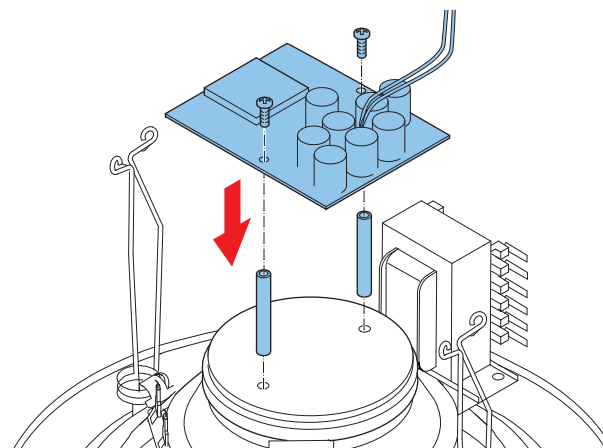


Fig. 10

Optional Line/Loudspeaker supervision boards:
LBB 4441/00, LBB 4442/00, LBB 4443/00

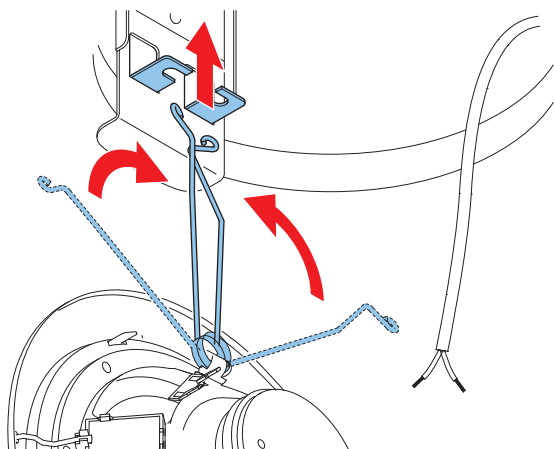


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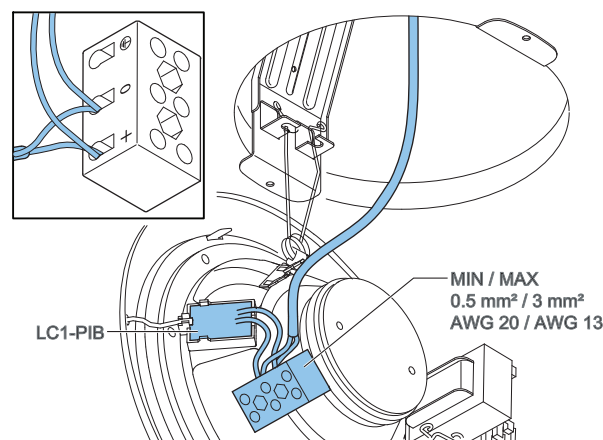


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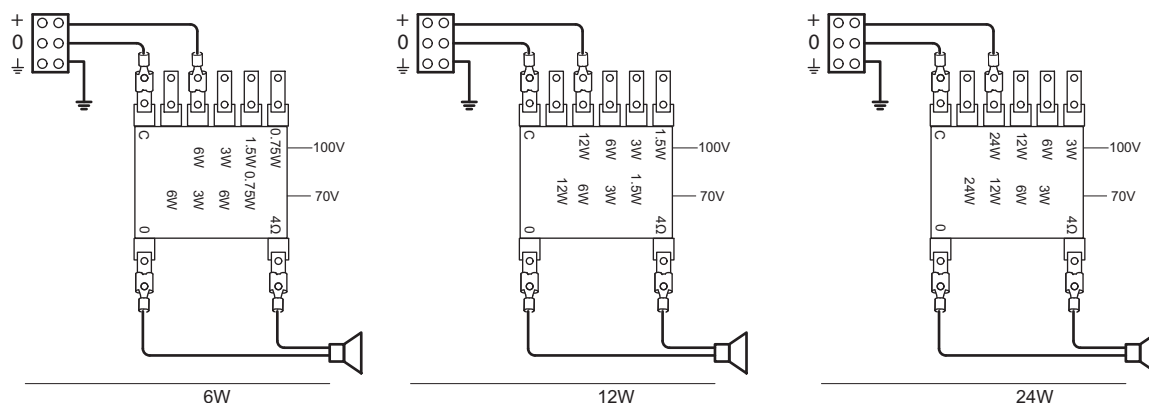


Fig. 13

Notice! Standard connected to rated power at 100V

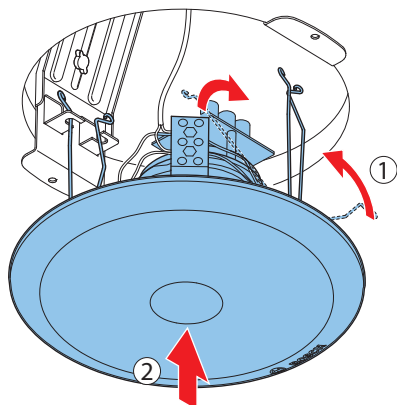


Fig. 14

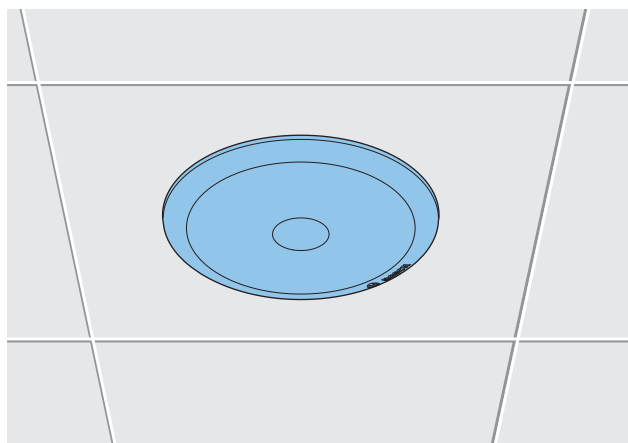


Fig. 15

2.2 LC1-CMR/LC1-CBB

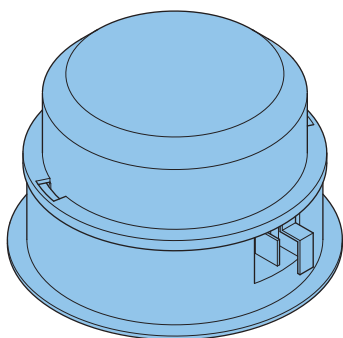


Fig. 1

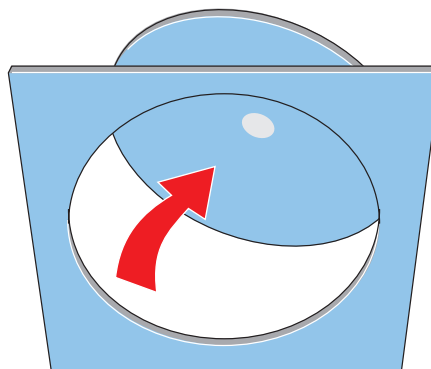


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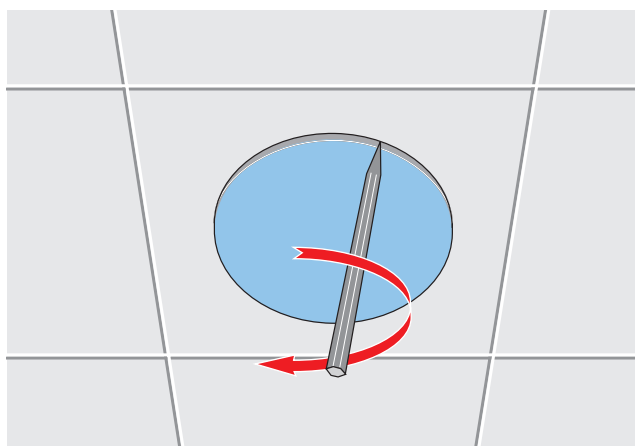


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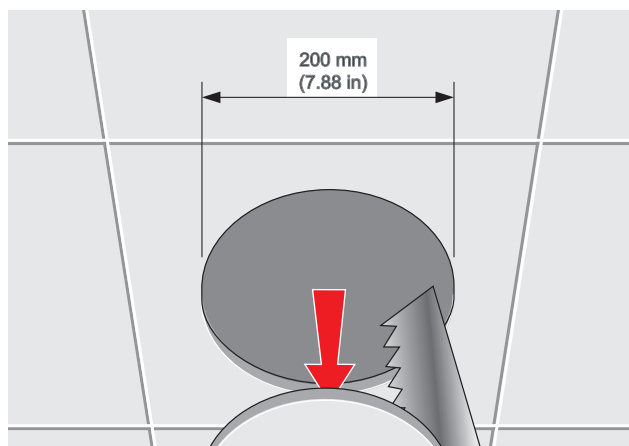


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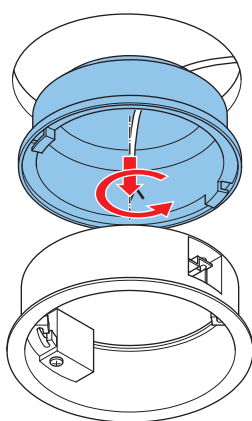
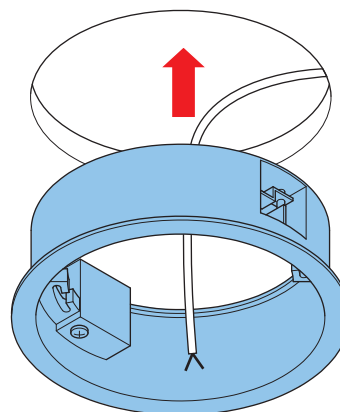
Fig. 5
Optional

Fig. 6

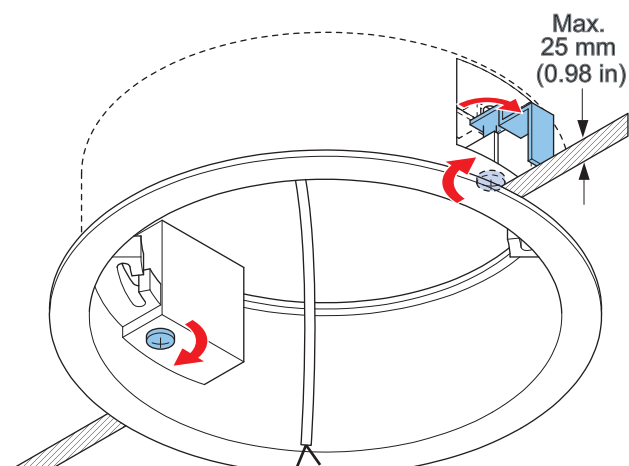


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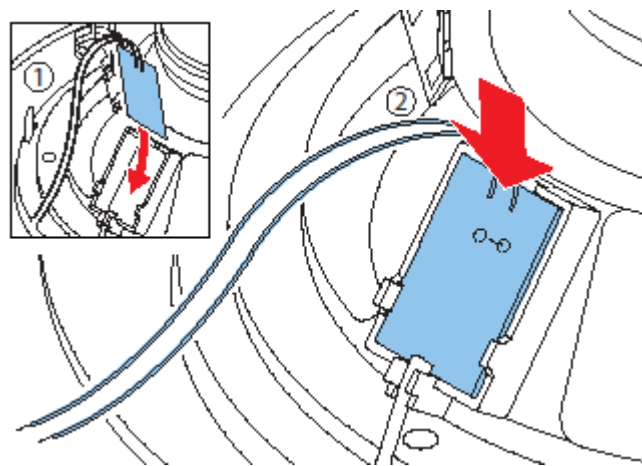


Fig. 8

Optional

Pilot tone indication board: LC1-PIB

Notice! Push until you hear a click.

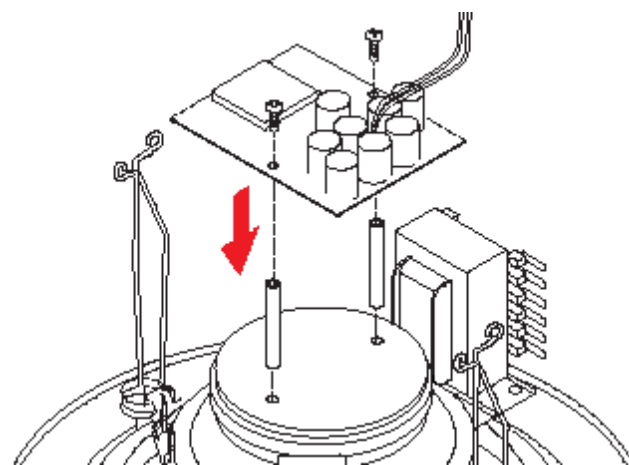


Fig. 9

Optional

Line/Loudspeaker supervision boards:

LBB 4441/00, LBB 4442/00, LBB 4443/00

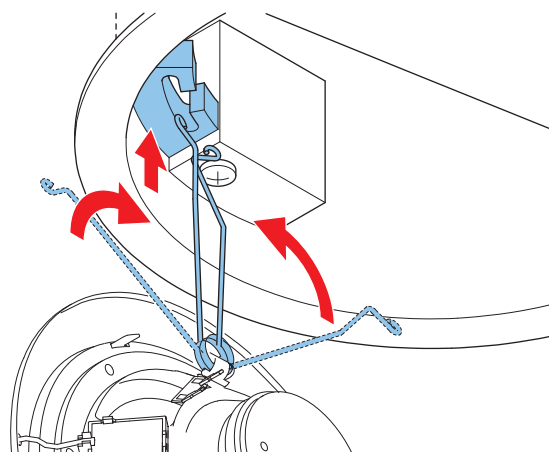


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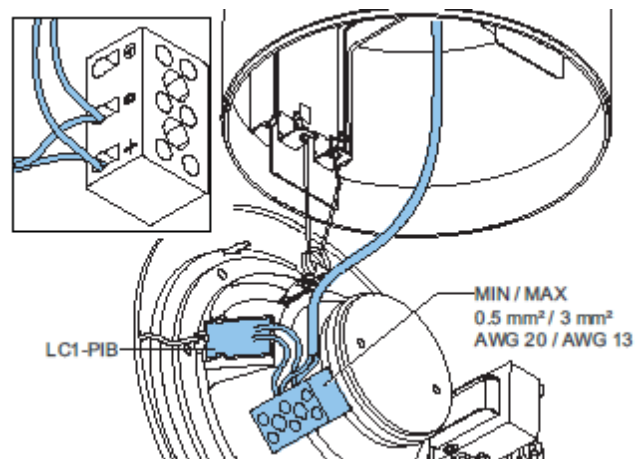


Fig. 11

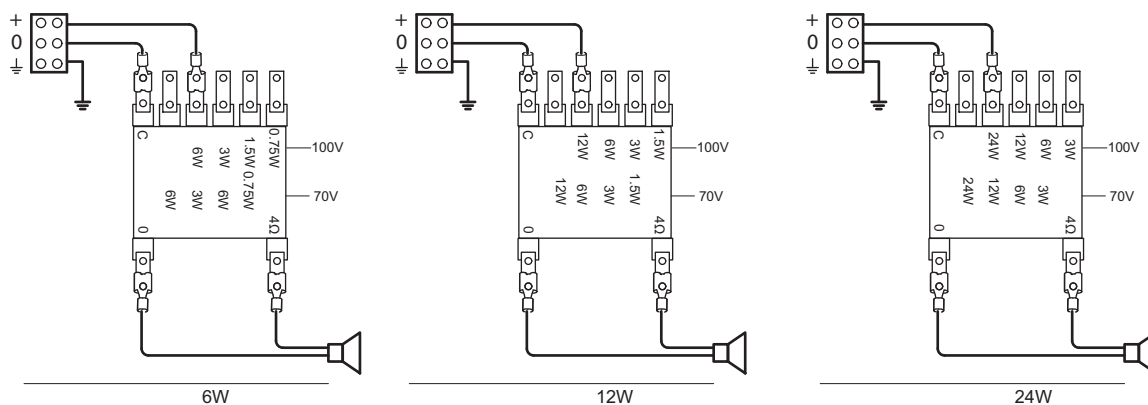


Fig. 12

Notice! Standard connected to rated power at 100V

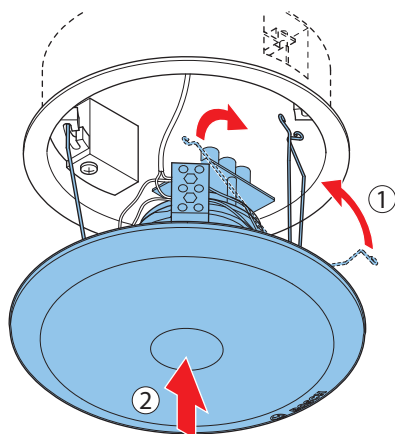


Fig. 13

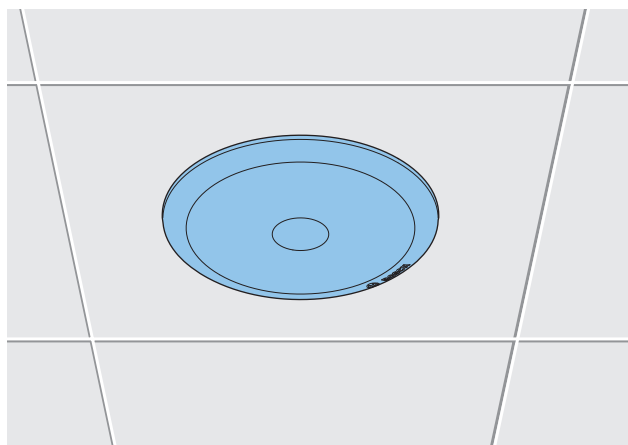


Fig. 14

2.3 LC1-MFD

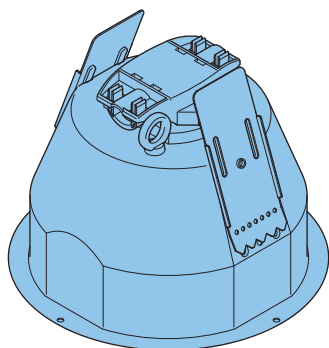


Fig. 1

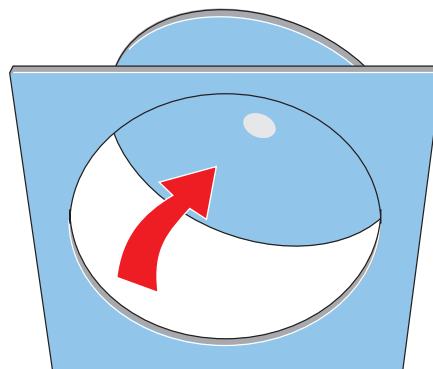


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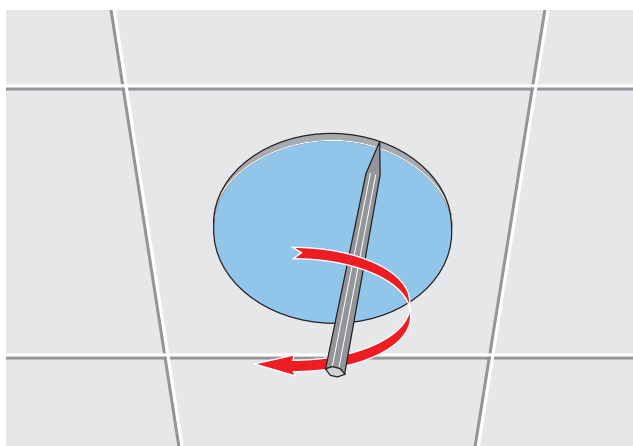


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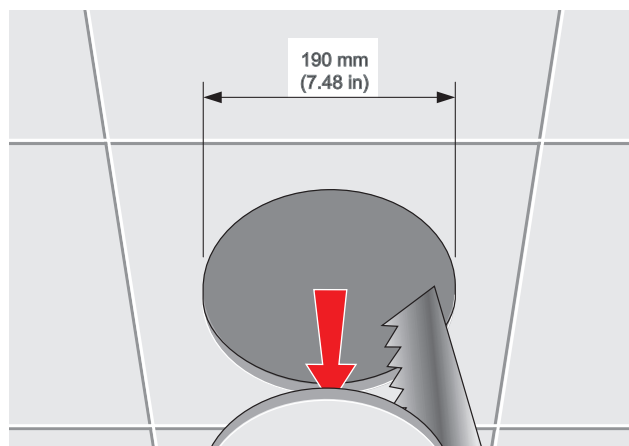


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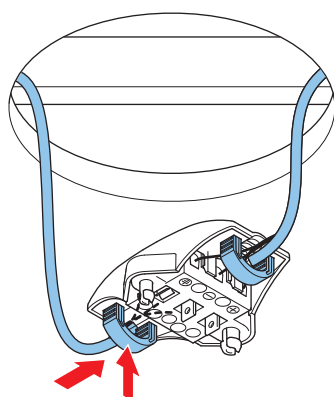


Fig. 5

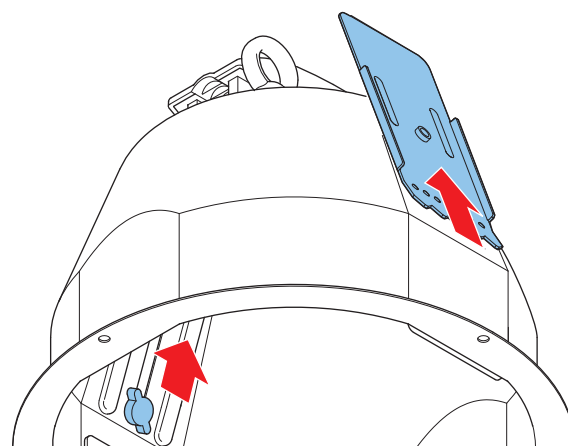


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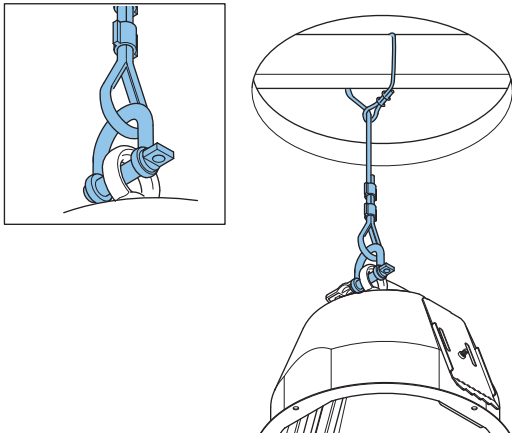


Fig. 7
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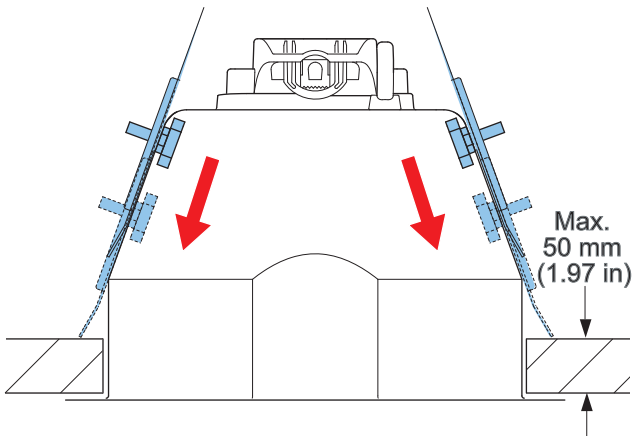


Fig. 9

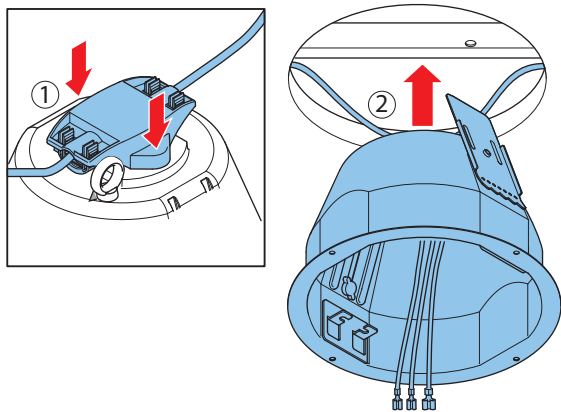


Fig. 8
Notice! Push until you hear a click.

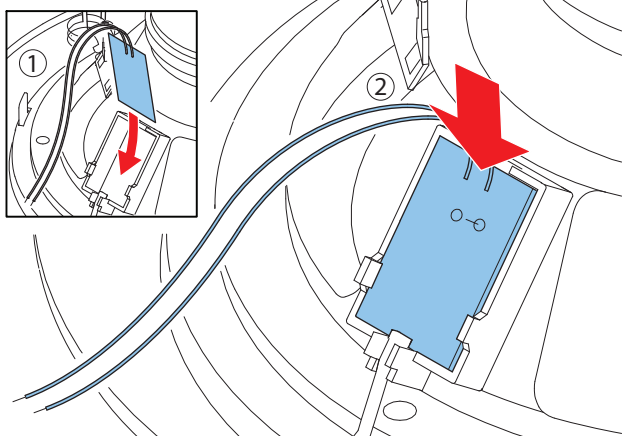


Fig. 10
Optional
Pilot tone indication board: LC1-PIB
Notice! Push until you hear a click.

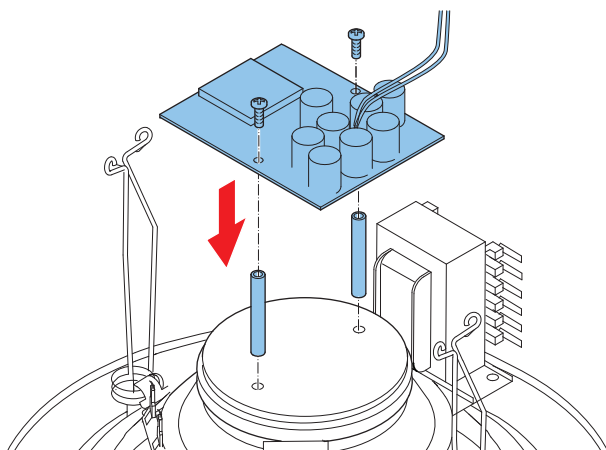


Fig. 11
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Line/Loudspeaker supervision boards:
LBB 4441/00, LBB 4442/00, LBB 4443/00

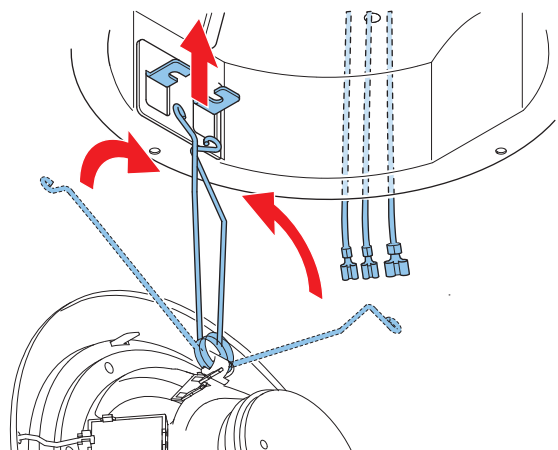


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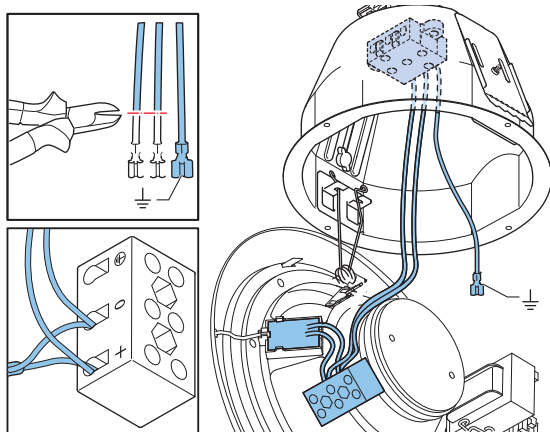


Fig. 13
Optional

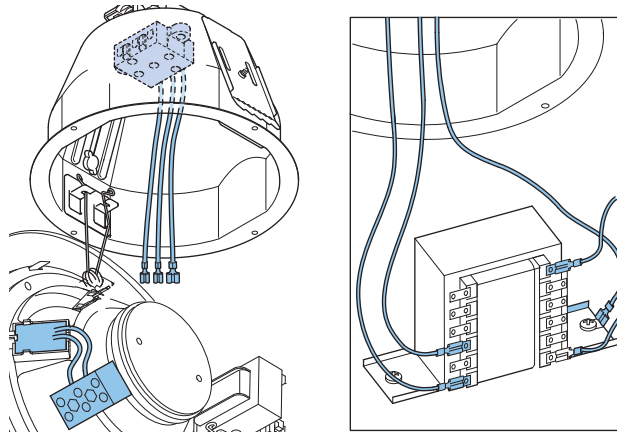


Fig. 14

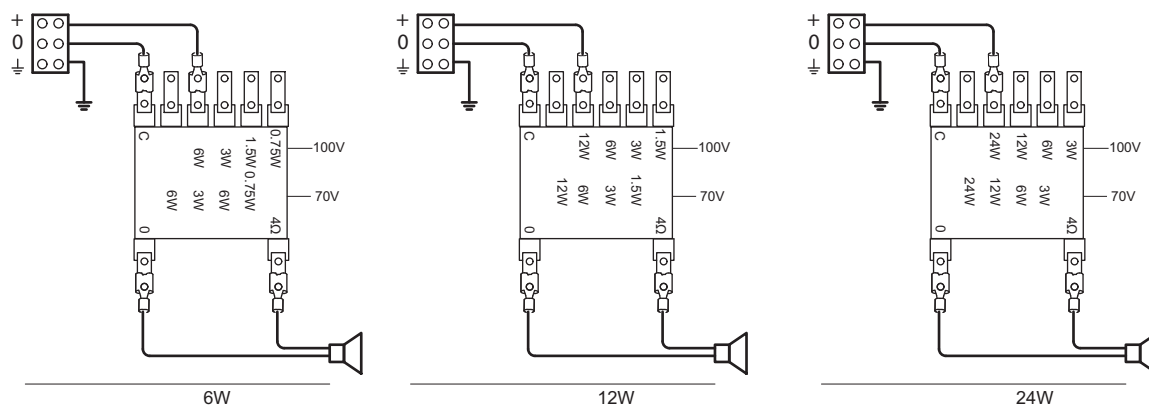


Fig. 15
Notice! Standard connected to rated power at 100V

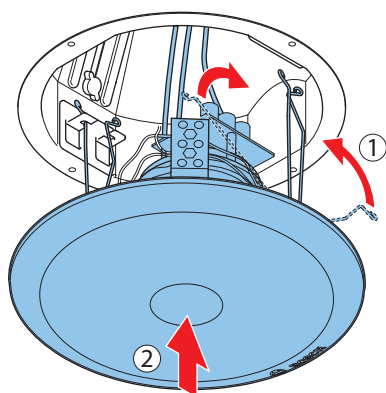


Fig. 16

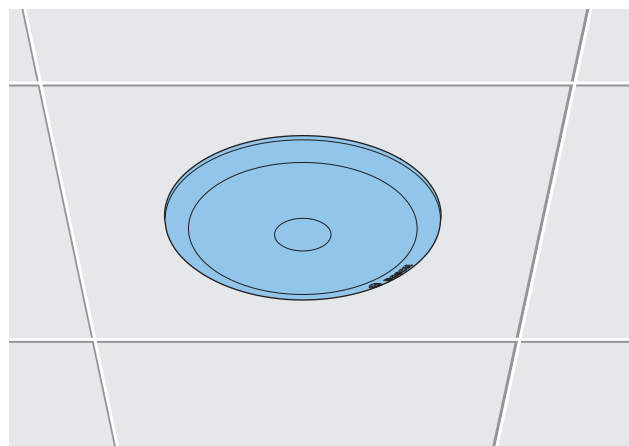


Fig. 17

2.4 LC1-CSMB

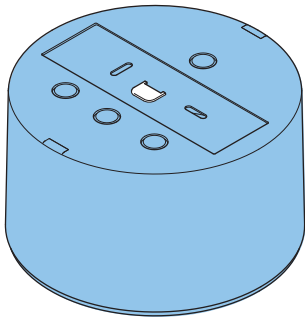


Fig. 1

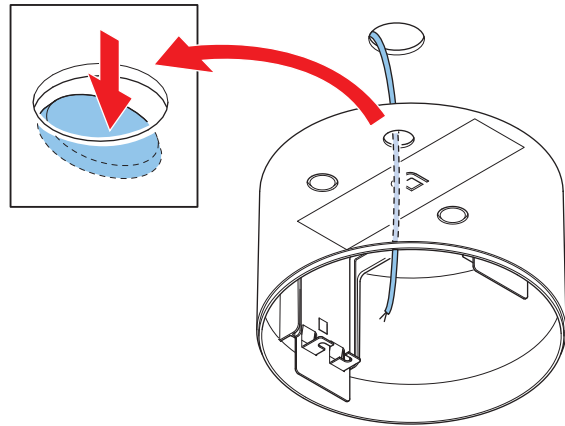


Fig. 2

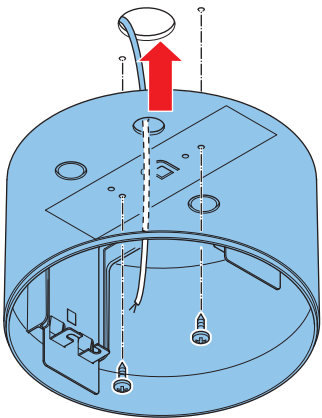


Fig. 3

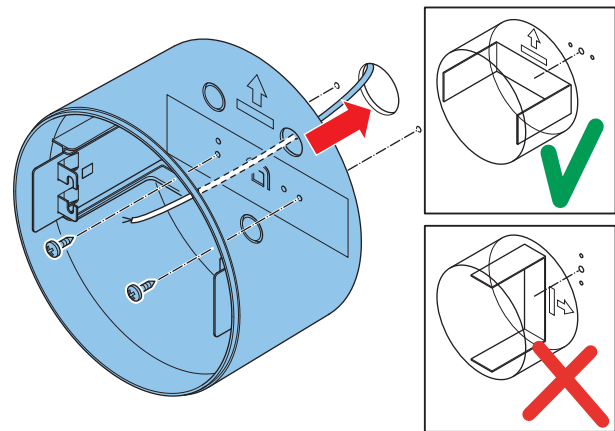


Fig. 4

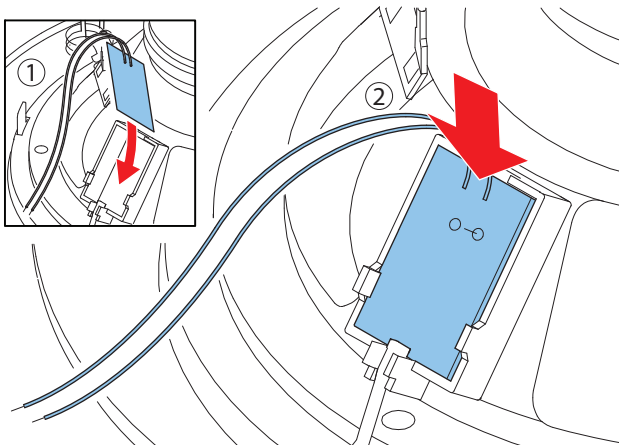


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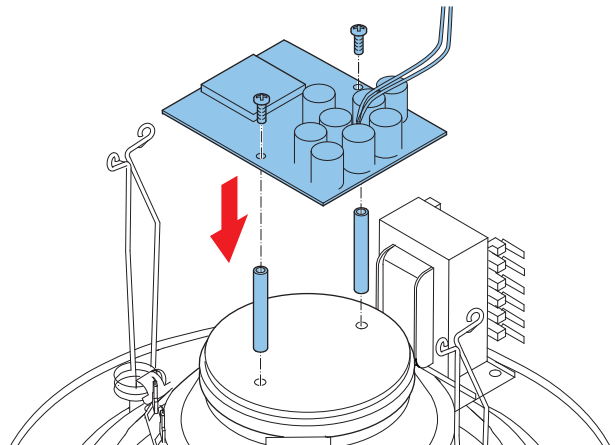


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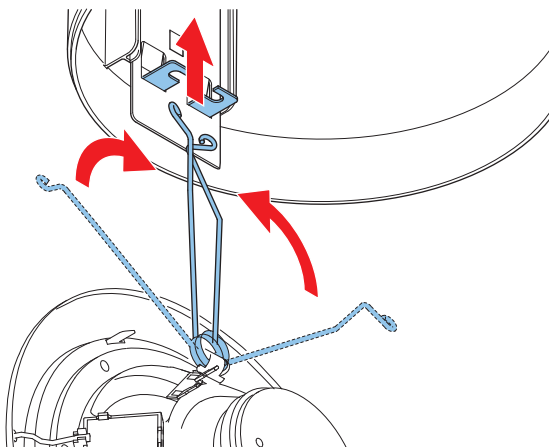


Fig. 7

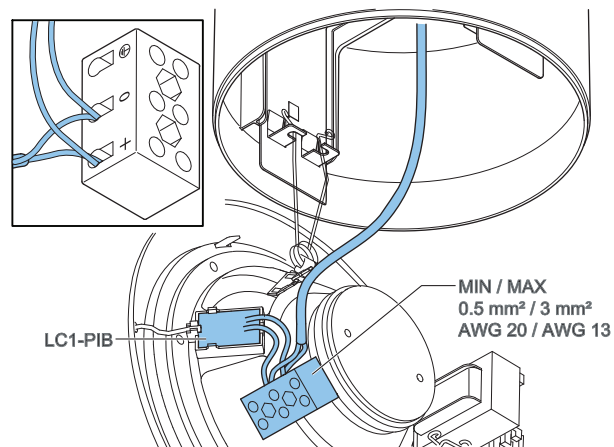


Fig. 8

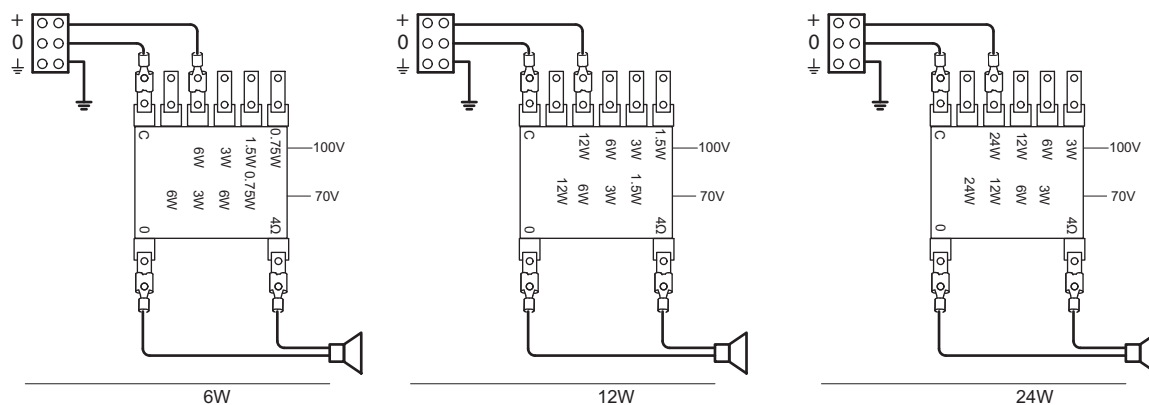


Fig. 9

Notice! Standard connected to rated power at 100V

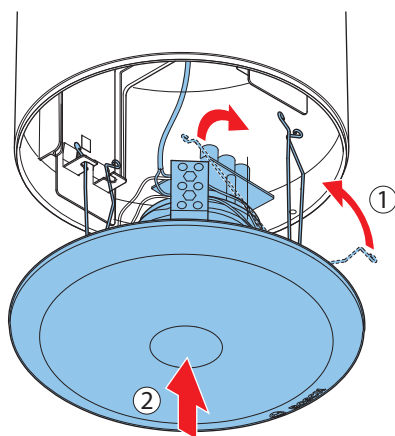


Fig. 10

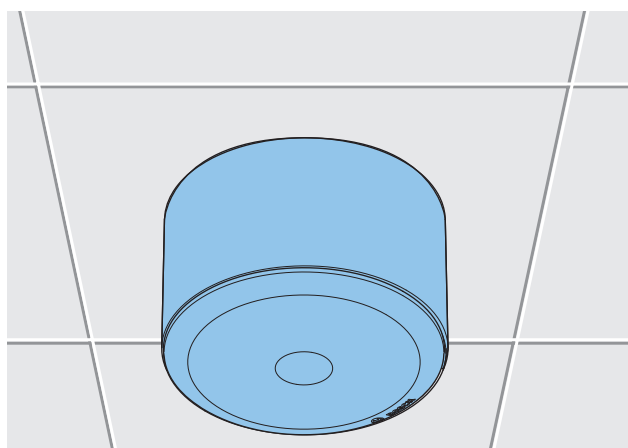


Fig. 11

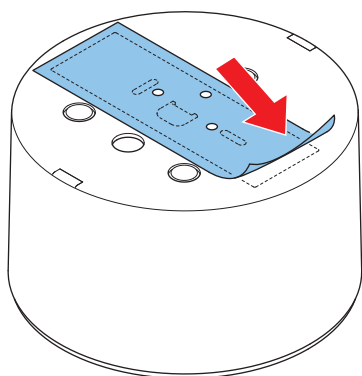


Fig. 12
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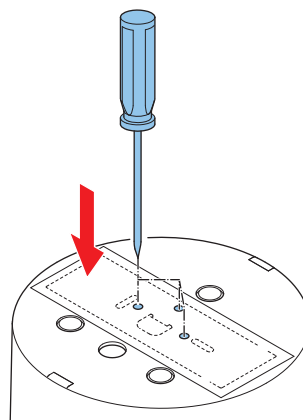


Fig. 13
Optional

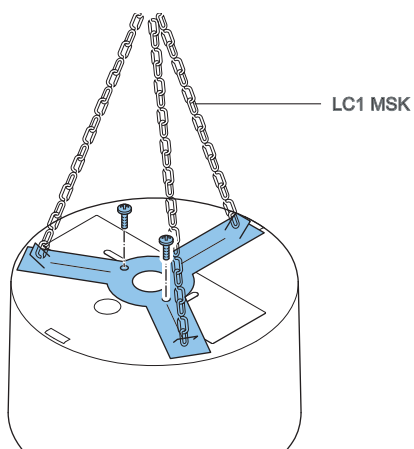


Fig. 14
Optional

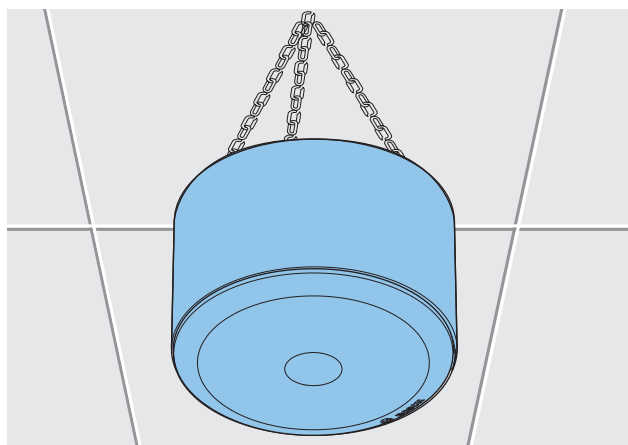


Fig. 15
Optional

3 Technical Data

3.1 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		
Sound Pressure Level at rated power / 1 W (1 kHz, 4 m)	84 dB / 78 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	6 W	833 Ohm	1667 Ohm
	3 W	1667 Ohm	3333 Ohm
	1.5 W	3333 Ohm	6666 Ohm
	0.75 W	6666 Ohm	13333 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
Sound Pressure Level at rated power / 1 W (1 kHz, 4 m)	87 dB / 79 dB	88 dB / 80 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 Rated impedance		70 V		100 V
	6 W	833 Ohm		1667 Ohm
	3 W	1667 Ohm		3333 Ohm
	1.5 W	3333 Ohm		6666 Ohm
	0.75 W	6666 Ohm		13333 Ohm
Connector	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		
Sound Pressure Level at rated power / 1 W (1 kHz, 4 m)	88 dB / 77 dB			91 dB / 77 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 Rated impedance		70 V	100 V		70 V	100 V
	12 W	416 Ohm	833 Ohm	24 W	208 Ohm	416 Ohm
	6 W	833 Ohm	1667 Ohm	12 W	416 Ohm	833 Ohm
	3 W	1667 Ohm	3333 Ohm	6 W	833 Ohm	1667 Ohm
	1.5 W	3333 Ohm	6666 Ohm	3 W	1667 Ohm	3333 Ohm
Connector	3-pole screw-terminal block			3-pole screw-terminal block		

* Technical performance data acc. to IEC 60268-5

Note:

- The specification data is measured in an anechoic chamber, on a standard baffle
- The reference axis is perpendicular to the center point of the front grille
- The reference plane is perpendicular to the center of the reference axis
- The horizontal plane is perpendicular to the center of the reference plane

3.2

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)

* with LC1-MMSB mounting support bracket

3.3 Environmental conditions

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

3.4

Standards

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 or LC1-CSMB (+LC1-MSK) or LC1-CMR + LC1-CBB.

** 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.

3.5 Additional technical data

3.5.1 LC1-WC06E8

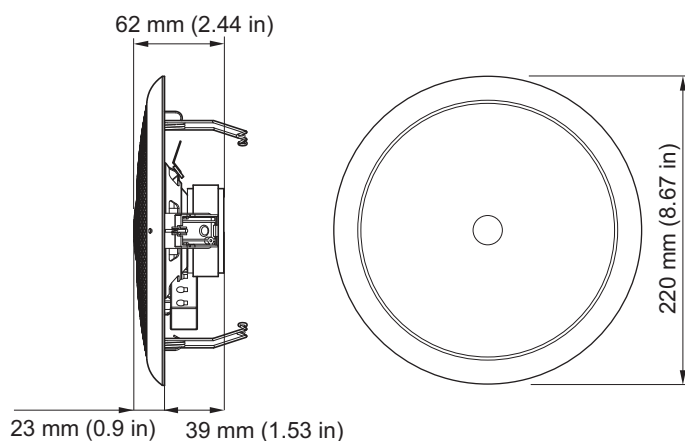


Figure 3.1: Dimensions

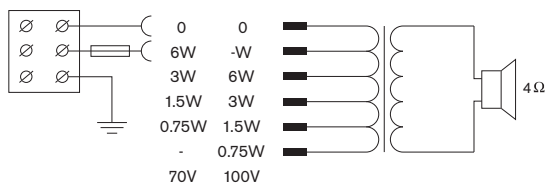


Figure 3.2: Circuit diagram

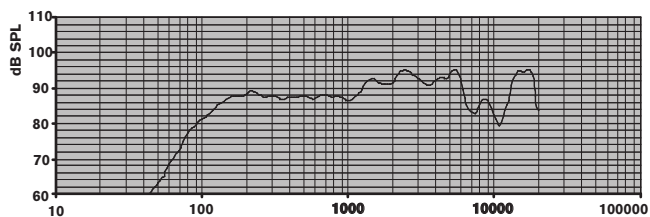
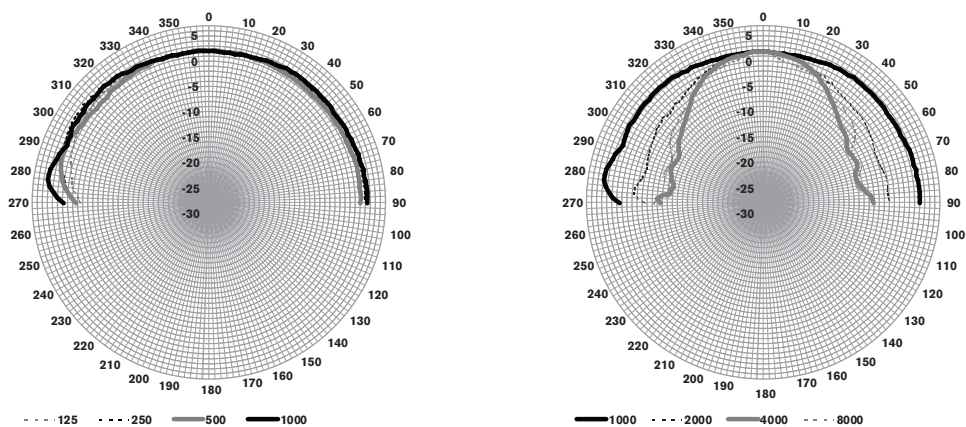


Figure 3.3: Frequency response



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 dBSPL).

3.5.2

LC1-WM06E8

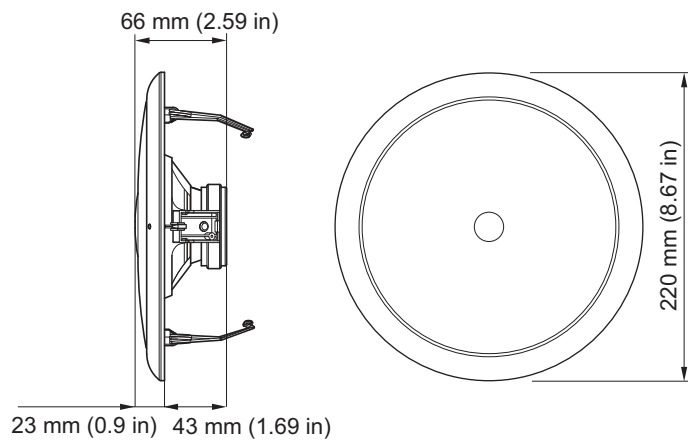


Figure 3.4: Dimensions

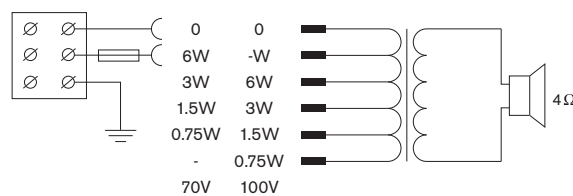


Figure 3.5: Circuit diagram

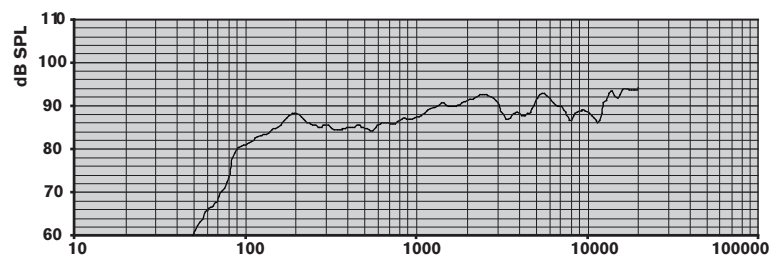
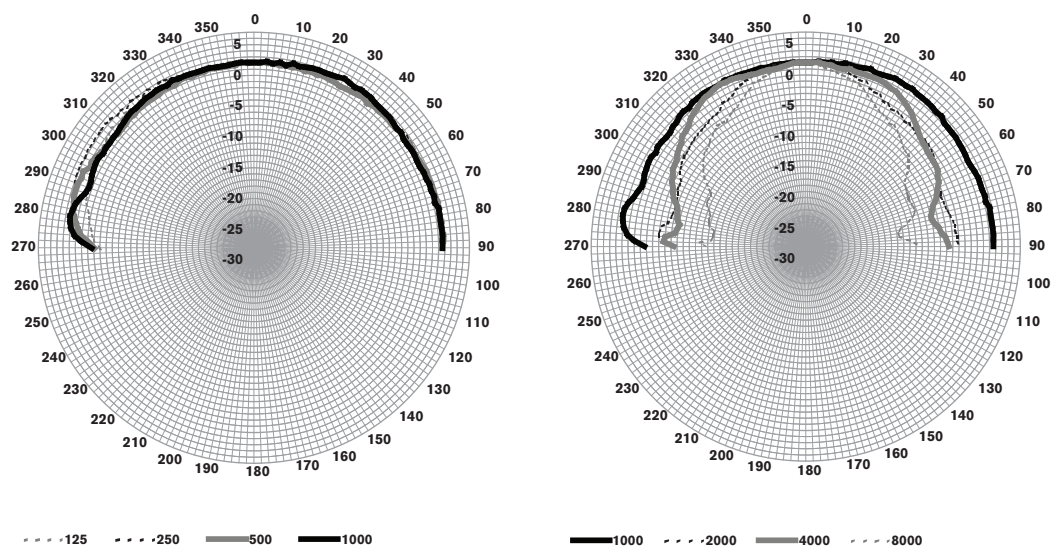


Figure 3.6: Frequency response



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

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 dBSPL).

3.5.3

LC1-UM06E8

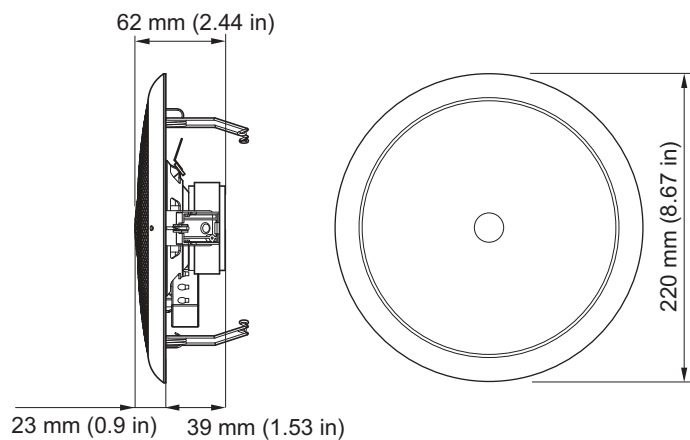


Figure 3.7: Dimensions

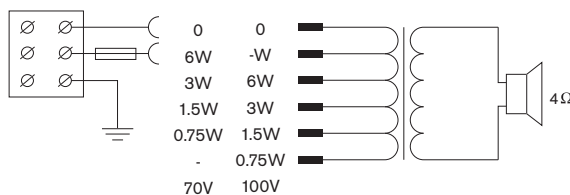


Figure 3.8: Circuit diagram

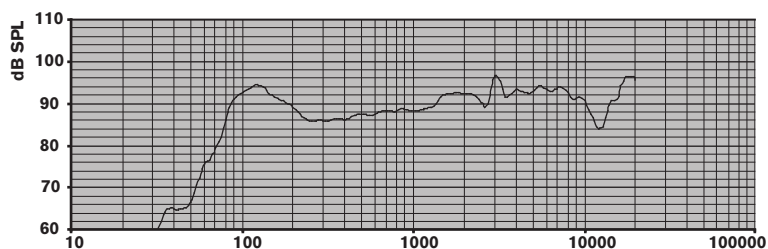
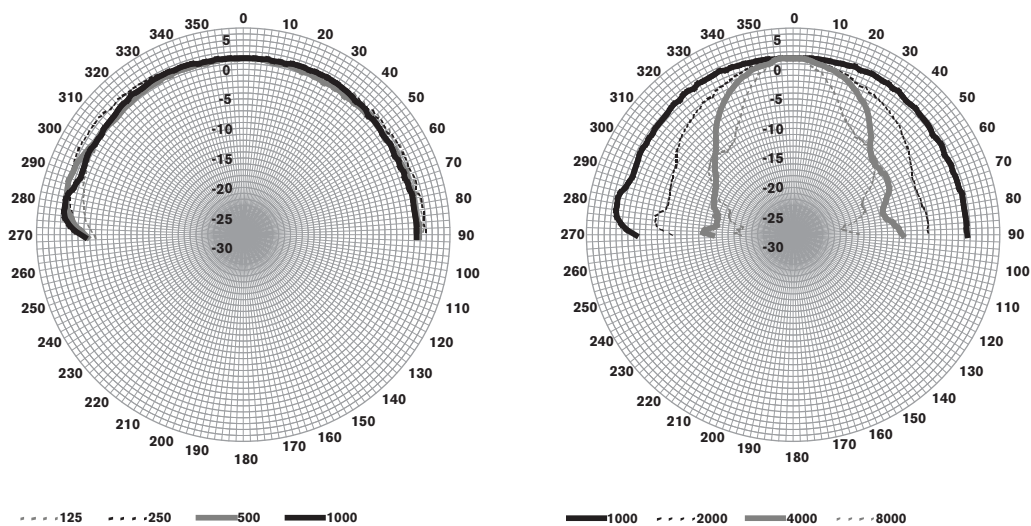


Figure 3.9: Frequency response



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 dBSPL).

3.5.4

LC1-UM12E8

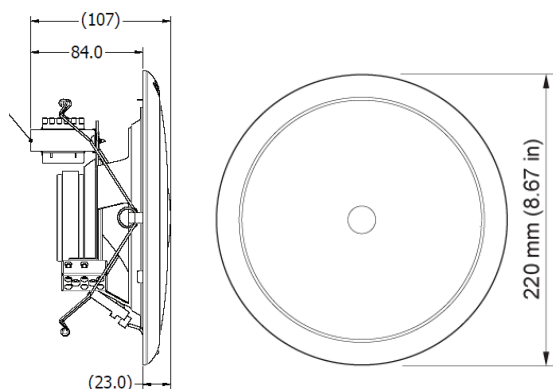


Figure 3.10: Dimensions

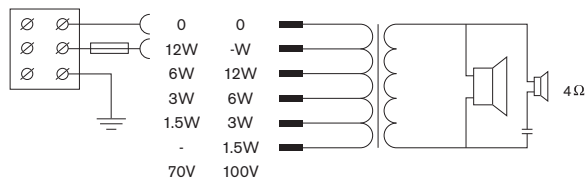


Figure 3.11: Circuit diagram

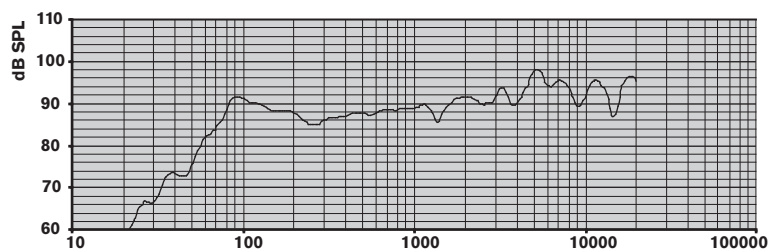
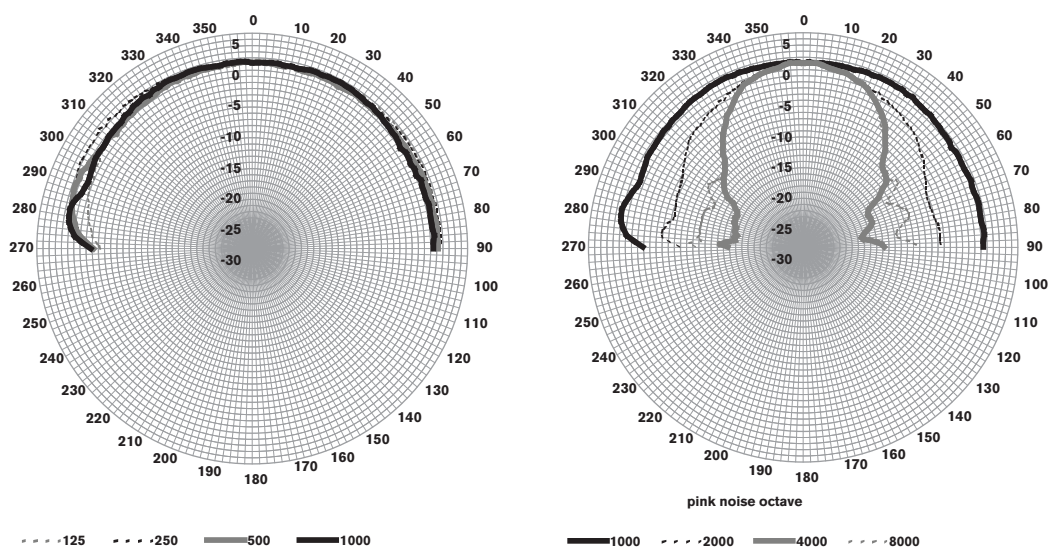


Figure 3.12: Frequency response



Polar diagrams

Octave band sensitivity LC1-UM12E8			
	Octave SPL 1W/1m	Total octave SPL 1W/1m	Total octave SPL Pmax/1m
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).

3.5.5

LC1-UM24E8

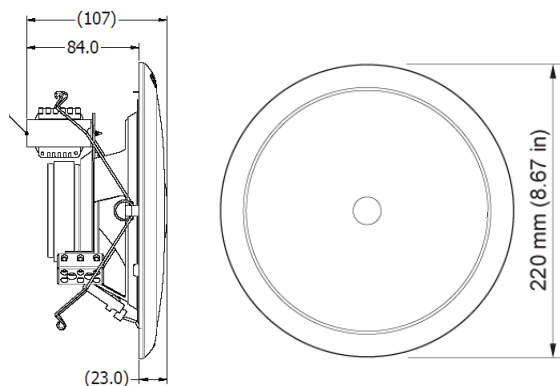


Figure 3.13: Dimensions

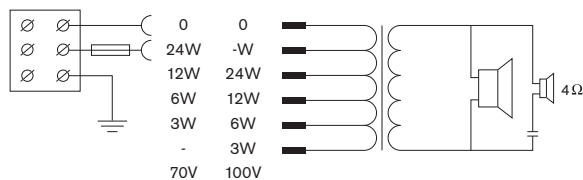


Figure 3.14: Circuit diagram

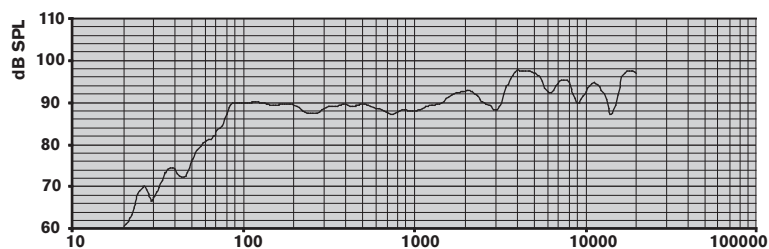
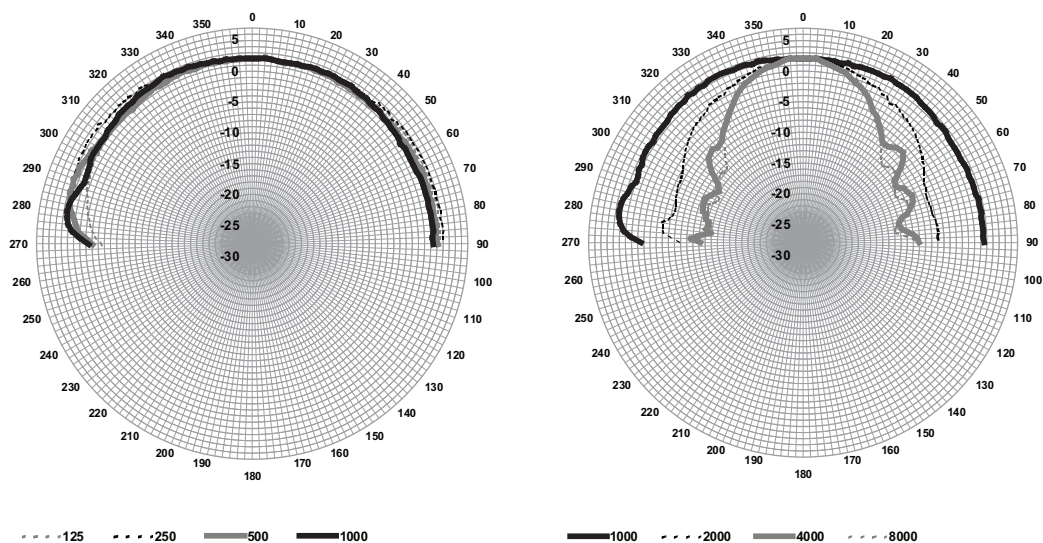


Figure 3.15: Frequency response



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).

3.6 EC declaration of conformity

 1438
Bosch Security Systems BV Torenallee 49, 5617 BA Eindhoven, the Netherlands 10 1438-CPR-0194
EN 54-24:2008 Loudspeaker for voice alarm systems for fire detection and fire alarm systems for buildings Ceiling Loudspeakers LC1-WC06E8, LC1-WM06E8, LC1-UM06E8, LC1-UM12E8, LC1-UM24E8 and accessories LC1-MFD, LC1-CSMB (+ LC1-MSK), LC1-CMR + LC1-CBB Type A DoP: LP022924

Figure 3.16: CE label

Bosch Security Systems B.V.

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Netherlands

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