

LC1 Modular Ceiling Loudspeaker Range

LC1-WC06E8 | LC1-WM06E8 | LC1-UM06E8 | LC1-UM12E8 |
LC1-UM24E8

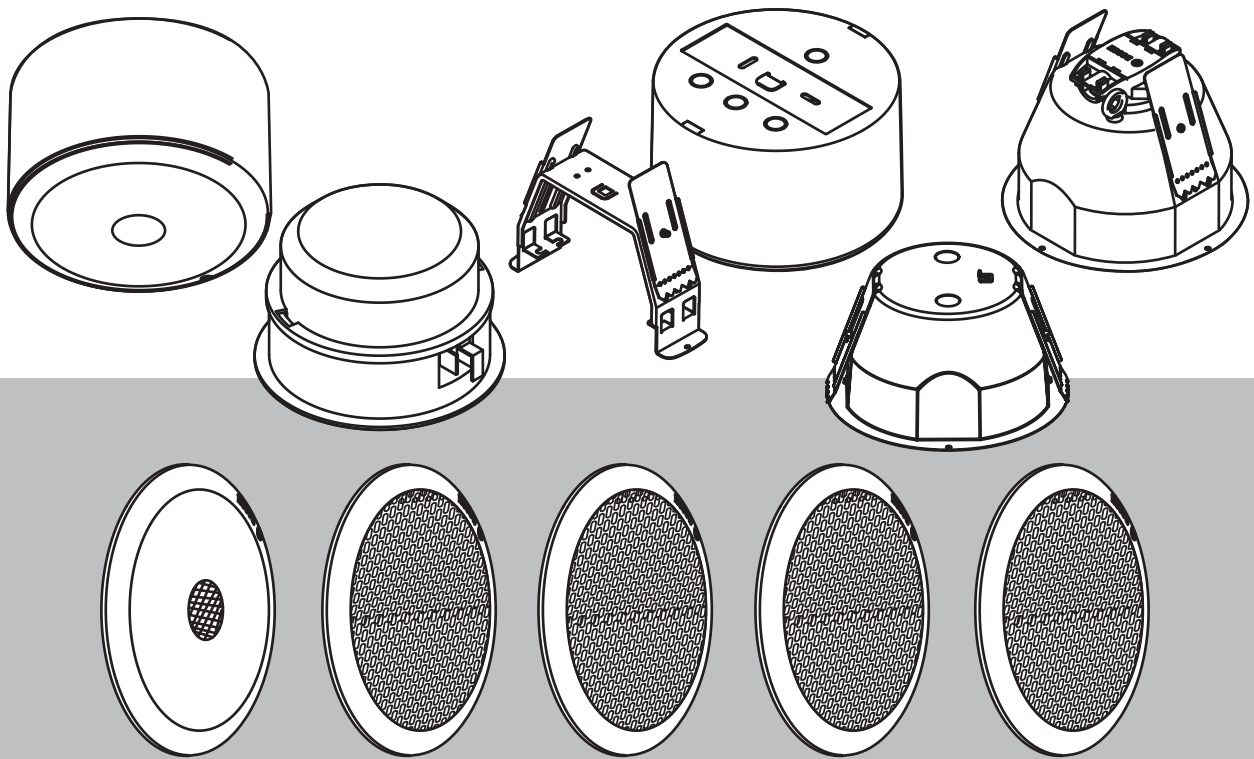
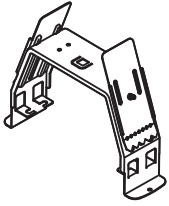


Table of contents

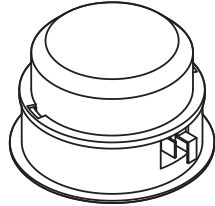
1	System Overview	4
1.1	Housings	4
1.2	Loudspeakers	5
1.3	Accessories	6
2	Installation	7
2.1	LC1-MMSB	7
2.2	LC1-CMR/LC1-CBB	11
2.3	LC1-MFD	14
2.4	LC1-MFDS	19
2.5	LC1-CSMB	24
3	Technical Data	28
3.1	Electrical*	28
3.2	Mechanical	30
3.3	Environmental conditions	32
3.4	Additional technical data	33
3.4.1	LC1-WC06E8	33
3.4.2	LC1-WM06E8	35
3.4.3	LC1-UM06E8	37
3.4.4	LC1-UM12E8	39
3.4.5	LC1-UM24E8	41
3.5	EC declaration of conformity	43
4	Certifications and approvals	44

1 System Overview

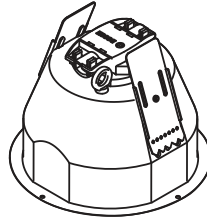
1.1 Housings



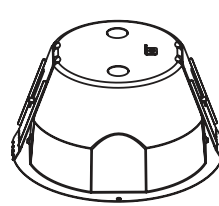
LC1-MMSB



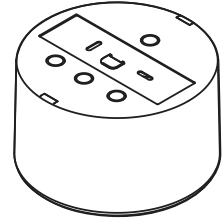
LC1-CMR / LC1-CBB



LC1-MFD



LC1-MFDS

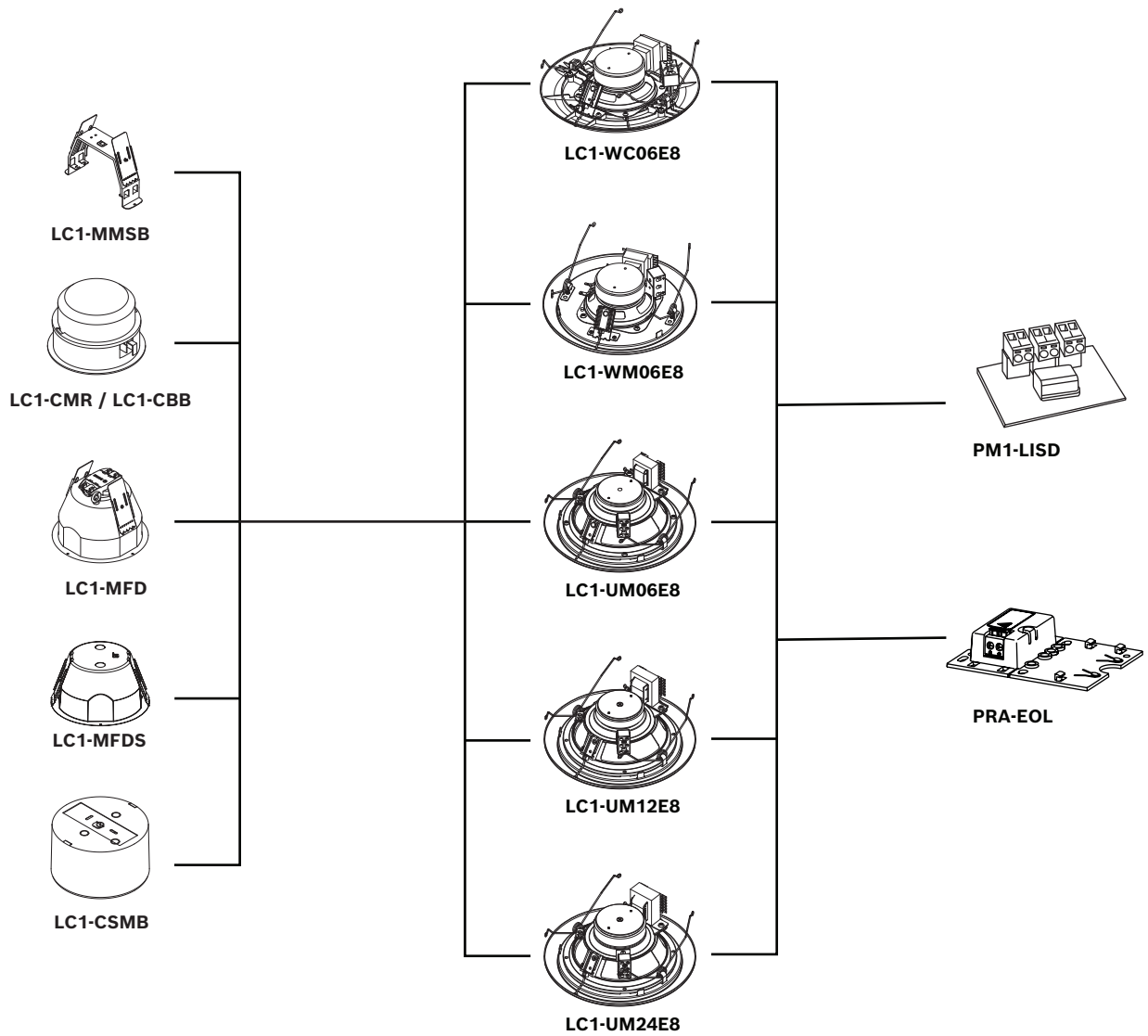


LC1-CSMB

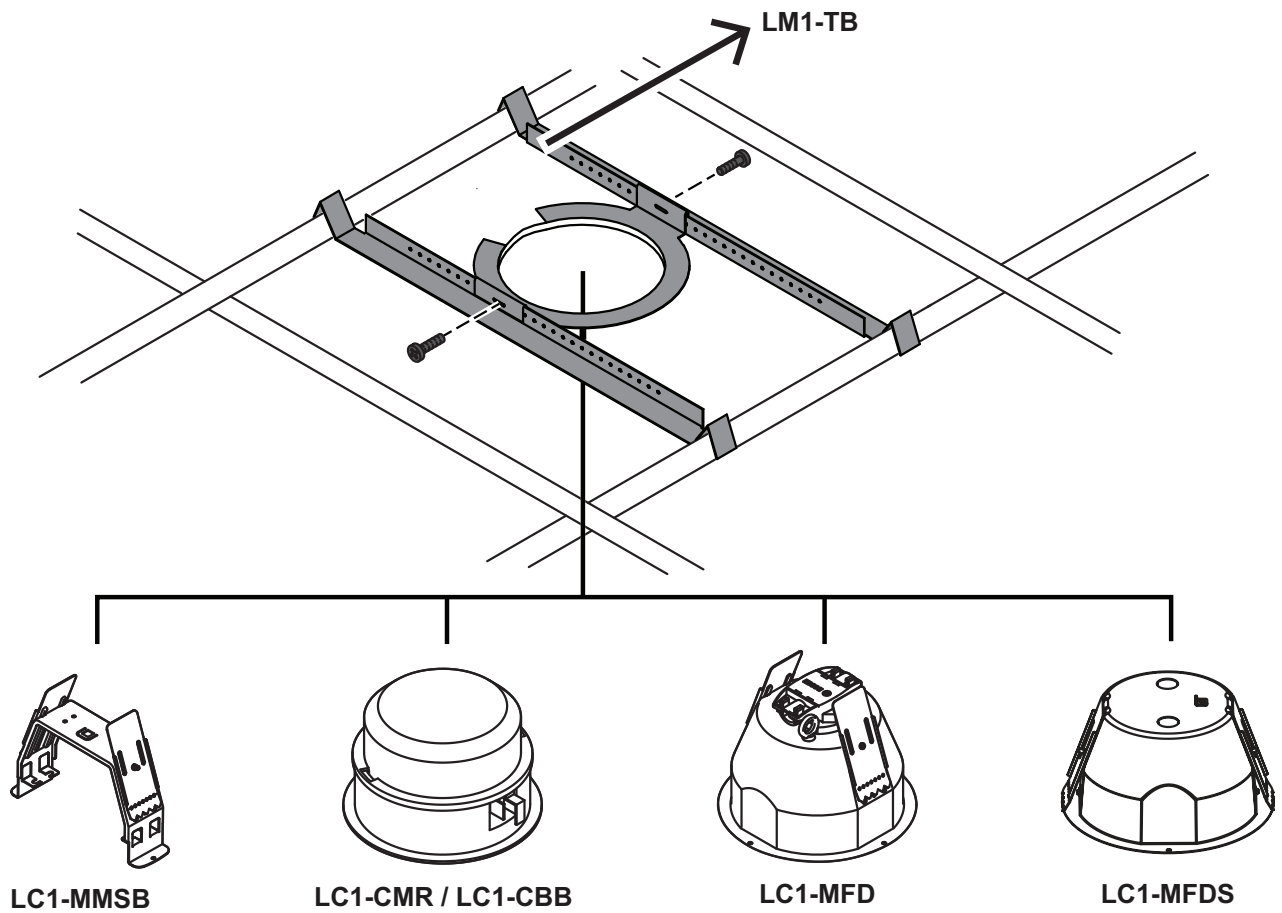
**Notice!**

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



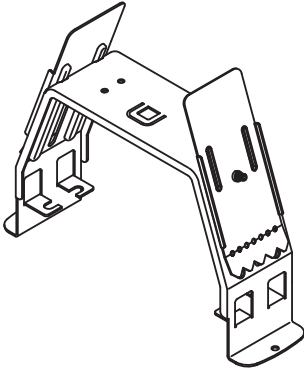
1.3 Accessories



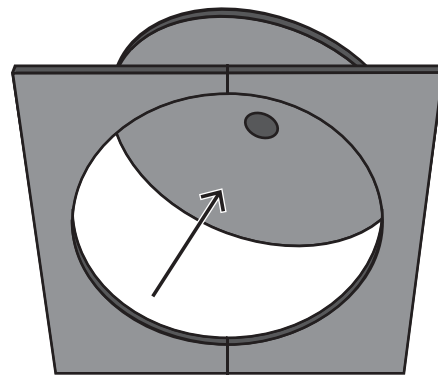
2 Installation

2.1 LC1-MMSB

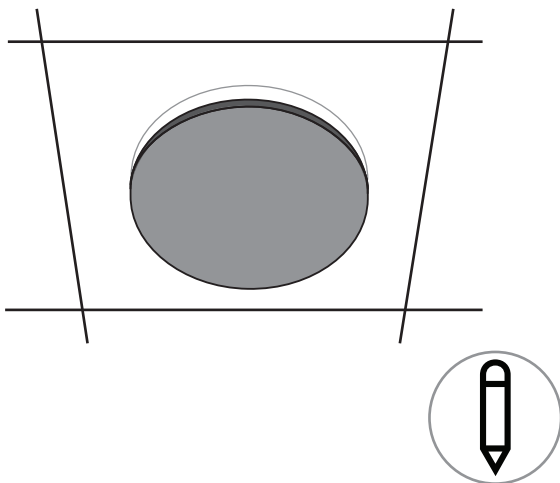
1.



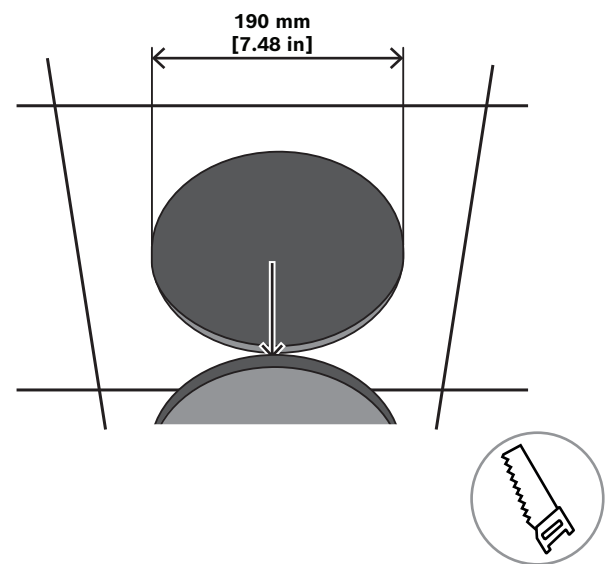
2.



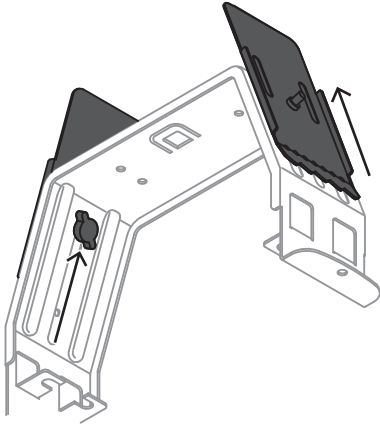
3.



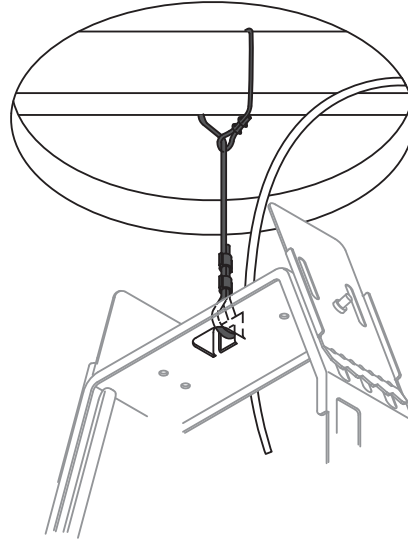
4.



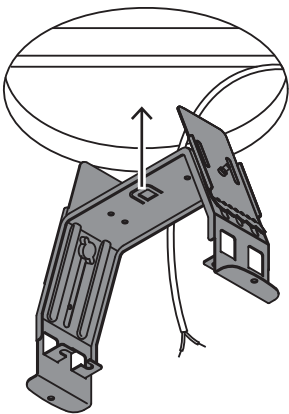
5.



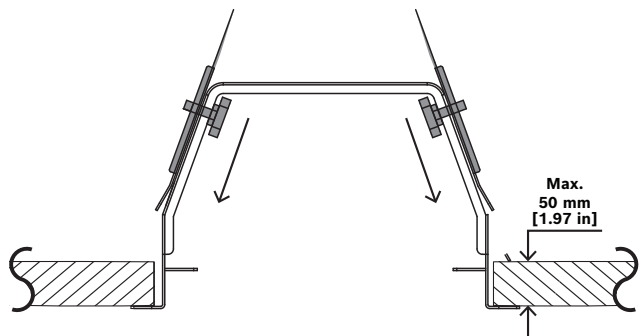
Optional



6.

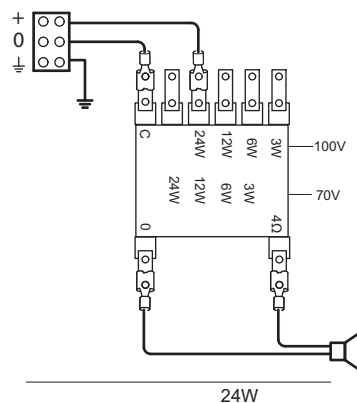
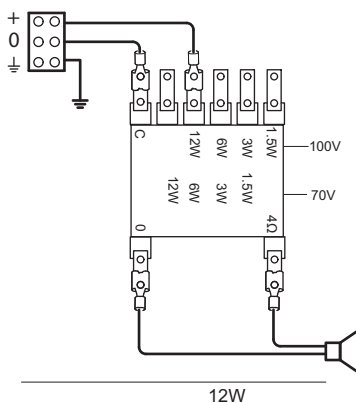
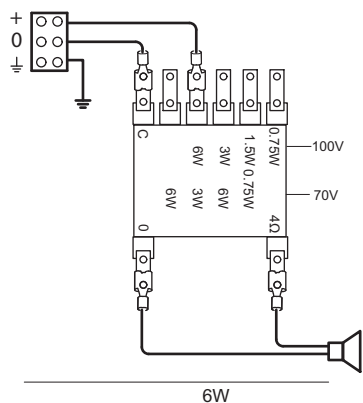
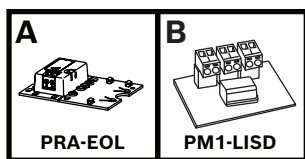
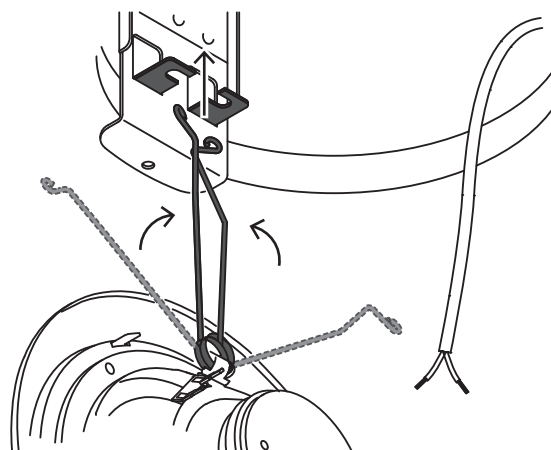
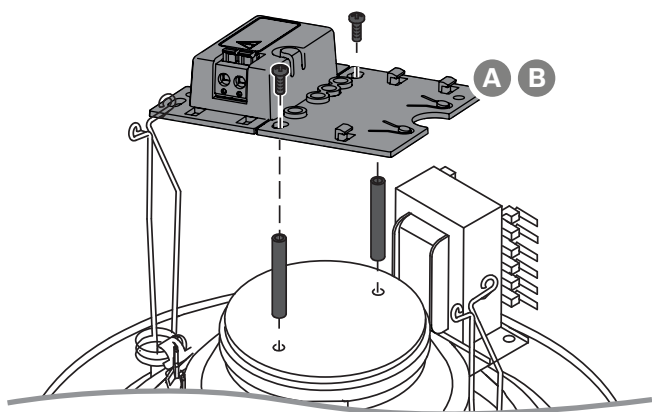


7.



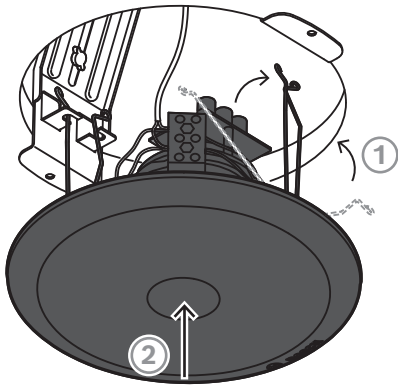
Optional

8.

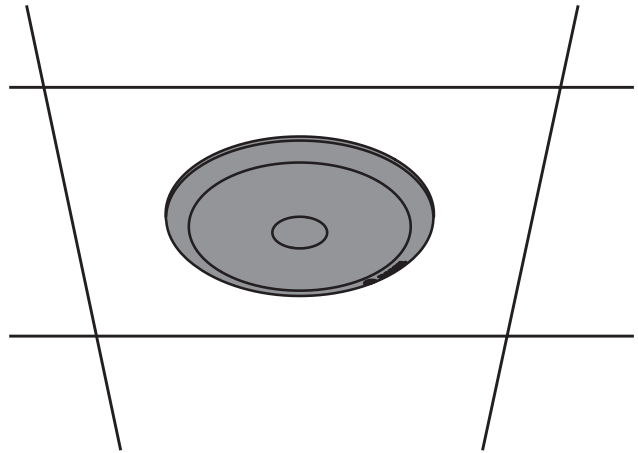


Notice! Standard connected to rated power at 100 V

9.

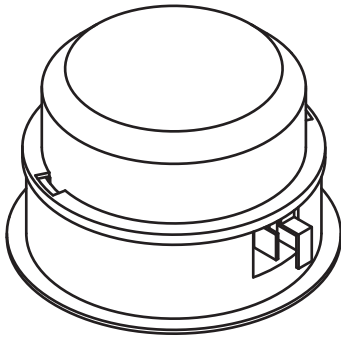


10.

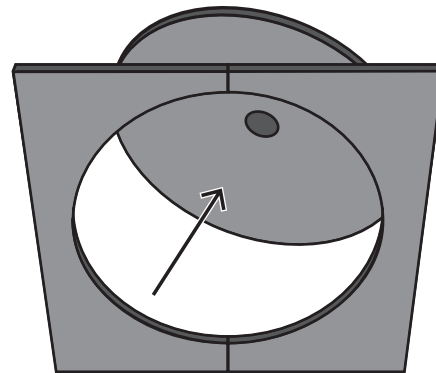


2.2 LC1-CMR/LC1-CBB

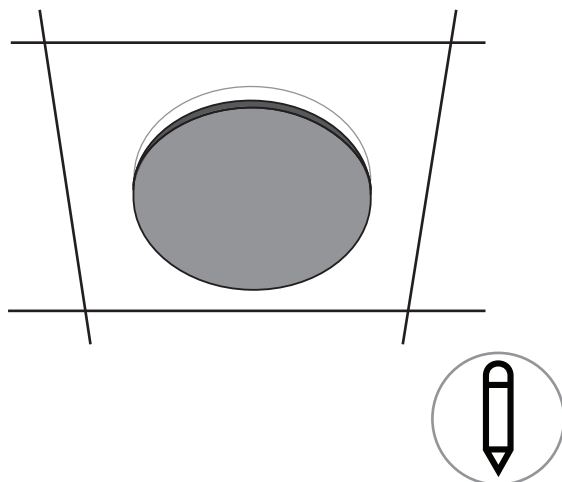
1.



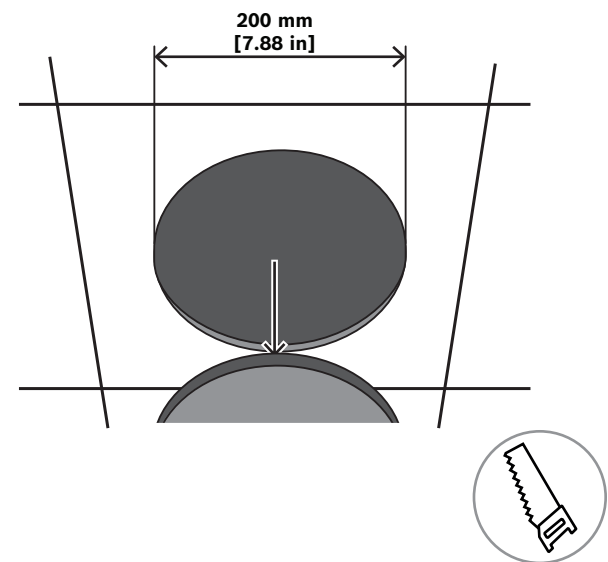
2.



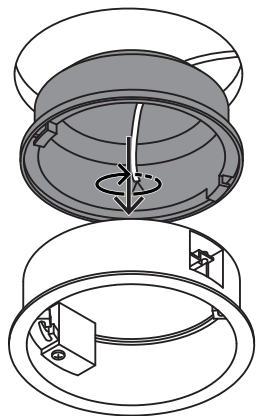
3.



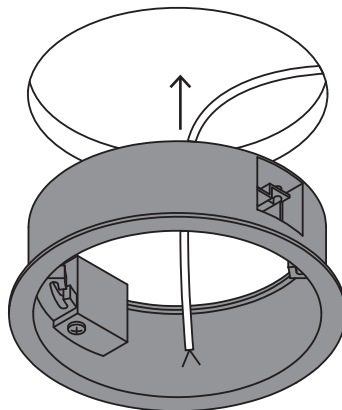
4.



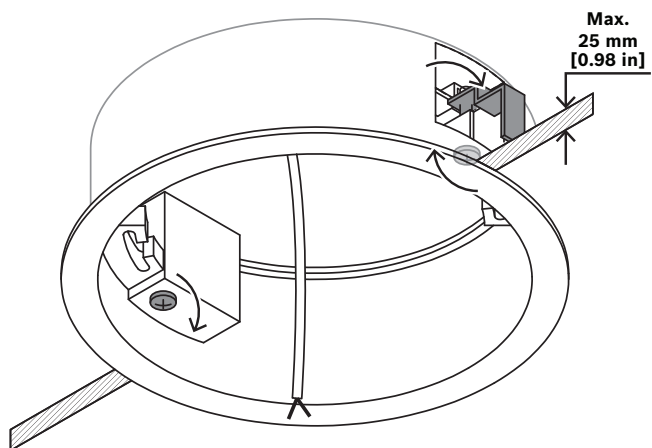
Optional



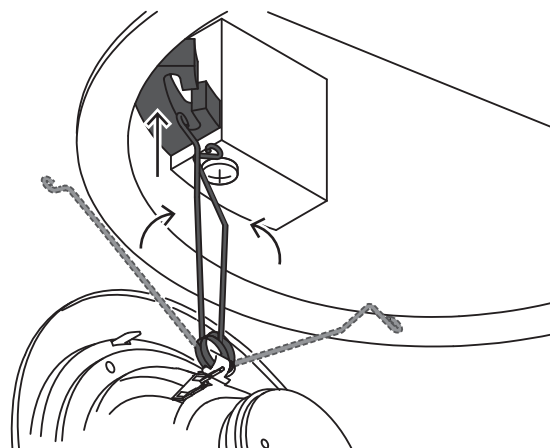
5.

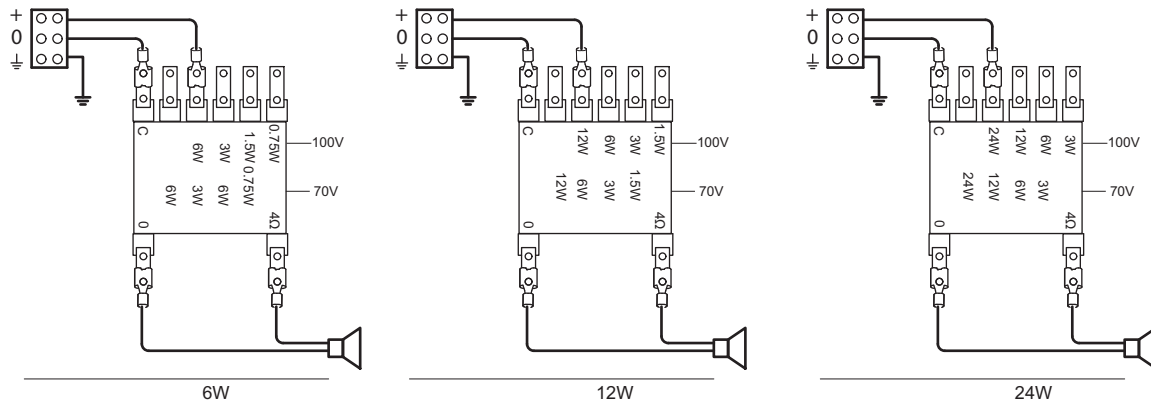


6.



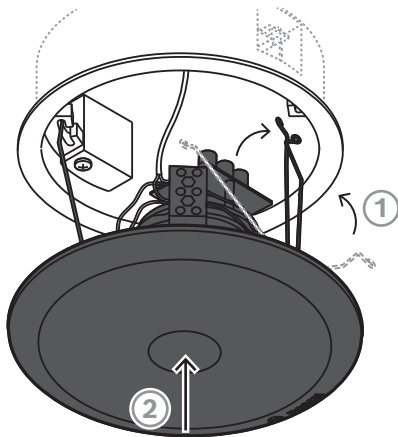
7.



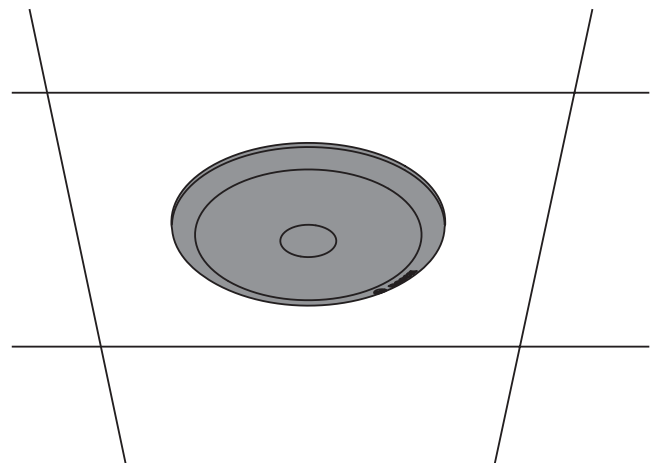


Notice! Standard connected to rated power at 100 V

8.

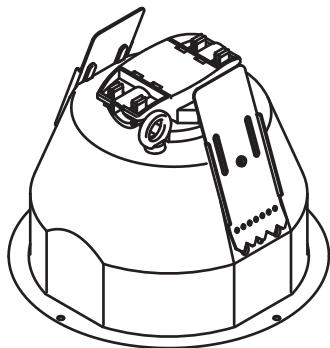


9.

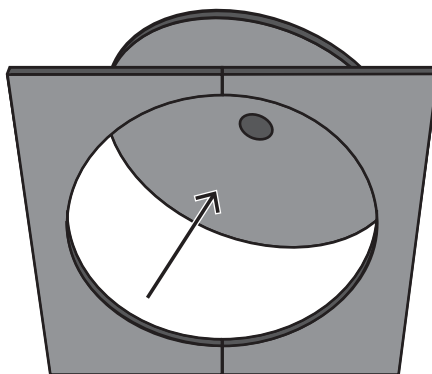


2.3 LC1-MFD

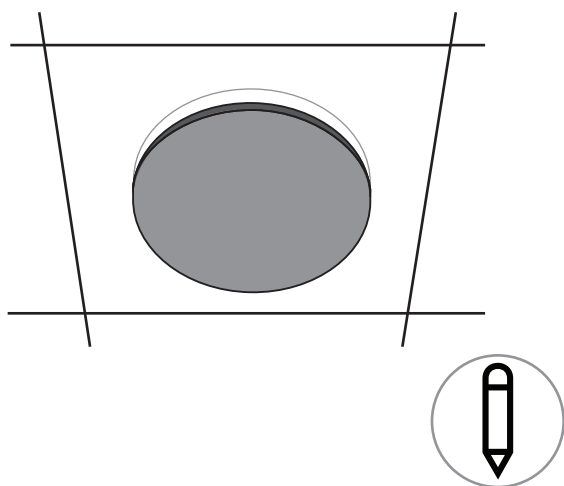
1.



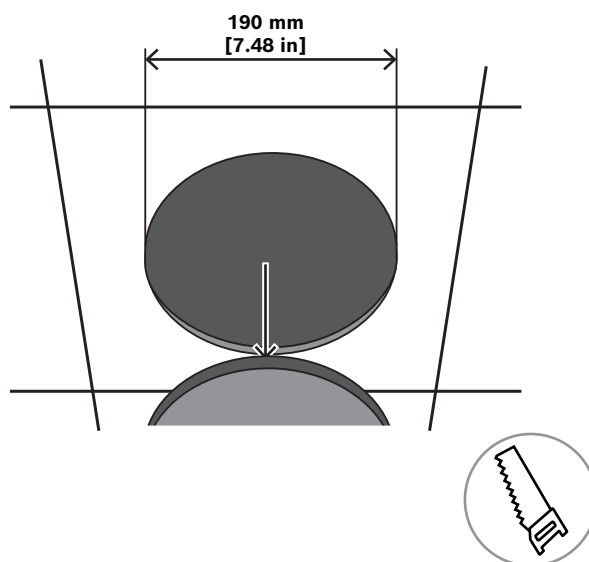
2.



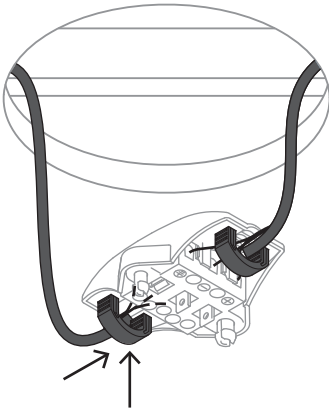
3.



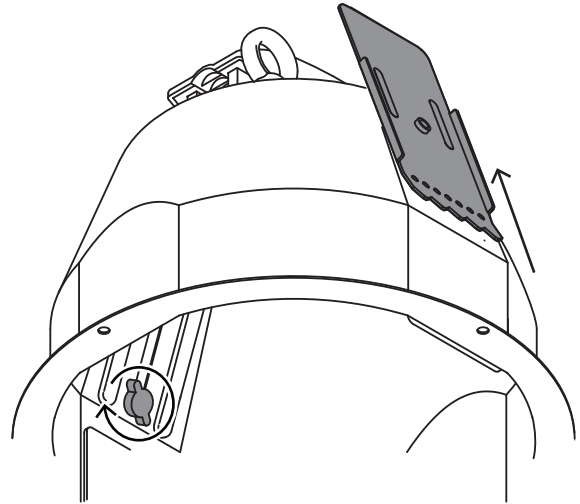
4.



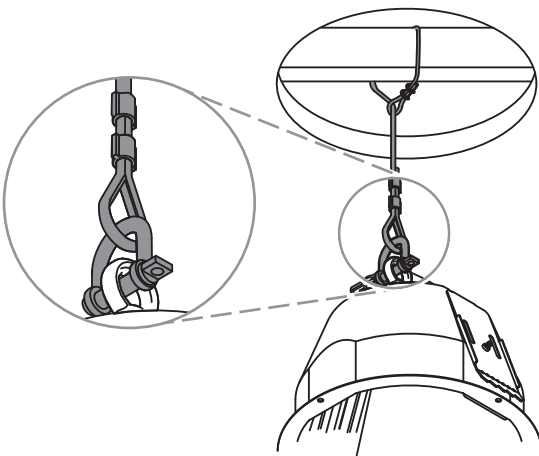
5.



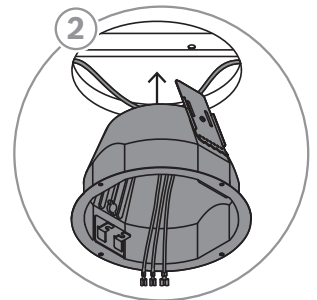
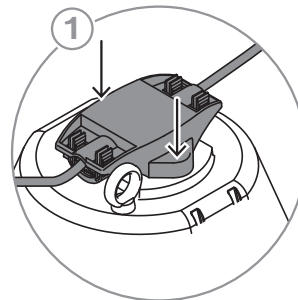
6.



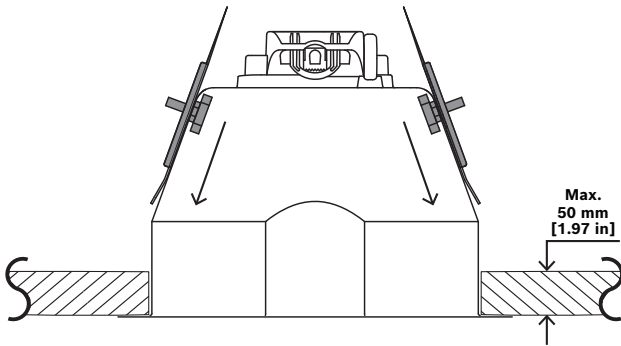
Optional



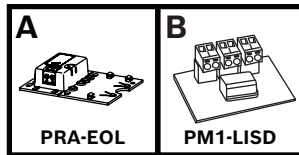
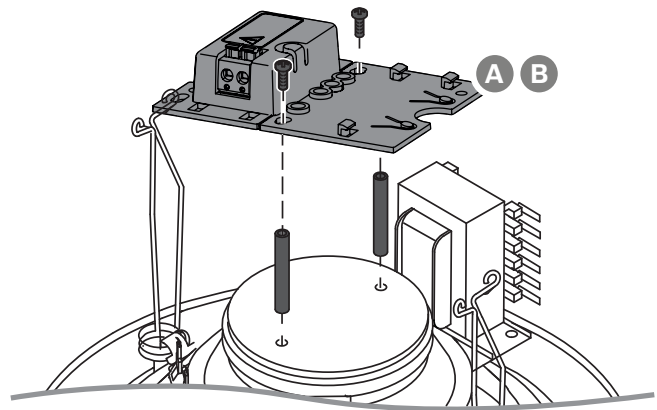
Notice! Push until you hear a click



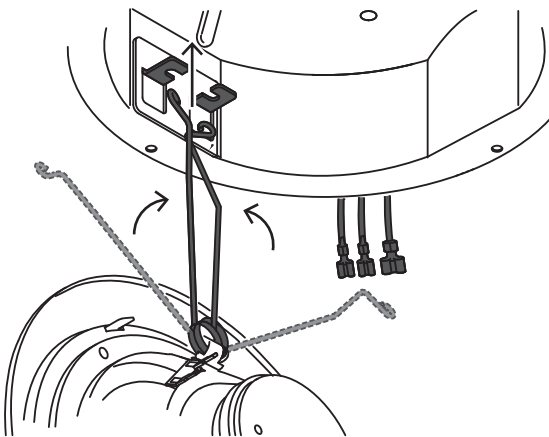
7.



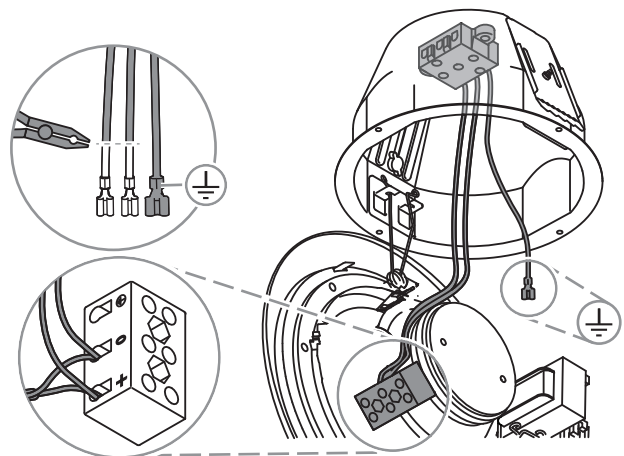
Optional



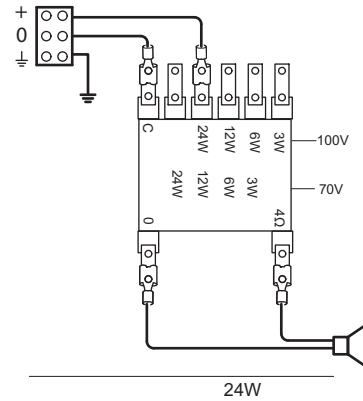
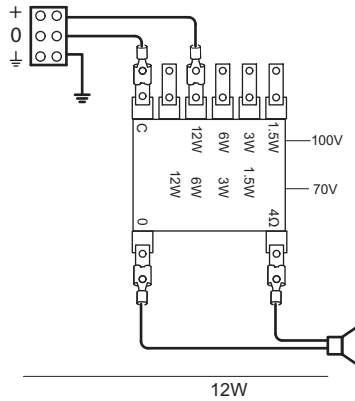
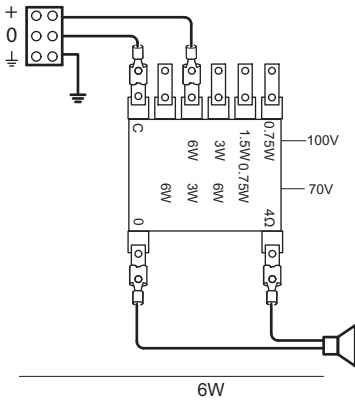
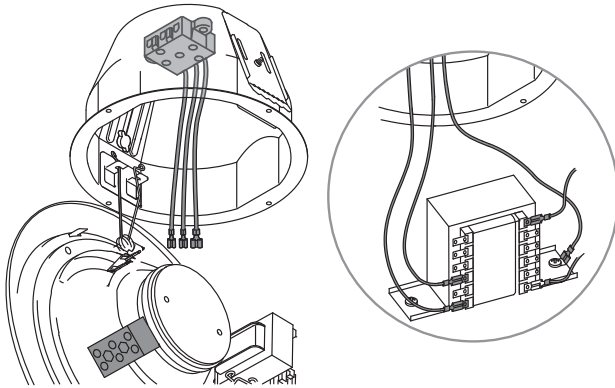
8.



9.

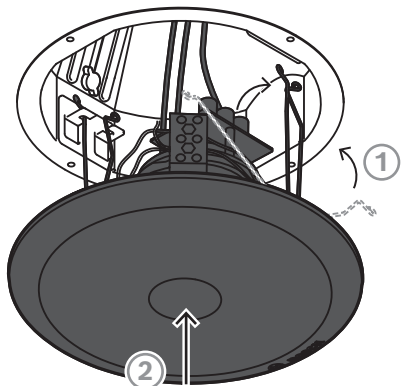


10.

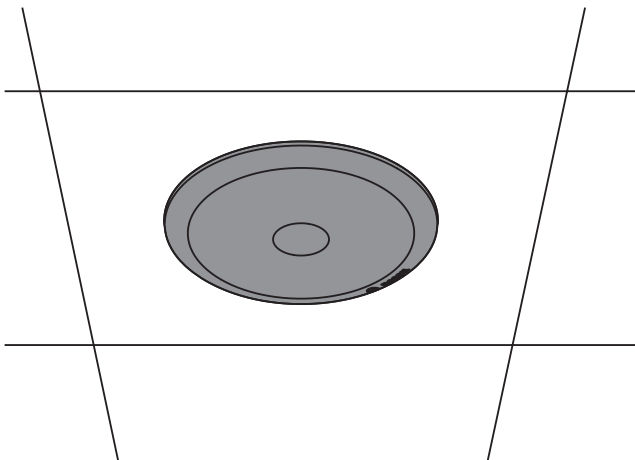


Notice! Standard connected to rated power at 100 V

11.

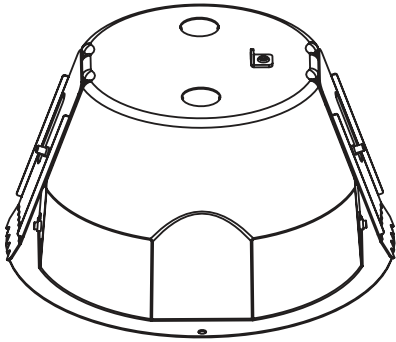


12.

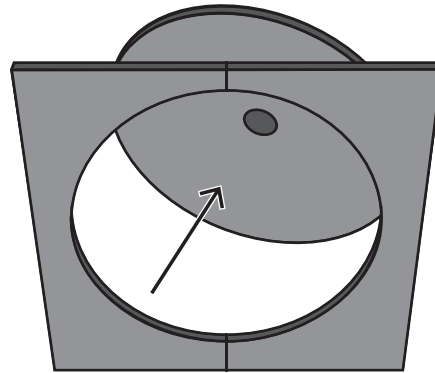


2.4 LC1-MFDS

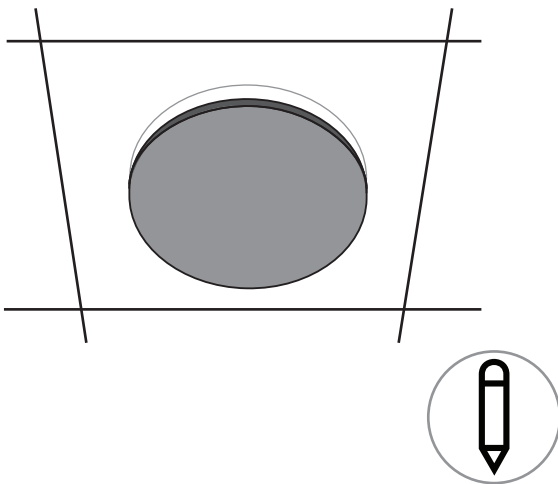
1.



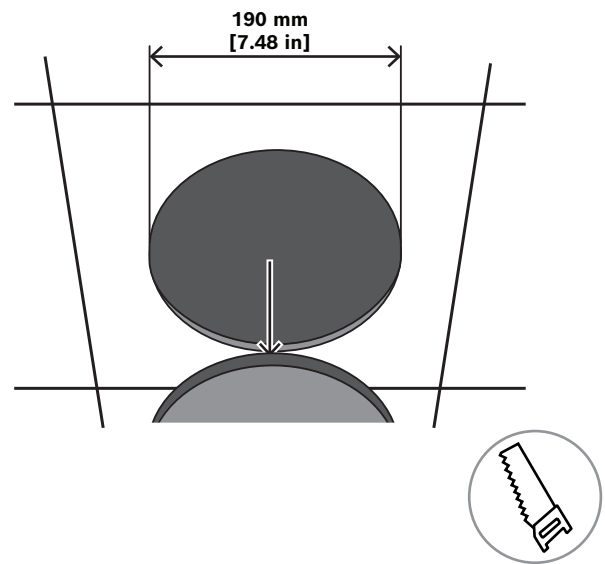
2.



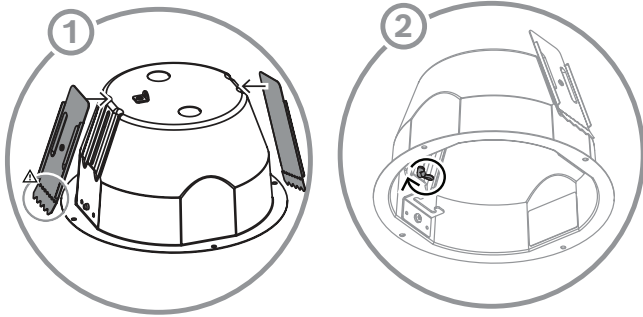
3.



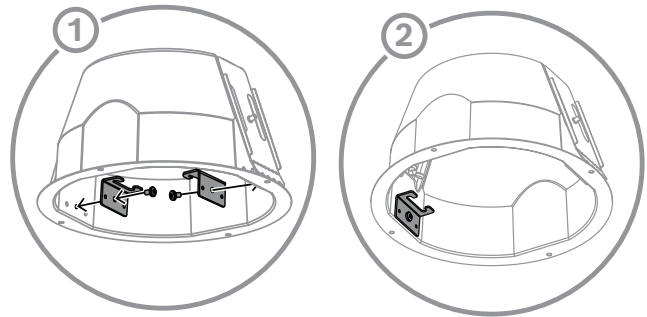
4.



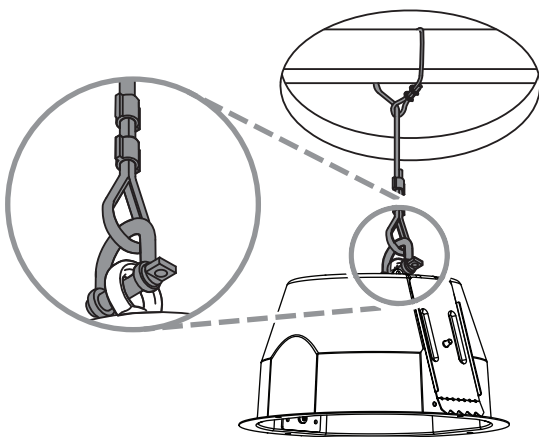
5.



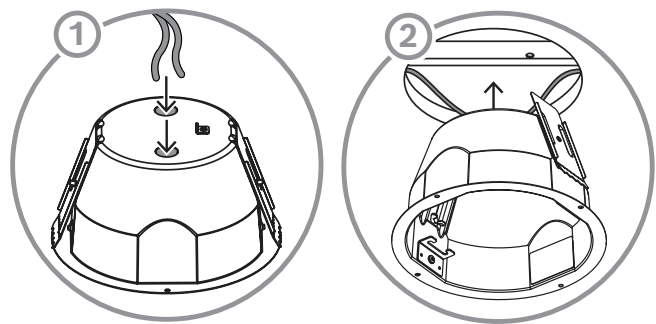
6.



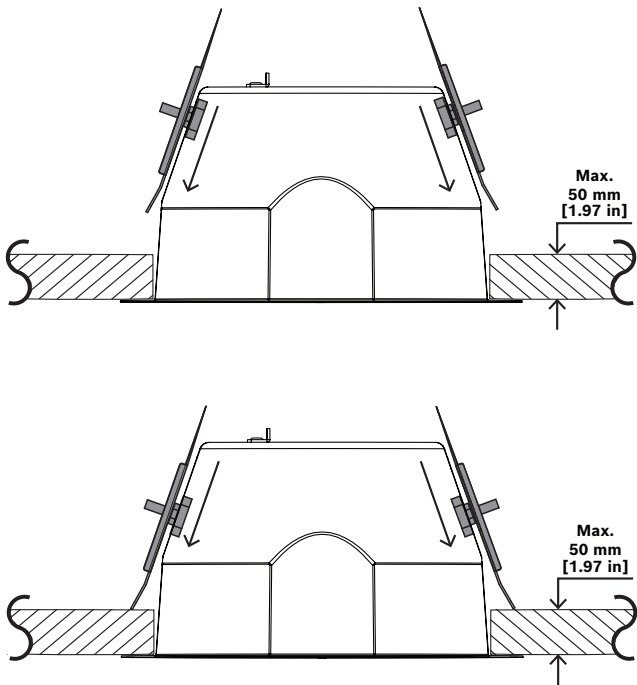
Optional



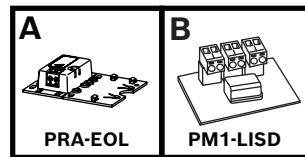
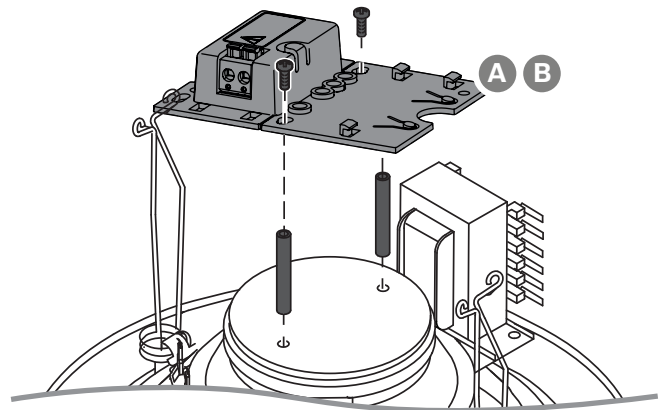
7.



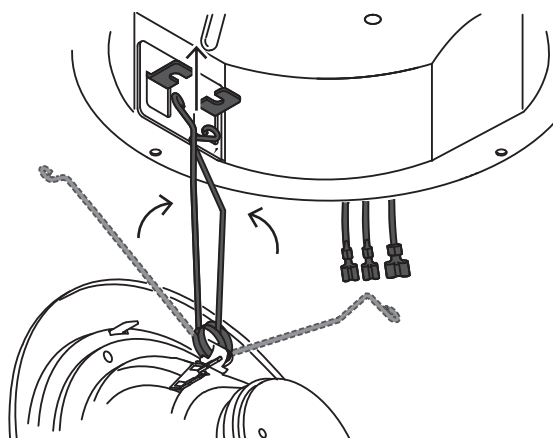
8.



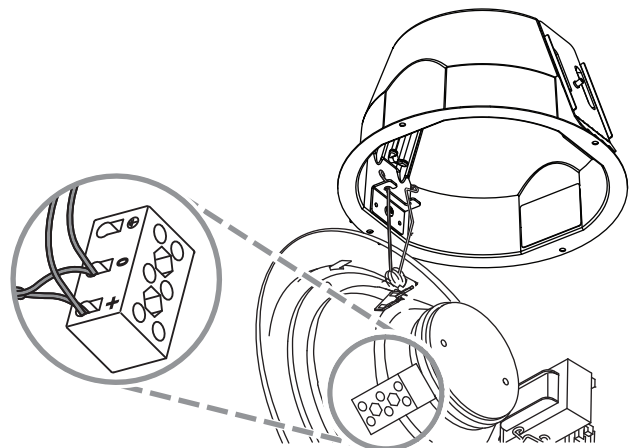
Optional



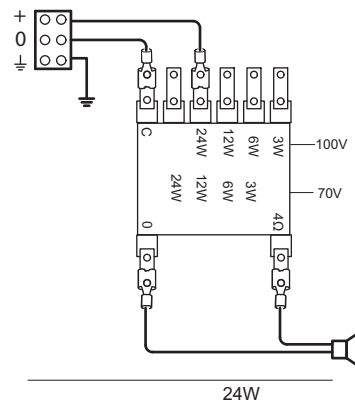
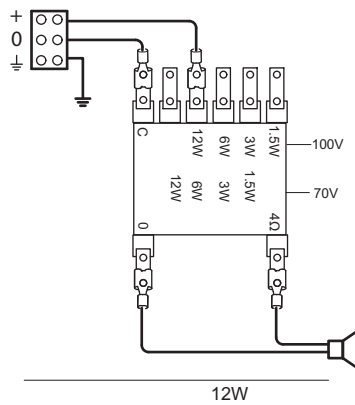
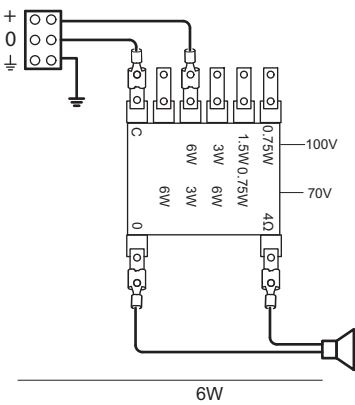
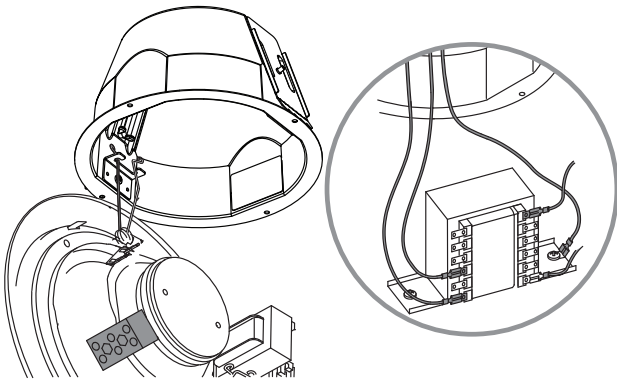
9.



10.

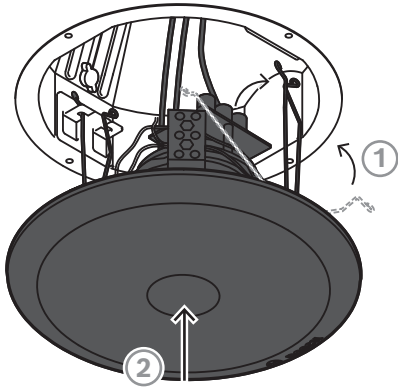


11.

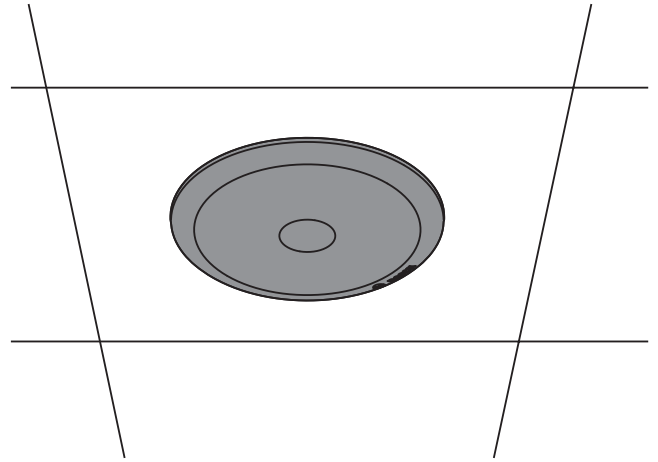


Notice! Standard connected to rated power at 100 V

12.

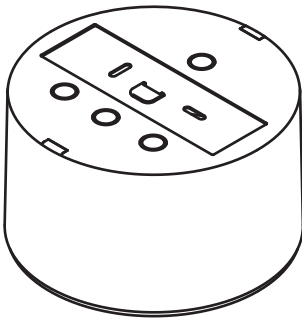


13.

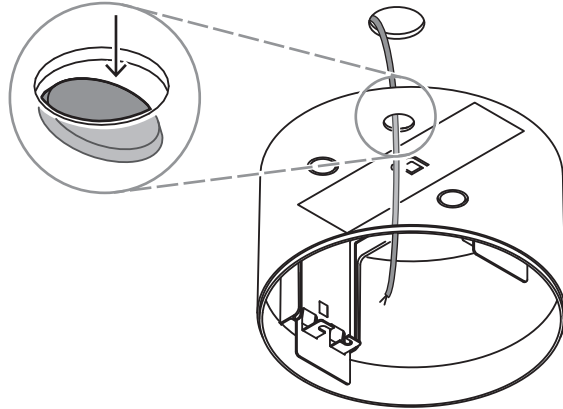


2.5 LC1-CSMB

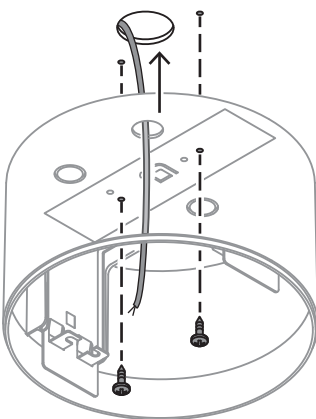
1.



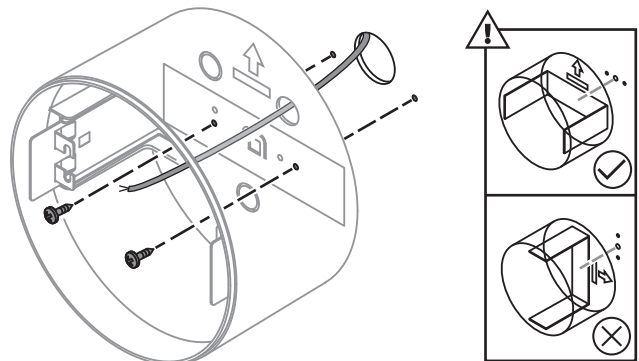
2.



3.

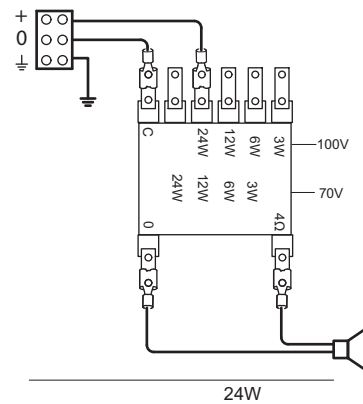
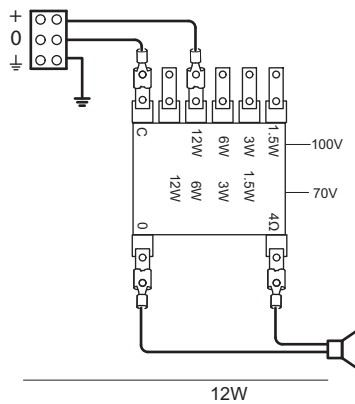
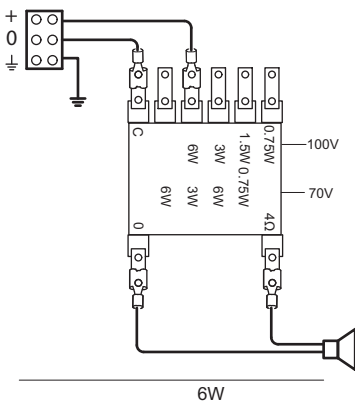
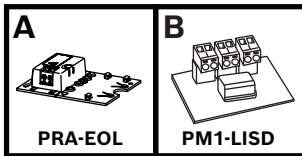
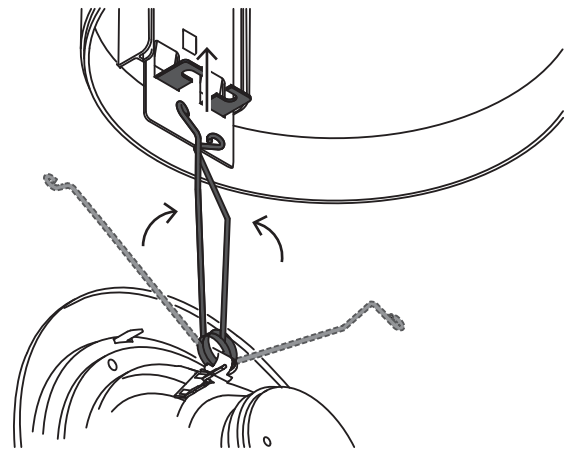
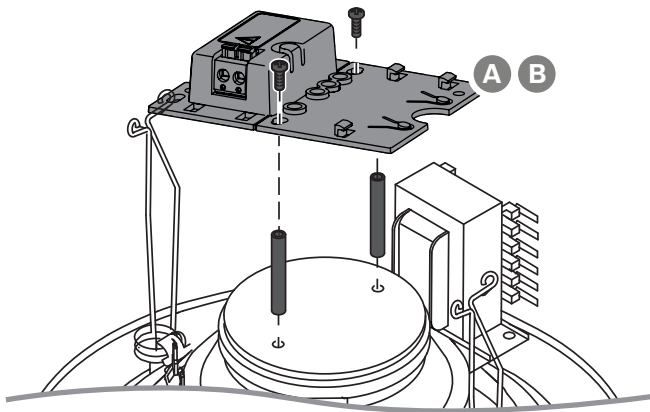


4.



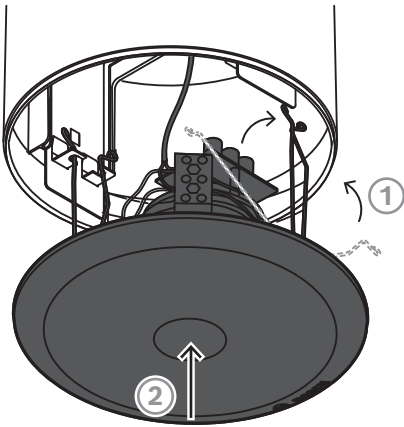
Optional

5.

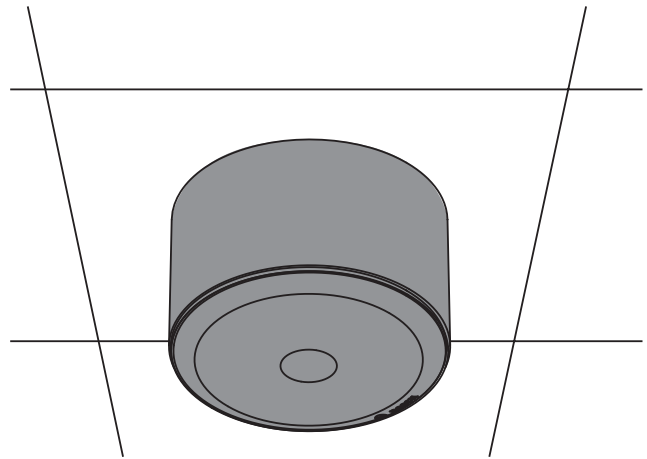


Notice! Standard connected to rated power at 100 V

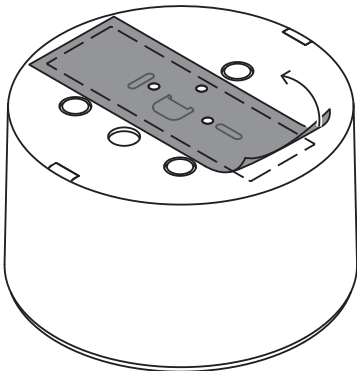
6.



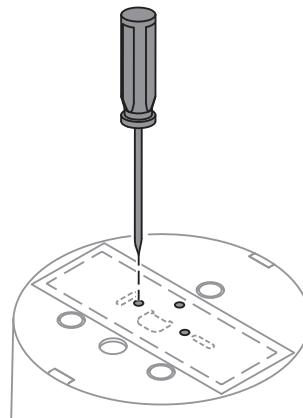
7.



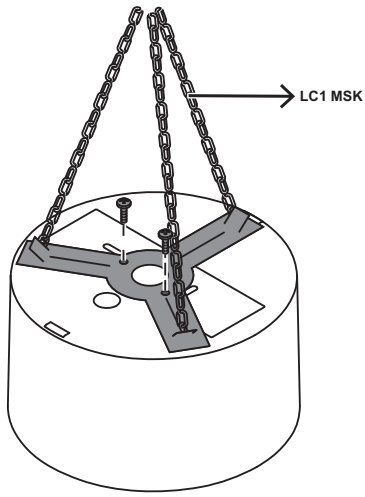
Optional



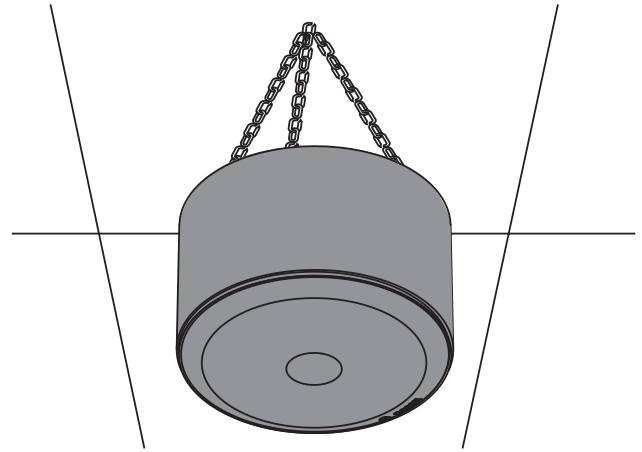
Optional



Optional



Optional



3 Technical Data

3.1 Electrical*

	LC1-WC06E8		
Description	Ceiling loudspeaker		
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
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		
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-MFDS
Description	Metal Fire Dome (including ceramic connector)	Metal Fire Dome with grommets
Dimensions	215 x 155 mm (8.47 x 6.1 in)	215 x 127 mm (8.47 x 5 in)
Mounting cut-out	190 mm (7.48 in)	190 mm (7.48 in)
	Cut-out template included	Cut-out template included
Material	Steel	Steel
Color	Flame red (RAL 3000)	Flame red (RAL 3000)
Weight	1 kg (2.20 lb)	0.635 kg (1.40 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 Additional technical data

3.4.1 LC1-WC06E8

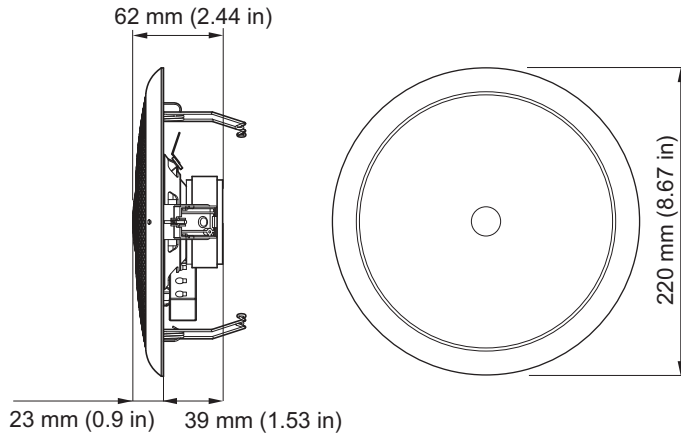


Figure 3.1: Dimensions

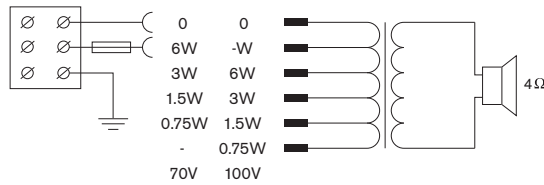


Figure 3.2: Circuit diagram

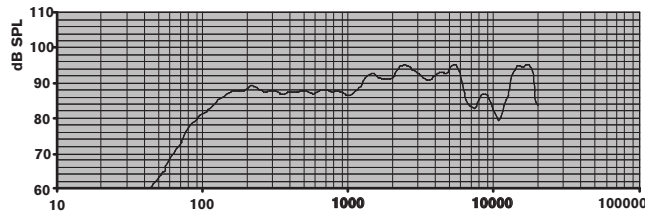
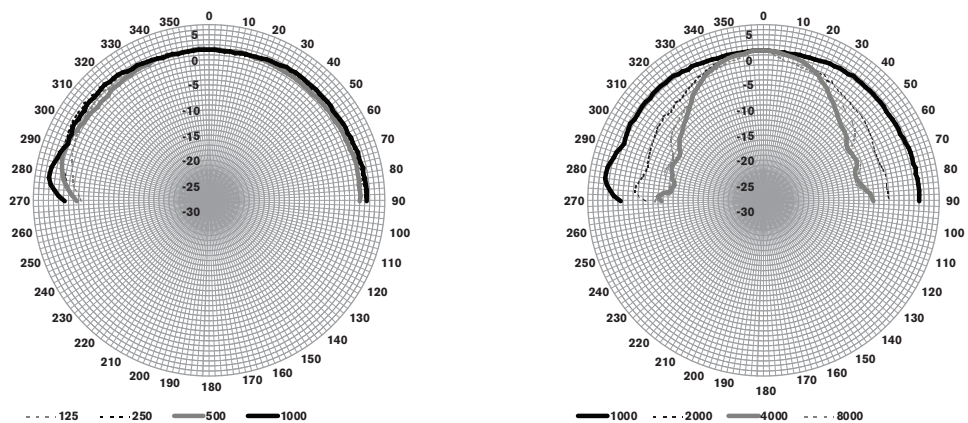


Figure 3.3: Frequency response



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).*

3.4.2

LC1-WM06E8

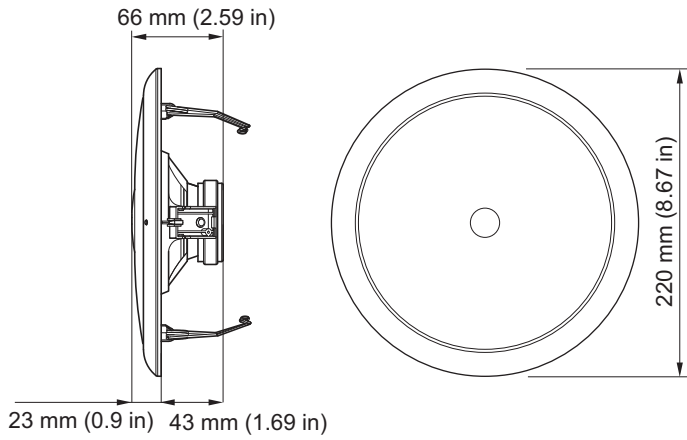


Figure 3.4: Dimensions

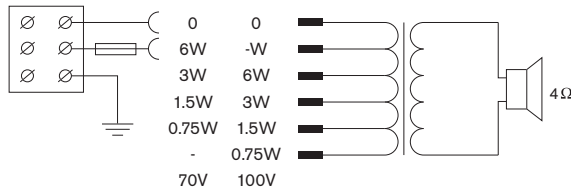


Figure 3.5: Circuit diagram

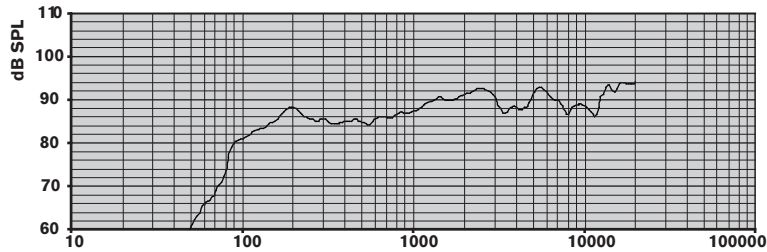
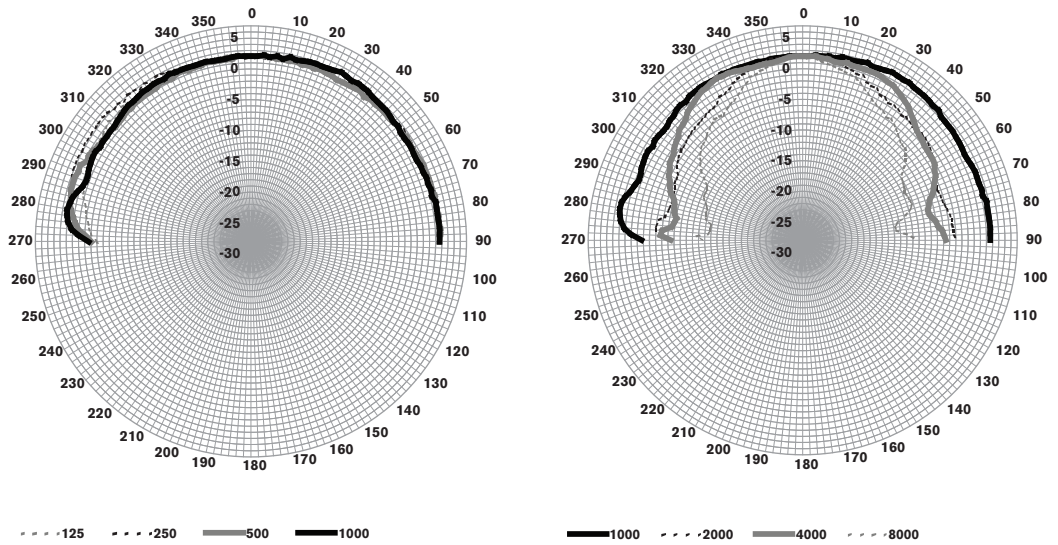


Figure 3.6: Frequency response



Polar diagrams

Octave band sensitivity LC1-WM06E8			
	Octave SPL	Total octave SPL	Total octave SPL

	1W/1m	1W/1m	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).*

3.4.3

LC1-UM06E8

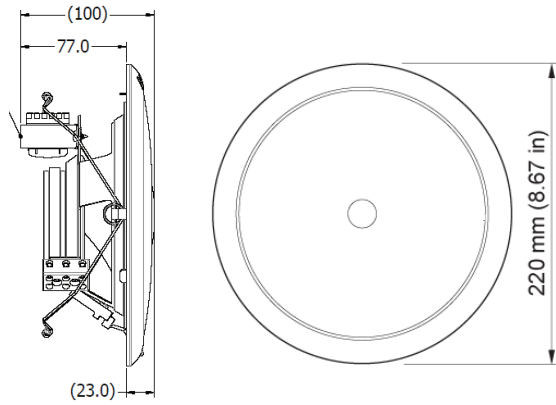


Figure 3.7: Dimensions

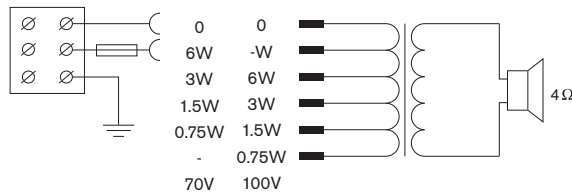


Figure 3.8: Circuit diagram

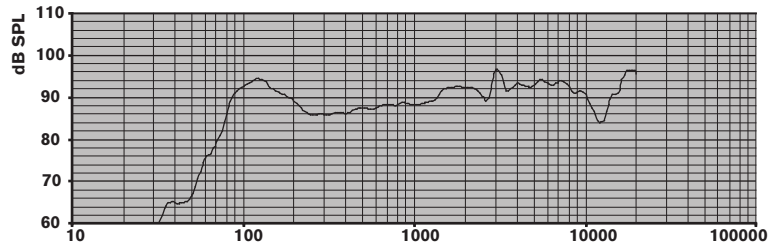
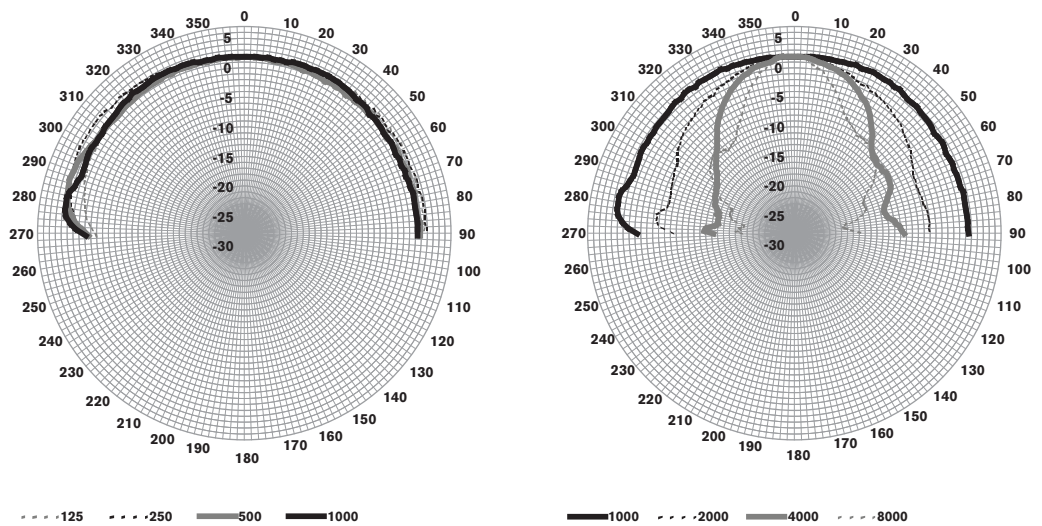


Figure 3.9: Frequency response



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).*

Sound pressure level @ 10 feet (3.1 m)

Voltage (Vrms)	Tap (W)	OSPL (dBA) @ 10 ft
70	6	87
	3	84
	1.5	82
	0.75	79
100	6	87
	3	84
	1.5	82
	0.75	79

3.4.4

LC1-UM12E8

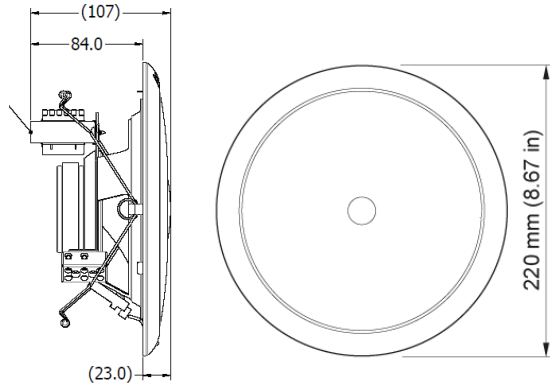


Figure 3.10: Dimensions

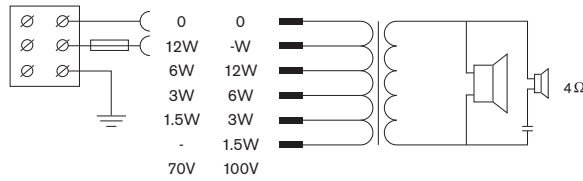


Figure 3.11: Circuit diagram

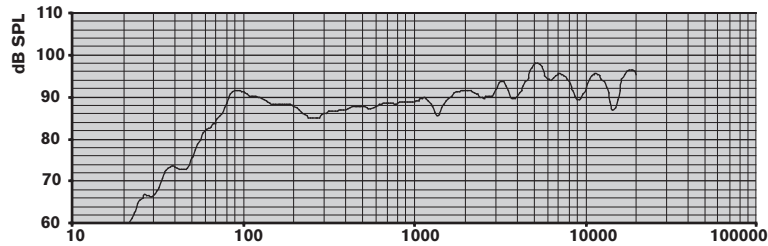
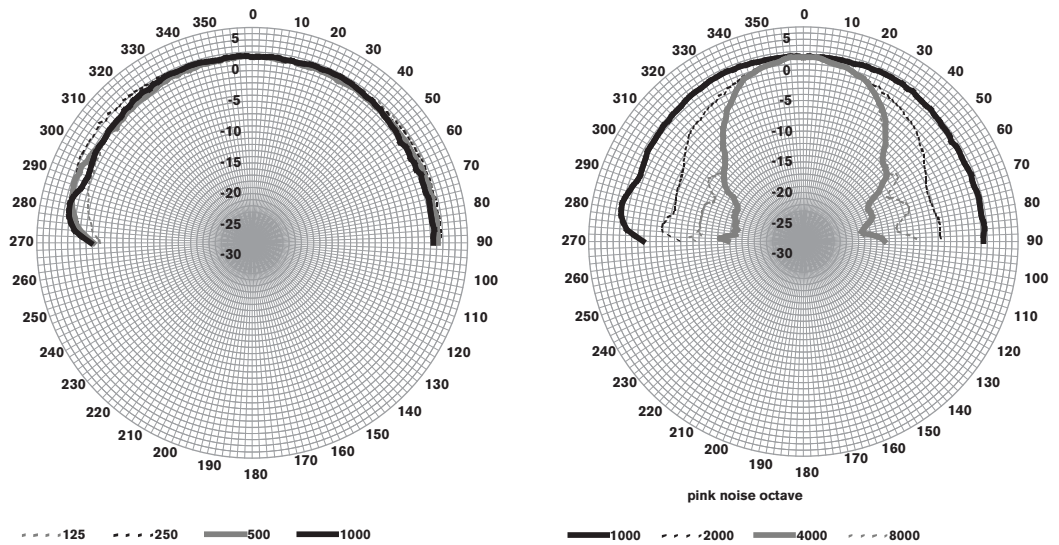


Figure 3.12: Frequency response



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).*

Sound pressure level @ 10 feet (3.1 m)

Voltage (Vrms)	Tap (W)	OSPL (dBA) @ 10 ft
70	12	87
	6	85
	3	82
	1.5	79
100	12	87
	6	84
	3	82
	1.5	78

3.4.5

LC1-UM24E8

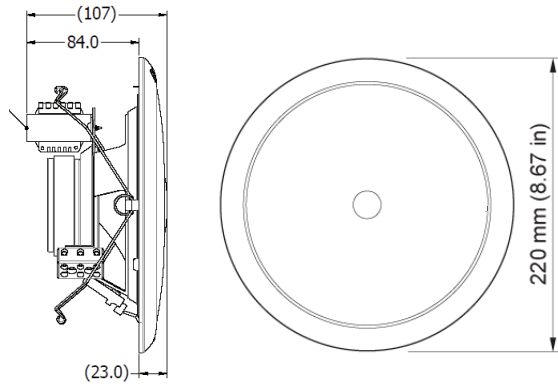


Figure 3.13: Dimensions

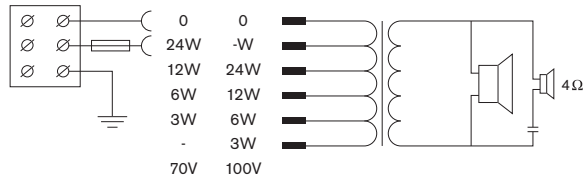


Figure 3.14: Circuit diagram

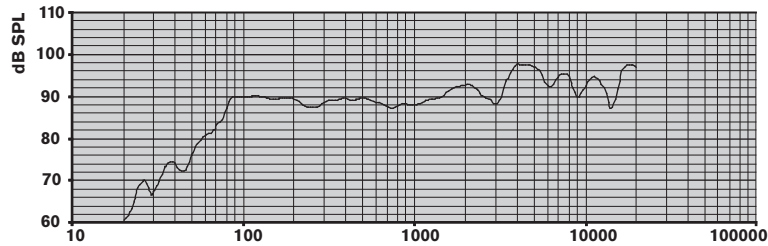
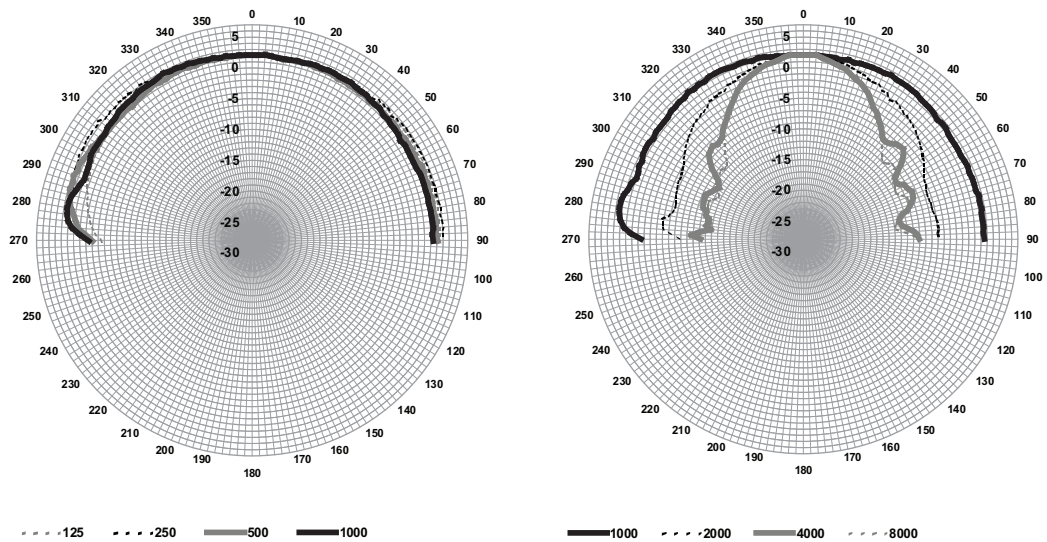


Figure 3.15: Frequency response




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).*

3.5 EC declaration of conformity

 1438		
Bosch Security Systems BV Torenallee 49,5617 BA Eindhoven, the Netherlands		
Loudspeaker for voice alarm system type LC1-WC06E8, LC1-WM06E8, LC1-UM06E8, LC1-UM12E8, LC1-UM24E8 with “fire dome” type LC1-MFD, LC1-MFDS, LC1CSMB (+LC1-MSK), LC1-CMR- + LC1-CBB	EN 54-24 10 1438-CPR-0194 DoP: LP022924v2 Environmental type: A Fire safety	For use only with speakers as indicated in the Installation Manual V03 F.01U.406.762

4 Certifications and approvals

Safety ¹	according to IEC/EN 62368-1
Emergency ²	according to EN 54-24 according to BS 5839-8
UL listed	1480/2043
Ball-proof	according to DIN VDE 0710 part 13
Water and dust protection ³	according to IEC/EN 60529, IP21C
Water and dust protection ⁴	according to IEC/EN 60529, IP33
Salt mist ⁵	according to IEC-68-2-11 Ka

¹ Valid for LC1-WC06E8, LC1-WM06E8, LC1-UM06E8, LC1-UM12E8, LC1-UM24E8 and LC1-PIB.

² Only in combination with the LC1-MFD or LC1-CSMB (+LC1-MSK) or LC1-CMR + LC1-CBB or LC1-MFDS.

³ Only in combination with the LC1-MFD or LC1-CMR including LC1-CBB or LC1-MFDS.

⁴ and ⁵ 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.



Notice!

System installation and servicing by qualified personnel only, in accordance with applicable local codes. No user-serviceable parts inside.

Building solutions for a better life.

202401261657