

Introduction

This document is intended for all users of L-Acoustics products. It gathers reference information about connecting enclosures to amplified controllers.

- Refer to [Impedance load and output power](#) (p.1) to identify the nominal impedance of an enclosure and calculate the **total impedance**, and identify the amplified controller **maximum output power**.
- Refer to [Enclosure drive capacity per amplified controller](#) (p.2) to identify **the type and quantity of enclosures** that can be driven by each amplified controller.
- [Loudspeaker connection](#) (p.3) contains **generic cabling schemes** with L-Acoustics speaker cables, categorized by type of enclosure.
- To prepare cables for a **fixed installation project**, refer to [Recommendation for speaker cables](#) (p.7).



For more information about enclosure presets and delay settings, refer to the **Preset Guide**.

Impedance load and output power

Most enclosures have a nominal impedance of 8 Ω. The exceptions are:

- 16 Ω:
 - K2 (HF section), Kiva II, V-DOSC (HF section), 5XT, X4i
- 4 Ω:
 - SB28, KS28, Syva Low, K1-SB, SB6i

total impedance

Nominal	number of enclosures/sections in parallel				
	2	3	4	5	6
16 Ω	8 Ω	5.3 Ω	4 Ω	3.2 Ω	2.7 Ω
8 Ω	4 Ω	2.7 Ω	—	—	—



4 Ω enclosures cannot be connected in parallel.*

Refer to [Enclosure drive capacity per amplified controller](#) (p.2) for the maximum number of enclosures/sections per output and in total on each amplified controller.

amplified controllers maximum output power

Type	16 Ω load	8 Ω load	4 Ω load	2.7 Ω load
LA12X	—	4 × 1400 W	4 × 2600 W	4 × 3300 W
LA7.16(i)	16 × 580 W	16 × 920 W	16 × 1000 W	—
LA4X	—	4 × 1000 W		—
LA2Xi	4 × 190 W	4 × 360 W	4 × 640 W	—
	—	2 × 1260 W	—	
	—	—	1 × 2550 W	

CEA-2006/490A 1 kHz test method, all channels driven.

* with the exception of Syva Low and SB6i

Enclosure drive capacity per amplified controller



Risks of output mute, global attenuation, or loss of audio quality.

Do not exceed the maximum number of connected enclosures per channel and in total.

Driving more enclosures than indicated can trigger the amplified controller protection systems.

	LA2Xi			LA4X	LA7.16(i)	LA12X
	per output* / total			per output* / total	per output* / total ^b	per output* / total
	SE ^a	BTL	PBTL			
X4i	4 / 16	—		4 / 16	4 / 64	6 / 24
5XT	4 / 16	—		4 / 16	3 / 48	6 / 24
X6i	2 / 8	1 / 2	—	2 / 8	1 / 16	3 / 12
X8	2 / 8	1 / 2	—	2 / 8	1 / 16	3 / 12
X8i	2 / 8	1 / 2	—	2 / 8	1 / 16	3 / 12
X12	1 / 4	1 / 2	—	1 / 4	1 / 14	3 / 12
X15 HiQ	1 / 2	—		1 / 2	1 / 8	3 / 6
Soka	1 / 4	1 / 2	—	2 / 8	1 / 16	3 / 12
Syva	1 / 4	1 / 2	—	1 / 4	1 / 10	3 / 12
A10(i) Wide/Focus	2 / 8	1 / 2	—	2 / 8	1 / 16	3 / 12
A15(i) Wide/Focus	1 / 4	1 / 2	—	1 / 4	1 / 10	3 / 12
K1	—			—	—	2 / 2
K1-SB	—			—	—	1 / 4
K2	—			1 / 1	1 / 4	3 / 3
K3(i)	—			1 / 2	1 / 8	3 / 6
Kara II(i)	2 / 4	—		2 / 4	1 / 8	3 / 6
Kiva II	2 / 8	2 / 4	—	2 / 8	2 / 32	6 / 24
L2 / L2D	—			—	1 / 1	—
KS28	1 / 4	—	1 / 1	—	—	1 / 4
KS21(i)	1 / 4	1 / 2	—	1 / 4	1 / 8	2 / 8
SB18 / SB18 Ili	1 / 4	1 / 2	—	1 / 4	1 / 6	3 / 12
SB15m	1 / 4	1 / 2	—	1 / 4	1 / 9	3 / 12

* For passive loudspeakers, the value corresponds to the number of enclosures in parallel on the output. For active loudspeakers, the value corresponds to the number of sections in parallel on the output.

^a Maximum SPL is reduced in SE operating mode for all systems except X4i, 5XT, and SB6i. Refer to the LA2Xi owner's manual for more information.

^b Given for nominal use, assuming that all channels are driven at full power. When sending the same signal to all outputs, never exceed the maximum numbers, regardless of the Power Budget values, otherwise the Fuse Protect algorithm may be triggered. When powered by a 100 V power supply, reduce the number of enclosures in order not to exceed 75% of the power gauge.

	LA2Xi			LA4X	LA7.16(i)	LA12X
	per output ^a / total			per output ^a / total	per output ^a / total ^b	per output ^a / total
	SE ^a	BTL	PBTL			
Syva Low	1 / 4	—		1 / 4	1 / 8	2 / 6 ^c
Syva Sub	1 / 4	1 / 2	—	1 / 4	1 / 16	3 / 12
SB10i	2 / 8	1 / 2	—	2 / 8	2 / 32	3 / 12
SB6i	1 / 4	—		1 / 4	1 / 16	2 / 8

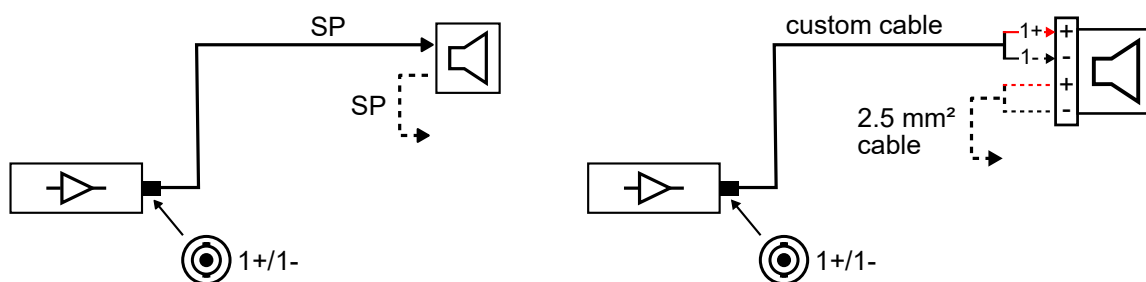
For discontinued loudspeaker enclosures and amplified controllers, refer to the Preset Guide.

Loudspeaker connection

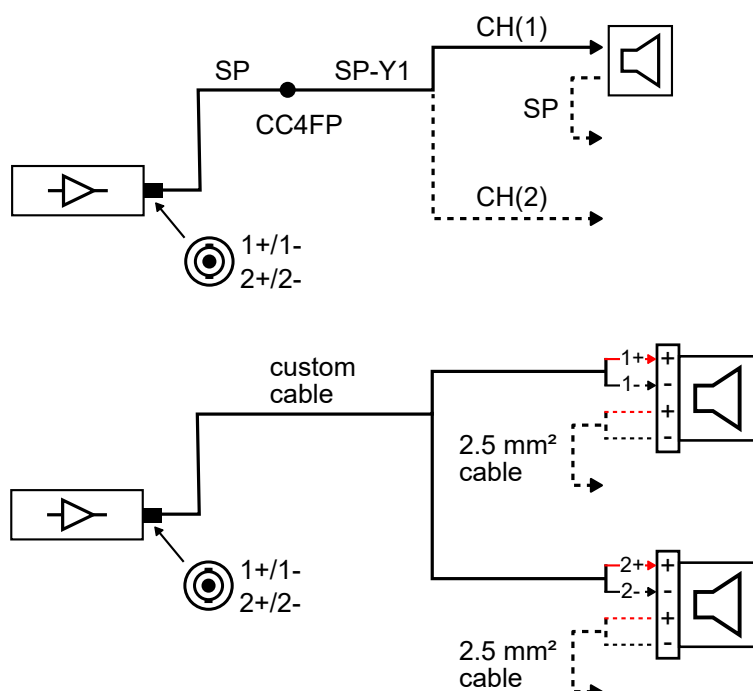
! For specific cabling instructions, refer to the user documentation of the enclosure system.

1-channel enclosures

One-channel speakON output

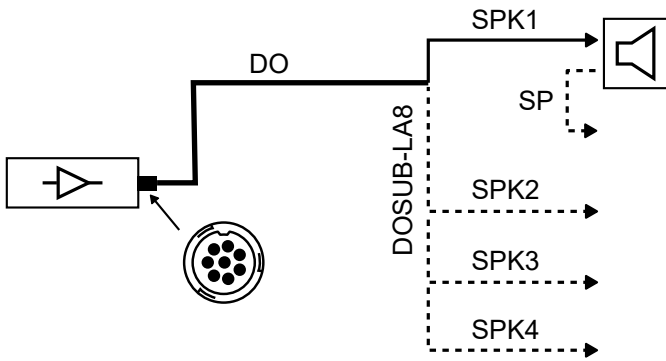


Two-channel speakON output

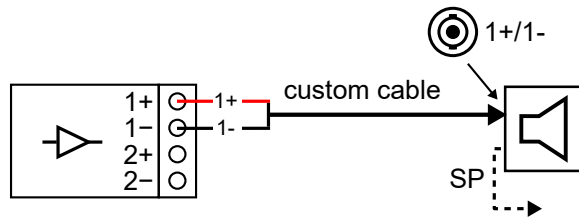
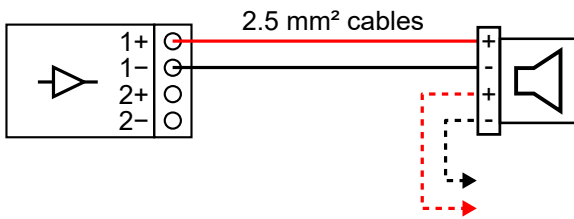


^c LA12X can drive up to two Syva Low per output, but no more than six per controller at high level.

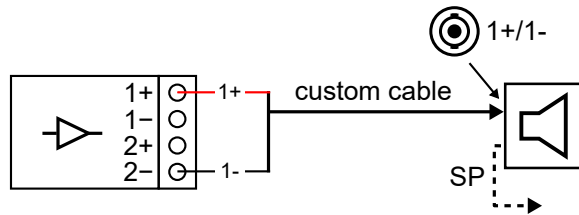
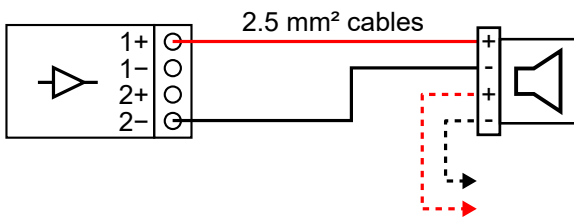
Four-channel CA-COM output



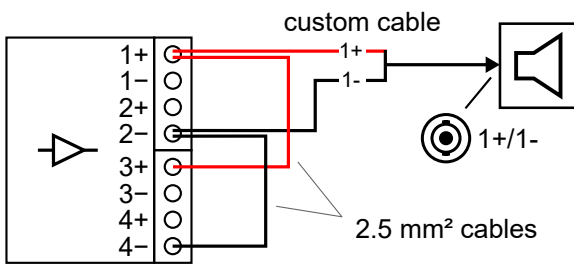
LA2Xi terminal block output (SE)



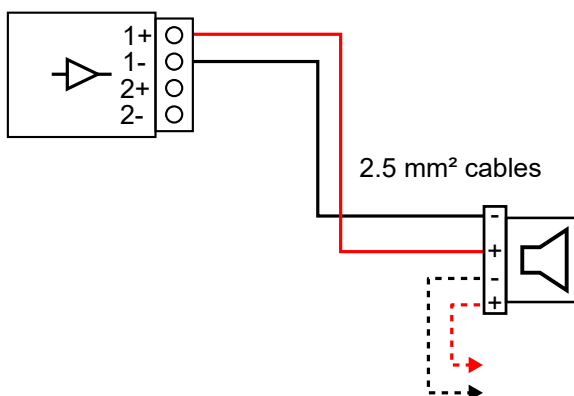
LA2Xi terminal block output (BTL)



LA2Xi terminal block output (PBTL)

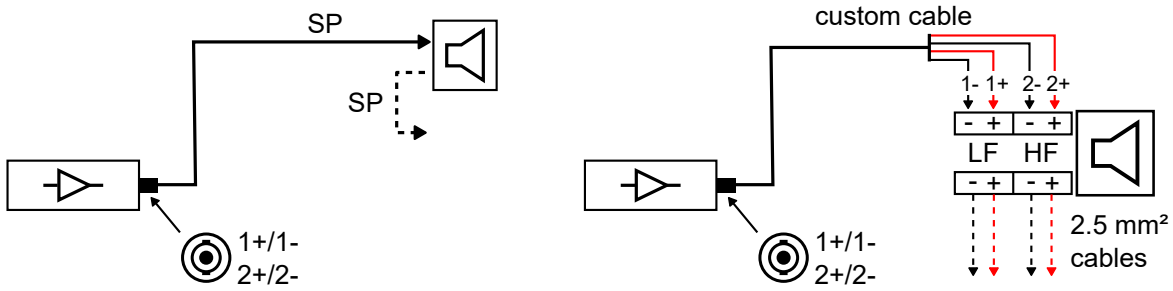


LA7.16i terminal block output

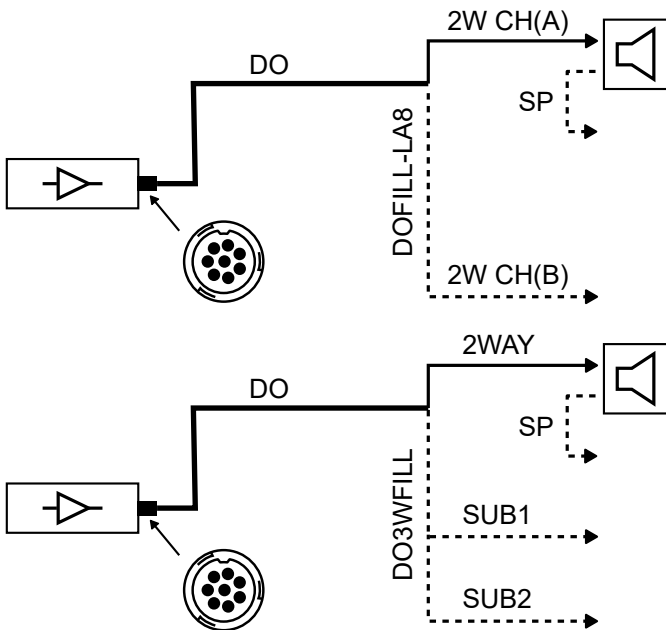


2-channel enclosures

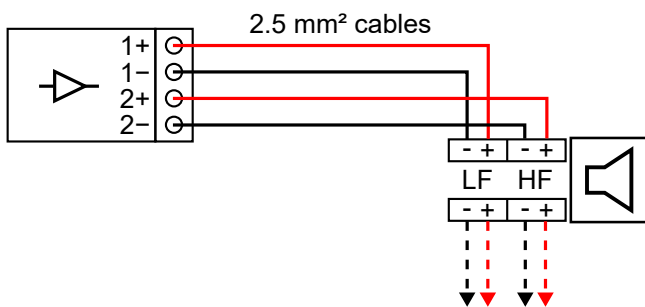
Two-channel speakON output



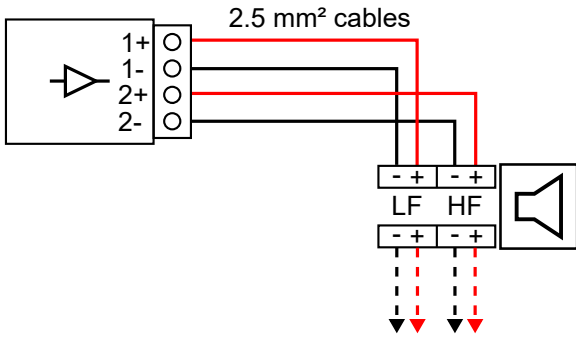
Four-channel CA-COM output



LA2Xi terminal block output (SE)

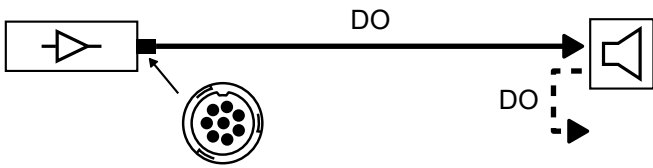


LA7.16i terminal block output

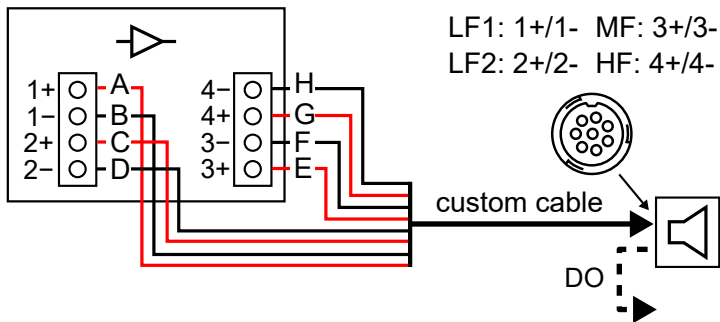


4-channel enclosures

Four-channel CA-COM output

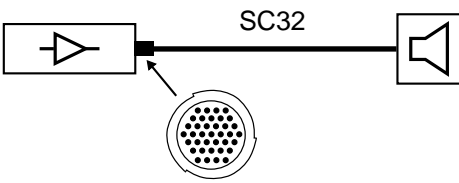


LA7.16i terminal block output

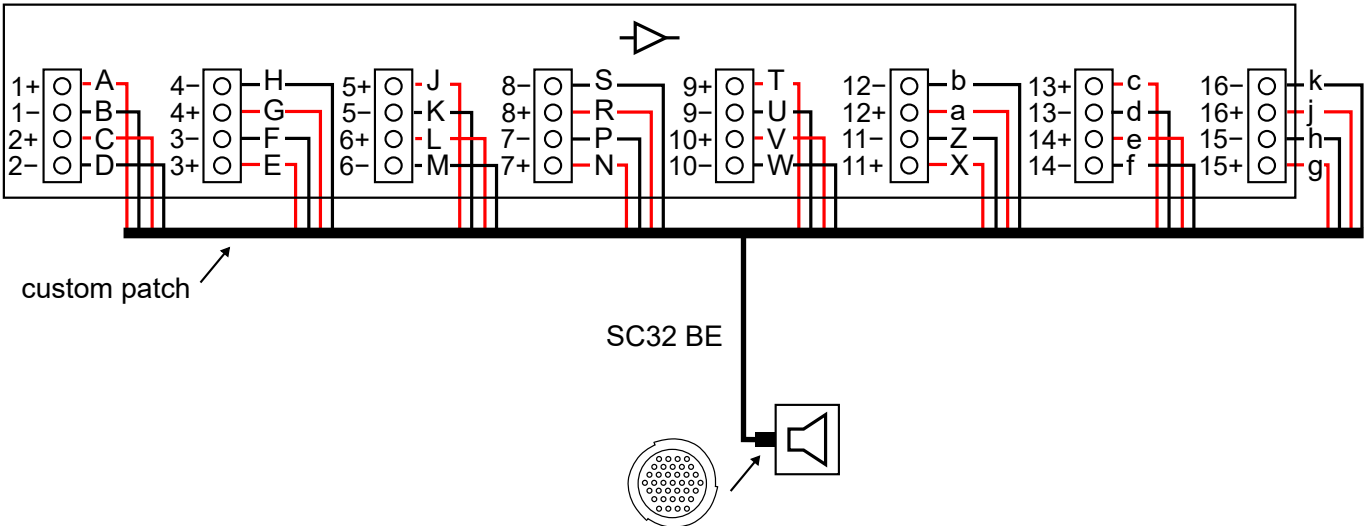


16-channel enclosures

16-channel connector output



LA7.16i terminal block output



Recommendation for speaker cables

! Cable quality and resistance

Only use high-quality fully insulated loudspeaker cables made of stranded copper wire.

Use cables with a gauge offering low resistance per unit length and keep the cables as short as possible.

It is good practice to keep loudspeaker cables short to ensure optimal system performance. L-Acoustics strongly recommends using cables of similar type, length, and gauge to address symmetrical deployment of loudspeakers, such as stereo systems, L-ISA frontal systems, or outfill systems.

i For more information about cable effect on loudspeaker frequency response, refer to the publication **Demystifying the effects of loudspeaker cables** on the L-Acoustics website, in **Education > Scientific resources > Scientific publications**.

Refer to the following table for recommended cable length for uncompromised performance.

cable gauge			recommended maximum length					
			8 Ω load		4 Ω load		2.7 Ω load	
mm ²	SWG	AWG	m	ft	m	ft	m	ft
1.5	18	16	18	60	9	30	–	–
2.5	15	13	30	100	15	50	10	33
4	13	11	50	160	25	80	17	53
6	11	9	74	240	37	120	25	80

Use the more detailed L-Acoustics calculation tool to evaluate cable length and gauge based on the type and number of loudspeakers connected. The calculation tool is available on our website:

<https://www.l-acoustics.com/installation-tools/>