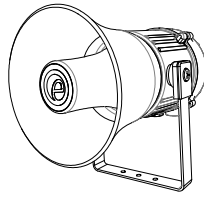
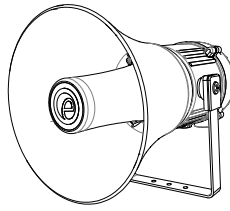


INSTRUCTION MANUAL

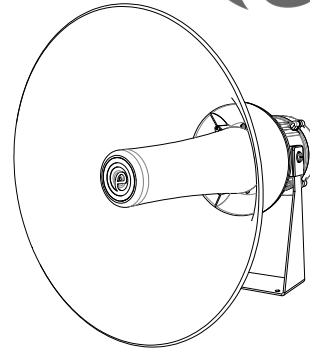
ML15F, ML25F & ML25H



ML15F



ML25F



ML25H

1) Product Table

Line In Loudspeakers				Low Impedance Loudspeakers			
Unit Type Code	Input	Power	Max Input	Unit Type Code	Input	Power	Max Input
ML15FV070	70V Line	15W	70.7Vrms	ML15FR008	8 Ohm	15W	10.95V
ML25FV070	70V Line	25W	70.7Vrms	ML25FR008	8 Ohm	25W	14.14V
ML25HV070	70V Line	25W	70.7Vrms	ML25HR008	8 Ohm	25W	14.14V
ML15FV100	100V Line	15W	100Vrms	ML15FR016	16 Ohm	15W	15.49V
ML25FV100	100V Line	25W	100Vrms	ML25FR016	16 Ohm	25W	20.00V
ML25HV100	100V Line	25W	100Vrms	ML25HR016	16 Ohm	25W	20.00V
ML15FV725	70 / 25V Line	15W	70.7/25Vrms				
ML25FV725	70 / 25V Line	25W	70.7/25Vrms				
ML25HV725	70 / 25V Line	25W	70.7/25Vrms				



2) Warnings

Attention: Disconnect from power source before installation or service to prevent electric shock / Débranchez-le de la source d'alimentation avant l'installation ou l'entretien pour éviter tout choc électrique.

3) Ratings and Markings



3.1 Certification

All Loudspeakers comply with the following standards:

UL 1480A (Ed 1)
CSA C22.2 No. 205 (Ed 3)
CE, UKCA, EAC & Russian Maritime Register approved

ML15FV070, ML25FV070, ML15FV725, ML25FV725, ML25HV725
Loudspeakers also comply with the following standards:

UL 1480 (Ed 6)
CAN/ULC-541 (Ed 4)

3.2 Ambient Temperature Range:

-40°C to +66°C / -40°F to +151°F

3.3 Enclosure Ratings

The product enclosure is rated as follows:
Type rating per UL50E / NEMA250: 4 / 4X / 3R / 13
IP66/IP67 (Independently tested to EN60529)

3.4 Frequency Range

All models: 400Hz to 8000 Hz

4) Installation

4.1 Safe Installation Requirements

The sounder must only be installed by suitably qualified personnel in accordance with the latest issues of the relevant standards.

The Equipment must not be installed with the horn facing upwards of horizontal.

To maintain the enclosure rating, the cable entries must be fitted with suitably rated cable entry and/or blanking devices or suitably sized conduit during installation. If entries are fitted with adaptors they must be suitable for the application.

If a high IP (Ingress Protection) rating is required then a suitable sealing washer or O-ring must be fitted under any cable gland or blanking device with metric threads.

Connections are to be made into the terminal blocks using solid or stranded wire, sizes 0.5-2.5mm² / AWG 20-14. Wire insulation needs to be stripped 8mm. Wires may be fitted securely with crimped ferrules. Terminal screws need to be tightened down with a tightening torque of 0.45 Nm / 4 Lb-in.

Check that the 'O' ring seal is in place before replacing the cover.

INSTRUCTION MANUAL

ML15F, ML25F & ML25H



4.1 Mounting

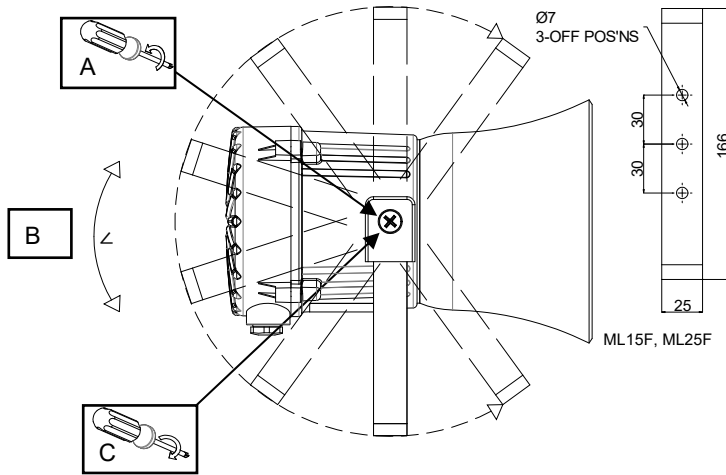


Fig. 1a ML15F & ML25F Fixing locations

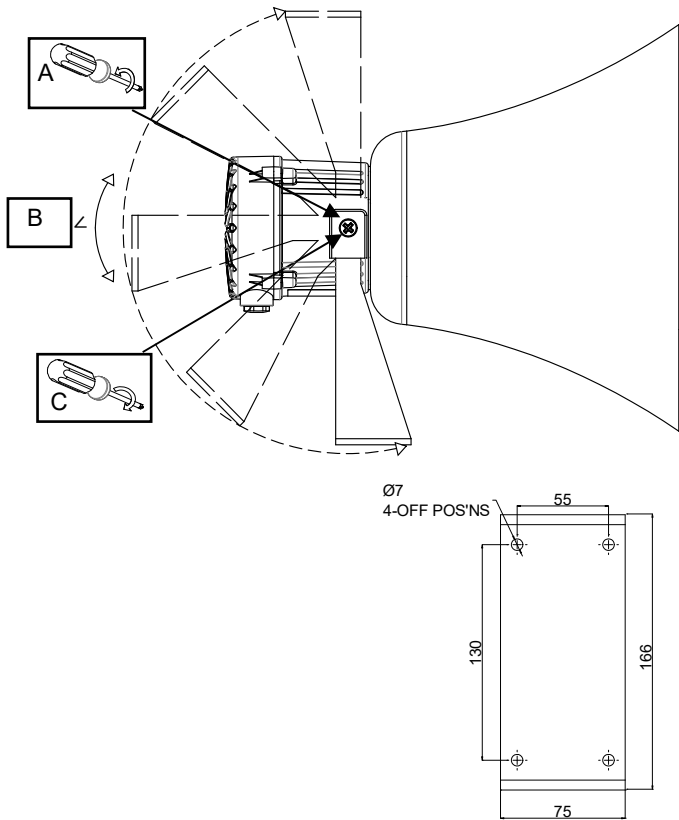


Fig. 1b ML25H Fixing locations

The ML15 & ML25 Loudspeakers may be secured to any flat surface using the three 7mm fixing holes. The enclosure is suitable for indoor and outdoor use providing it is positioned so that water cannot collect in the horn, and the cable entry is sealed (See Fig. 2).

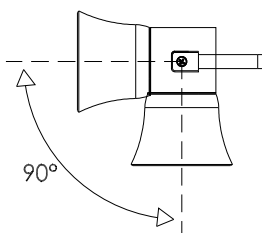
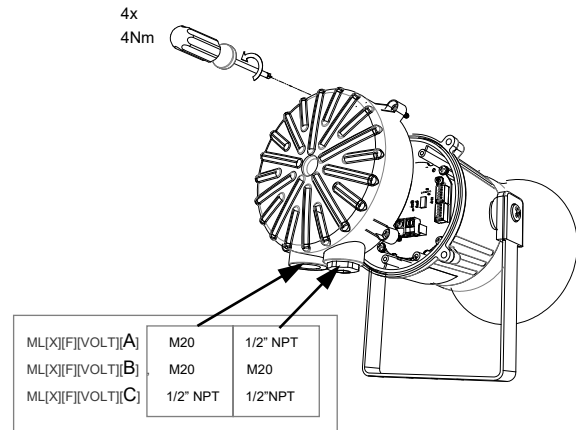


Fig. 2 Speaker orientation

5) End of Line DC Monitoring

On ML15 / ML25 Loudspeakers, DC line monitoring can be used if required. The units have blocking capacitors fitted. It should be noted that each loudspeaker has a 1M ohm bleed resistor connected across the blocking capacitor and this should be taken into account when selecting the value of the end of line monitoring resistance.

6) Entry Options



FIRE INSTRUCTION & SERVICE MANUAL

ML15F, ML25F & ML25H



ML15FV070, ML25FV070, ML15FV725, ML25FV725 & ML25HV725 are approved for use as Loudspeakers for Fire Alarm Systems: UL1480 (Ed 6) CAN/ULC S-541 (Ed 4)

Attention: Installation must be carried out by an electrician in compliance with the National Electrical Code, NFPA 70, and the National Fire Alarm Signaling Code, NFPA 72 or CSA 22.1 Canadian Electrical Code, Part I, Safety Standard for Electrical Installations, Section 32. / L'installation doit exclusivement être réalisée par du personnel qualifié, conformément au code national d'électricité américain, NFPA 70, et le code national d'alarme incendie et de signalisation NFPA 72 ou CSA 22.1 Code canadien de l'électricité, première partie, norme de sécurité relative aux installations électriques, Section 32

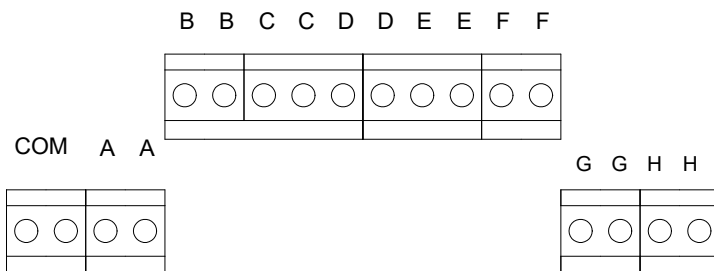
Attention: Disconnect from power source before installation or service to prevent electric shock / Débranchez-le de la source d'alimentation avant l'installation ou l'entretien pour éviter tout choc électrique.

Attention: Fire Alarm Device—Do not paint / Ne pas Peinturer—Dispositif D'Alarme

Attention: Do not change factory applied finishes / Ne pas changer le revêtement appliqué en usine

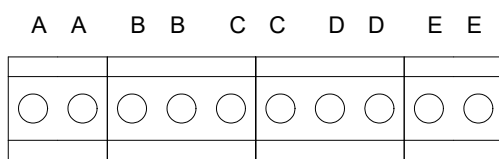
- Type 4 / 4X / 3R / 13, IP66
- -40°C to +66°C / -40°F to +151°F
- Units should be mounted using at least 2 of the 3-off/4-off \varnothing 7mm holes in the mounting bracket.
- The Equipment must not be installed with the horn facing upwards or horizontal.
- If a high IP (Ingress Protection) rating is required then a suitable sealing washer or O-ring must be fitted under any cable gland or blanking device with metric threads.
- Check that the 'O' ring seal is in place before replacing the cover.
- To maintain the enclosure rating, the cable entries must be fitted with suitably rated cable entry and/or blanking devices or suitably sized conduit during installation. If entries are fitted with adaptors they must be suitable for the application.
- Connections are to be made into the terminal blocks using solid or stranded wire, sizes 0.5-2.5mm² / AWG 20-14. Wire insulation needs to be stripped 8mm. Wires may be fitted securely with crimped ferrules. Terminal screws need to be tightened down with a tightening torque of 0.45 Nm / 4 Lb-in.
- A single wire with a cross sectional area of up to 2.5mm² / AWG14 can be connected to each terminal way. When connecting wires to the terminals great care should be taken to dress the wire so that when the cover is inserted into the chamber the wires do not exert excess pressure on the terminal blocks.
- Units can be located indoor or outdoor wet use, wall or ceiling mounted.

ML15FV725, ML25FV725 & ML25HV725 Wiring Terminals



ML15FV725			ML25FV725, ML25HV725		
Terminals	Voltage		Terminals	Voltage	
	70V	25V		70V	25V
COM - A	-	15W	COM - A	-	25W
COM - B	-	7.5W	COM - B	-	12.5W
COM - C	15W	5W	COM - C	25W	6W
COM - D	7.5W	4W	COM - D	12.5W	4W
COM - E	5W	2W	COM - E	6W	2W
COM - F	4W	-	COM - F	4W	1W
COM - G	2W	-	COM - G	2W	-
COM - H	-	-	COM - H	1W	-

ML15FV070 & ML25FV070 Wiring Terminals



Terminals	ML15FV070	ML25FV070
A - B	15W	25W
A - C	7.5W	12.5W
A - D	3W	6W
A - E	1W	2W

FIRE INSTRUCTION & SERVICE MANUAL

ML15F, ML25F & ML25H



Sound Pressure Level

UL1480 Product Data														
Unit Type Code	Input	Power	Max Input	SPL Output (dB(A)) at different Transformer Tappings										
				1W	2W	3W	4W	5W	6W	7.5W	12.5W	15W	25W	
ML15FV070	70V Line	15W	70.7V rms	92.00	-	96.00	-	-	-	-	99.00	-	102.00	-
ML15FV725	70V Line	15W	70.7V rms	-	94.20	-	96.97	99.49	-	102.14	-	104.54	-	
	25V Line	15W	25V rms	-	91.02	-	93.99	96.87	-	101.90	-	104.00	-	
ML25FV070	70V Line	15W	25V rms	-	95.00	-	-	-	-	99.00	-	102.00	-	104.00
ML25FV725	70V Line	25W	70.7V rms	95.10	97.79	-	100.50	-	102.07	-	104.55	-	107.08	
	25V Line	25W	25V rms	91.86	93.57	-	96.72	-	99.66	-	104.29	-	105.56	
ML25HV725	70V Line	25W	70.7V rms	93.41	96.18	-	99.12	-	100.54	-	103.28	-	105.55	
	25V Line	25W	25V rms	90.80	92.19	-	95.39	-	98.53	-	102.99	-	104.08	

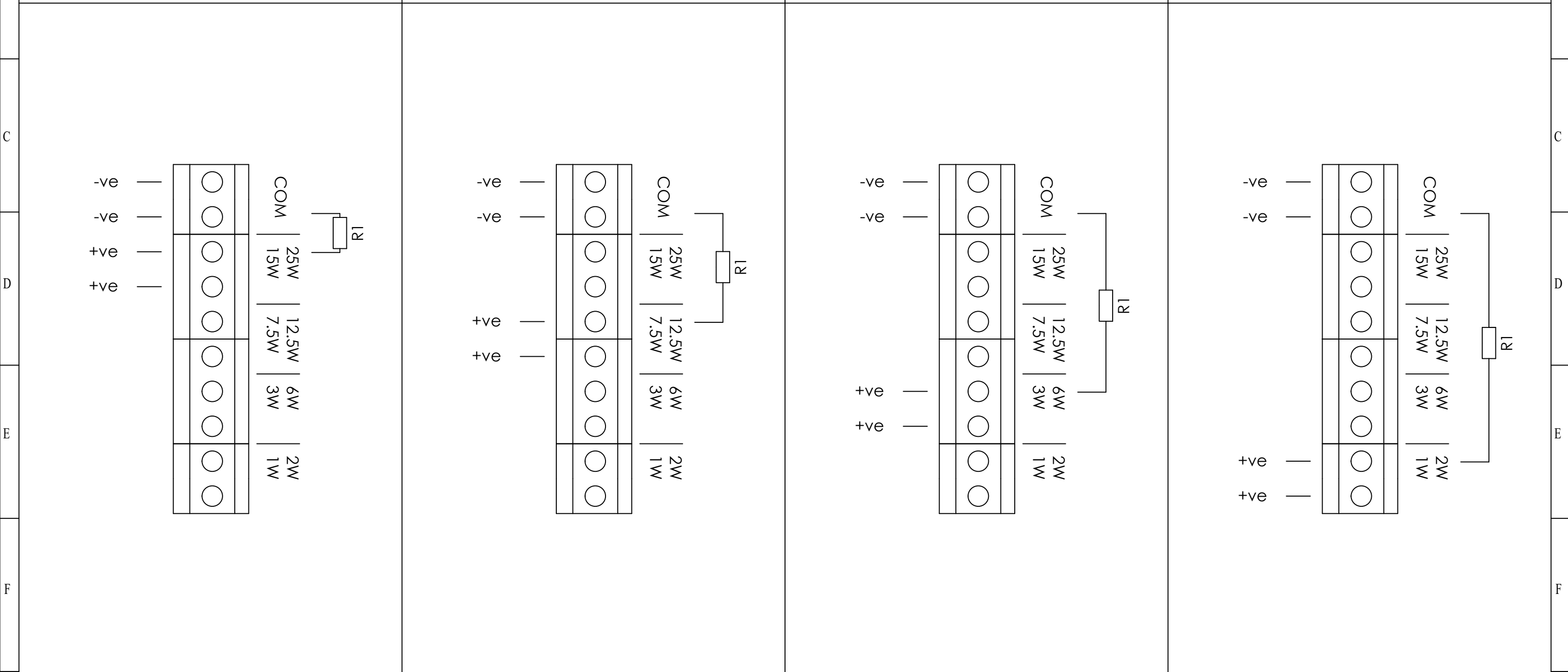
CAN/ULC S-541 Product Data														
Unit Type Code	Input	Power	Max Input	SPL Output (dB(A)) at different Transformer Tappings										
				1W	2W	3W	4W	5W	6W	7.5W	12.5W	15W	25W	
ML15FV070	70V Line	15W	70.7V rms	95.00	-	100.00	-	-	-	-	103.00	-	105.00	-
ML15FV725	70V Line	15W	70.7V rms	-	99.86	-	103.10	105.70	-	108.30	-	110.90	-	
	25V Line	15W	25V rms	-	97.24	-	100.40	103.40	-	108.30	-	110.60	-	
ML25FV070	70V Line	15W	25V rms	-	100.00	-	-	-	-	104.00	-	107.00	-	109.00
ML25FV725	70V Line	25W	70.7V rms	101.50	104.30	-	107.20	-	108.70	-	111.30	-	113.70	
	25V Line	25W	25V rms	98.65	100.10	-	103.20	-	106.20	-	111.30	-	112.70	
ML25HV725	70V Line	25W	70.7V rms	103.40	106.20	-	109.10	-	116.60	-	114.00	-	116.50	
	25V Line	25W	25V rms	100.80	102.60	-	105.40	-	108.30	-	113.60	-	114.50	

Directional Characteristics

CAN/ULC S-541 Directional Characteristics							
Unit Type Code	Rated Angle	Horizontal Axis			Vertical Axis		
		-3dB(A)	-6dB(A)	Reduction @ 90°	-3dB(A)	-6dB(A)	Reduction @ 90°
ML15FV070	0°	+/-20	+/-40	-13.3	+/-20	+/-40	-13.3
ML15FV725	0°	+/-25	+/-65	-9.1	+/-30	+/-65	-8.8
ML25FV070	0°	+/-15	+/-30	-15.0	+/-15	+/-30	-15.0
ML25FV725	0°	+/-30	+/-50	-11.4	+/-25	+/-45	-11.4
ML25HV725	0°	+/-20	+/-30	-16.2	+/-20	+/-30	-16.3

1	2	3	4	5	6	7	8	9	10
							ISSUE	MOD No.	REASON - INITIAL - DATE
							1		INTRODUCTION RSR 27/07/2023
							2		NEW ML-V100 & ML-V725 PCBAS. RSR 11/08/2023
							3		V070 Terminals Amended. RSR 10/10/2023

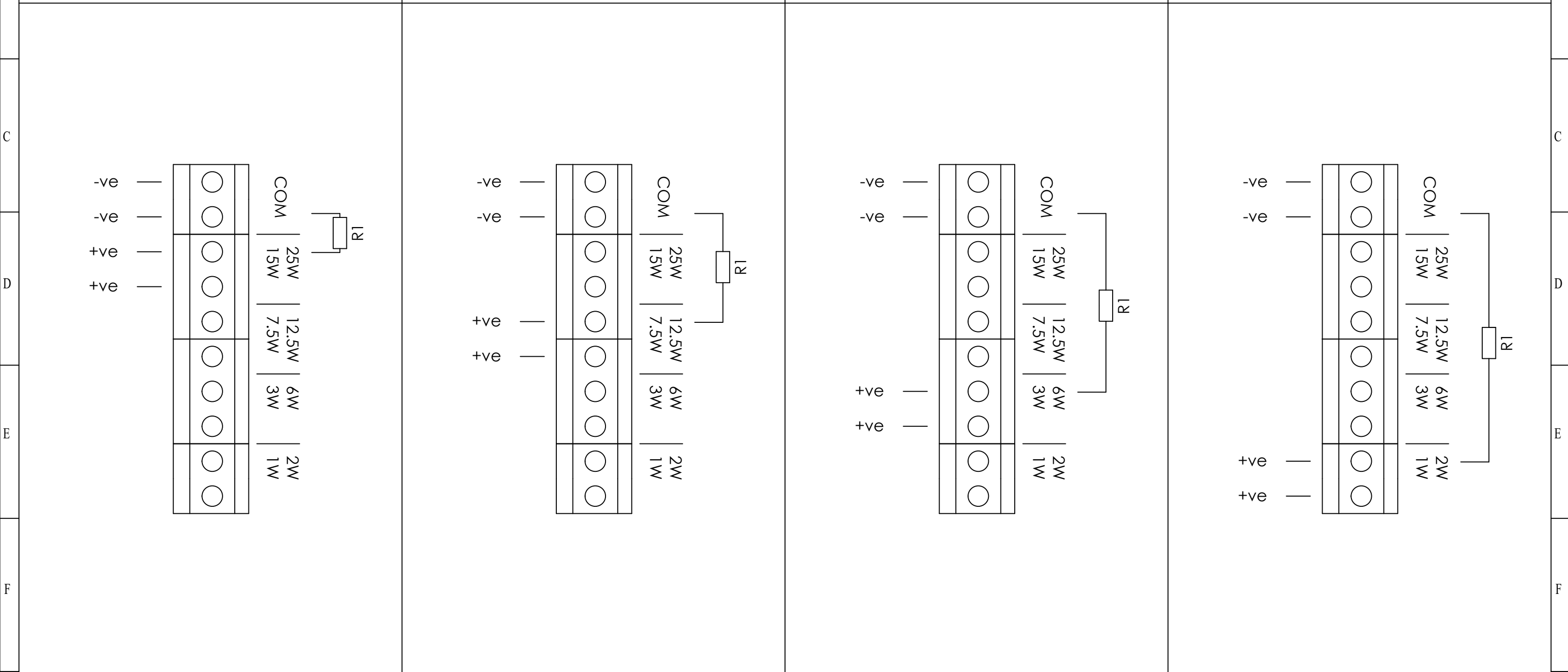
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Optional Line Monitoring		Optional Line Monitoring		Optional Line Monitoring		Optional Line Monitoring	
15W: Apply Signal to Common & 15W		7.5W: Apply Signal to Common & 7.5W		3W: Apply Signal to Common & 3W		1W: Apply Signal to Common & 1W	



DRAWING TO BS8888:2000 GEOMETRIC TOLERANCES TO ISO1101:1983 LINEAR DIMENSIONAL TOLS ANGULAR DIMENSIONAL TOLS	DRAWN	DATE	SURFACE FINISH	WEIGHT (Kg)	THIS DRAWING AND ANY INFORMATION OR DESCRIPTIVE MATTER THEREIN IS COMMUNICATED IN CONFIDENCE AND IS THE COPYRIGHT PROPERTY OF EUROPEAN SAFETY SYSTEMS LTD. NEITHER THE WHOLE OR ANY EXTRACT MAY BE DISCLOSED, LOANED, COPIED OR USED FOR MANUFACTURING OR TENDERING PURPOSES WITHOUT THEIR WRITTEN CONSENT.	 EUROPEAN SAFETY SYSTEMS LTD IMPRESS HOUSE MANSELL ROAD ACTON LONDON W3 7QH WWW.E2S.COM	ALL DIMENSIONS IN MM		A3
	CHECKED	DATE	MATERIAL	IF IN DOUBT, ASK - DO NOT SCALE			TITLE		
	STANDARDS ML15 ML25	APPROVED	DATE	ALTERNATIVE MATERIAL			© EUROPEAN SAFETY SYSTEMS LTD. AS PER LATEST DATE OF ISSUE SHOWN ABOVE	SCALE	SHEET
	R.N.POTTS	27/07/2023					NTS	1 OF 7	D207-06-101

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							3		SEE SHEET 1 RSR 10/10/2023

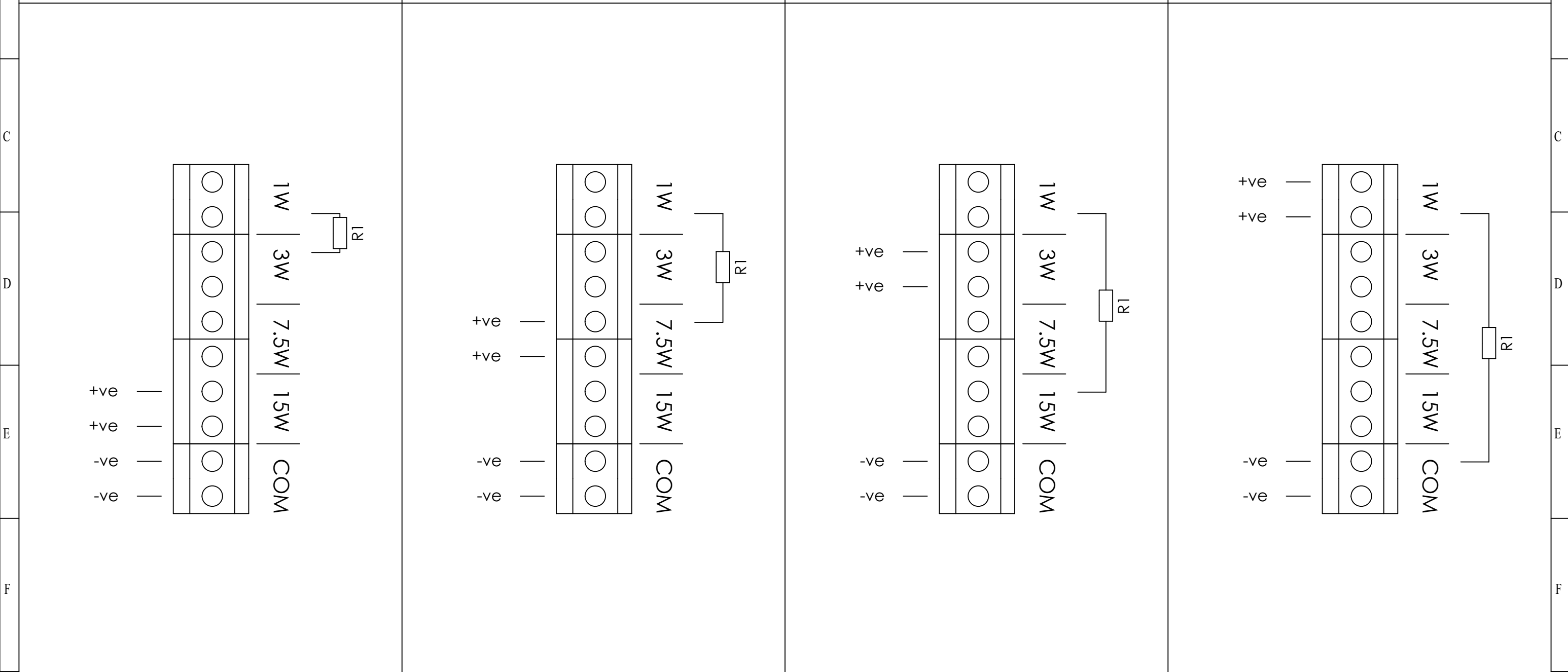
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Optional Line Monitoring	Optional Line Monitoring	Optional Line Monitoring	Optional Line Monitoring
25W: Apply Signal to Common & 25W	12.5W: Apply Signal to Common & 12.5W	6W: Apply Signal to Common & 6W	2W: Apply Signal to Common & 2W



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							3		SEE SHEET 1 RSR 10/10/2023

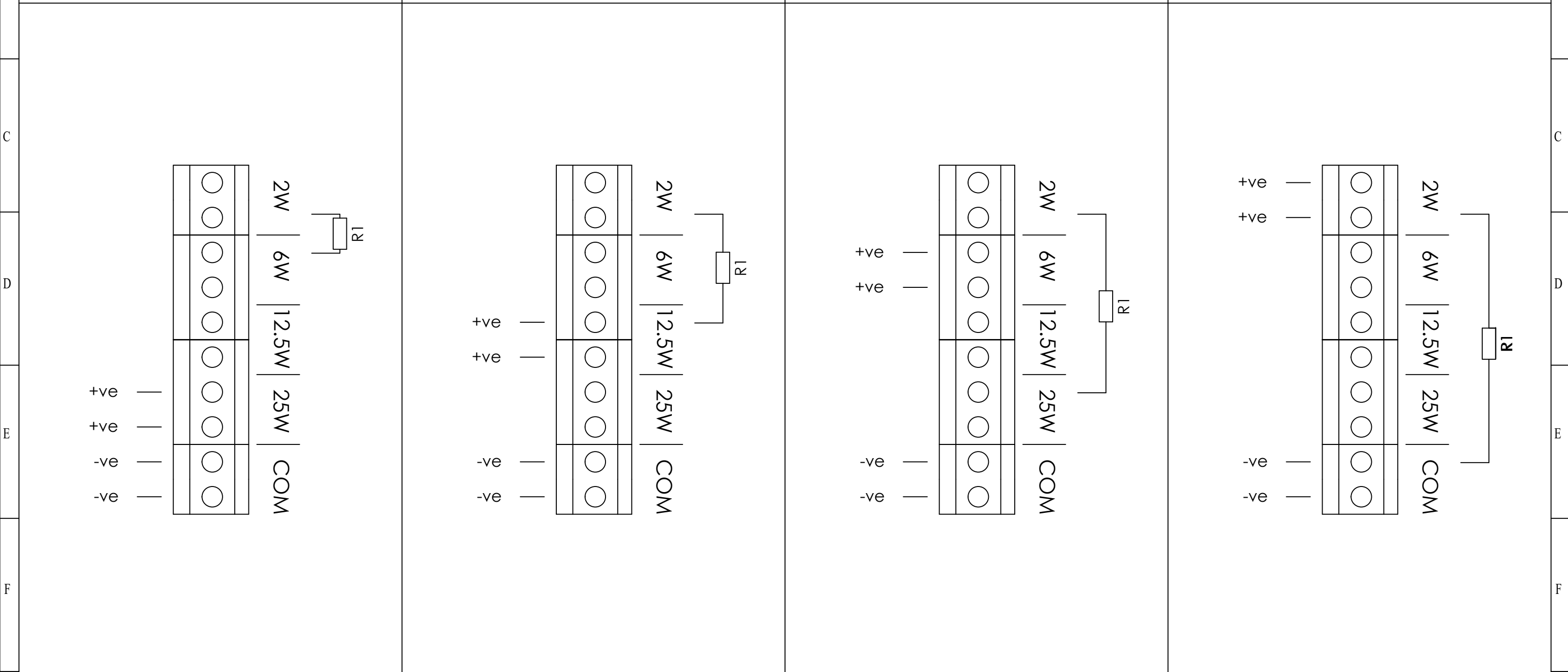
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15W: Apply Signal to Common & 15W		7.5W: Apply Signal to Common & 7.5W		3W: Apply Signal to Common & 3W		1W: Apply Signal to Common & 1W	



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	CHECKED	DATE	MATERIAL				TITLE	ML15 & ML25 LINE IN & LOW IMPEDANCE LOUDSPEAKER WIRING DIAGRAMS			
	APPROVED	DATE	ALTERNATIVE MATERIAL				SCALE	SHEET	DRAWING NUMBER		
STANDARDS ML15 ML25	R.RAIT	27/07/2023			NTS	3 OF 7	D207-06-101				

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							2		SEE SHEET 1 RSR 11/08/2023
							3		SEE SHEET 1 RSR 10/10/2023

ML25FV070 & ML25HV070 Line in Config.: 4a	ML25FV070 & ML25HV070 Line in Config.: 4b	ML25FV070 & ML25HV070 Line in Config.: 4c	ML25FV070 & ML25HV070 Line in Config.: 4d
Optional Line Monitoring	Optional Line Monitoring	Optional Line Monitoring	Optional Line Monitoring
25W: Apply Signal to Common & 25W	12.5W: Apply Signal to Common & 12.5W	6W: Apply Signal to Common & 6W	2W: Apply Signal to Common & 2W

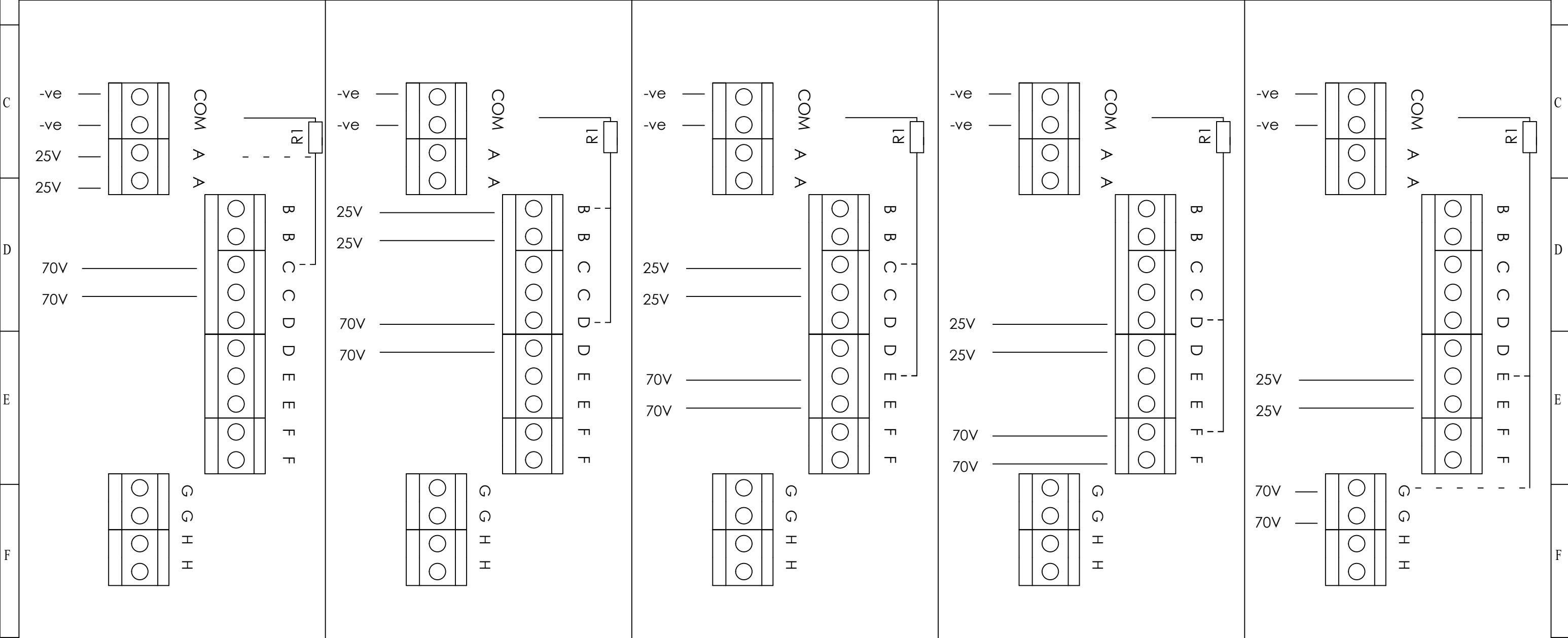


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	CHECKED R.N.POTTS	DATE 27/07/2023	MATERIAL				TITLE ML15 & ML25 LINE IN & LOW IMPEDANCE LOUDSPEAKER WIRING DIAGRAMS		
	APPROVED R.N.POTTS	DATE 27/07/2023	ALTERNATIVE MATERIAL				SCALE NTS	SHEET 4 OF 7	DRAWING NUMBER D207-06-101

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							1		SEE SHEET 1 RSR 27/07/2023
							2		SEE SHEET 1 RSR 11/08/2023
							3		SEE SHEET 1 RSR 10/10/2023

ML15FV725 Line in	Config.: 5a	ML15FV725 Line in	Config.: 5b	ML15FV725 Line in	Config.: 5c	ML15FV725 Line in	Config.: 5d	ML15FV725 Line in	Config.: 5e
Optional Line Monitoring		Optional Line Monitoring		Optional Line Monitoring		Optional Line Monitoring		Optional Line Monitoring	

15W: 25V: Apply Signal to Common & A 70V: Apply Signal to Common & C	7.5W: 25V: Apply Signal to Common & B 70V: Apply Signal to Common & D	5W: 25V: Apply Signal to Common & C 70V: Apply Signal to Common & E	4W: 25V: Apply Signal to Common & D 70V: Apply Signal to Common & F	2W: 25V: Apply Signal to Common & E 70V: Apply Signal to Common & G
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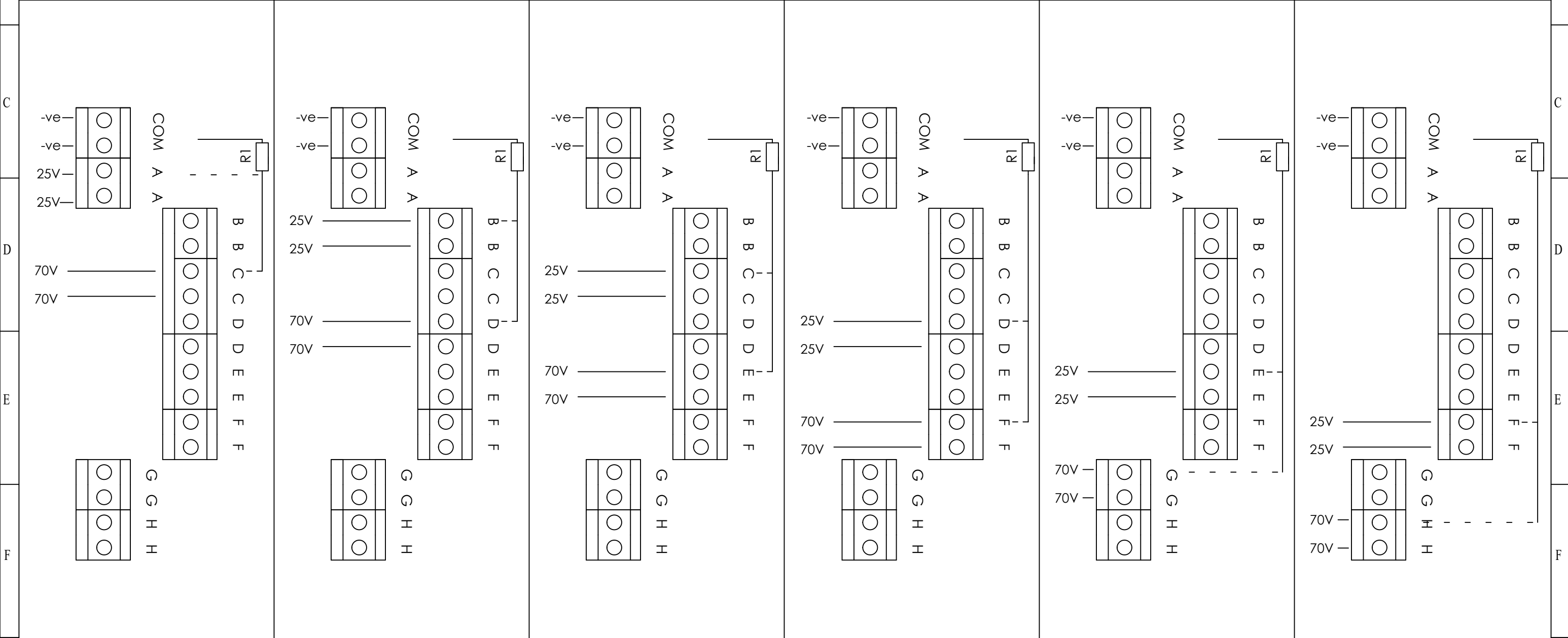


DRAWING TO BS8888:2000 GEOMETRIC TOLERANCES TO ISO1101:1983 LINEAR DIMENSIONAL TOLS ANGULAR DIMENSIONAL TOLS	DRAWN	DATE	SURFACE FINISH	WEIGHT (Kg)	THIS DRAWING AND ANY INFORMATION OR DESCRIPTIVE MATTER THEREIN IS COMMUNICATED IN CONFIDENCE AND IS THE COPYRIGHT PROPERTY OF EUROPEAN SAFETY SYSTEMS LTD. NEITHER THE WHOLE OR ANY EXTRACT MAY BE DISCLOSED, LOANED, COPIED OR USED FOR MANUFACTURING OR TENDERING PURPOSES WITHOUT THEIR WRITTEN CONSENT.	 EUROPEAN SAFETY SYSTEMS LTD IMPRESS HOUSE MANSELL ROAD ACTON LONDON W3 7QH WWW.E2S.COM	ALL DIMENSIONS IN MM IF IN DOUBT, ASK - DO NOT SCALE			A3		
	CHECKED	DATE	MATERIAL				TITLE ML15 & ML25 LINE IN & LOW IMPEDANCE LOUDSPEAKER WIRING DIAGRAMS					
	APPROVED	DATE	ALTERNATIVE MATERIAL				SCALE	SHEET	DRAWING NUMBER			
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								3		SEE SHEET 1 RSR 10/10/2023


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Optional Line Monitoring		Optional Line Monitoring		Optional Line Monitoring		Optional Line Monitoring		Optional Line Monitoring		Optional Line Monitoring	

25W: 25V: Apply Signal to Common & A 70V: Apply Signal to Common & C	12.5W: 25V: Apply Signal to Common & B 70V: Apply Signal to Common & D	6W: 25V: Apply Signal to Common & C 70V: Apply Signal to Common & E	4W: 25V: Apply Signal to Common & D 70V: Apply Signal to Common & F	2W: 25V: Apply Signal to Common & E 70V: Apply Signal to Common & G	1W: 25V: Apply Signal to Common & F 70V: Apply Signal to Common & H
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DRAWING TO BS8888:2000 GEOMETRIC TOLERANCES TO ISO1101:1983 LINEAR DIMENSIONAL TOLS ANGULAR DIMENSIONAL TOLS	DRAWN	DATE	SURFACE FINISH	WEIGHT (Kg)	THIS DRAWING AND ANY INFORMATION OR DESCRIPTIVE MATTER THEREIN IS COMMUNICATED IN CONFIDENCE AND IS THE COPYRIGHT PROPERTY OF EUROPEAN SAFETY SYSTEMS LTD. NEITHER THE WHOLE OR ANY EXTRACT MAY BE DISCLOSED, LOANED, COPIED OR USED FOR MANUFACTURING OR TENDERING PURPOSES WITHOUT THEIR WRITTEN CONSENT.	 EUROPEAN SAFETY SYSTEMS LTD IMPRESS HOUSE MANSELL ROAD ACTON LONDON W3 7QH WWW.E2S.COM	ALL DIMENSIONS IN MM IF IN DOUBT, ASK - DO NOT SCALE				A3	
	CHECKED	DATE					MATERIAL	TITLE ML15 & ML25 LINE IN & LOW IMPEDANCE LOUDSPEAKER WIRING DIAGRAMS				
	STANDARDS ML15 ML25	APPROVED	DATE	ALTERNATIVE MATERIAL			SCALE	SHEET	DRAWING NUMBER			
		R.N.POTTS	18/11/20				NTS	6 OF 7	D207-06-101			

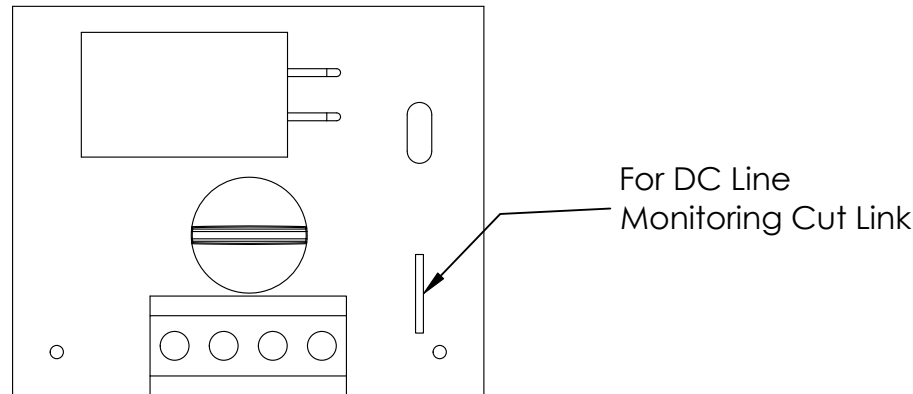
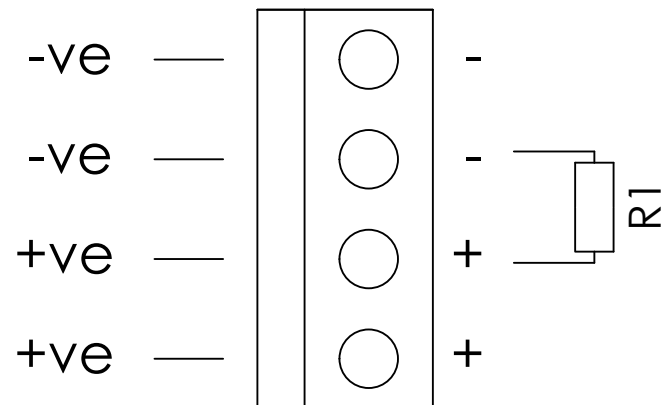
OPTIONAL LINE MONITORING RESISTOR, CUSTOMER SUPPLIED,
RECOMMENDED MINIMUM VALUES:
500Ω MIN, 2W MIN OR 2KΩ MIN, 0.5W MIN



ISSUE	MOD No.	REASON - INITIAL - DATE
1		SEE SHEET 1 RSR 27/07/2023
2		SEE SHEET 1 RSR 11/08/2023
3		SEE SHEET 1 RSR 10/10/2023

ML15FR008, ML15FR016, ML25FR008, ML25FR016, ML25HR008, ML25HR016 Config.: 7
Low Impedance

Optional Line Monitoring
Apply Signal to +ve & -ve



DRAWING TO BS8888:2000
GEOMETRIC TOLERANCES TO ISO1101:1983
LINEAR DIMENSIONAL TOLS
ANGULAR DIMENSIONAL TOLS

STANDARDS
ML15
ML25

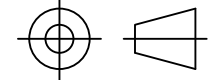
DRAWN	R.RAIT	DATE	27/07/2023
CHECKED	R.N.POTTS	DATE	27/07/2023
APPROVED	R.N.POTTS	DATE	27/07/2023

SURFACE FINISH	WEIGHT (Kg)
MATERIAL	
ALTERNATIVE MATERIAL	

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AS PER LATEST DATE OF ISSUE SHOWN ABOVE


warning signals
EUROPEAN SAFETY SYSTEMS LTD
IMPRESS HOUSE
MANSELL ROAD
ACTON
LONDON W3 7QH
WWW.E2S.COM

ALL DIMENSIONS IN MM IF IN DOUBT, ASK - DO NOT SCALE			A3
TITLE ML15 & ML25 LINE IN & LOW IMPEDANCE LOUDSPEAKER WIRING DIAGRAMS			
SCALE NTS	SHEET 7 OF 7	DRAWING NUMBER D207-06-101	

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