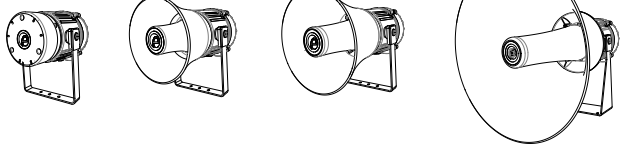
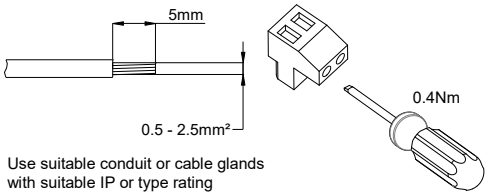
- IP67/66 & Type 4/4X/13
- -40°C to +66°C (-40°F to +151°F)
- DC: 2.5Kg (5.5lb); AC: 3.0Kg (6.5lb)
- CE, EAC & Russian Maritime Register approved



Unit Type Code	Nominal Voltage	Voltage Range	Nominal Current P1 (mA)	Nominal Current P2 (mA)	Nominal Current P3 (mA)	Sound Pressure Level P1, dB(A)			Sound Pressure Level P2, dB(A)			Sound Pressure Level P3, dB(A)		
						Max*	Nom†	$\bar{x}$‡	Max*	Nom†	$\bar{x}$‡	Max*	Nom†	$\bar{x}$‡
MA1RDC024	12 Vdc / 24 Vdc / 48Vdc	10-60Vdc	280/ 224/122			113.6	110.7	109.7						
MA1FDC024						116.6	113.7	112.7						
MA2FDC024				376/391/ 223§	440/888/ 453				120.0	116.6	114.7	123.4	120.1	118.0
MA2HDC024				376/391/ 223	440/888/ 453§				125.3	122.5	120.1	128.6	125.9	123.1
MA1RAC230	115 Vac / 230 Vac 50/60Hz	100 - 240Vac 50/60Hz	100/64			113.6	110.7	109.7						
MA1FAC230						116.6	113.7	112.7						
MA2FAC230				173/107§	340/212				120.0	116.6	114.7	123.4	120.1	118.0
MA2HAC230				173/107	340/212§				125.3	122.5	120.1	128.6	125.9	123.1

*Max = Tone 4 / †Nom. = Tone 44 / ‡$\bar{x}$ = Average over 64 tones / § Denotes factory P2/P3 setting



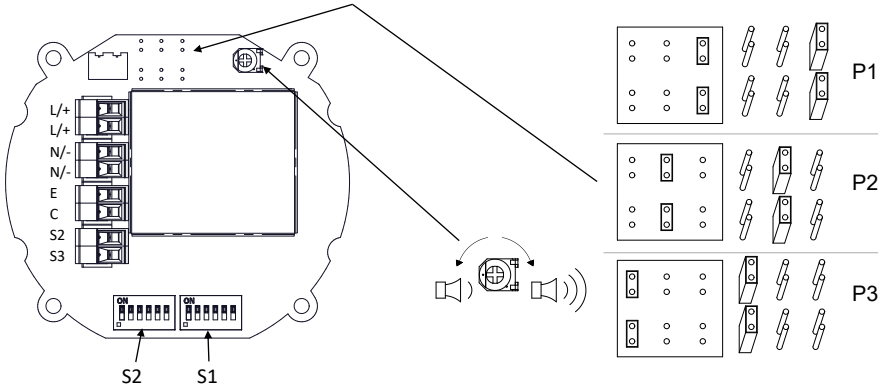
Use suitable conduit or cable glands with suitable IP or type rating

Attention: Installation must be carried out by an electrician in compliance with the latest codes and regulations.
Attention: L'installation doit être effectuée par un électricien conformément aux derniers codes et réglementations.
Achtung: Die Installation muss von einem Elektriker gemäß den neuesten Vorschriften und Bestimmungen durchgeführt werden.
Attenzione: L'installazione deve essere eseguita da un elettricista in conformità con i codici e le normative più recenti.
Atención: La instalación debe ser realizada por un electricista de acuerdo con los últimos códigos y regulaciones.
Atenção: A instalação deve ser realizada por um eletricista de acordo com os códigos e regulamentos mais recentes.
Внимание: установка должна выполняться электриком в соответствии с последними нормами и правилами.

Attention: Disconnect from power source before installation or service to prevent electric shock
Attention: Débranchez-le de la source d'alimentation avant l'installation ou l'entretien pour éviter tout choc électrique.
Achtung: Vor Installation oder Wartung von der Stromquelle trennen, um einen Stromschlag zu vermeiden.
Attenzione: scollegare dall'alimentazione prima dell'installazione o dell'assistenza per evitare scosse elettriche.
Atención: desconéctelo de la fuente de alimentación antes de la instalación o el servicio para evitar descargas eléctricas.
Atenção: Desconecte da fonte de alimentação antes da instalação ou serviço para evitar choque elétrico
Внимание: отключите от источника питания перед установкой или обслуживанием, чтобы предотвратить поражение электрическим током.

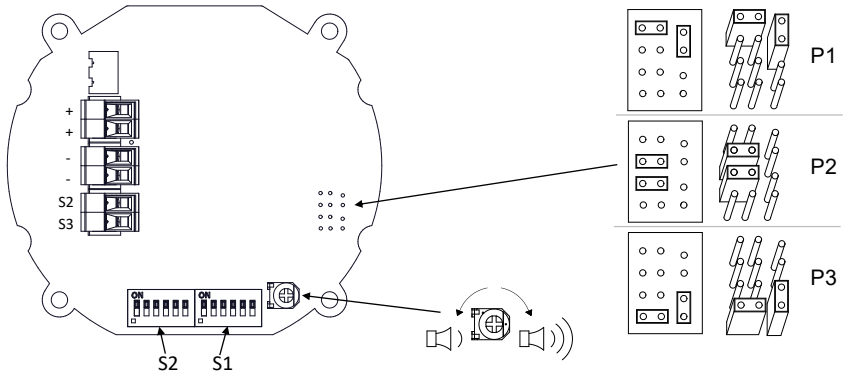
AC

See D207-06-001

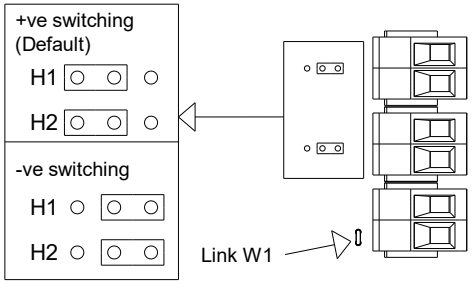


DC

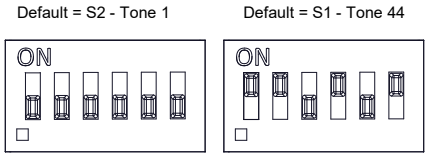
See D207-06-005



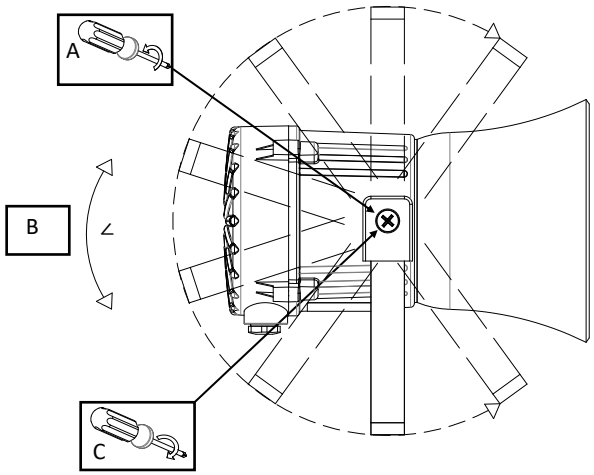
(DC Only, see D207-06-001)

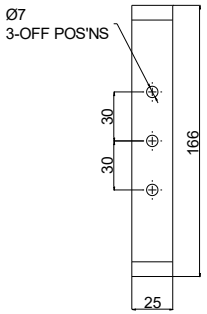


(AC & DC, see D221-95-001)

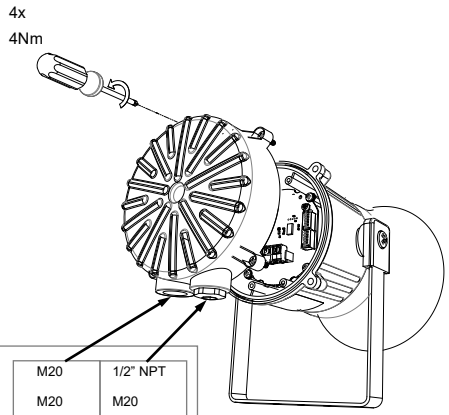


(ON = 1, OFF = 0)

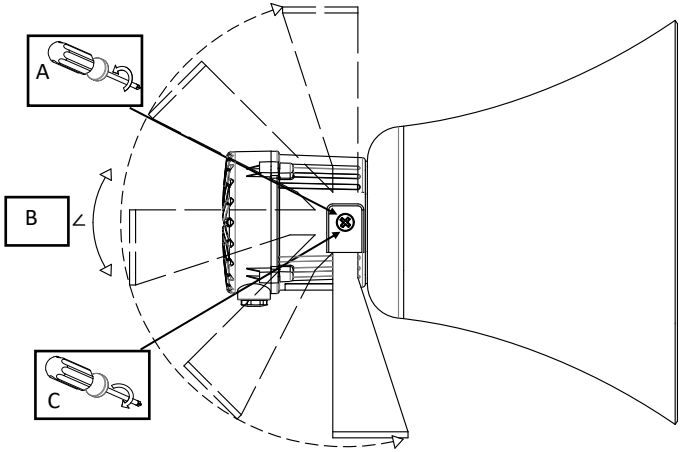


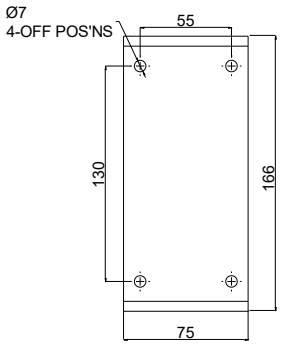


MA1R, MA1F, MA2F



MA[X][F][VOLT][A]	M20	1/2" NPT
MA[X][F][VOLT][B]	M20	M20
MA[X][F][VOLT][C]	1/2" NPT	1/2"NPT





MA2H

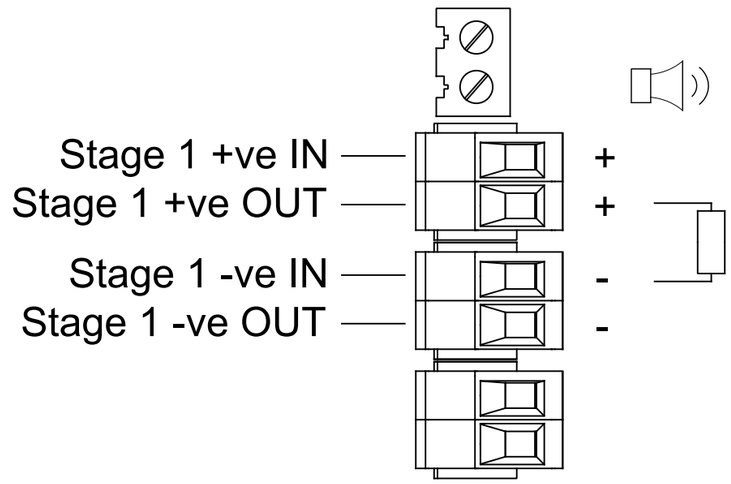
ISSUE	MOD No.	REASON - INITIAL - DATE
A		INTRODUCTION RSR - 05/03/2021

OPTIONAL LINE MONITORING RESISTOR, CUSTOMER SUPPLIED,
RECOMMENDED MINIMUM VALUES:
14V MAX SYSTEM = 120Ω MIN, 2W MIN OR 1KΩ MIN, 0.5W MIN
28V MAX SYSTEM = 470Ω MIN, 2W MIN OR 2.4KΩ MIN, 0.5W MIN

Single Stage Configuration — Config.: 1a

Line Monitoring
Set to positive switching (default)

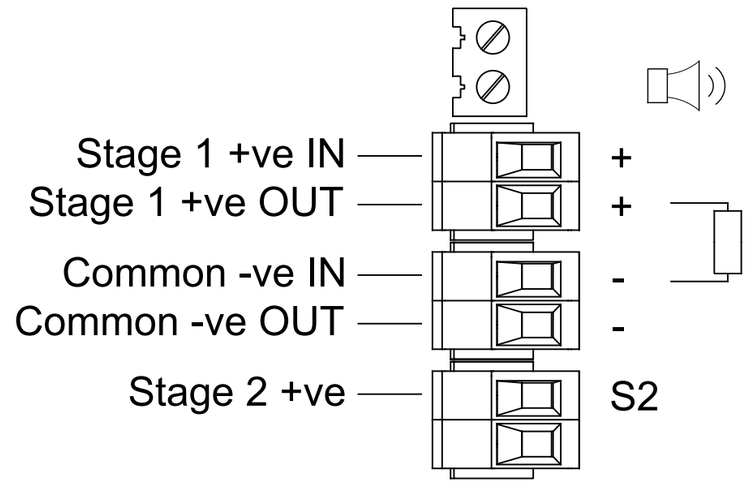
Stage 1: Apply Power to Stage 1 +ve & Stage 1 -ve



Two Stage Configuration — Config.: 1b

Common Negative
Set to positive switching (default)

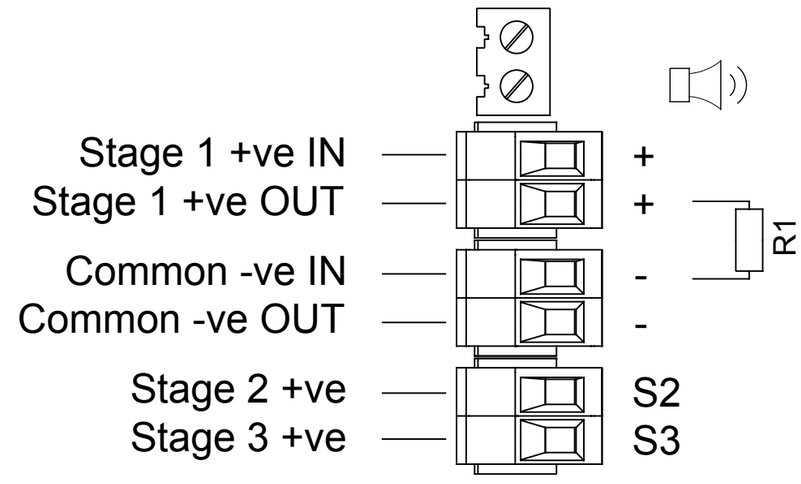
Stage 1: Apply Power to Stage 1 +ve & Common -ve
Stage 2: Apply Power to Stage 2 +ve & Common -ve



Three/Four Stage Configuration — Config.: 1c

Common Negative
Set to positive switching (default)

Stage 1: Apply Power to Stage 1 +ve & Common -ve
Stage 2: Apply Power to Stage 2 +ve &Common -ve
Stage 3: Apply Power to Stage 3 +ve &Common -ve
Stage 4: Apply Power to Stage 2 +ve, Stage 3 +ve & Common -ve



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

STANDARDS
M RANGE

DRAWN	R.S.RAIT	DATE 05/03/2021
CHECKED	B.ISARD	DATE 05/03/2021
APPROVED	R.N.POTTS	DATE 05/03/2021

SURFACE FINISH | WEIGHT (Kg)
MATERIAL
ALTERNATIVE MATERIAL

e2S warning signals
EUROPEAN SAFETY SYSTEMS LTD
IMPRESS HOUSE
MANSELL ROAD
ACTON
LONDON W3 7QH
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ALL DIMENSIONS IN MM
IF IN DOUBT, ASK -
DO NOT SCALE

A3

TITLE MA1R, MA1F, MA2F & MA2H DC SOUNDER WIRING DIAGRAMS

SCALE	SHEET	DRAWING NUMBER
NTS	1 OF 3	D207-06-001

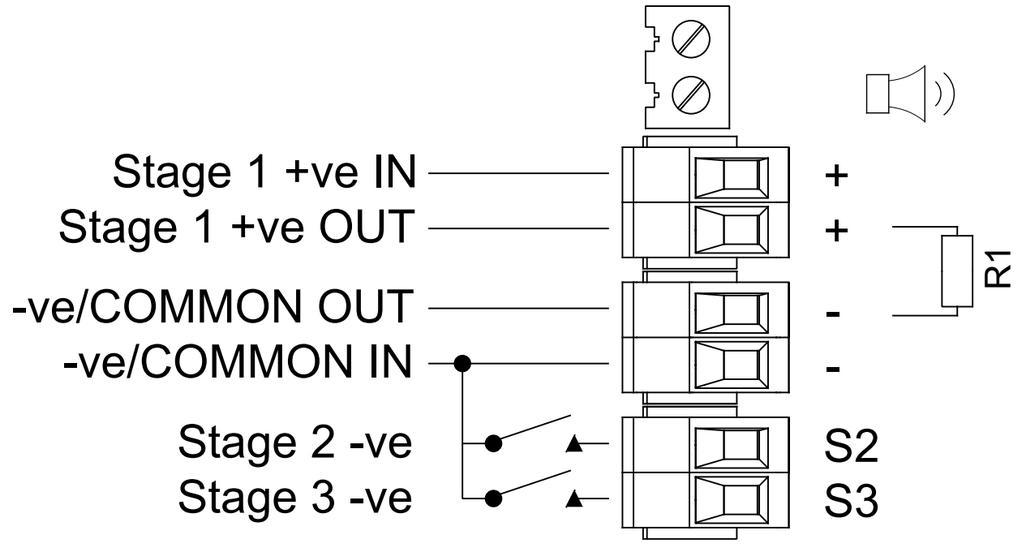
ISSUE	MOD No.	REASON - INITIAL - DATE
A		INTRODUCTION RSR - 05/03/2021

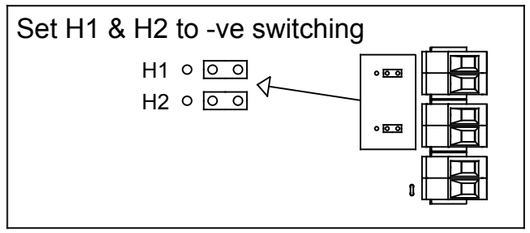
OPTIONAL LINE MONITORING RESISTOR, CUSTOMER SUPPLIED, RECOMMENDED MINIMUM VALUES:
14V MAX SYSTEM = 120Ω MIN, 2W MIN OR 1KΩ MIN, 0.5W MIN
28V MAX SYSTEM = 470Ω MIN, 2W MIN OR 2.4KΩ MIN, 0.5W MIN

SWITCHES FOR STAGE OPERATION
CUSTOMER SUPPLIED

Three/Four Stages. Voltage Free 2nd, 3rd & 4th Stage Activation Configuration — Config.: 2

Stage 1: Apply Power to Stage 1 +ve & Common -ve
Stage 2: Apply Power to Stage 1 +ve & Common -ve & connect Stage 2 -ve to Common -ve
Stage 3: Apply Power to Stage 1 +ve & Common -ve & connect Stage 3 -ve to Common -ve
Stage 4: Apply Power to Stage 1 +ve & Common -ve
& connect Stage 2 -ve & Stage 3 -ve to Common -ve

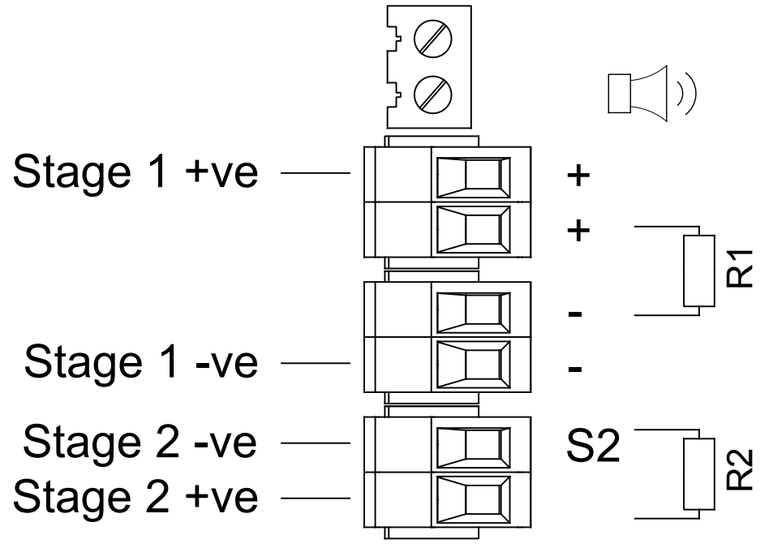


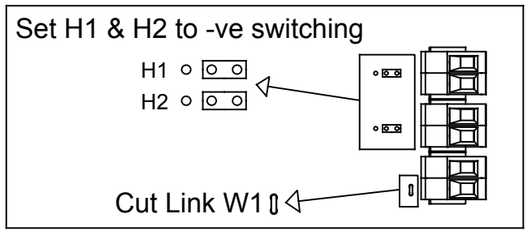


Two Stage Configuration — Config.: 3

Independent Stage Input
Reverse Polarity Stage Monitoring

Stage 1: Apply Power to Stage 1 +ve & Stage 1 -ve
Stage 2: Apply Power to Stage 1 +ve & Stage 1 -ve & connect Stage 2 -ve to Stage 1 -ve





DRAWING TO BS8888:2000 GEOMETRIC TOLERANCES TO ISO1101:1983 LINEAR DIMENSIONAL TOLS ANGULAR DIMENSIONAL TOLS	DRAWN R.S.RAIT DATE 05/03/2021	SURFACE FINISH	WEIGHT (Kg)
STANDARDS M RANGE	CHECKED B.ISARD DATE 05/03/2021	MATERIAL	
	APPROVED R.N.POTTS DATE 05/03/2021	ALTERNATIVE MATERIAL	

e2S 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 MA1R, MA1F, MA2F & MA2H DC SOUNDER WIRING DIAGRAMS

SCALE	SHEET	DRAWING NUMBER
NTS	2 OF 3	D207-06-001

ISSUE	MOD No.	REASON - INITIAL - DATE
A		INTRODUCTION RSR - 05/03/2021

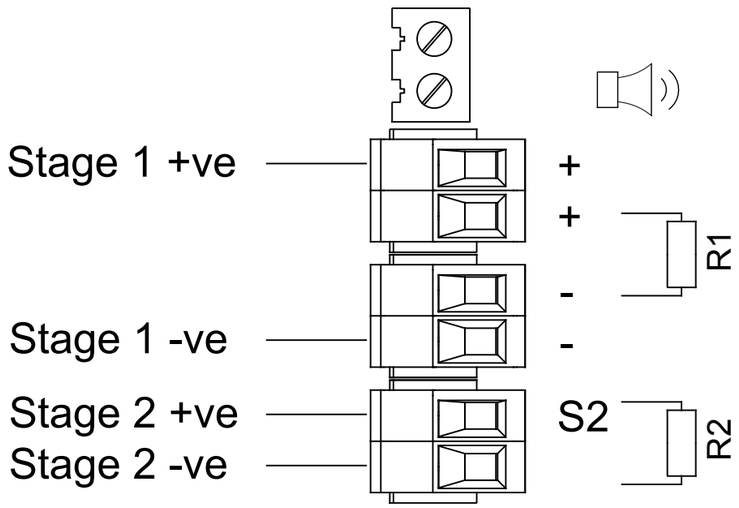
R1 — OPTIONAL LINE MONITORING RESISTOR, CUSTOMER SUPPLIED, RECOMMENDED MINIMUM VALUES:
14V MAX SYSTEM = 120Ω MIN, 2W MIN OR 1KΩ MIN, 0.5W MIN
28V MAX SYSTEM = 470Ω MIN, 2W MIN OR 2.4KΩ MIN, 0.5W MIN

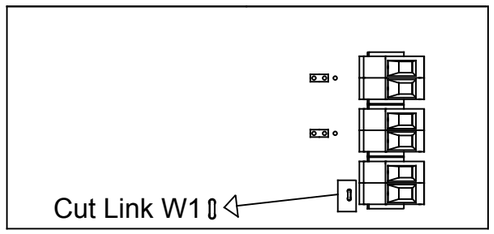
SWITCHES FOR STAGE OPERATION
CUSTOMER SUPPLIED

Two Stage Configuration — Config.: 4

Line Stage Monitoring (Use suitable monitoring relays/modules)
Not to be used for reverse polarity monitoring

Stage 1: Apply Power to Stage 1 +ve & Stage 1 -ve
Stage 2: Apply Power to Stage 2 +ve & Stage 2 -ve

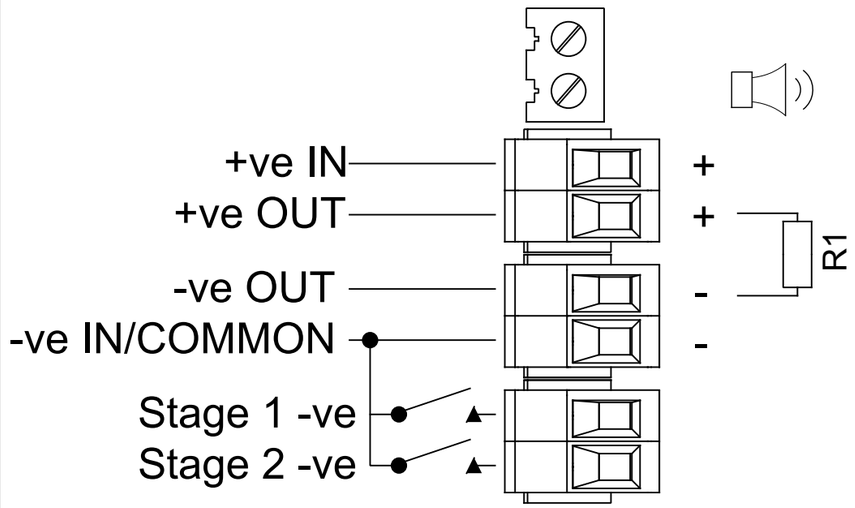


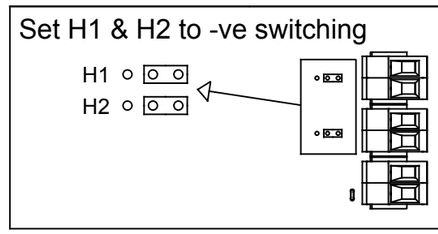


CUSTOM CONFIGURATION CONTACT E2S WHEN ORDERING

Two/Three Stage Voltage Free Activation Configuration — Config.: 5

Power: +ve & -ve
Stage 1: Connect Stage 1 -ve to Common -ve
Stage 2: Cconnect Stage 2 -ve to Common -ve
Stage 3: Connect both Stage 1 -ve & Stage 2 -ve to Common -ve



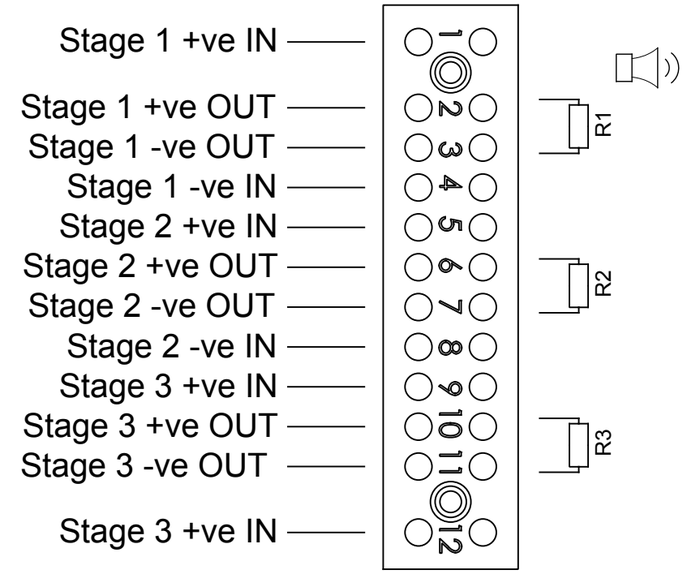


CUSTOM CONFIGURATION CONTACT E2S WHEN ORDERING

Three/Four Stage Configuration — Config.: 6

Independent Stage Input
Line Stage Monitoring (Use suitable monitoring relays/modules)
Set to positive switching (Default)

Stage 1: Apply Power to Stage 1 +ve & Stage 1 -ve
Stage 2: Apply Power to Stage 2 +ve & Stage 2 -ve
Stage 3: Apply Power to Stage 3 +ve & Stage 3 -ve
Stage 4: Apply Power to Stage 2 +ve & Stage 2 -ve
& apply Power to Stage 3 +ve & Stage 3 -ve



CUSTOM CONFIGURATION CONTACT E2S WHEN ORDERING

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

STANDARDS
M RANGE

DRAWN	R.S.RAIT	DATE 05/03/2021
CHECKED	B.ISARD	DATE 05/03/2021
APPROVED	R.N.POTTS	DATE 05/03/2021

SURFACE FINISH | WEIGHT (Kg)
MATERIAL
ALTERNATIVE MATERIAL

e2S 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 MA1R, MA1F, MA2F & MA2H DC SOUNDER WIRING DIAGRAMS

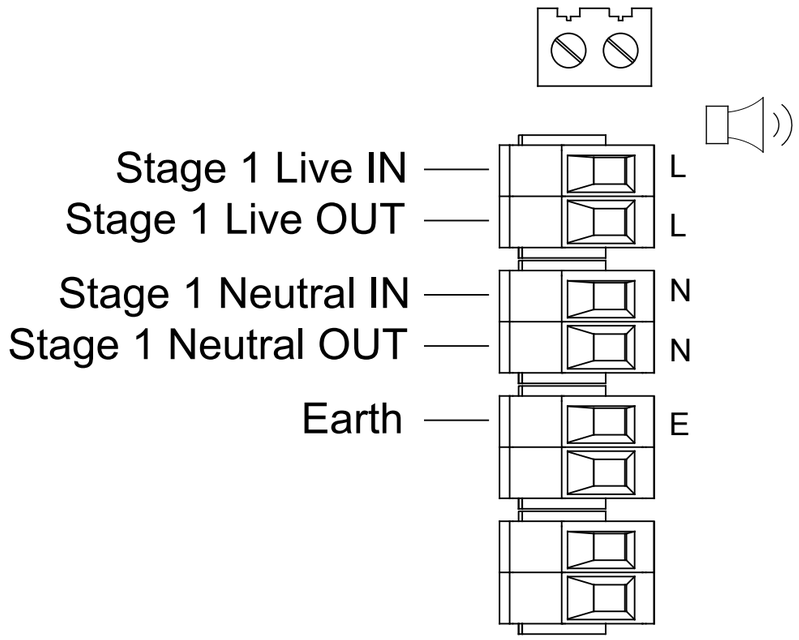
SCALE	SHEET	DRAWING NUMBER
NTS	3 OF 3	D207-06-001

ISSUE	MOD No.	REASON - INITIAL - DATE
A		INTRODUCTION RSR - 05/03/2021

SWITCHES FOR STAGE OPERATION
CUSTOMER SUPPLIED

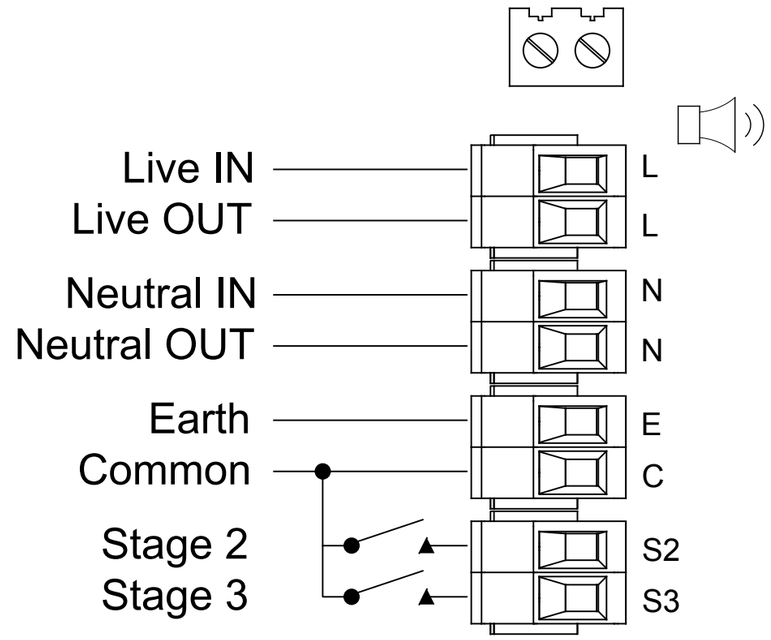
Single Stage Configuration — Config.: 1a

Stage 1: Apply Power to Stage 1 Live & Stage 1 Neutral



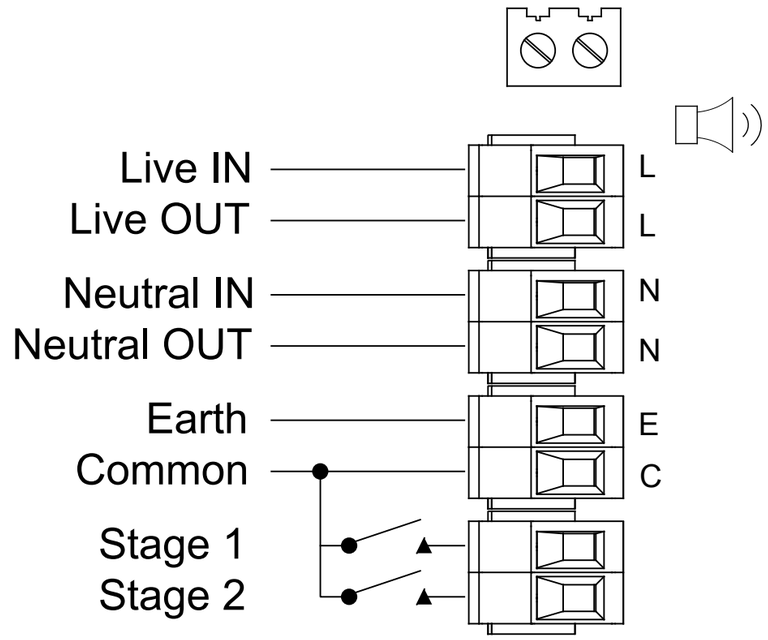
Three/Four Stage Configuration — Config.: 1b

Stage 1: Apply Power to Live & Neutral
Stage 2: Apply Power to Live & Neutral
& connect Stage 2 to Common
Stage 3: Apply Power to Live & Neutral
& connect Stage 3 to Common
Stage 4: Apply Power to Live & Neutral
& connect both Stage 2 & Stage 3 to Common



Two Stage Voltage Free Activation Configuration — Config.: 2

Power: Live & Neutral
Stage 1: Connect Stage 1 to Common
Stage 2: Connect Stage 2 to Common
Stage 3: Connect both Stage 1 & Stage 2 to Common



CUSTOM CONFIGURATION CONTACT E2S WHEN ORDERING

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

STANDARDS
M RANGE

DRAWN	R.S.RAIT	DATE 05/03/2021
CHECKED	B.ISARD	DATE 05/03/2021
APPROVED	R.N.POTTS	DATE 05/03/2021

SURFACE FINISH | WEIGHT (Kg)
MATERIAL
ALTERNATIVE MATERIAL

e2S 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 -
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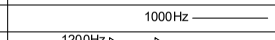
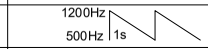
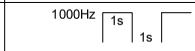
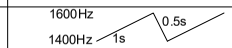
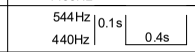
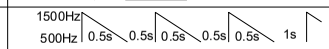
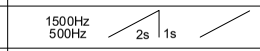
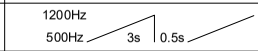
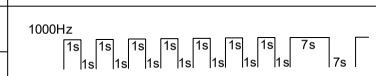
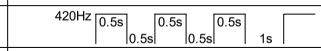
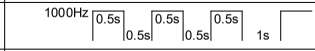
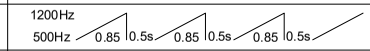
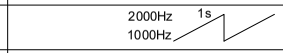
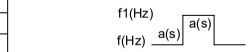
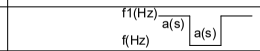
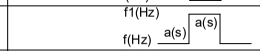
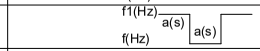
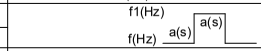
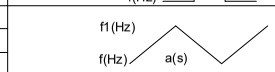
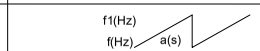
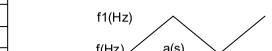
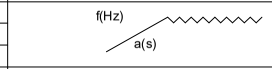
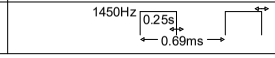
A3

TITLE MA1R, MA1F, MA2F, MA2H AC SOUNDER WIRING DIAGRAMS

SCALE	SHEET	DRAWING NUMBER
NTS	1 OF 1	D207-06-005

Stage 1 Set DIP SW 1 Tone No.	Tone Description	Tone Visual	Stage 1 & 2 DIP SW 1/2 Settings 1 2 3 4 5 6	Stage 3 Set DIP SW 1 (S3)	Stage 4 Set DIP SW 1 (S2 + S3)
1	1000Hz PFEER Toxic Gas		0 0 0 0 0 0	2	44
2	1200/500Hz @ 1Hz DIN /PFEER P.T.A.P.		1 0 0 0 0 0	3	44
3	1000Hz @ 0.5Hz(1s on, 1soff) PFEER Gen. Alarm		0 1 0 0 0 0	2	44
4	1.4KHz-1.6KHz 1s, 1.6KHz-1.4KHz 0.5s NF C 48-265		1 1 0 0 0 0	24	1
5	544Hz(100mS)/440Hz (400mS) NF S 32-001		0 0 1 0 0 0	19	1
6	1500/500Hz - (0.5s on , 0.5s off) x3 + 1s gap AS4428		1 0 1 0 0 0	44	1
7	500-1500Hz Sweeping 2 sec on 1 sec off AS4428		0 1 1 0 0 0	44	1
8	500/1200Hz @ 0.26Hz (3.3son, 0.5s off) Netherlands - NEN 2575		1 1 1 0 0 0	24	35
9	1000Hz (1s on, 1s off)x7 + (7s on, 1s off) IMO Code 1a		0 0 0 1 0 0	34	1
10	1000Hz (1s on, 1s off)x7 + (7s on, 1s off) IMO Code 1a		1 0 0 1 0 0	34	1
11	420Hz(0.5s on, 0.5s off)x3 + 1s gap ISO 8201 Temporal Pattern		0 1 0 1 0 0	1	8
12	1000Hz(0.5s on, 0.5s off)x3 + 1s gap ISO 8201 Temporal Pattern		1 1 0 1 0 0	1	8
13	422/775Hz - (0.85 on, 0.5 off) x3 + 1s gap NFPA - Temporal Coded		0 0 1 1 0 0	1	8
14	1000/2000Hz @ 1Hz Singapore		1 0 1 1 0 0	3	35
15	300Hz Continuous (f=300)		0 1 1 1 0 0	24	1
16	440Hz Continuous (f=440)		1 1 1 1 0 0	24	1
17	470Hz Continuous (f=470)		0 0 0 0 1 0	24	8
18	500Hz Continuous IMO code 2 (Low) (f=500)		1 0 0 0 1 0	24	8
19	554Hz Continuous (f=554)		0 1 0 0 1 0	24	8
20	660Hz Continuous (f=660)		1 1 0 0 1 0	24	35
21	800Hz IMO code 2 (High) (f=800)		0 0 1 0 1 0	24	35
22	1200Hz Continuous (f=1200)		1 0 1 0 1 0	24	35
23	2000Hz Continuous (f=2000)		0 1 1 0 1 0	3	35
24	2400Hz Continuous (f=2400)		1 1 1 0 1 0	20	35
25	440Hz @0.83Hz (50 cycles/minute) Intermittent (f=440, a=0.6, b=0.6)		0 0 0 1 1 0	44	8
26	470Hz @0.9Hz - 1.1s Intermittent (f=470, a=0.55, b=0.55)		1 0 0 1 1 0	44	8
27	470Hz @5Hz - (5 cycles/second) Intermittent (f=470, a=0.1, b=0.1)		0 1 0 1 1 0	44	8
28	544Hz @ 1.14Hz - 0.875s Intermittent (f=470, a=0.43, b=0.44)		1 1 0 1 1 0	24	8
29	655Hz @ 0.875Hz Intermittent (f=655, a=0.57, b=0.57)		0 0 1 1 1 0	24	8
30	660Hz @0.28Hz - 1.8sec on, 1.8sec off Intermittent (f=660, a=1.8, b=1.8)		1 0 1 1 1 0	24	8
31	660Hz @3.34Hz - 150mS on, 150mS off Intermittent (f=660, a=0.15, b=0.15)		0 1 1 1 1 0	24	8
32	745Hz @ 1Hz Intermittent (f=745, a=0.5, b=0.5)		1 1 1 1 1 0	24	8
33	800Hz - 0.25sec on, 1 sec off Intermittent (f=800, a=0.25, b=1)		0 0 0 0 0 1	24	8
34	800Hz @ 2Hz IMO code 3.a (High) Intermittent (f=800, a=0.25, b=0.25)		1 0 0 0 0 1	24	19
35	1000Hz @ 1Hz Intermittent (f=1000, a=0.5, b=0.5)		0 1 0 0 0 1	24	19
36	2400Hz @ 1Hz Intermittent (f=2400, a=0.5, b=0.5)		1 1 0 0 0 1	24	19
37	2900Hz @ 5Hz Intermittent (f=2900, a=0.1, b=0.1)		0 0 1 0 0 1	24	19
38	363/518Hz @ 1Hz Alternating (f=363, f1=518, a=0.1)		1 0 1 0 0 1	8	19
39	450/500Hz @ 2Hz Alternating (f=450, f1=500, a=0.25)		0 1 1 0 0 1	8	19
40	554/440Hz @ 1Hz Alternating (f=440, f1=554, a=0.5)		1 1 1 0 0 1	24	19
41	554/440Hz @ 0.625Hz Alternating (f=440, f1=554, a=0.8)		0 0 0 1 0 1	8	19
42	561/760Hz @0.83Hz (50 cycles/minute) Alternating (f=561, f1=760, a=0.6)		1 0 0 1 0 1	8	19
43	780/600Hz @ 0.96Hz Alternating (f=600, f1=780, a=0.52)		0 1 0 1 0 1	8	19
44	800/1000Hz @ 2Hz Alternating (f=800, f1=1000, a=0.25)		1 1 0 1 0 1	24	19
45	970/800Hz @ 2Hz Alternating (f=800, f1=970, a=0.25)		0 0 1 1 0 1	8	19
46	800/1000Hz @ 0.875Hz Alternating (f=800, f1=1000, a=0.57)		1 0 1 1 0 1	24	19
47	2400/2900Hz @ 2Hz Alternating (f=2400, f1=2900, a=0.25)		0 1 1 1 0 1	24	19
48	500/1200Hz @ 0.3Hz Sweeping (f=500, f1=1200, a=3.34)		1 1 1 1 0 1	24	12
49	560/1055Hz @ 0.18Hz Sweeping (f=560, f1=1055, a=5.47)		0 0 0 0 1 1	24	12
50	560/1055Hz @ 3.3Hz Sweeping (f=560, f1=1055, a=0.3)		1 0 0 0 1 1	24	12
51	600/1250Hz @ 0.125Hz Sweeping (f=600, f1=1250, a=8)		0 1 0 0 1 1	24	12
52	660/1200Hz @ 1Hz Sweeping (f=660, f1=1200, a=1)		1 1 0 0 1 1	24	12
53	800/1000Hz @ 1Hz Sweeping (f=800, f1=1000, a=1)		0 0 1 0 1 1	24	12
54	800/1000Hz @ 7Hz Sweeping (f=800, f1=1000, a=0.14)		1 0 1 0 1 1	24	12
55	800/1000Hz @ 50Hz Sweeping (f=800, f1=1000, a=0.02)		0 1 1 0 1 1	24	12
56	2400/2900Hz @ 7Hz Sweeping (f=2400, f1=2900, a=0.14)		1 1 1 0 1 1	24	12
57	2400/2900Hz @ 1Hz Sweeping (f=2400, f1=2900, a=1)		0 0 0 1 1 1	24	12
58	2400/2900Hz @ 50Hz Sweeping (f=2400, f1=2900, a=0.02)		1 0 0 1 1 1	24	12
59	2500/3000Hz @ 2Hz Sweeping (f=2500, f1=3000, a=0.5)		0 1 0 1 1 1	24	12
60	2500/3000Hz @ 7.7Hz Sweeping (f=2500, f1=3000, a=0.13)		1 1 0 1 1 1	24	12
61	800Hz Motor Siren (f=800, a=1.6)		0 0 1 1 1 1	24	12
62	1200Hz Motor Siren (f=1200, a=2)		1 0 1 1 1 1	24	
63	2400Hz Motor Siren (f=2400, a=1.7)		0 1 1 1 1 1	24	12
64	Simulated Bell		1 1 1 1 1 1	21	12