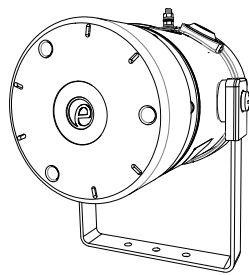


INSTRUCTION MANUAL

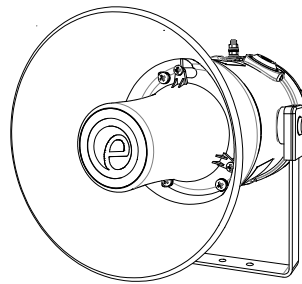
D1xS1

Alarm Horn Sounder

Class II/III, Zone 20



D1xS1R



D1xS1F

1) Product Table

Unit Type Code	Nominal Input Voltage	Nominal Input Current	Voltage Range	Sound Pressure Level dB(A)	
				Max*	Nom [†]
D1xS1RDC024-D	12Vdc	221mA	11.5-54Vdc	94	90
	24Vdc	185mA			
	48Vdc	115mA			
D1xS1RAC230-D	115Vac	73mA	100-240Vac 50/60Hz	98	94
	230Vac	48mA			
D1xS1FDC024-D	12Vdc	221mA	11.5-54Vdc	98	94
	24Vdc	185mA			
	48Vdc	115mA			
D1xS1FAC230-D	115Vac	73mA	100-240Vac 50/60Hz	98	94
	230Vac	48mA			

*Max = Tone 4
[†]Nom. = Tone 44

The table shows the input current taken by the various sounders.
 The current levels shown above are for the 440Hz Continuous tone @ nominal input voltage.
 Nominal current at nominal voltage.

Table 1: Electrical Ratings.

2) Warnings



CAUTION

TO REDUCE THE RISK OF IGNITION OF HAZARDOUS ATMOSPHERES:

DISCONNECT FROM SUPPLY BEFORE OPENING.
 KEEP TIGHTLY CLOSED WHEN IN OPERATION.

WARNING

FIT SEALING FITTING IN CONDUIT RUNS WITHIN 18 INCHES FROM ENCLOSURE.

EQUIPMENT MUST NOT BE INSTALLED WITH THE HORN FACING UPWARDS OF HORIZONTAL

DO NOT OPEN WHEN AN EXPLOSIVE ATMOSPHERE IS PRESENT

DO NOT OPEN WHEN ENERGISED

POTENTIAL ELECTROSTATIC CHARGING HAZARD - CLEAN ONLY WITH A DAMP CLOTH

ENCLOSURE ENTRIES: TWIN M20 X 1.5 / SINGLE 1/2" NPT

ATEX/IECEx INSTALLATIONS: IF TEMPERATURE EXCEEDS 70°C AT ENTRY OR 80°C AT BRANCHING POINT USE SUITABLE RATED CABLE AND GLANDS

ATTENTION

POUR RÉDUIRE LE RISQUE D'INFLAMMATION DES ATMOSPHÈRES DANGEREUSES :

COUPER L'ALIMENTATION AVANT OUVERTURE.
 CONSERVER FERMÉ PENDANT LE FONCTIONNEMENT.

AVERTISSEMENT

CONDUITS DOIVENT ÊTRE SCELLES EN MOINS DE 18 POUCHES. ÉQUIPEMENT NE DOIT PAS ÊTRE INSTALLÉ AVEC LE KLAXON

TOURNÉE VERS LE HAUT DE HORIZONTAL.

NE PAS OUVRIR UN PRÉSENCE D'ATMOSPHÈRE EXPLOSIVE
 NE PAS OUVRIR ÉNERGIE

DANGER POTENTIEL CHARGE ÉLECTROSTATIQUE - NETTOYER UNIQUEMENT AVEC UN CHIFFON HUMIDE

ENTRÉES DE BOÎTIER: 2 x M20 X 1.5 / 1 x 1/2" NPT

ATEX/IECEx INSTALLATIONS: SI LA TEMPÉRATURE DÉPASSE 70 °C À L'ENTRÉE OU 80 °C AU POINT DE BRANCHEMENT, UTILISER UN CÂBLE ET DES JOINTS D'ÉTANCHÉITÉ APPROPRIÉS

3) Marking & Rating Information

The D1xS1 Alarm Horns comply with the following standards for hazardous locations:

3.1 Class/Division Ratings for US & Canada

Standards	
Class I UL 1203 & CSA C22.2 No 25-1966	
Class Division Ratings for US (NEC)	
Model No:	Rating
D1xS1-DC024-D / D1xS1-AC230-D	Class II Div 1 FG T6 Ta -55°C to +70°C Class III Div 1 Ta -55°C to +70°C
Class Division Ratings for Canada (CEC)	
Model No:	Rating
D1xS1-DC024-D	Class II Div 1 FG T6 Ta -55°C to +70°C Class III Div 1 Ta -55°C to +70°C
D1xS1-AC230-D	Class II Div 1 FG T6 Ta -55°C to +40°C Class III Div 1 Ta -55°C to +40°C
Class Zone Ratings for US (NEC)	
Model No:	Rating
D1xS1-DC024-D / D1xS1-AC230-D	Class II Zone 20 IIIB T6 Ta -55°C to +70°C
Class Zone Ratings for Canada (CEC)	
Model No:	Rating
D1xS1-DC024-D	Class II Zone 20 IIIB T6 Ta -55°C to +70°C
D1xS1-AC230-D	Class II Zone 20 IIIB T6 Ta -55°C to +40°C
Installation must be carried out in compliance with the National Electric Code / Canadian Electric Code	
Ambient Temperature Range	
-55°C to +70°C (-67°F to +158°F)	
IP Rating	
IP66 to EN60529 4 / 4X / 3R / 13 to UL50E / NEMA250	

Ensure the O-ring seal is in place and undamaged.

When fitting the flameproof cover ensure the thread is engaged correctly. Fully tighten the cover all the way, ensure no gap is visible between the cover and base of the sounder enclosure.

The cable entries have two M20 x 1.5 – 6H entry thread and a single ½” NPT thread. If the installation is made using cable glands, only suitably rated and certified cable glands must be used. They must be suitable for the type of cable being used and also meet the requirements of the current installation standards EN 60079-14 / IEC60079-14.

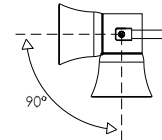
If the installation is made using conduit, openings must have a sealing fitting connected within 18” of enclosure.

Any unused cable entries must be closed with suitably rated and certified blanking plugs.

The plastic horn is not anti-static and the metallic enclosure has a non-conductive coating. These may generate an ignition-capable level of electrostatic charges under certain extreme conditions. The user should ensure that the equipment is not installed in a location where it may be subjected to external conditions that might cause a build-up of electrostatic charges on non-conducting surfaces.

Repair of the flameproof threaded joints and cemented joints is not permitted.

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



Only the explosionproof cover is to be used for access to the enclosure for installation, service and maintenance.

4) Special Conditions for Safe Use

To access the Ex d chamber, loosen the M4 grub screw on the sounder cover. Open the enclosure by turning the sounder cover counterclockwise and remove the cover.

Electrical connections are to be made into the terminal blocks on the PCBA, using solid wire 0.5-4mm² / AWG 20-12 or stranded wire, sizes 0.5-2.5mm² / AWG 24-14. 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 / 3.5 Lb-in.

Internal earthing connections should be made to the Internal Earth terminal in the base of the housing using a ring crimp terminal to secure the earth conductor under the earth clamp. The earth conductor should be at least equal in size and rating to the incoming power conductors but at least a minimum of 0.82mm² / 18AWG in size.

External earthing connections should be made to the M5 earth stud, using a ring crimp terminal to secure the earth conductor to the earth stud. The external earth conductor should be at least 4mm² in size.

On completion of the installation the flameproof threaded joint should be inspected to ensure that they are clean and that they have not been damaged during installation.

5) Product Mounting and Access

5.1 Mounting

The D1x Alarm Horn may be secured to any flat surface using at least two of the three or four 7mm fixing holes. The enclosure provides IP66 protection and is suitable for installation in exterior locations providing it is positioned so that water cannot collect in the horn, and the cable entry is sealed.

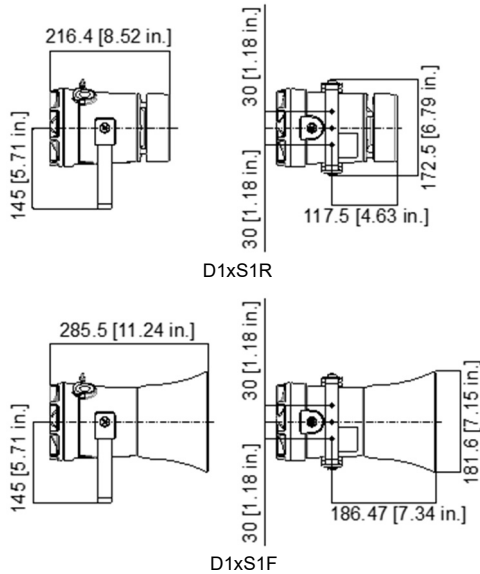


Fig 1: Mounting Locations

5.2 Installation procedure

- Secure the D1x unit to a flat surface via the three 7mm fixing holes in the mounting bracket.
- Remove the explosionproof cover of the alarm horn by unscrewing it, taking care not to damage the explosionproof threads in the process (Refer to section 5).
- Fit an M20/NPT suitably rated cable gland or conduit entry into the hole in the enclosure and connect the field wiring to the appropriate alarm horn terminals as shown in fig. 6 (AC) or fig 8. (DC). The power supply terminals are duplicated so that units may be connected in parallel. An end of line monitoring resistor may be fitted to DC units only (see section 12). If the second and third M20/NPT entries are not used, suitably rated stopping plugs must always be fitted.
- Replace the explosionproof cover of the loudspeaker, taking care not to damage the explosionproof threads. Tighten fully.

5.3 Hornless Variants

The D1x Sounder is also available as a variant with no horn fitted in the factory. The Horn threaded nose portion has a fitment thread of 1-3/8" – 18 UNF (to BS1580 or ANSI B1.1). The customer is responsible for sourcing and correctly fitting a suitable horn that meets all of the relevant safety requirements.

5.4 Access to the Explosionproof Enclosure

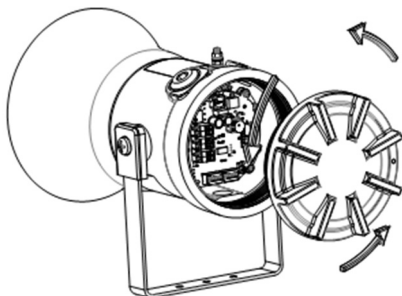


Fig 2: Accessing the enclosure

To access the Ex d chamber, loosen the M4 grub screw on the sounder cover. Open the enclosure by turning the sounder cover counterclockwise and remove the cover. Take extreme care not to damage the explosionproof threads in the process.

6) Installation Requirements

6.1 Safe Installation Requirements



Warning – High voltage may be present, risk of electric shock.
DO NOT open when energised, disconnect power before opening.

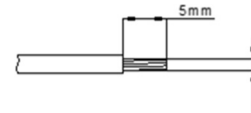
The sounder must only be installed by suitably qualified personnel in accordance with the latest issues of the relevant standards.

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

The installation of the units must also be in accordance with the NEC / CEC and any local regulations and should only be carried out by a competent electrical engineer who has the necessary training.

6.2 Cable Selection and Connections

When selecting the cable size, consideration must be given to the input current that each unit draws (see table 1), the number of sounders on the line and the length of the cable runs. The cable size selected must have the necessary capacity to provide the input current to all the sounders connected to the line.

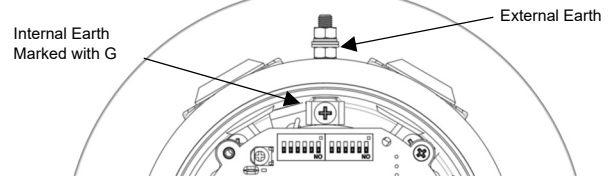


AC: 1.0 - 2.5mm² / AWG18 - AWG12
DC: 0.2 - 2.5mm² / AWG24 - AWG12

Figure 3: Wire Preparation.

When connecting wires to the terminals great care should be taken to dress the wires so that when the cover is inserted into the chamber the wires do not exert excess pressure on the terminal blocks. This is particularly important when using cables with large cross-sectional areas such as 2.5mm².

6.3 Earthing



Please note that for AC supply voltage product versions the Earth terminal on the PCBA does not provide an earth connection to the product enclosure. The enclosure must be independently earthed using either the external or internal earth fixing point, (see fig 4 and notes below).

The unit has both a primary internal and secondary external earth fixing point.

Internal earth connections should be made to the internal Earth terminal in the base of the housing using a ring crimp terminal to secure the earth conductor under the earth clamp.

External earth connections can be made to the M5 earth stud (see Fig. 2), using a ring crimp terminal to secure the earth conductor to the earth stud. The external earth conductor should be at least 4mm² in size.

The external earth crimp ring should be located between the two M5 plain washers provided and securely locked down with the M5 spring washer and M5 nut.

The earth conductor should be at least equal in size and rating to the incoming power conductors but at least a minimum of 0.82mm² / 18AWG in size.

6.4 Cable Glands, Blanking Elements & Adapters

Ingress Protection

If a high IP (Ingress Protection) rating is required then a suitable sealing washer must be fitted under the cable glands or blanking plugs. A minimum ingress protection rating of IP6X must be maintained for installations in explosive dust atmospheres.

To maintain the ingress protection rating and mode of protection, the cable entries must be fitted with suitably rated cable entry and/or blanking devices during installation.

If entries are fitted with adaptors they must be suitably rated for the application. Fitting of blanking elements into adaptors is not permitted.

Adapters

The GNEx sounder range can be supplied with the following types of adapters:

- M20 to 1/2" NPT
- M20 to 3/4" NPT
- M20 to M25

It is important to note that stopping plugs cannot be fitted onto adapters, only directly onto the M20 entries.

Any other adapters used must be suitably rated and certified.

If the installation is made using conduit, openings must have a sealing fitting connected as close as practical to the wall of the enclosure, but in no case more than the size of the conduit or 50mm, whichever is the lesser.

7) Settings

Following illustrations show the settings available for D1xS1 Alarm Horn Sounders. See schematic diagram D190-06-001 for details.

7.1 Configuration

See Table 1 for product power supply and Sound Pressure Levels (SPL).

Configuration for DC Units

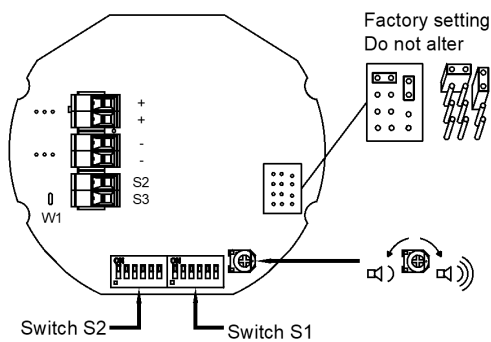


Figure 4: DC PCBA.

Configuration for AC Units

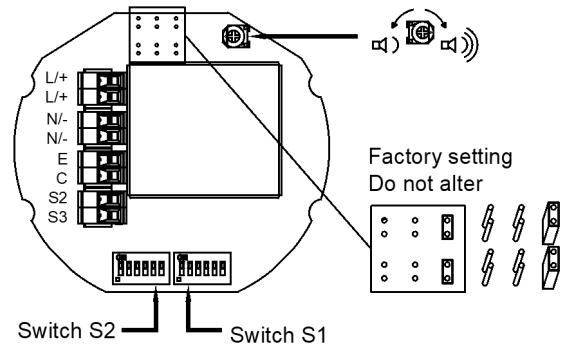


Figure 5: AC PCBA .

7.2 Stage Switching Polarity (DC Units)

Switching from positive switching (default) to negative switching - DC Only.

NOTE: Max supply is 33V DC – if higher DC voltage is required, use Negative switching.

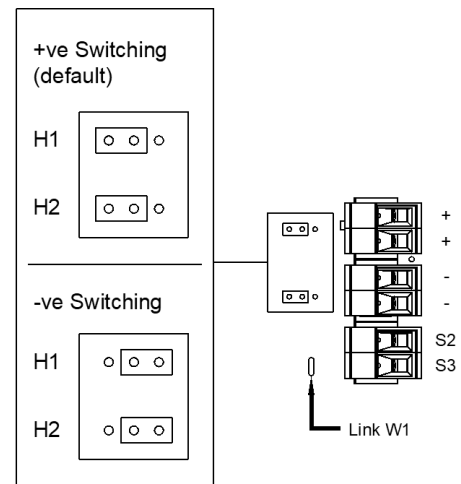
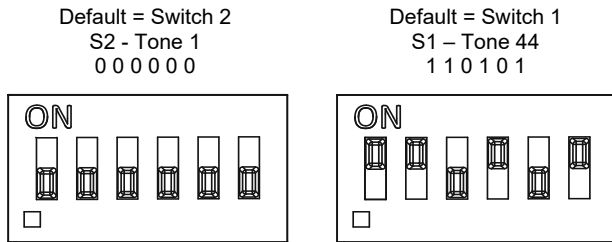


Figure 6: Stage Switching Polarity.

7.3 Tone Selection

The D1x Alarm Horn Sounders have 64 different tones that can be selected independently for the first and second stage alarms. The tones are selected by operation of the tone setting DIP switch 1 & DIP switch 2 (see figures 6 and 7) on the PCB, for stage 1 and stage 2 respectively.



(ON = 1, OFF = 0)

Figure 7: DIP switch configuration

The sounder can also be switched to sound the third and fourth stage alarm tones.

The tone table (D221-95-001-IS) shows the switch positions for the 64 tones on first and second stages and which tones are available for the third and fourth stages dependent on the Stage 1 DIP switch setting.

Following table (Table 3) is a summary of DC: D190-06-001; AC: D190-06-005 wiring options.

Config.	Voltage	Configuration Description	Features	Product Option Identifier
1a	DC	Single Stage Configuration	<ul style="list-style-type: none"> Line monitoring Positive Switching 	1
1b	DC	Two Stage Configuration	<ul style="list-style-type: none"> Common Negative Positive Switching 	1
1c	DC	Three/Four Stage Configuration	<ul style="list-style-type: none"> Common Negative Positive Switching 	1
2	DC	Three/Four Stages. Voltage Free 2nd, 3rd & 4th Stage Activation Configuration	<ul style="list-style-type: none"> Common Positive Customer Set H1 & H2 to Negative Switching 	1
3	DC	Two Stage Configuration	<ul style="list-style-type: none"> Independent Stage Input Reverse Polarity Stage Monitoring 	1
4	DC	Two Stage Configuration	<ul style="list-style-type: none"> Line Stage Monitoring (Use suitable monitoring relays/ modules) Not to be used in reverse polarity monitoring 	Y
5	DC	Two/Three Stage Voltage Free Activation Configuration		K
6	DC	Three/Four Stage Configuration	<ul style="list-style-type: none"> Independent Stage Input Line Stage Monitoring (Use suitable monitoring relays/ modules) Positive Switching (Default) 	V
1a	AC	Single Stage Configuration		1
1b	AC	Three/Four Stage Configuration		1
2	AC	Two/Three Stage Voltage Free Activation Configuration		K

Table 3: Summary of Wiring Options. See Document D190-06-001 for DC Schematic Diagrams; D190-06-005 for AC Schematic Diagrams.

8) End of Line Monitoring (DC Units)

8.1 Standard DC End Of Line Monitoring

All DC units have a blocking diode fitted in their supply input lines. An end of line monitoring diode or an end of line monitoring resistor can be connected across the +ve and -ve terminals in the flameproof chamber. If an end of line resistor is used it must have a minimum resistance value of 3k3 ohms and a minimum wattage of 0.5W or a minimum resistance value of 500 ohms and a minimum wattage of 2W.

The resistor must be connected directly across the +ve and -ve terminals as shown in the following drawing. The resistor leads should be kept as short as possible. See D190-06-001 for details.

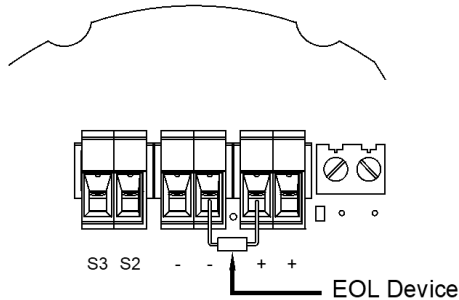


Figure 8: End of Line Resistor placement.

Note that the maximum forward polarity monitoring voltage is 6V. A monitoring voltage greater than 6V may activate the alarm horn sounder and the 2nd, 3rd or 4th stages.

8.2 Custom DC Multi-Stage End Of Line Monitoring

An optional 12-way terminal module is available to enable up to four alarm stages to be activated from three DC voltage output channels. The three alarm stage activation inputs can be independently monitored.

Refer to Schematic D190-06-001, Config. 6.
Specify Product option 'V' when ordering.
Spare part code for field installation: SP78-0001

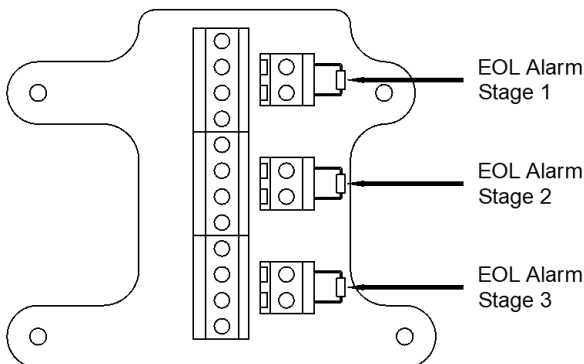


Figure 9: End of Line Resistor placement – Optional 12-Way Terminal Module.

9) Maintenance, Overhaul and Repair

Maintenance, repair and overhaul of the equipment should only be carried out by suitably qualified personnel in accordance with the current relevant standards:

Flameproof threaded joints and cemented joints are not permitted to be repaired.

Units must not be opened while an explosive atmosphere is present.

If opening the unit during maintenance operations, a clean environment must be maintained and any dust layer removed prior to opening the unit.

Potential electrostatic charging hazard – Clean only with a damp cloth.

10) SIL 2 Reliability Data

Reliability and Functional safety IEC/EN61508 which has been assessed and is considered suitable for use in low demand safety function:

1. Random Hardware Failures and Architectural constraints (route 2_H).
2. As an unvoted item (i.e. hardware fault tolerance of 0) at SIL 2. The product was assessed against failure modes:
 - Failure respond to an input by sounding sounder.
 - Spurious sound output despite no input.
3. When employing the device in a SIL2 compliant system the user should ensure frequent or continuous automatic monitoring of continuity.

Integrity in respect of failure to function	SIL2 & SIL1
Total Failure rate	0.55 pmh
"Hazardous" failure rate (revealed)	0 pmh
"Hazardous" failure rate (unrevealed)	0.55 pmh
"Safe" failure rate (revealed)	0 pmh
"Safe" failure rate (unrevealed)	0
System type	B
Hardware Fault Tolerance	0
Diagnostic Coverage	>80%
PFD (hazardous failure)	2.4×10^{-3}
Proof Test Interval	Up to 1 year



· **All models are approved for use as Audible Signal Appliance for use as General Signaling: UL464A & CSA C22.2 No 205-17**

· Type 4 / 4X / 3R / 13, IP66

· -55°C to +85°C / -67°C to +176°F

General Signaling Canada:

D1xS1-AC230-A: -55°C to +40°C / -67°F to +104°F

D1xS1-DC024-A, D1xS1-DC024-S: -55°C to +85°C / -67°F to +185°F

· To maintain Ingress Protection, cable entries must be fitted with suitably rated cable glands or stopping plugs

· EOL Monitoring (DC Only): End of Line Devices may be fitted between the +ve & -ve terminals of the PCBA. Please ensure that the device legs meet the wire size range stated for the connection terminals and are fitted correctly in order to avoid a short. Refer to the compatible control panel specification for EOL device values and ratings

Model	Nominal Voltage	Voltage Range	P1 Nominal Operating Current [#]	P2 Nominal Operating Current [#]	P3 Nominal Operating Current [#]	P1 Max Operating RMS [*]	P2 Max Operating RMS [*]	P3 Max Operating RMS [*]
D1xS1-DC024-A	12V dc	11.5 - 54V dc	221mA	-	-	221mA	-	-
	24V dc		185mA	-	-			
	48V dc		115mA	-	-			
D1xS1-AC230-A	115V ac	100- 240V ac 50/60Hz	73mA	-	-	80mA	-	-
	230V ac		48mA	-	-			

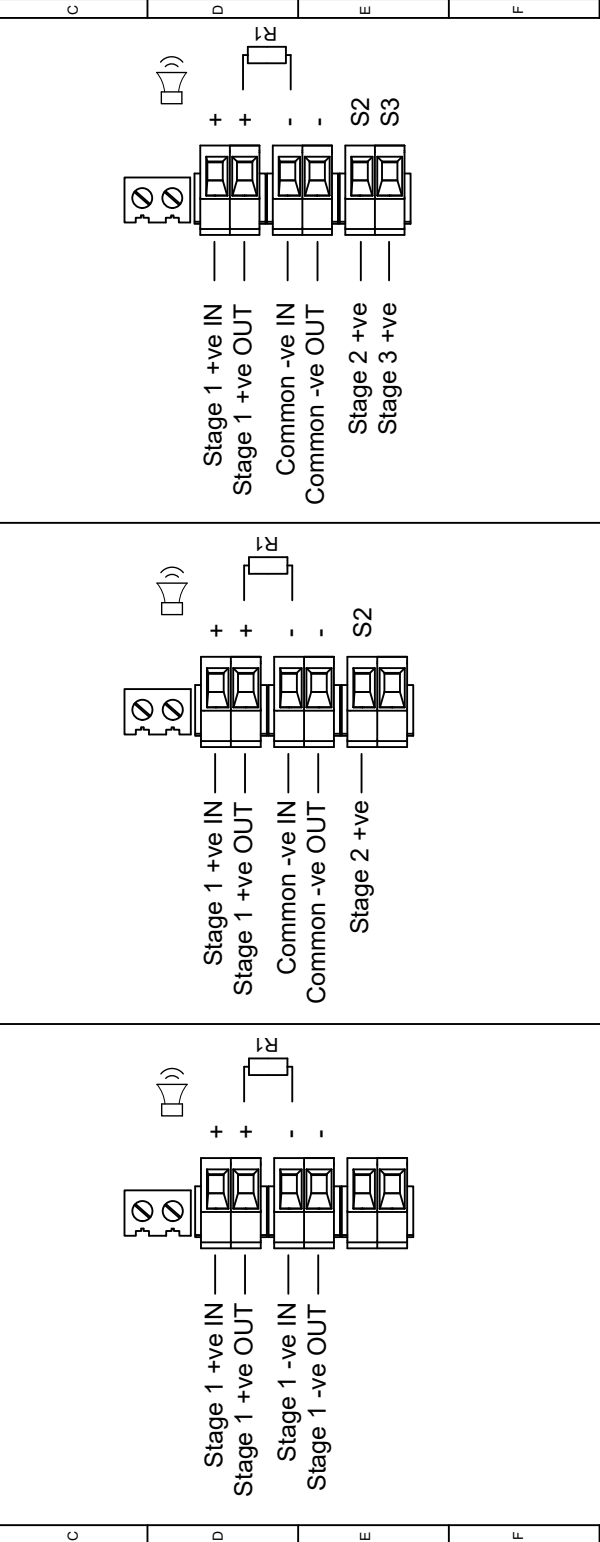
*Max Operating current for worst-case input voltage; Nominal current at nominal voltage and Tone 12

Table 4: UL General Signaling Electrical ratings

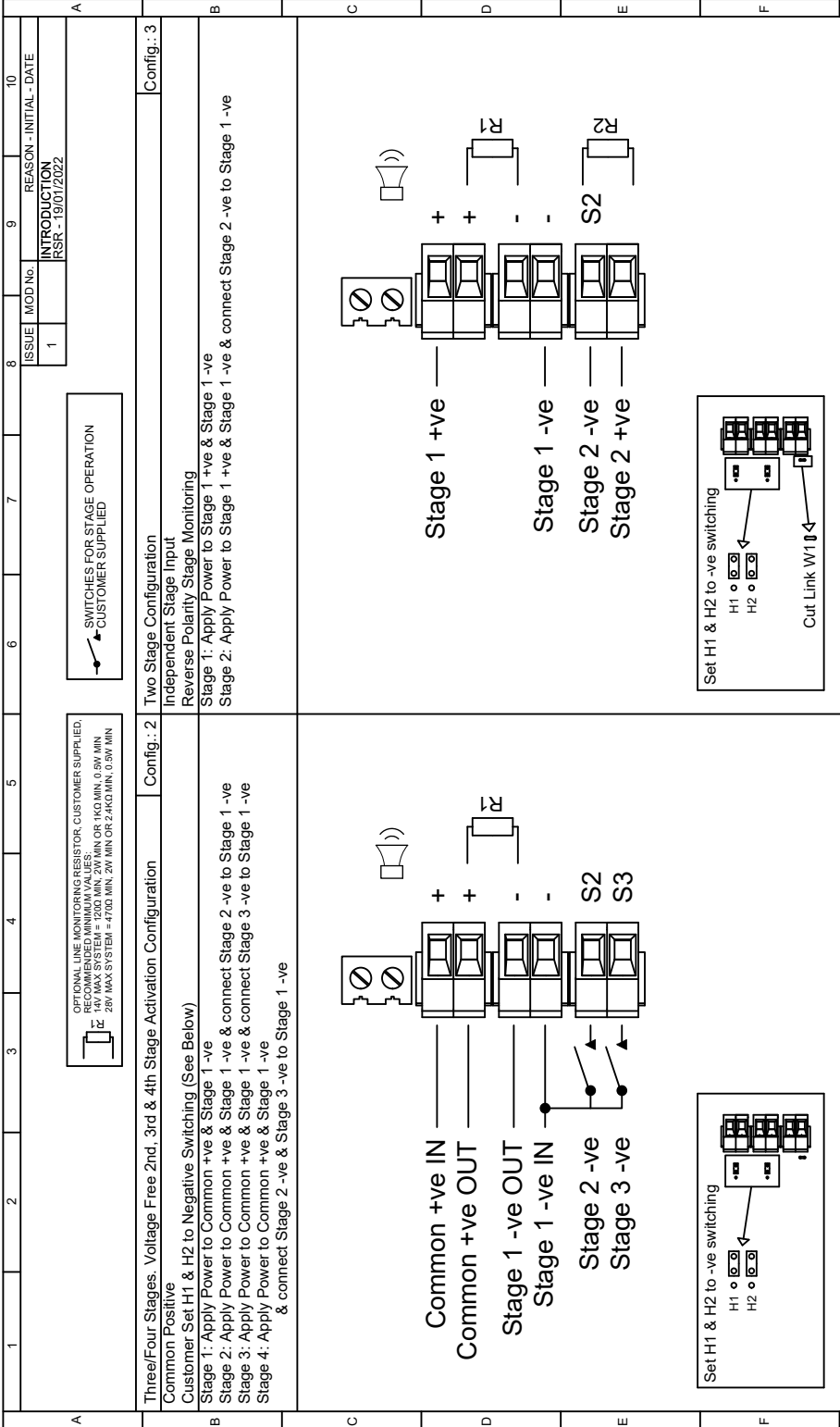
Stage 1 Set DIP SW 1 Tone No.	Tone Description	Tone Visual	Stage 1 & 2 DIP SW 1/2 Settings 1 2 3 4 5 6	Stage 3 Set DIP SW 1 (S3)	Stage 4 Set DIP SW 1 (S2 + S3)
1	1000Hz PFEER Toxic Gas		0 0 0 0 0	2	44
2	1200/500Hz @ 1Hz DIN /PFEER P.T.A.P.		1 0 0 0 0	3	44
3	1000Hz @ 0.5Hz(1s on, 1soff) PFEER Gen. Alarm		0 1 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	24	1
5	544Hz(100mS)/440Hz (400mS) NF S 32-001		0 0 1 0 0	19	1
6	1500/500Hz - (0.5s on , 0.5s off) x3 + 1s gap AS4428		1 0 1 0 0	44	1
7	500-1500Hz Sweeping 2 sec on 1 sec off AS4428		0 1 1 0 0	44	1
8	500/1200Hz @ 0.26Hz (3.3son, 0.5s off) Netherlands - NEN 2575		1 1 1 0 0	24	35
9	1000Hz (1s on, 1s off)x7 + (7s on, 1s off) IMO Code 1a		0 0 0 1 0	34	1
10	1000Hz (1s on, 1s off)x7 + (7s on, 1s off) IMO Code 1a		1 0 0 1 0	34	1
11	420Hz(0.5s on, 0.5s off)x3 + 1s gap ISO 8201 Temporal Pattern		0 1 0 1 0	1	8
12	1000Hz(0.5s on, 0.5s off)x3 + 1s gap ISO 8201 Temporal Pattern		1 1 0 1 0	1	8
13	422/775Hz - (0.85 on, 0.5 off) x3 + 1s gap NFPA - Temporal Coded		0 0 1 1 0	1	8
14	1000/2000Hz @ 1Hz Singapore		1 0 1 1 0	3	35
15	300Hz Continuous (f=300)		0 1 1 1 0	24	1
16	440Hz Continuous (f=440)		1 1 1 1 0	24	1
17	470Hz Continuous (f=470)		0 0 0 0 1	24	8
18	500Hz Continuous IMO code 2 (Low) (f=500)		1 0 0 0 1	24	8
19	554Hz Continuous (f=554)		0 1 0 0 1	24	8
20	660Hz Continuous (f=660)		1 1 0 0 1	24	35
21	800Hz IMO code 2 (High) (f=800)		0 0 1 0 1	24	35
22	1200Hz Continuous (f=1200)		1 0 1 0 1	24	35
23	2000Hz Continuous (f=2000)		0 1 1 0 1	3	35
24	2400Hz Continuous (f=2400)		1 1 1 0 1	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 1 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	12
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

1	2	3	4	5	6	7	8	9	10
<p>OPTIONAL LINE MONITORING RESISTOR, CUSTOMER SUPPLIED. RECOMMENDED MINIMUM VALUES: RESISTANCE = 100 OHMS MIN OR 1K0 MIN, 0.5W MIN DIMENSIONS = 4.0MM MIN OR 4.5MM MIN OR 2.4K0 MIN, 0.5W MIN 28V MAX SYSTEM = 4700, MIN, 2W MIN OR 2.4K0 MIN, 0.5W MIN</p>									
<p>ISSUE / MOD NO: 1 / INTRODUCTION RSR - 19/01/2022</p>									
<p>REASON - INITIAL - DATE</p>									



Single Stage Configuration		Two Stage Configuration		Three/Four Stage Configuration	
Line Monitoring		Common Negative		Common Negative	
Set to positive switching (default)		Set to positive switching (default)		Set to positive switching (default)	
Stage 1: Apply Power to Stage 1 +ve & Stage 1 -ve		Stage 1: Apply Power to Stage 1 +ve & Common -ve Stage 2: Apply Power to Stage 2 +ve & Common -ve		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	


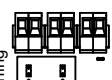
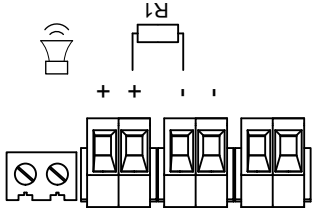


DRAWING TO BS8888:2000. GEOMETRIC TOLERANCES TO ISO1101:1983 ANGULAR DIMENSIONAL TOLS		DRAWN R.S.RAIT	DATE 19/01/2022	SURFACE FINISH WEIGHT (Kg)	
CHECKED B.JISARD		DATE 19/01/2022	MATERIAL		
APPROVED R.N.POTTS		DATE 19/01/2022	ALTERNATIVE MATERIAL		
STANDARDS Dlx		<p>THIS DRAWING AND ANY INFORMATION OR DESCRIPTIVE MATTER THEREIN IS COMMUNICATED IN CONFIDENCE AND IS NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEMS LTD. NEITHER THE WHOLE OR ANY PART THEREOF MAY BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS WITHOUT THEIR WRITTEN CONSENT. © AS PER LATEST DATE OF ISSUE SHOWN ABOVE</p>			
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TITLE STEXS2 DC SOUNDER WIRING DIAGRAMS		DIXS1 / DIXS2 / GNEXS1 / GNEXS2 / STEXS1 / STEXS2		DRAWING NUMBER D190-06-001	
SCALE NTS		SHEET 1 OF 3			



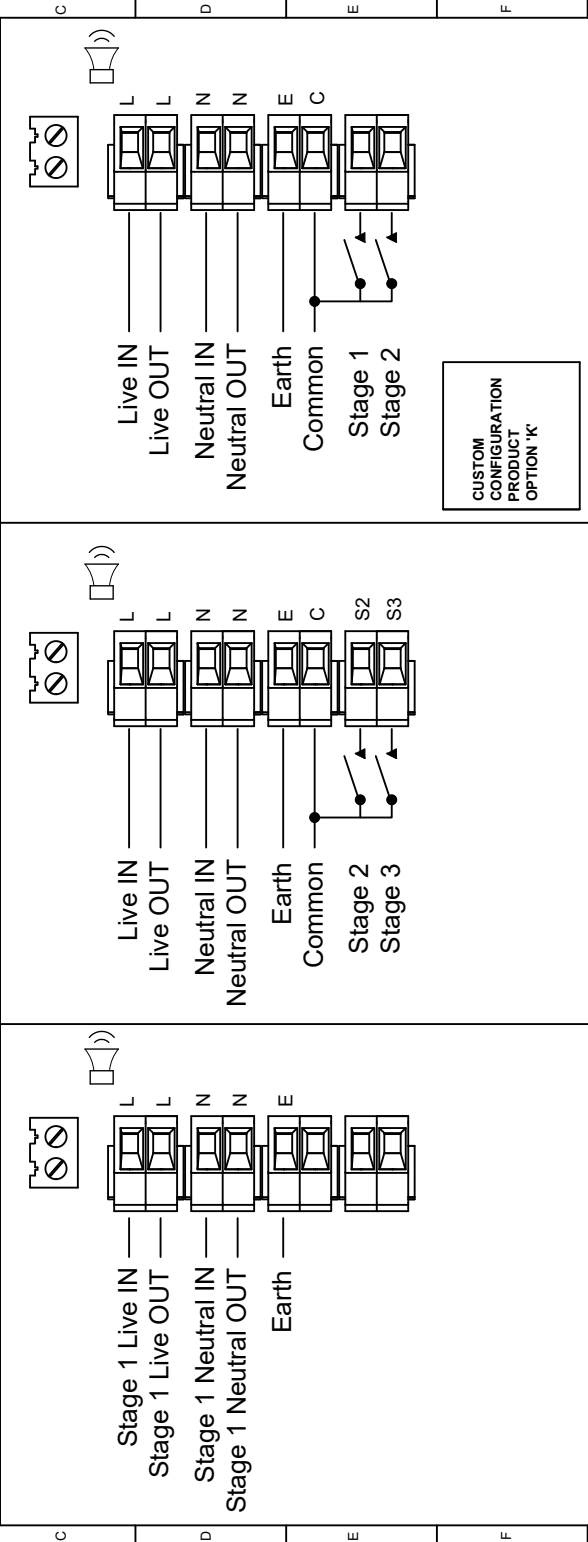
1	2	3	4	5	6	7	8	9	10
ISSUE MOD No. REASON - INITIAL - DATE									
1 INTRODUCTION RSR - 19/01/2022									
SWITCHES FOR STAGE OPERATION CUSTOMER SUPPLIED									
OPTIONAL LINE MONITORING RESISTOR, CUSTOMER SUPPLIED, RECOMMENDED: 10K OHM 0.5W MIN 14V MAX SYSTEM = 1200 MIN, 2W MIN OR 1K0 MIN, 0.5W MIN 28V MAX SYSTEM = 4700 MIN, 2W MIN OR 2.4K0 MIN, 0.5W MIN									
Three/Four Stages. Voltage Free 2nd, 3rd & 4th Stage Activation Configuration									
Common Positive									
Customer Set H1 & H2 to Negative Switching. (See Below)									
Stage 1: Apply Power to Common +ve & Stage 1 -ve									
Stage 2: Apply Power to Common +ve & Stage 1 -ve & connect Stage 2 -ve to Stage 1 -ve									
Stage 3: Apply Power to Common +ve & Stage 1 -ve & connect Stage 3 -ve to Stage 1 -ve									
Stage 4: Apply Power to Common +ve & Stage 1 -ve & connect Stage 2 -ve & Stage 3 -ve to Stage 1 -ve									
Two Stage Configuration									
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									
Common Positive									
Customer Set H1 & H2 to Negative Switching. (See Below)									
Stage 1: Apply Power to Common +ve & Stage 1 -ve									
Stage 2: Apply Power to Common +ve & Stage 1 -ve & connect Stage 2 -ve to Stage 1 -ve									
Stage 3: Apply Power to Common +ve & Stage 1 -ve & connect Stage 3 -ve to Stage 1 -ve									
Stage 4: Apply Power to Common +ve & Stage 1 -ve & connect Stage 2 -ve & Stage 3 -ve to Stage 1 -ve									
Surface Finish Weight (Kg)									
Material									
Alternative Material									
Drawing Date									
Checked Date									
Approved Date									
Drawing Number									
Sheet									
NTS									
Drawing Number									
D190-06-001									
All Dimensions in mm									
If in Doubt, Ask - Do Not Scale									
Title									
Scale									
Sheet									
NTS									
Drawing Number									
D190-06-001									
European Safety Systems Ltd									
London W3 7QH									
www.ess.com									
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Drawing to BS8888:2000, GEOMETRIC TOLERANCES TO ISO1101:1983, ANGULAR DIMENSIONAL TOLS									
DRAWN DATE									
R.S. RAIT 19/01/2022									
CHECKED DATE									
B. JISARD 19/01/2022									
APPROVED DATE									
R.N.POTTS 19/01/2022									
STANDARDS									
Dtx									

1	2	3	4	5	6	7	8	9	10
<p>OPTIONAL LINE MONITORING RESISTOR, CUSTOMER SUPPLIED, 14V MAX SYSTEM = 120Q MIN, 2W MIN OR 1KQ MIN, 0.5W MIN 28V MAX SYSTEM = 470Q MIN, 2W MIN OR 2.4KQ MIN, 0.5W MIN</p> 		<p>SWITCHES FOR STAGE OPERATION </p>		<p>ISSUE MOD NO. REASON-INITIAL - DATE 1</p>		<p>INTRODUCTION RSR - 19/01/2022</p>		<p>10</p>	
<p>Config.: 4 Two/Three Stage Voltage Free Activation Configuration Customer Set H1 & H2 to Negative Switching (See Below)</p>		<p>Config.: 5 Three/Four Stage Configuration Independent Stage Input Line Stage Monitoring (Use suitable monitoring relays/modules) Not to be used for reverse polarity monitoring</p>		<p>Config.: 6 Three/Four Stage Configuration Independent Stage Input Line Stage Monitoring (Use suitable monitoring relays/modules) Set to positive switching (default)</p>		<p>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</p>		<p>Stage 1 +ve Stage 1 -ve Stage 2 +ve Stage 2 -ve</p>	
<p>Stage 1: Connect Stage 1 -ve to Common -ve Stage 2: Connect Stage 2 -ve to Common -ve Stage 3: Connect both Stage 1 -ve & Stage 2 -ve to Common -ve</p>		<p>Power: +ve & -ve Stage 1: Connect Stage 1 -ve to Common -ve Stage 2: Connect Stage 2 -ve to Common -ve Stage 3: Connect both Stage 1 -ve & Stage 2 -ve to Common -ve</p>		<p>Stage 1 +ve Stage 1 -ve Stage 2 +ve Stage 2 -ve</p>		<p>Stage 1 +ve IN Stage 1 -ve IN Stage 1 +ve OUT Stage 1 -ve OUT Stage 2 +ve IN Stage 2 -ve IN Stage 2 +ve OUT Stage 2 -ve OUT Stage 3 +ve IN Stage 3 -ve IN Stage 3 +ve OUT Stage 3 -ve OUT</p>		<p>Stage 1 +ve IN Stage 1 -ve IN Stage 1 +ve OUT Stage 1 -ve OUT Stage 2 +ve IN Stage 2 -ve IN Stage 2 +ve OUT Stage 2 -ve OUT Stage 3 +ve IN Stage 3 -ve IN Stage 3 +ve OUT Stage 3 -ve OUT</p>	

<p>DRAWING TO BS8889:2000 GEOMETRIC TOLERANCES TO ISO1101:1983 DIMENSIONAL TOLERANCES TO BS1861:1983 ANGULAR DIMENSIONAL TOLS</p>		<p>DRAWN R.S.RAIT CHECKED B.ISARD DESIGNED B.ISARD APPROVED R.N.POTTS</p>		<p>DATE 19/01/2022 DATE 19/01/2022 DATE 19/01/2022</p>		<p>SURFACE FINISH WEIGHT (kg) MATERIAL</p>		<p>ALL DIMENSIONS IN MM IF IN DOUBT, ASK - DO NOT SCALE</p>		<p>A3</p>			
<p>STANDARDS Dlx</p>		<p>ALTERNATIVE MATERIAL</p>		<p>AS PER LATEST DATE OF ISSUE SHOWN ABOVE</p>		<p>EUROPEAN SAFETY SYSTEMS LTD EUROPEAN SAFETY SYSTEMS LTD WATLING GREEN MANSFIELD ROAD LONDON W3 7QH WWW.ESS.COM</p>		<p>EUROPEAN SAFETY SYSTEMS LTD EUROPEAN SAFETY SYSTEMS LTD WATLING GREEN MANSFIELD ROAD LONDON W3 7QH WWW.ESS.COM</p>		<p>EUROPEAN SAFETY SYSTEMS LTD EUROPEAN SAFETY SYSTEMS LTD WATLING GREEN MANSFIELD ROAD LONDON W3 7QH WWW.ESS.COM</p>			
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SWITCHES FOR STAGE OPERATION
 CUSTOMER SUPPLIED

<p>Single Stage Configuration Config.: 1a Stage 1: Apply Power to Stage 1 Live & Stage 1 Neutral</p>	<p>Three/Four Stage Configuration Config.: 1b Stage 1: Apply Power to Live & Neutral & connect Stage 2 to Common Stage 2: Apply Power to Live & Neutral & connect Stage 3 to Common Stage 3: Apply Power to Live & Neutral & connect both Stage 2 & Stage 3 to Common</p>	<p>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</p>
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DRAWING TO BS8886:2000. GEOMETRIC TOLERANCES TO ISO1101:1983. ANGULAR DIMENSIONAL TOLS	DRAWN	DATE	SURFACE FINISH	WEIGHT (kg)
	R.S.RAIT	19/01/2022	MATERIAL	
STANDARDS Dlx	CHECKED	DATE	ALTERNATIVE MATERIAL	
	B.BISARD	19/01/2022		
	APPROVED	DATE		
	R.N.POTTS	19/01/2022		

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ALL DIMENSIONS IN MM IF IN DOUBT, ASK - DO NOT SCALE		TITLE	DRAWING NUMBER
		D1XS1 / D1XS2 / G1NEXS1 / G1NEXS2 / STEXS1 / STEXS2 AC SOUNDER WIRING DIAGRAMS	D190-06-005
SCALE	SHEET	DRAWING NUMBER	
NTS	1 OF 1		