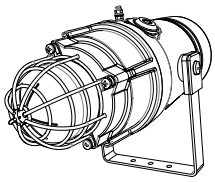
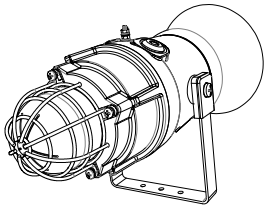
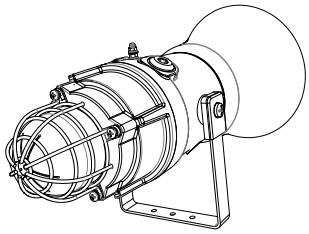
INSTRUCTION MANUAL
D1xC1 & D1xC2
Alarm Horn Sounder & Strobe
Class I, Zone 1, 2, 21 & 22



D1xC1-R & D1xC2-R



D1xC1-F



D1xC2-F

1) Product Table

Unit Type Code	Nominal Input Voltage	Nominal Input Current	Voltage Range	Sound Pressure Level dB(A)	
				Max*	Nom.†
D1xC1X05RDC024-A	24Vdc	508mA	20-28Vdc	110	105
D1xC1X05RAC115-A	115Vac	200mA	110-120Vac 50/60Hz		
D1xC1X05RAC230-A	230Vac	127mA	220-240Vac 50/60Hz		
D1xC1X10RDC024-A	24Vdc	858mA	20-28Vdc		
D1xC1X10RAC115-A	115Vac	317mA	110-120Vac 50/60Hz		
D1xC1X10RAC230-A	230Vac	169mA	220-240Vac 50/60Hz		
D1xC1X05FDC024-A	24Vdc	508mA	20-28Vdc	115	110
D1xC1X05FAC115-A	115Vac	200mA	110-120Vac 50/60Hz		
D1xC1X05FAC230-A	230Vac	127mA	220-240Vac 50/60Hz		
D1xC1X10FDC024-A	24Vdc	858mA	20-28Vdc		
D1xC1X10FAC115-A	115Vac	317mA	110-120Vac 50/60Hz		
D1xC1X10FAC230-A	230Vac	169mA	220-240Vac 50/60Hz		
D1XC2X05RDC024-A	24Vdc	P2/P3: 647/1063mA	20-28Vdc	P2/P3 112/114	P2/P3 107/109
D1xC2X05RAC115-A	115Vac	P2/P3: 255/415mA	110-120Vac 50/60Hz		
D1xC2X05RAC230-A	230Vac	P2/P3: 157/246mA	220-240Vac 50/60Hz		
D1XC2X05DC024-A	24Vdc	P2/P3: 647/1063mA	20-28Vdc	P2/P3 120/123	P2/P3 115/118
D1xC2X05FAC115-A	115Vac	P2/P3: 255/415mA	110-120Vac 50/60Hz		
D1xC2X05FAC230-A	230Vac	P2/P3: 157/246mA	220-240Vac 50/60Hz		
D1xC2X10RDC024-A	24Vdc	P2/P3: 997/1413mA	20-28Vdc	P2/P3 112/114	P2/P3 107/109
D1xC2X10RAC115-A	115Vac	P2/P3: 372/532mA	110-120Vac 50/60Hz		
D1xC2X10RAC230-A	230Vac	P2/P3: 199/288mA	220-240Vac 50/60Hz		
D1xC2X10FDC024-A	24Vdc	P2/P3: 997/1413mA	20-28Vdc	P2/P3 120/123	P2/P3 115/118
D1xC2X10FAC115-A	115Vac	P2/P3: 372/532mA	110-120Vac 50/60Hz		
D1xC2X10FAC230-A	230Vac	P2/P3: 199/288mA	220-240Vac 50/60Hz		

*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 & UKEx INSTALLATIONS: IF TEMPERATURE EXCEEDS 70°C AT ENTRY OR 80°C AT BRANCHING POINT USE SUITABLE RATED CABLE AND GLANDS

ATTENTION
POUR REDUIRE LE RISQUE D'INFLAMMATION DES ATMOSPHÈRES DANGEREUSES :
COUPER L 'ALIMENTATION AVANT OUVERTURE.
CONSERVER FERMÉ PENDANT LE FONCIONNEMENT.
AVERTISSEMENT
CONDUITS DOIVENT ETRE SCELLES EN MOINS DE 18 POUCES.
ÉQUIPEMENT NE DOIT PAS ETRE INSTALLE AVEC LE KLAXON TOURNEE VERS LE HAUT DE HORIZONTAL.
NE PAS OUVRIR UN PRESENCE D'ATMOSPHERE EXPLOSIVE
NE PAS OUVRIR ENERGIE
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 & UKEx 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 30-M1986	
Class Division Ratings for US (NEC)	
Model No:	**Rating**
D1xC1X05-DC024-A/ D1xC2X05-DC024-A	Class I Div 1 ABCD T4 Ta -55°C to +85°C Class I Div 1 ABCD T4A Ta -55°C to +80°C Class I Div 1 ABCD T5 Ta -55°C to +60°C Class I Div 1 ABCD T6 Ta -55°C to +45°C
D1xC1X05-AC115-A/ D1xC2X05-AC115-A/ D1xC1X05-AC230-A/ D1xC2X05-AC230-A/	Class I Div 1 ABCD T4 Ta -55°C to +85°C Class I Div 1 ABCD T4A Ta -55°C to +70°C Class I Div 1 ABCD T5 Ta -55°C to +50°C
D1xC1X10-DC024-A/ D1xC2X10-DC024-A	Class I Div 1 ABCD T3C Ta -55°C to +85°C Class I Div 1 ABCD T4 Ta -55°C to +70°C Class I Div 1 ABCD T4A Ta -55°C to +55°C
D1xC1X10-AC115-A/ D1xC2X10-AC115-A/ D1xC1X10-AC230-A/ D1xC2X10-AC230-A/	Class I Div 1 ABCD T3C Ta -55°C to +85°C Class I Div 1 ABCD T4 Ta -55°C to +65°C Class I Div 1 ABCD T4A Ta -55°C to +50°C
Class Division Ratings for Canada (CEC)	
Model No:	**Rating**
D1xC1X05-DC024-A/ D1xC2X05-DC024-A	Class I Div 1 ABCD T5 Ta -55°C to +55°C Class I Div 1 ABCD T6 Ta -55°C to +45°C
D1xC1X10-DC024-A/ D1xC2X10-DC024-A	Class I Div 1 ABCD T4A Ta -55°C to +55°C

Class Zone Ratings for US (NEC)	
Model No:	**Rating**
D1xC1X05-DC024-A/ D1xC2X05-DC024-A	Class I Zone 1 IIC T4 Ta -55°C to +85°C Class I Zone 1 IIC T4A Ta -55°C to +80°C Class I Zone 1 IIC T5 Ta -55°C to +60°C Class I Zone 1 IIC T6 Ta -55°C to +45°C
D1xC1X05-AC115-A/ D1xC2X05-AC115-A/ D1xC1X05-AC230-A/ D1xC2X05-AC230-A/	Class I Zone 1 IIC T4 Ta -55°C to +85°C Class I Zone 1 IIC T4A Ta -55°C to +70°C Class I Zone 1 IIC T5 Ta -55°C to +50°C
D1xC1X10-DC024-A/ D1xC2X10-DC024-A	Class I Zone 1 IIC T3C Ta -55°C to +85°C Class I Zone 1 IIC T4 Ta -55°C to +70°C Class I Zone 1 IIC T4A Ta -55°C to +55°C
D1xC1X10-AC115-A/ D1xC2X10-AC115-A/ D1xC1X10-AC230-A/ D1xC2X10-AC230-A/	Class I Zone 1 IIC T3C Ta -55°C to +85°C Class I Zone 1 IIC T4 Ta -55°C to +65°C Class I Zone 1 IIC T4A Ta -55°C to +50°C
Class Zone Ratings for Canada (CEC)	
Model No:	**Rating**
D1xC1X05-DC024-A/ D1xC2X05-DC024-A	Class I Zone 1 IIC T5 Ta -55°C to +55°C Class I Zone 1 IIC T6 Ta -55°C to +45°C
D1xC1X10-DC024-A/ D1xC2X10-DC024-A	Class I Zone 1 IIC T4A Ta -55°C to +55°C
Installation must be carried out in compliance with the National Electric Code / Canadian Electric Code	

3.2 ATEX / IECEx & UKEx Ratings

Standards	
EN60079-0:2018/IEC60079-0:2017 (ed.7): Explosive Atmospheres - Equipment General Requirements. EN60079-1:2014/IEC60079-1:2014 (ed.7): Explosive Atmospheres - Equipment Protection by Flameproof Enclosures "d". EN60079-31:2014/IEC60079-31:2013 (ed.2): Explosive Atmospheres - Equipment Dust Ignition Protection by enclosure "t".	
Model No:	**Rating**
D1xC1X05-DC024-A/ D1xC2X05-DC024-A	Ex db IIC T4 Gb Ta –55°C to +75°C Ex db IIC T5 Gb Ta –55°C to +55°C Ex db IIC T6 Gb Ta –55°C to +40°C Ex tb IIIC T115°C Db Ta –55°C to +75°C
D1xC1X05-AC115-A/ D1xC2X05-AC115-A/ D1xC1X05-AC230-A/ D1xC2X05-AC230-A/	Ex db IIC T4 Gb Ta –55°C to +75°C Ex db IIC T5 Gb Ta –55°C to +45°C Ex tb IIIC T122°C Db Ta –55°C to +75°C
D1xC1X10-DC024-A/ D1xC2X10-DC024-A	Ex db IIC T3 Gb Ta –55°C to +75°C Ex db IIC T4 Gb Ta –55°C to +65°C Ex tb IIIC T137°C Db Ta –55°C to +75°C
D1xC1X10-AC115-A/ D1xC2X10-AC115-A/ D1xC1X10-AC230-A/ D1xC2X10-AC230-A/	Ex db IIC T3 Gb Ta –55°C to +75°C Ex db IIC T4 Gb Ta –55°C to +60°C Ex tb IIIC T145°C Db Ta –55°C to +75°C
See Product table for electrical ratings of each unit model	

Certificate No.	DEMKO 19ATEX2141X IECEx ULD 19.0008X UKEx UL UL21UKEX2132X
Epsilon x Equipment Group and Category:	**II 2G** **II 2D**
CE Marking and Notified Body No.	**2813**
UKCA Marking and Notified Body No.	**0518**

4) Zones, Gas Group, Category and Temperature Classification

The units can be installed in locations with the following conditions:

Area Classification Gas	
Zone 1	Explosive gas air mixture likely to occur in normal operation.
Zone 2	Explosive gas air mixture not likely to occur in normal operation, and if it does, it will only exist for a short time.
Gas Groupings	
Group IIA	Propane
Group IIB	Ethylene
Group IIC	Hydrogen and Acetylene
Temperature Classification for Gas Applications	
T1	450º C
T2	300º C
T3	200º C
T4	135º C (D1xC1X10-DC024-A ; D1xC2X10- DC024-A up to 65°C ambient; D1xC1X10- AC115-A ; D1xC1X10-AC230-A ; D1xC2X10- AC115-A ; D1xC2X10-AC230-A up to 60°C ambient)
T5	100ºC (D1xC1X05-DC024-A ; D1xC2X05- DC024-A up to 55°C ambient ; D1xC1X05- AC115-A; D1xC1X05-AC230-A ; D1xC2X05- AC115-A ; D1xC2X05-AC230-A up to 45°C ambient)
T6	85ºC (D1xC1X05-DC024-A ; D1xC2X05- DC024-A up to 40°C ambient)
Area Classification Dust	
Zone 21	Explosive dust air mixture likely to occur in normal operation.
Zone 22	Explosive dust air mixture not likely to occur in normal operation, and if it does, it will only exist for a short time.
Dust Groupings	
Group IIIA	Combustible Dusts
Group IIIB	Non-Conductive Dusts
Group IIIC	Conductive Dusts
Equipment Category	
2G, 2D	
Equipment Protection Level	
Gb, Gc, Db, Dc	
Maximum Surface Temperature for Dust Applications	
115ºC (D1xC1X05-DC024-A; D1xC2X05-DC024-A) 122ºC (D1xC1X05-AC115-A; D1xC1X05-AC230-A; D1xC2X05-AC115-A; D1xC2X05-AC230-A) 137ºC (D1xC1X10-DC024-A; D1xC2X10-DC024-A) 145ºC (D1xC1X10-AC115-A; D1xC1X10-AC230-A; D1xC2X10-AC115-A; D1xC2X10-AC230-A)	
Ambient Temperature Range	
-55°C to +75°C (-67°F to +167°F)	
IP Rating	
IP66 to EN60529 4 / 4X / 3R / 13 to UL50E / NEMA250	

Installation must be carried out in compliance with the latest issue of the following standards:

EN60079-14 / IEC60079-14: Explosive atmospheres - Electrical installations design, selection and erection
EN60079-10-1 / IEC60079-10-1: Explosive atmospheres - Classification of areas. Explosive gas atmospheres
EN60079-10-2 / IEC60079-10-2: Explosive atmospheres - Classification of areas. Explosive dust atmospheres

D1xC units have been tested and found suitable for use in atmospheres containing the following chemicals in accordance with UL1203:

Acetone
Ammonium Hydroxide
Diethyl Ether
Ethyl Acetate
Ethylene Dichloride
Furfural
n-Hexane
Methyl Ethyl Ketone
Methanol
2-Nitropropane
Toluene

5) Specific Conditions of Installation

ATEx/IECEx & UKEx Installations:

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 ATEx/IECEx or UKEx 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 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.

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

For high ambient temperatures the cable entry temperature may exceed 70ºC or the cable branching point temperature may exceed 80ºC and therefore suitable heat resisting cables and cable glands must be used, with a rated service temperature at least as stated below:

Minimum Ratings of Cables & Cable Glands							
Max Ambient Temp (°C)	**45**	**50**	**55**	**60**	**65**	**70**	**75**
D1xC1X05-DC024-A/ D1xC1X05-AC115-A/ D1xC1X05-AC230-A Min. Rating (°C)			70	75	80	85	90
D1xC2X05-DC024-A/ D1xC2X10-DC024-A/ D1xC2X10-AC115-A/ D1xC2X10-AC230-A Min. Rating (°C)	70	75	80	85	90	95	100
D1xC1X10-DC024-A/ D1xC1X10-AC115-A/ D1xC1X10-AC230-A Min. Rating (°C)		70	75	80	85	90	95

Table 2: Min. Ratings of Cables & Cable Glands.

NEC / CEC Installations:

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 UKEx 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 for NEC & CEC.

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.

All Installations:

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.

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

6) Specific Conditions for Safe Use

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

7) Product Mounting and Access

7.1 Mounting

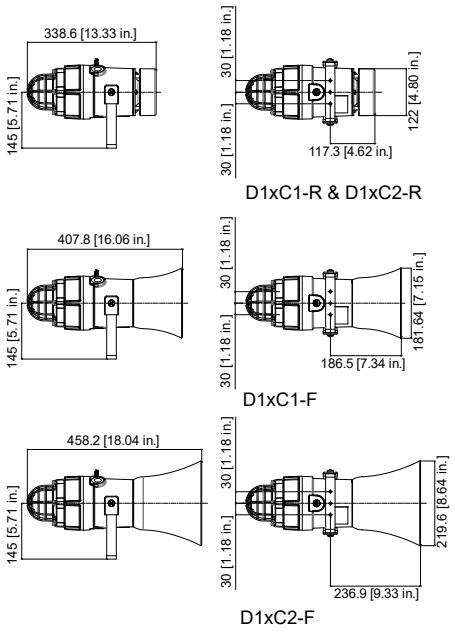
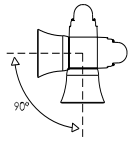


Fig 1: Mounting Locations

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



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.

7.2 Installation procedure

a. Secure the D1x unit to a flat surface via the three 7mm fixing holes in the mounting bracket.

b. 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 7.4).

c. 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 D190-06-305 (AC) or. D190-06-301 (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 10). If the second and third M20/NPT entries are not used, suitably rated stopping plugs must always be fitted.

d. Replace the explosionproof cover of the unit, taking care not to damage the explosionproof threads. Tighten fully.

7.3 Hornless Variants

The D1x unit 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.

7.4 Access to the Explosionproof Enclosure

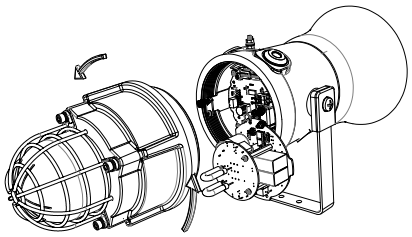


Fig 2: Accessing the enclosure

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

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.

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 enclosure.

8) Installation Requirements

8.1 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.

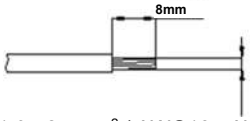
The product must only be installed by suitably qualified personnel in accordance with the latest issues of the relevant standards.

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.

8.2 Cable Selection and Connections

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.

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 - 2.5mm^2 / AWG18 - AWG12
DC: 0.2 - 2.5mm^2 / 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.

8.3 Earthing

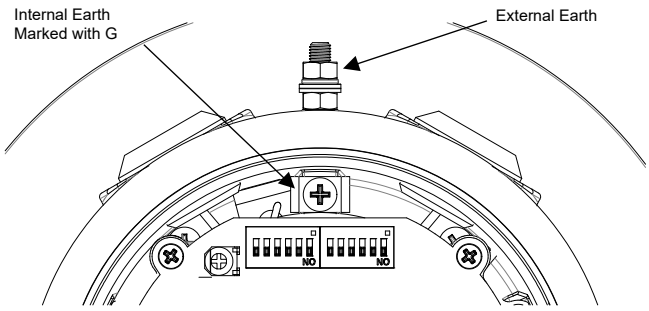


Fig 4: Earth Locations

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

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 mini mum of 0.82mm2 / 18AWG in size.

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

8.4 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

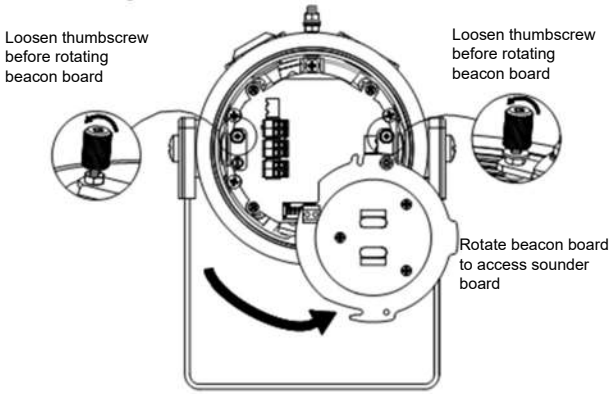
The D1x range can be supplied with the following types of adapters:

M20 to ½" NPT
M20 to ¾" NPT
M20 to M25

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

9) Settings

9.1 Accessing PCBAs



SPL Configuration

Following illustrations show the settings available for D1xS1 UNITS. See schematic diagram DC: D190-06-201 or AC:D190-06-205 for details.

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

Configuration for DC Units

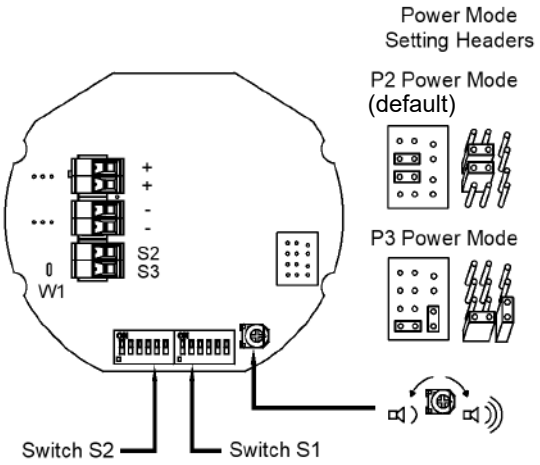


Figure 6: DC PCBA.

Configuration for AC Units

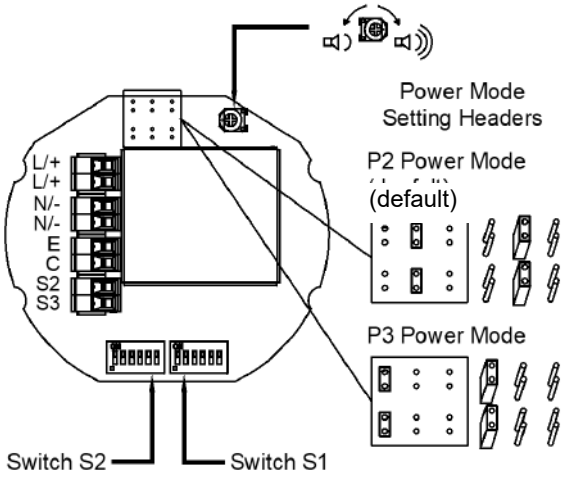


Figure 7: AC PCBA .

9.2 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.

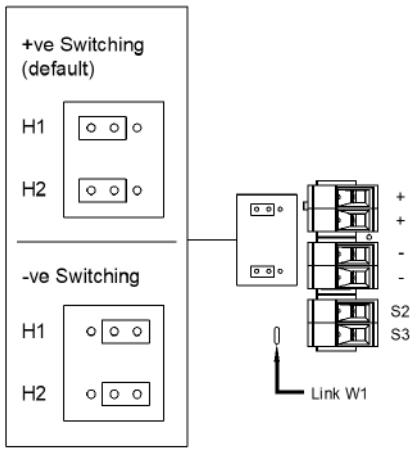
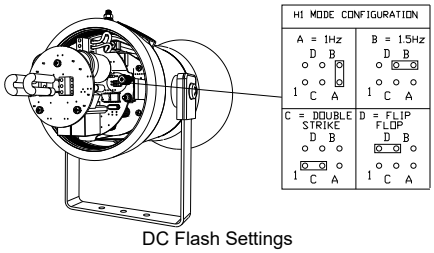
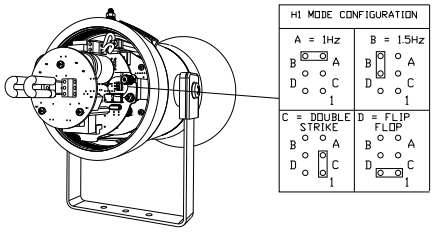


Figure 8: Stage Switching Polarity.

9.3 Flash Rate Settings



DC Flash Settings

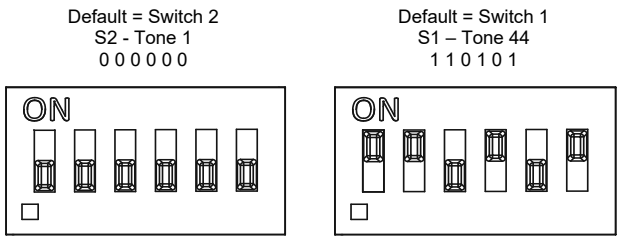


AC Flash Settings
(Flip-Flop Mode not available on D1xC1X05 / D1xC2X05)

Figure 9: AC & DC Flash Rate Settings

9.4 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 fig 10) on the PCB, for stage 1 and stage 2 respectively.



(ON = 1, OFF = 0)

Fig 10: 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: D190-06-201; AC: D190-06-205 wiring options.

Config.	Voltage	Configuration Description	Features	Product Option Identifier
1a/5a	DC	Single Stage Configuration	• Line monitoring • Positive Switching	1
1b/5b	DC	Two Stage Configuration	• Common Negative • Positive Switching	1
1c/5c	DC	Three/Four Stage Configuration	• Common Negative • Positive Switching	1
2/6	DC	Three/Four Stages. Voltage Free 2nd, 3rd & 4th Stage Activation Configuration	• Common Positive • Customer Set H1 & H2 to Negative Switching	1
3/7	DC	Two Stage Configuration	• Independent Stage Input • Reverse Polarity Stage Monitoring	1
4/8	DC	Two Stage Configuration	• Line Stage Monitoring (Use suitable monitoring relays/ modules) • Not to be used in reverse polarity monitoring	Y
1a/2a	AC	Single Stage Configuration	•	1
1b/2b	AC	Three/Four Stage Configuration		1

Table 3: Summary of Wiring Options. See Document D190-06-301 for DC Schematic Diagrams; D190-06-305 for AC Schematic Diagrams.

10) End of Line Monitoring (DC Units)

10.1 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.

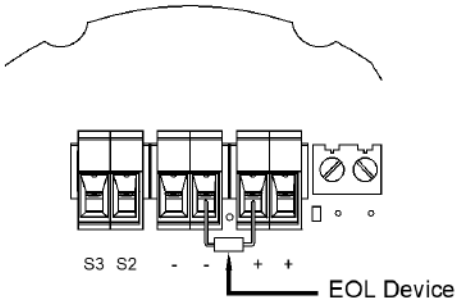


Figure 11: End of Line Resistor placement.

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11) 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:

For ATEx/IECEx or UKEx:

EN60079-19/IEC60079-19
Explosive atmospheres – Equipment repair, overhaul and reclamation

EN 60079-17/IEC60079-17
Explosive atmospheres – Electrical installations inspection and maintenance

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

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

· **All AC models are approved for use as Audible Signal Appliance for use as General Signaling: UL464A**

· Type 4 / 4X / 3R / 13, IP66

· -55°C to +85°C / -67°C to +185°F

General Signaling Canada:

D1xC2X05-DC024-A, D1xC1X10-DC024-A, D1xC2X10-DC024-A : -55°C to +55°C / -67°F to +131°F

D1xC1X05-DC024-A: -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	Nom. RMS Current Beacon[#]	Nom. RMS Current Sounder[#]	Nom. RMS Current Combined[#]	Max. RMS Current Combined[*]
D1xC1X05-DC024-A	24V dc	20-28V dc	323mA	185mA-	508mA	555mA @ 20Vdc
D1xC1X05-AC115-A	115V ac	110- 120V ac 50/60Hz	130mA	70mA	200mA	264mA @ 120Vac 60Hz
D1xC1X05-AC230-A	230V ac	220- 240V ac 50/60Hz	79mA	48mA	127mA	149mA @ 240Vac 60Hz
D1xC1X10-DC024-A	24V dc	20-28V dc	673mA	185mA	858mA	1063mA @ 20Vdc
D1xC1X10-AC115-A	115V ac	110- 120V ac 50/60Hz	247mA	70mA	317mA	429mA @ 120Vac 60Hz
D1xC1X10-AC230-A	230V ac	220- 240V ac 50/60Hz	121mA	48mA	169mA	227mA @ 240Vac 60Hz
D1xC2X05-DC024-A	24V dc	20-28V dc	323mA	P2/P3: 324/740mA	P2/P3:647/1063mA	P2/P3: 647/1063 mA @ 20Vdc
D1xC2X05-AC115-A	115V ac	110- 120V ac 50/60Hz	130mA	P2/P3: 125/285mA	P2/P3:255/415mA	P2/P3: 291/478mA @ 120Vac 60Hz
D1xC2X05-AC230-A	230V ac	220- 240V ac 50/60Hz	79mA	P2/P3: 78/167mA	P2/P3 157/246mA:	P2/P3: 157/287mA @ 240Vac 60Hz
D1xC2X10-DC024-A	24V dc	20-28V dc	673mA	P2/P3: 324/740mA	P2/P3: 997/1413mA	P2/P3: 1091/1507mA @ 20Vdc
D1xC2X10-AC115-A	115V ac	110- 120V ac 50/60Hz	247mA	P2/P3: 125/285mA	P2/P3: 372/532mA	P2/P3: 449/636mA @ 120Vac 60Hz
D1xC2X10-AC230-A	230V ac	220- 240V ac 50/60Hz	121mA	P2/P3: 78/167mA	P2/P3: 199/288mA	P2/P3: 199/362mA @ 240Vac 60Hz

FIRE INSTRUCTION & SERVICE MANUAL
D1xC1 & D1xC2 Combined Sounder Beacons
UL464 / CAN/ULC-S525 & UL1638 / CAN/ULC-S526 Fire
Models: D1xC1X05-DC024-A, D1xC1X10-DC024-A,
D1xC2X05-DC024-A, D1xC2X10-DC024-A

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'alarrme 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: Do not paint / Ne pas Peinturer

- -55°C to +85°C / -67°F to +185°F
- Units can be mounted using at least 2 of the 3-off ø7mm holes in the mounting bracket.
- D1xC1X05RDC024-A & D1xC1X10RDC024-A are approved for use as an audible signal appliance for fire alarm use – Public Mode (UL464 & CAN/ULC-S525) and produce a minimum sound pressure level of US: 81.62dB(A); CA: 84.8dB(A) at 10 feet, (figures @ worst case 11.5Vdc).
- D1xC1X05RDC024-A & D1xC1X10RDC024-A produce a minimum sound pressure level of US: 83.4dB(A); CA: 86.4dB(A) at 10 feet (@24Vdc)
- D1xC1FX05DC024-A & D1xC1FX10DC024-A are approved for use as an audible signal appliance for fire alarm use – Public Mode (UL464 & CAN/ULC-S525) and produce a minimum sound pressure level of: US: 92.06dB(A); CA: 98.2dB(A) at 10 feet, (figures @ worst case 11.5Vdc).
- D1xC1FX05DC024-A & D1xC1FX10DC024-A produce a minimum sound pressure level of: US: 94.62dB(A); CA: 100.9dB(A) at 10 feet (@24Vdc)
- D1xC2X05FDC024-A & D1xC1FX10DC024-A are approved for use as an audible signal appliance for fire alarm use – Public Mode (UL464 & CAN/ULC-S525) and produce a minimum sound pressure level of P1: US: 93.56dB(A) / P2: US: 94.9dB(A); CA: 101.6dB(A) / P3: US: 95.51dB(A); CA: 101.8dB(A) at 10 feet, (figures @ worst case 11.5Vdc).
- D1xC2X05FDC024-A & D1xC2X10FDC024-A produce a minimum sound pressure level of P1: US: 95.64dB(A) / P2: US: 98.42dB(A); CA: 105.2dB(A) / P3: US: 102.7dB(A); CA: 109.4dB(A) at 10 feet (@24Vdc)
- For Fire Alarm applications, the Sounder Volume must be at the highest setting, (see volume control section). For fire alarm use, Tone 12 as shown below must be selected:

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)
12	1000Hz(0.5s on, 0.5s off)x3 + 1s gap ISO 8201 Temporal Pattern		1 1 0 1 0 0	1	8

- Connection Terminals: Pluggable
  AC: 1.0 - 2.5mm^2 / AWG18 - AWG12
  DC: 0.2 - 2.5mm^2 / AWG24 - AWG12
- Terminal Tightening torque 0.4Nm
- To maintain Ingress Protection, cable entries must be fitted with suitably rated cable glands or stopping plugs
- Units can be located indoor or outdoor wet use, wall or ceiling mounted and there are no limitations on orientation
- Factory finishes are not intended to be modified

Surge Current Ratings for use in fire alarm systems

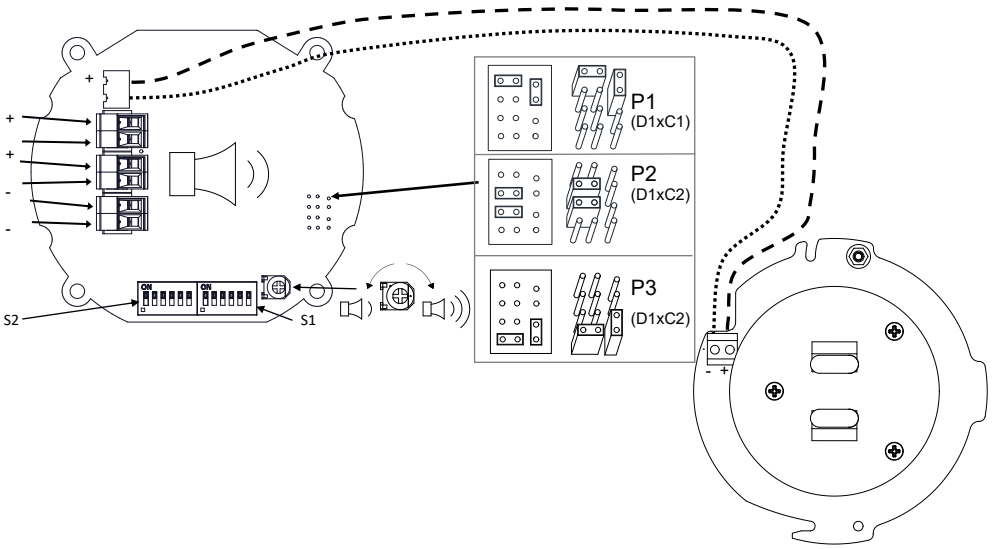
Model	Nominal Voltage	Voltage Range	Initial Peak Sounder	Initial Peak Beacon	Initial RMS Sounder	Initial RMS Beacon
D1xC1X05-DC024-A	24V dc	20 - 28V dc	P1: 1312mA	2.54A @ 2.06ms	P1: 159mA	1.29A
D1xC1X10-DC024-A				2.96A @ 2.06ms		1.61A
D1xC2X05-DC024-A			P2: 1005mA /P3: 1267mA P2:	2.54A @ 2.06ms	P2: 286mA / P3: 553mA	1.29A
D1xC2X10-DC024-A				2.96A @ 2.06ms		1.61A

- For private mode fire alarm use, the beacons must be set to the certified flash patterns of 1Hz.
- For light output ratings see below:

On-axis light output rating per UL1638 (Clear Lens only)

Model	Voltage	Intensity (cd eff.) at 1Hz flash rate
D1xC1X05-DC024-A / D1xC2X05-DC024-A	20Vdc	12
D1xC1X10-DC024-A / D1xC2X10-DC024-A		20

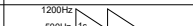
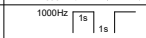
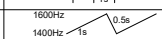
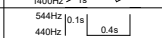
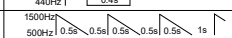
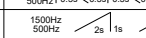
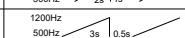
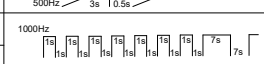
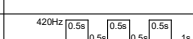
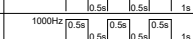
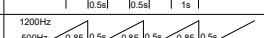
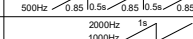
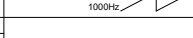
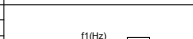
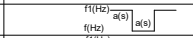
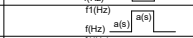
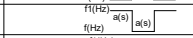
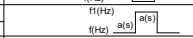
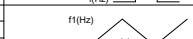
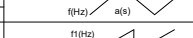
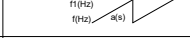
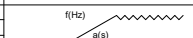
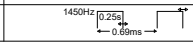
FIRE INSTRUCTION & SERVICE MANUAL
D1xC1 & D1xC2 Combined Sounder Beacons
UL464 / CAN/ULC-S525 & UL1638 / CAN/ULC-S526 Fire
Models: D1xC1X05-DC024-A, D1xC1X10-DC024-A,
D1xC2X05-DC024-A, D1xC2X10-DC024-A



D1xC1X05FDC024-A & D1xC1X10FDC024-A Sounder Directional Characteristics for Canadian Fire CAN/ULC-S525		
OSPL	Horizontal Axis	Vertical Axis
-3dB(A)	+39° / -41°	+38° / -41°
-6dB(A)	+45° / -47°	+64° / -69°

D1xC1X05RDC024-A & D1xC1X10RDC024-A Sounder Directional Characteristics for Canadian Fire CAN/ULC-S525		
OSPL	Horizontal Axis	Vertical Axis
-3dB(A)	+42° / -41°	+42° / -41°
-6dB(A)	+48° / -48°	+48° / -49°

D1xC2X05FDC024-A & D1xC2X10FDC024-A Sounder Directional Characteristics for Canadian Fire CAN/ULC-S525 (P3)		
OSPL	Horizontal Axis	Vertical Axis
-3dB(A)	+46° / -48°	+46° / -47°
-6dB(A)	+52° / -54°	+52° / -53°

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

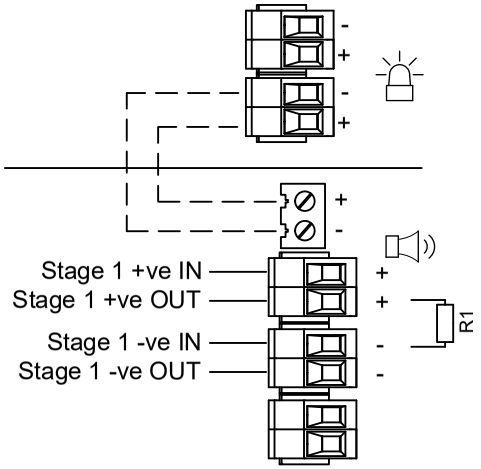
ISSUE	MOD No.	REASON - INITIAL - DATE
1		INTRODUCTION RSR - 19/01/2021

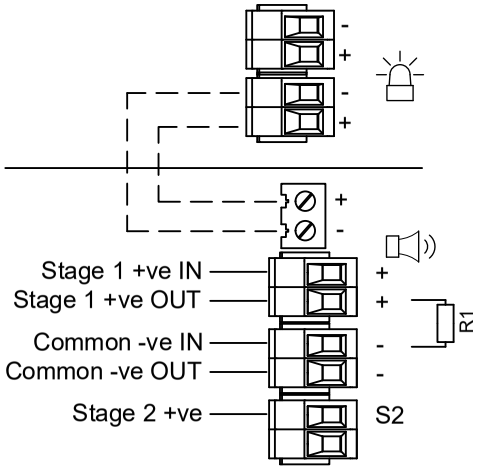
WIRING LINKING BEACON & SOUNDER
FACTORY FITTED

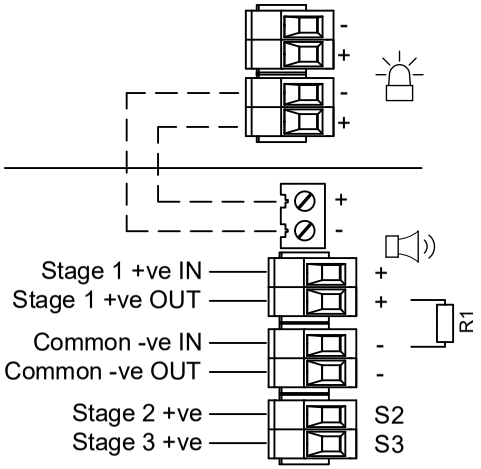
R1 OPTIONAL LINE MONITORING RESISTOR, CUSTOMER SUPPLIED, RECOMMENDED MINIMUM VALUES:
14V MAX SYSTEM = 120Ω MIN, 2W MIN OR 1KΩ MIN, 0.5W MIN
28V MAX SYSTEM = 470Ω MIN, 2W MIN OR 2.4KΩ MIN, 0.5W MIN

Linked Sounder & Beacon Activation (Default)

Single Stage Configuration	Config.: 1a	Two Stage Configuration	Config.: 1b	Three/Four Stage Configuration	Config.: 1c
Line Monitoring Set to positive switching (default) Stage 1: Apply Power to Stage 1 +ve & Stage 1 -ve		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		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
ALERTALARM RANGE

DRAWN	R.S.RAIT	DATE 19/01/2022
CHECKED	B.ISARD	DATE 19/01/2022
APPROVED	R.N.POTTS	DATE 19/01/2022

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 D1xC1X / D1xC2X / STExC1X DC SOUNDER / XENON WIRING DIAGRAMS

SCALE	SHEET	DRAWING NUMBER
NTS	1 OF 6	D190-06-301

ISSUE	MOD No.	REASON - INITIAL - DATE
1		INTRODUCTION RSR - 19/01/2021

WIRING LINKING BEACON & SOUNDER FACTORY FITTED

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

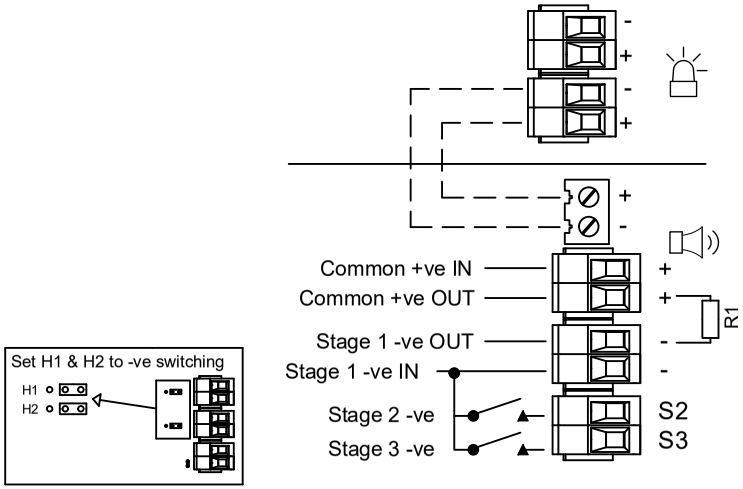
SWITCHES FOR STAGE OPERATION CUSTOMER SUPPLIED

Linked Sounder & Beacon Activation (Default)

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

Common Positive
Customer Set H1 & H2 to Negative Switching (See Below)

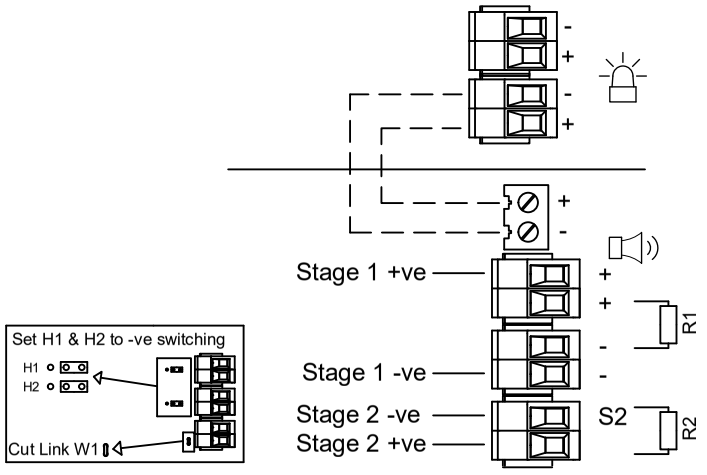
Stage 1: Apply Power to Common +ve & Stage 1 -ve
Stage 2: Apply Power to Common +ve & Stage 1 -ve & connect Stage 2 -ve to Stage 1 -ve
Stage 3: Apply Power to Common +ve & Stage 1 -ve & connect Stage 3 -ve to Stage 1 -ve
Stage 4: Apply Power to Common +ve & Stage 1 -ve
& connect Stage 2 -ve & Stage 3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



Two Stage Configuration — 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

STANDARDS
ALERTALARM RANGE

DRAWN	R.S.RAIT	19/01/2022
CHECKED	B.ISARD	19/01/2022
APPROVED	R.N.POTTS	19/01/2022

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 D1xC1X / D1xC2X / STExC1X DC SOUNDER / XENON WIRING DIAGRAMS

SCALE	SHEET	DRAWING NUMBER
NTS	2 OF 6	D190-06-301

ISSUE	MOD No.	REASON - INITIAL - DATE
1		INTRODUCTION RSR - 19/01/2021

WIRING LINKING BEACON & SOUNDER FACTORY FITTED

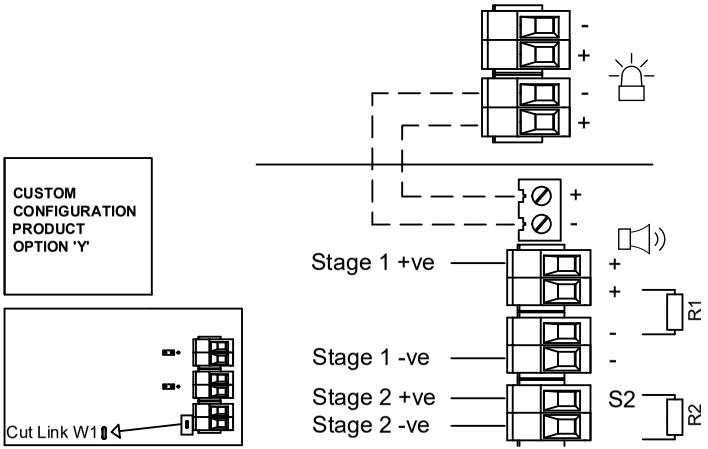
R1 OPTIONAL LINE MONITORING RESISTOR, CUSTOMER SUPPLIED, RECOMMENDED MINIMUM VALUES:
14V MAX SYSTEM = 120Ω MIN, 2W MIN OR 1KΩ MIN, 0.5W MIN
28V MAX SYSTEM = 470Ω MIN, 2W MIN OR 2.4KΩ MIN, 0.5W MIN

SWITCHES FOR STAGE OPERATION CUSTOMER SUPPLIED

Linked Sounder & Beacon Activation (Default)

Two Stage Configuration Config.: 4

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



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

STANDARDS
ALERTALARM RANGE

	DRAWN	DATE
	R.S.RAIT	19/01/2022
	CHECKED	DATE
	B.ISARD	19/01/2022
	APPROVED	DATE
	R.N.POTTS	19/01/2022

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 D1xC1X / D1xC2X / STExC1X DC SOUNDER / XENON WIRING DIAGRAMS

SCALE	SHEET	DRAWING NUMBER
NTS	3 OF 6	D190-06-301

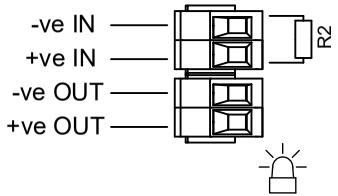
ISSUE	MOD No.	REASON - INITIAL - DATE
1		INTRODUCTION RSR - 19/01/2021

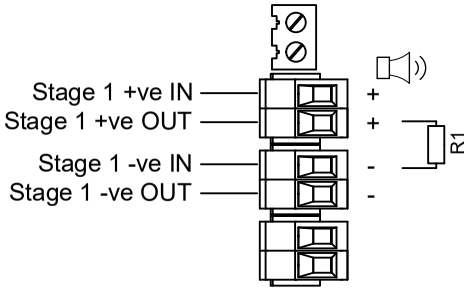
R1
OPTIONAL LINE MONITORING RESISTOR, CUSTOMER SUPPLIED,
RECOMMENDED MINIMUM VALUES:
14V MAX SYSTEM = 120Ω MIN, 2W MIN OR 1KΩ MIN, 0.5W MIN
28V MAX SYSTEM = 470Ω MIN, 2W MIN OR 2.4KΩ MIN, 0.5W MIN

Independent Sounder & Beacon Activation (Remove Link Wires)

Single Stage Configuration — Config.: 5a

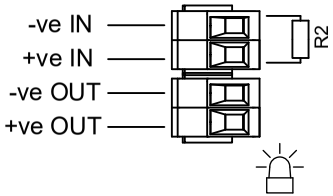
Line Monitoring
Set to positive switching (default)
Stage 1: Apply Power to Stage 1 +ve & Stage 1 -ve

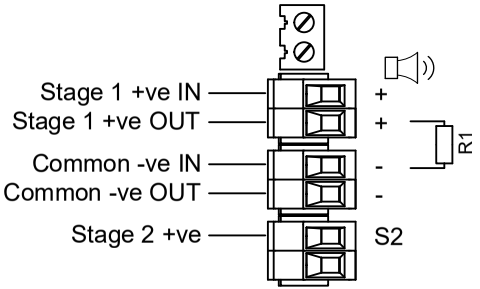




Two Stage Configuration — Config.: 5b

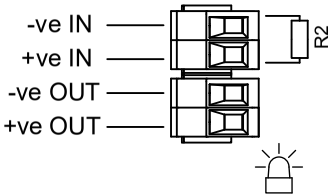
Common Negative
Set to positive switching (default)
Stage 1: Apply Power to Stage 1 +ve & Common -ve
Stage 2: Apply Power to Stage 2 +ve & Common -ve

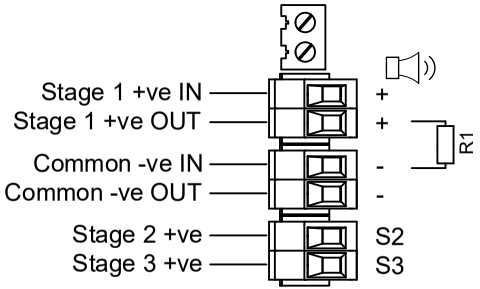




Three/Four Stage Configuration — Config.: 5c

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
ALERTALARM RANGE

DRAWN	R.S.RAIT	19/01/2022
CHECKED	B.ISARD	19/01/2022
APPROVED	R.N.POTTS	19/01/2022

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 D1xC1X / D1xC2X / STExC1X DC SOUNDER / XENON WIRING DIAGRAMS

SCALE	SHEET	DRAWING NUMBER
NTS	4 OF 6	D190-06-301

ISSUE	MOD No.	REASON - INITIAL - DATE
1		INTRODUCTION RSR - 19/01/2021

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

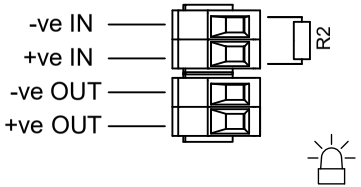
SWITCHES FOR STAGE OPERATION CUSTOMER SUPPLIED

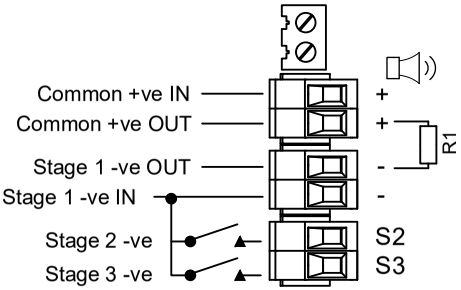
Independent Sounder & Beacon Activation (Remove Link Wire)

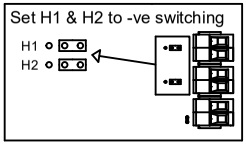
Three/Four Stages. Voltage Free 2nd, 3rd & 4th Stage Activation Configuration — Config.: 6

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



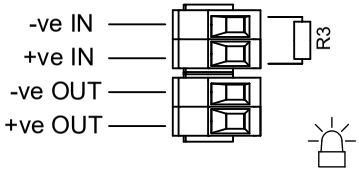


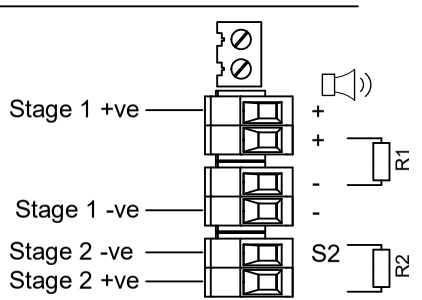


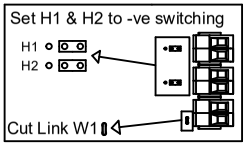
Two Stage Configuration — Config.: 7

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

STANDARDS
ALERTALARM RANGE

	DRAWN	DATE
	R.S.RAIT	19/01/2022
	CHECKED	DATE
	B.ISARD	19/01/2022
	APPROVED	DATE
	R.N.POTTS	19/01/2022

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 D1xC1X / D1xC2X / STExC1X DC SOUNDER / XENON WIRING DIAGRAMS

SCALE	SHEET	DRAWING NUMBER
NTS	5 OF 6	D190-06-301

ISSUE	MOD No.	REASON - INITIAL - DATE
1		INTRODUCTION RSR - 19/01/2021

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

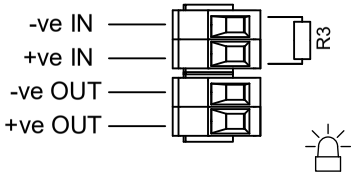
SWITCHES FOR STAGE OPERATION CUSTOMER SUPPLIED

Independent Sounder & Beacon Activation (Remove Link Wires)

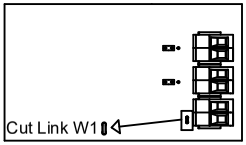
Two Stage Configuration — Config.: 8

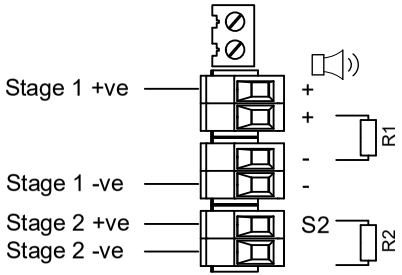
Independent Stage Input
Line Stage Monitoring (Use suitable monitoring relays/modules)
Not to be used for reverse polarity monitoring

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



CUSTOM CONFIGURATION PRODUCT OPTION 'Y'





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

STANDARDS
ALERTALARM RANGE

DRAWN	R.S.RAIT	19/01/2022
CHECKED	B.ISARD	19/01/2022
APPROVED	R.N.POTTS	19/01/2022

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 D1xC1X / D1xC2X / STExC1X DC SOUNDER / XENON WIRING DIAGRAMS

SCALE	SHEET	DRAWING NUMBER
NTS	6 OF 6	D190-06-301

ISSUE	MOD No.	REASON - INITIAL - DATE
1		INTRODUCTION RSR - 19/01/2021

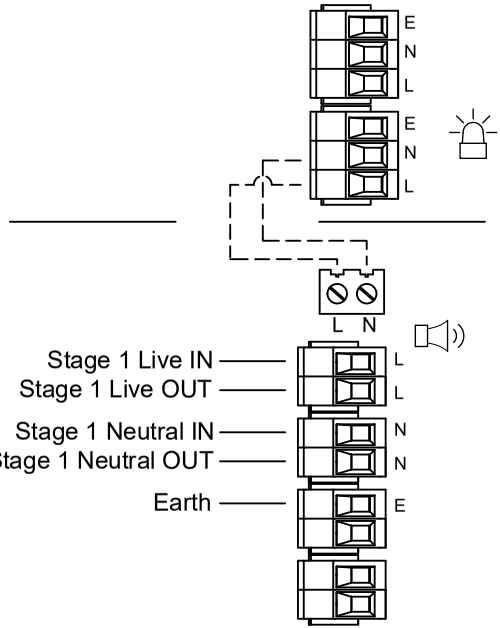
WIRING LINKING BEACON & SOUNDER
FACTORY FITTED

SWITCHES FOR STAGE OPERATION
CUSTOMER SUPPLIED

Linked Sounder & Beacon Activation (Default)

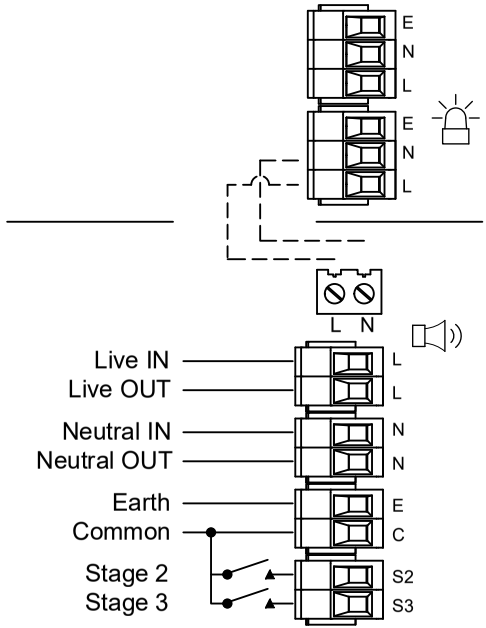
Single Stage Configuration — Config.: 1a

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



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

STANDARDS
ALERTALARM RANGE

DRAWN	R.S.RAIT	19/01/2022
CHECKED	B.ISARD	19/01/2022
APPROVED	R.N.POTTS	19/01/2022

SURFACE FINISH | WEIGHT (Kg)
MATERIAL
ALTERNATIVE MATERIAL

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WWW.E2S.COM

ALL DIMENSIONS IN MM
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A3

TITLE D1xC1X / D1xC2X / STExC1X AC SOUNDER / XENON WIRING DIAGRAMS

SCALE	SHEET	DRAWING NUMBER
NTS	1 OF 2	D190-06-305

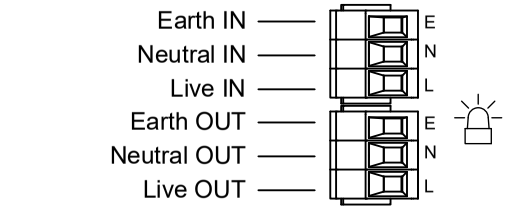
ISSUE	MOD No.	REASON - INITIAL - DATE
1		INTRODUCTION RSR - 19/01/2021

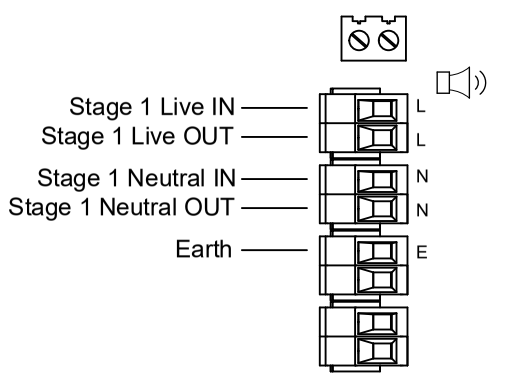
SWITCHES FOR STAGE OPERATION
CUSTOMER SUPPLIED

Independent Sounder & Beacon Activation (Remove Link Wires)

Single Stage Configuration — Config.: 2a

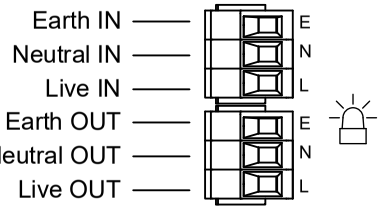
Stage 1: Apply Power to Stage 1 Live & Stage 1 Neutral

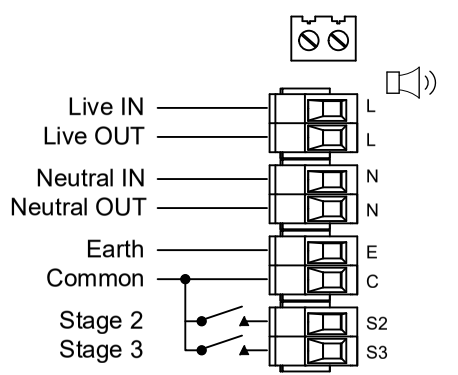




Three/Four Stage Configuration — Config.: 2b

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





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

STANDARDS
ALERTALARM RANGE

	DRAWN	DATE
	R.S.RAIT	19/01/2022
	CHECKED	DATE
	B.ISARD	19/01/2022
	APPROVED	DATE
	R.N.POTTS	19/01/2022

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 D1xC1X / D1xC2X / STExC1X AC SOUNDER / XENON WIRING DIAGRAMS

SCALE	SHEET	DRAWING NUMBER
NTS	2 OF 2	D190-06-305

EU Declaration of Conformity

Manufacturer:	European Safety Systems Ltd. Impress House, Mansell Road, Acton London, W3 7QH United Kingdom
Authorised Representative:	E2S Warnsignaltechnik UG Charlottenstrasse 45-51 72764 Reutlingen Germany
Equipment Type:	D1xS1, D1xS2 D1xL1, D1xL2 D1xC1X05, D1xC1X10, D1xC2X05, D1xC2X10 D1xB2XH1, D1xB2XH2

Directive 2014/34/EU: Equipment and Protective Systems for use in Potentially Explosive Atmospheres (ATEX) - D1xS1, D1xS2, D1xL1, D1xL2, D1xC1X05, D1xC1X10, D1xC2X05 and D1xC2X10 only

Notified Body for EU type Examination (Module B):	UL International Demko A/S Borupvang 5A 2750 Ballerup Denmark
EU-type Examination Certificate (Module B):	DEMKO 19 ATEX 2141X
Notified Body for Quality Assurance Notification / Conformity to EU-type based on quality assurance of the production process (Module D):	Sira Certification Service Notified Body No.: 2813 Unit 6, Hawarden Industrial Park, Hawarden, Deeside, CH5 3US, UK
Quality Assurance Notification (Module D):	SIRA 05 ATEX M342
Provisions fulfilled by the equipment:	II 2G Ex db IIC T6…T3 GB II 2D Ex tb IIIC T82˚C…145˚C Db
Standards applied:	EN 60079-0:2018 EN 60079-1:2014 EN60079-31:2014

Directive 2014/30/EU: Electromagnetic Compatibility Directive (EMC)

Standards applied:	EN 61000-6-1:2007 EN 61000-6-2:2005 EN 61000-6-3:2007 / A1:2011 / AC: 2012 EN 61000-6-4:2007 / A1: 2011

Directive 2014/35/EU: Low Voltage Directive (LVD)

Standards applied:	EN 60947-1:2007 + A2:2014

Directive 2011/65/EU: Restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS)

The product and all the components contained within it are in accordance with the restriction of the use of hazardous substances in electrical and electronic equipment, including amendment by Directive 2015/863/EU.

Regulation (EC) 1907/2006: Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)

The product and all the components contained within it are free from substances of very high concern.

Other Standards and Regulations

EN 60529:1992+A2:2013 - Degrees of protection provided by enclosures (IP code) – enclosure rated IP66

EU Declaration of Conformity

On behalf of European Safety Systems Ltd., I declare that, on the date the equipment accompanied by this declaration is placed on the market, the equipment conforms with all technical and regulatory requirements of the above listed directives, regulations and standards.

This Declaration is issued under the sole responsibility of the manufacturer.

Martin Streetz
Quality Assurance Manager

Document No.: DC-067_Issue_H
Date and Place of Issue: London, 10/02/2022

UKCA Declaration of Conformity

Manufacturer:	European Safety Systems Ltd. Impress House, Mansell Road, Acton London, W3 7QH United Kingdom
Equipment Type:	D1xS1, D1xS2 D1xL1, D1xL2 D1xC1X05, D1xC1X10, D1xC2X05, D1xC2X10

Directive UKSI 2016:1107 (as amended by UKSI 2019:696) – Schedule 3A, Part 1 : Product or Protective System Intended for use in Potentially Explosive Atmospheres (UKCA)

Notified Body for UK type Examination (Module B):	UL International (UK) Ltd Notified Body No.: 0843 Unit 1-3 Horizon Kingsland Business Park, Wade Road, Basingstoke, Hampshire RG24 8AH UK
UK-type Examination Certificate (Module B):	UL21UKEX2132X
Notified Body for Quality Assurance Notification / Conformity to EU-type based on quality assurance of the production process (Module D):	Sira Certification Service Notified Body No.: 0518 Rake Lane, Eccleston, Chester CH4 9JN, UK
Quality Assurance Notification (Module D):	CSAE 22UKQAN0046
Provisions fulfilled by the equipment:	II 2G Ex db IIC T6…T3 GB II 2D Ex tb IIIC T82˚C…145˚C Db
Standards applied:	EN 60079-0:2018 EN 60079-1:2014 EN60079-31:2014

Directive 2014/30/EU: Electromagnetic Compatibility Directive (EMC)

Standards applied:	EN 61000-6-1:2007 EN 61000-6-2:2005 EN 61000-6-3:2007 / A1:2011 / AC: 2012 EN 61000-6-4:2007 / A1: 2011

Directive 2014/35/EU: Low Voltage Directive (LVD)

Standards applied:	EN 60947-1:2007 + A2:2014

Directive 2011/65/EU: Restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS)

The product and all the components contained within it are in accordance with the restriction of the use of hazardous substances in electrical and electronic equipment, including amendment by Directive 2015/863/EU.

Regulation (EC) 1907/2006: Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)

The product and all the components contained within it are free from substances of very high concern.

Other Standards and Regulations

EN 60529:1992+A2:2013 - Degrees of protection provided by enclosures (IP code) – enclosure rated IP66

EU Declaration of Conformity

On behalf of European Safety Systems Ltd., I declare that, on the date the equipment accompanied by this declaration is placed on the market, the equipment conforms with all technical and regulatory requirements of the above listed directives, regulations and standards.

This Declaration is issued under the sole responsibility of the manufacturer.

Martin Streetz
Quality Assurance Manager

Document No.: DC-097_Issue_A
Date and Place of Issue: London, 24/02/2022