

#### 2.2 surge current ratings for use in fire alarm systems

Model	Peak Surge current	RMS surge current
D2xB1X05DC024	5.86A	745mA
D2xB1X05DC048	12.7A	1.45A
D2xB1X10DC024	6.2A	871mA
D2xB1X10DC048	14.5A	780mA

#### 2.3 NEC & CEC Class / Division Ratings for US / Canada

The D2xB1X05 and D2xB1X10 Xenon beacons comply with the following standards:

ANSI/ISA 12.12.01-2015  
CSA C22.2 No. 213-16

The D2xB1X05 Xenon Beacon is rated as follows:

Class I Div 2 ABCD T3 Ta -40°C to +50°C  
Class II Div 2 FG T5 Ta -40°C to +50°C  
Class II Div 2 FG T6 Ta -40°C to +40°C  
Class III Div 1&2 Ta -40°C to +50°C

The D2xB1X10 Xenon Beacon is rated as follows:

Class I Div 2 ABCD T2B Ta -40°C to +50°C  
Class II Div 2 FG T5 Ta -40°C to +50°C  
Class II Div 2 FG T6 Ta -40°C to +40°C  
Class III Div 1&2 Ta -40°C to +50°C

Installation must be carried out in compliance with the National Electric Code / Canadian Electric Code

#### 2.4 NEC Class / Zone ratings US

The D2xB1X05 and D2xB1X10 Xenon beacons comply with the following standards:

UL 60079-0-2013  
UL 60079-15-2013  
UL 60079-31-2015

The D2xB1X05 Xenon Beacon is rated as follows:

Class I Zone 2 AEx nA IIC T3 Gc Ta -40°C to +50°C  
Zone 22 AEx tc IIIC 95°C Dc Ta -40°C to +50°C

The D2xB1X10 Xenon Beacon is rated as follows:

Class I Zone 2 AEx nA IIC T2 Gc Ta -40°C to +50°C  
Zone 22 AEx tc IIIC 95°C Dc Ta -40°C to +50°C

Installation must be carried out in compliance with the National Electric Code.

## 1) Warnings



- DO NOT OPEN WHEN AN EXPLOSIVE ATMOSPHERE IS PRESENT
- DO NOT OPEN WHEN ENERGISED
- POTENTIAL ELECTROSTATIC CHARGING HAZARD - CLEAN ONLY WITH A DAMP CLOTH
- HIGH VOLTAGE SHOCK HAZARD. WAIT 5 MINUTES AFTER REMOVING POWER BEFORE OPENING THE ENCLOSURE

### Avertissement:

- NE PAS OUVRIR UN PRESENCE D'ATMOSPHERE EXPLOSIVE
- NE PAS OUVRIR ENERGIE
- DANGER POTENTIEL CHARGE ÉLECTROSTATIQUE - NETTOYER UNIQUEMENT AVEC UN CHIFFON HUMIDE
- HAUT TENSION, RISK DE CHOC. ATTENDEZ 5 MINUTES APRES AVOIR DEBRANCHE L'ALIMENTATION AVANT D'OUVRIR LA BOITIER

## 2) Rating & Marking Information

### 2.1 Fire Alarm Ratings

The Following models are certified as visual alarm devices for fire alarm use – private mode when used with clear or red lens covers:

D2xB1X05DC024 / D2xB1X05DC048  
D2xB1X10DC024 / D2xB1X10DC048

On-axis light output per UL1638:

Model	Lens cover colour	Light output in cd
D2xB1X05DC024	clear	22.2
	red	9.2
D2xB1X05DC048	clear	30
	red	12
D2xB1X10DC024	clear	73.8
	red	20.4
D2xB1X10DC048	clear	82
	red	26

## 2.5 CEC Class / Zone ratings Canada

The D2xB1X05 and D2xB1X10 Xenon beacons comply with the following standards:

CAN/CSA C22.2 No. 60079-0:2015  
CAN/CSA C22.2 No. 60079-15:2016  
CAN/CSA C22.2 No. 60079-31:2015

The D2xB1X05 Xenon Beacon is rated as follows:

Ex nA IIC T3 Gc X Ta -40°C to +50°C  
Ex tc IIIC 95°C Dc X Ta -40°C to +50°C

The D2xB1X10 Xenon Beacon is rated as follows:

Ex nA IIC T2 Gc X Ta -40°C to +50°C  
Ex tc IIIC 95°C Dc Ta -40°C to +50°C

Installation must be carried out in compliance with the Canadian Electric Code


## 2.6 ATEX / IECEx certification

The D2xB1X05 and D2xB1X10 xenon beacons comply with the following standards:


EN60079-0:2012+A11:2013 / IEC60079-0: ed. 6.0 (2011-06)  
EN60079-15:2010 / IEC60079-15: ed. 4.0 (2010-01)  
EN60079-31:2014 / IEC60079-31:2013 ed. 2.0 (2013-11)

**Certificate No.** DEMKO 14 ATEX 4786493904X  
IECEx ULD 14.0004X

The D2xB1X05 Xenon Beacon is rated as follows:

 II 3G Ex nA IIC T3 Gc Ta -40°C to +50°C  
II 3D Ex tc IIIC 95°C Dc Ta -40°C to +50°C

The D2xB1X10 Xenon Beacon is rated as follows:

 II 3G Ex nA IIC T2 Gc Ta -40°C to +50°C  
II 3D Ex tc IIIC 95°C Dc Ta -40°C to +50°C

CE Marking



## Zones, Gas / Dust Groups and Temperature Classification

When connected to an approved system the D2X alarm horn may be installed in:

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.

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.

## May be used with gases in groups:

Group IIA propane  
Group IIB ethylene  
Group IIC hydrogen / acetylene

## Having a temperature classification (for Gas applications) of:

T1 450°C  
T2 300°C  
T3 200°C (D2xB1X05 only)

## May be used with Dust types:

Group IIIA combustible flyings  
Group IIIB non-conductive dust  
Group IIIC conductive dust

## Maximum Surface Temperature for Dust Applications:

95°C

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

## 2.7 Ingress Protection Ratings

The product is rated for ingress Protection as follows:

IP rating: IP66  
Type rating per UL50E / NEMA250: 4 / 4X / 3R / 13

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

## 2.8 Electrical Ratings

Model No.	Voltage Range	Operating rms current
D2xB1X05DC024	24Vdc	275mA
D2xB1X05DC048	48Vdc	145mA
D2xB1X05AC115	115-120Vac 50/60Hz	80mA
D2xB1X05AC230	220-230Vac 50/60Hz	30mA
D2xB1X10DC024	24Vdc	560mA
D2xB1X10DC048	48Vdc	260mA
D2xB1X10AC115	115-120Vac 50/60Hz	185mA
D2xB1X10AC230	220-230Vac 50/60Hz	107mA

It is important that a suitable power supply is used to run the equipment. The power supply selected must have the necessary capacity to provide the input current to all the units.

The input current will vary according to the voltage input level. The current levels shown above are for the worst-case input voltage resulting in max. current.

### 3) Special Conditions of Use

Special Condition for safe Use as stated on the Type Examination Certificate DEMKO 14 ATEX 4786493904X / CoC IECEx ULD 14.0004X:

When used for a Group III application, the surface of the enclosure may store electrostatic charge and become a source of ignition in applications with a low relative humidity <~30% relative humidity where the surface is relatively free of surface contamination such as dirt, dust, or oil.

Guidance on protection against the risk of ignition due to electrostatic discharge can be found in EN TR50404 and IEC TR60079-32.

End user shall adhere to the manufacturer's installation and instruction when performing housekeeping to avoid the potential for hazardous electrostatic charges during cleaning, by using a damp cloth.

To maintain the ingress protection rating and mode of protection, the cable entries must be fitted with suitably rated, certified cable entry and/or blanking devices during installation. If conduit is used for installation, seal conduit within 18 inches from the enclosure.

### 4) Location and Mounting

The location of the beacon should be made with due regard to the area over which the warning signal must be visible. It should only be fixed to services that can carry the weight of the unit.

The D2x beacon should be secured to any flat surface using the two 7mm fixing holes in the feet of the base. The 2-off feet must first be fitted to the base using the 2-off M4 X 12mm countersunk screws provided. The unit can also be pole mounted using the 3/4" NPT Entry in the centre of the base. See Fig. 1.

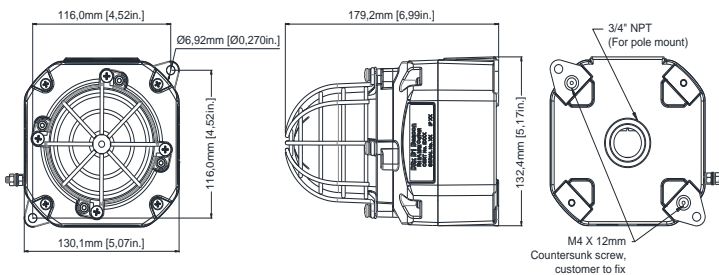


Fig. 1 Fixing Location for Beacon

### 5) Access to the Enclosure



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



Warning – Hot surfaces. External surfaces and internal components may be hot after operation, take care when handling the equipment.

To access the enclosure, loosen the four M4 posi pan head screws and withdraw the cover.

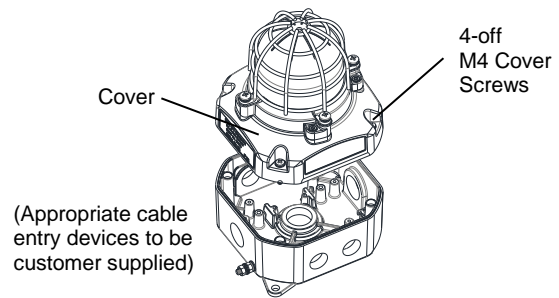


Fig. 2 Accessing the Enclosure.

To replace cover, check that the 'O' ring seal is in place. Carefully push the cover in place. Insert and tighten down M4 screws, spring and plain washers in the order shown above and tighten down.

### 6) Selection of Cable. Cable Glands, Blanking Elements & Adapters

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 of the sounders connected to the line.

The entries can be ordered with one of the following options:

2-off M20 x 1.5 thread, 2-off 1/2" NPT thread & 1-off 3/4" NPT thread

If a high IP (Ingress Protection) rating is required then a suitable sealing washer must be fitted under the cable glands or blanking plugs.

For use in explosive dust atmospheres, a minimum ingress protection rating of IP6X must be maintained.

For use in explosive gas atmospheres, a minimum ingress protection rating of IP54 must be maintained.

NPT plugs should be greased before insertion.

### 7) Cable Connections

Electrical connections are to be made into the terminal blocks on the PCBA located in the enclosure. See section 5 of this manual for access to the enclosure.

Wires having a cross sectional area between 0.5 mm<sup>2</sup> to 2.5mm<sup>2</sup> can be connected to each terminal way. If an input and output wire is required the 2-off Live/Neutral or +/- terminals can be used. If fitting 2-off wires to one terminal way the sum of the 2-off wires must be a maximum cross sectional area of 2.5mm<sup>2</sup>. Strip wires to 8mm. Wires may also be fitted using ferrules. Terminal screws need to be tightened down with a tightening torque of 0.56 Nm / 5 Lb-in. 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 2.5mm<sup>2</sup>.

## 8) AC Wiring

3-off 2-way terminal blocks are provided on the AC beacon for power. There are 2-off Live, 2-off Neutral and 2-off Earth terminals in total.

### 8.1 Wiring Diagrams

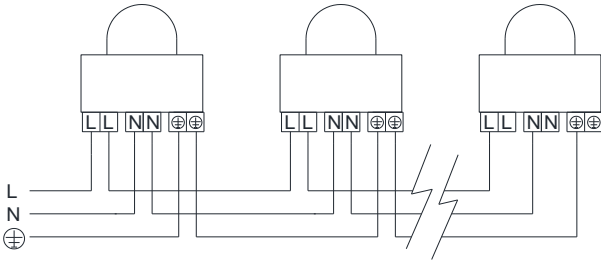


Fig 3. D2xB1X05/D2xB1X10 AC Simplified Block Diagram

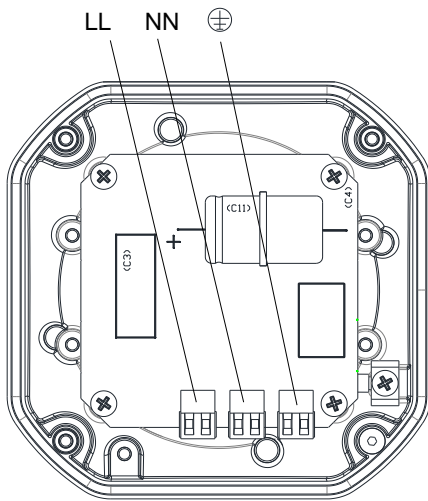


Fig. 4 D2xB1X05/D2xB1X10 AC Terminals

## 9) DC Wiring

3-off 2-way terminal blocks are provided on the AC beacon for power. There are 2-off +ve, 2-off -ve and 2-off Earth terminals in total.

### 9.1 Wiring Diagrams

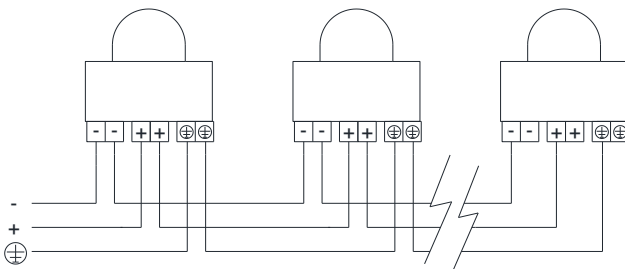


Fig. 5 D2xB1X05/D2xB1X10 DC Simplified Block Diagram

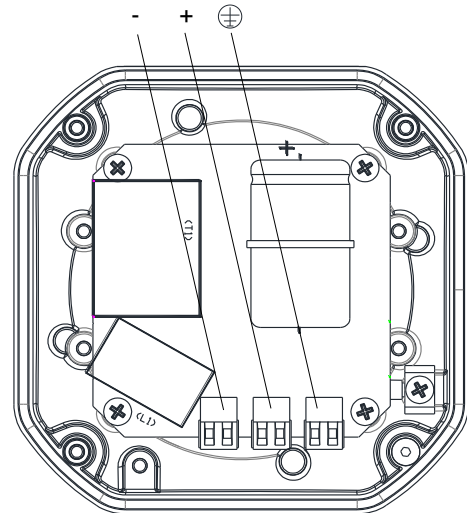


Fig. 6 D2xB1X05/D2xB1X10 DC Terminals

### 9.2 Line Monitoring

On D2xB1X05/D2xB1X10 DC units, DC reverse line monitoring can be used if required. All DC beacons have a blocking diode fitted in their supply input lines. An end of line monitoring resistor can be connected across the +ve and -ve terminals. If an end of line resistor is used it must have the following values:

#### 24V DC Beacons

Minimum resistance 3K9 Ohms	Minimum Power 0.5W
Minimum resistance 1K Ohms	Minimum Power 2.0W

#### 48V DC Beacons

Minimum resistance 15K Ohms	Minimum Power 0.5W
Minimum resistance 3K9 Ohms	Minimum Power 2.0W

The resistor must be connected directly across the +ve and -ve terminals as shown in the following drawing. Form the resistor legs as shown in Fig. 8a, remove the +ve and -ve terminal plugs and fit the resistor across the two terminal plugs before refitting them to the PCBA as shown in Fig. 8b. A spacing of at least 1/16" (1.58mm) must be provided through air and over surfaces between uninsulated live parts.

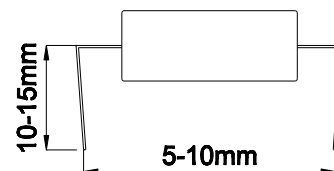


Fig. 7 End of Line Resistor Forming

## 11) Maintenance, Overhaul & Repair

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

EN60079-19	Explosive atmospheres - Equipment repair, overhaul and reclamation
IEC60079-19	
EN 60079-17	Explosive atmospheres - Electrical installations inspection and maintenance
IEC60079-17	

To avoid a possible ELECTROSTATIC CHARGE the unit must only be cleaned with a damp cloth.

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.

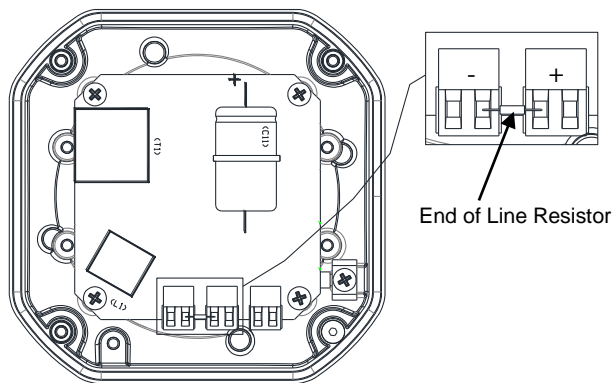


Fig. 8 End of Line Resistor Placement

## 10) Interchangeable & Spare Parts



Warning – Hot surfaces. External surfaces and internal components may be hot after operation, take care when handling the equipment.

The Beacon lens cover is interchangeable, contact E2S Ltd for a replacement lens cover available in various colours.

To change the lens cover, unscrew the 4-off M5 posi pan head screws, spring and flat washers using a screwdriver. Remove the wire guard and replace the old lens cover with the new lens cover.

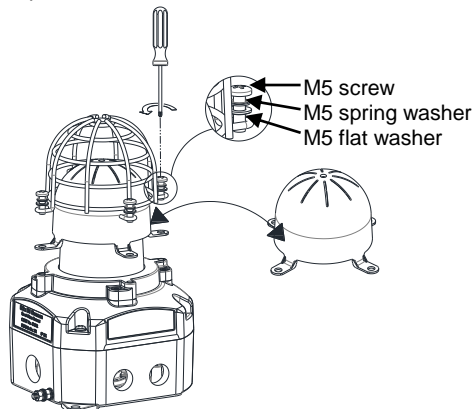


Fig. 9 Replacement of beacon lens cover

Fit the wire guard back onto the housing, over the new lens cover aligning the fixing holes of the guard, lens cover and housing. Refit the fixings to hold into place, the fixings MUST be fitted in the order shown above.

# EU Declaration of Conformity



**Manufacturer:** European Safety Systems Ltd.  
Impress House, Mansell Road, Acton  
London, W3 7QH, United Kingdom

**Equipment Type:** D2xS1, D2xC1X05, D2xC1X10  
D2xB1X05, D2xB1X10, D2xB1LD2  
D2xC2X05, D2xC2X10, D2xC2LD2  
D2xJ1

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## Directive 2014/34/EU: Equipment and Protective Systems for use in Potentially Explosive Atmospheres (ATEX)

Notified Body for EU type Examination (Module B):	UL International Demko A/S Notified Body No.: 0539 Borupvang 5A, 2750 Ballerup, Denmark
EU-type Examination Certificate (Module B):	DEMKO 14 ATEX 4786493904X
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):	SIRA 05 ATEX M342
Provisions fulfilled by the equipment:	II 3G Ex na IIC T6/T4/T3/T2/T1 Gc II 3D Ex tc IIIC T55/75/90/95/110°C Dc IP66 Ingress / Dust Protection to EN60079-0 / EN60079-31
Standards applied:	EN60079-0:2012+A11:2013 EN60079-15:2010 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
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## 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.

## 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

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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-061\_Issue\_D  
**Date and Place of Issue:** London, 29/09/2017