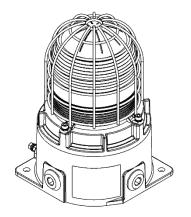
INSTRUCTION MANUAL STExB2X05, STExB2X10 & STExB2X15 Flameproof Xenon Beacons with relay / telephone initiation For use in Flammable Gas and Dust Atmospheres





STExB2X05-T STExB2X10-T STExB2X15-T

1) Product Table

Model	Nom. Voltage	Voltage Range	Nom. Operating Current*	Max Current	
STExB2X05DC024-T	24Vdc	20-28Vdc	295mA	350mA	
STExB2X05AC115-T	115Vac	110-120Vac 50/60Hz	140mA	200mA	
STExB2X05AC230-T	230Vac	220-240Vac 50/60Hz	70mA	100mA	
STExB2X10DC024-T	24Vdc	20-28Vdc	605mA	710mA	
STExB2X10AC115-T	115Vac	110-120Vac 50/60Hz	220mA	300mA	
STExB2X10AC230-T	230Vac	220-240Vac 50/60Hz	130mA	180mA	
STExB2X15DC024-T	24Vdc	20-28Vdc	835mA	920mA	
STExB2X15AC115-T	115Vac	110-120Vac 50/60Hz	310mA	420mA	
STExB2X15AC230T	230Vac	220-240Vac 50/60Hz	170mA	230mA	

Ensure the system power supply is capable of providing the maximum current required for all beacons. Review associated cable size, length and quantity of beacons on each circuit.

2) Warnings



- DO NOT OPEN WHEN AN EXPLOSIVE ATMOSPHERE IS PRESENT.
- POTENTIAL ELECTROSTATIC CHARGING HAZARD CLEAN ONLY WITH A DAMP CLOTH.
- ALL ENTRIES M20 X 1.5MM.
- USE SUITABLE RATED CABLES AND CABLE GLANDS IF TEMPERATURE EXCEEDS 70°C AT ENTRY OR 80°C AT BRANCHING POINT.

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3) Marking & Rating Information

All units have a rating label, which carries the following important information:

- Unit Model.
- Voltage Range
- Nominal Voltage
- Max. Current

See Table 1 for electrical ratings of each Unit Model.

3.1. ATEX / IECEx & UKEx Ratings

Standards					
EN IEC 60079-0:2018 / 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" BS EN 60079-31:2014 / IEC 60079-31:2013 (Ed 2): Explosive Atmospheres - Equipment Dust Ignition Protection by Enclosure "t"					
	Ratings				
STExB2: X05DC024-T	Ex db IIC T4 Gb Ta -50°C to +85°C Ex db IIC T5 Gb Ta -50°C to +70°C Ex db IIC T6 Gb Ta -50°C to +55°C Ex tb IIIC T92°C Db Ta -50°C to +70°C				
STExB2: X05AC115-T X05AC230-T	Ex db IIC T4 Gb Ta -50°C to +85°C Ex db IIC T5 Gb Ta -50°C to +55°C Ex db IIC T6 Gb Ta -50°C to +40°C Ex tb IIIC T110°C Db Ta -50°C to +70°C				
STExB2: X10DC024-T	Ex db IIC T3 Gb Ta -50°C to +85°C Ex db IIC T4 Gb Ta -50°C to +70°C Ex db IIC T5 Gb Ta -50°C to +45°C Ex tb IIIC T118°C Db Ta -50°C to +70°C				
STExB2: X10AC115-T X10AC230-T	Ex db IIC T3 Gb Ta -50°C to +80°C Ex db IIC T4 Gb Ta -50°C to +70°C Ex tb IIIC T128°C Db Ta -50°C to +70°C				
STExB2: X15DC024-T X15DC048-T	Ex db IIC T3 Gb Ta -50°C to +80°C Ex db IIC T4 Gb Ta -50°C to +70°C Ex tb IIIC T127°C Db Ta -55°C to +70°C				
STExB2: X15AC115-T X15AC230-T	Ex db IIC T3 Gb Ta -50°C to +75°C Ex db IIC T4 Gb Ta -50°C to +65°C Ex tb IIIC T131°C Db Ta -55°C to +70°C				

Certificate No.

DEMKO 16 ATEX1466X IECEx ULD 16.0017X UL21UKEX2019X

ATEX Mark, 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							
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.						
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.						
	Gas Groupings						
Group IIA	Propane						
Group IIB	Ethylene						
Group IIC	Hydrogen and Acetylene						
Temper	ature Classification for Gas Applications						
T1	450°C						
T2	300°C						
	200°C						
T3	(STExB2X10AC-T & STExB2X15DC-T up to 80°C ambient, STExB2X15AC-T up to 75°C ambient)						
Т4	135°C (STExB2X05AC-T, STExB2X10DC-T up to 85°C STExB2X10AC-T & STExB2X15DC-T up to 80°C ambient; STExB2X15AC-T up to 65°C ambient)						
T5	100°C (STExB2X05DC-T up to 70°C ambient; STExB2X05AC-T up to 55°C ambient; STExB2X10DC-T up to 45°C ambient)						
Т6	85°C (STExB2X05DC-T up to 55°C ambient, STExB2X05AC-T up to 40°C ambient)						
	Dust Groupings						
Group IIIA	Combustible Flyings						
Group IIIB	Non-conductive Dust						
Group IIIC	Conductive Dust						
Maximum	Surface Temperature for Dust Applications						
STExB2X05DC	92°C						
STExB2X05AC	110°C						
STExB2X10DC	118°C						
STExB2X10AC	128°C						
STExB2X15DC	127 °C						
STExB2X15AC							
Equipment Category							
2G / 2D							
Equipment Level Protection							
Gb, Gc, Db, Dc							
Ambient Temperature Range							
-50°C to +70°C							
10 0 10 170 0	IP Rating						
IP6X to EN/IEC60 IP66 to EN60529	0079-0						
55 15 _11055_5							

www.e2s.com

5) Special Conditions for Safe Use

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

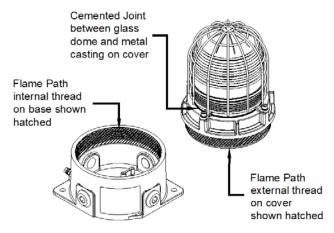


Figure 1: Flame Path.

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.

All entries must be fitted with a suitable seal at the interface with enclosure.

6) Product Mounting and Access

6.1. Location and Mounting

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

The STEx beacons should be securely bolted to a flat surface using 9.0mm diameter bolt holes in the base of the unit. See figure 2.

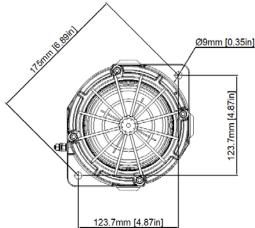


Figure 2: Fixing Location for B2 Beacon.

6.2. Access to the Flameproof Enclosure



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

In order to connect the electrical supply cables to the beacon it is necessary to remove the flameproof cover to gain access to the flameproof chamber. To access the Ex d chamber, loosen the M4 grub screw on the beacon cover. Open the enclosure by turning the beacon cover counterclockwise and remove the cover, taking extreme care not to damage the flameproof threads in the process (See figure 3).

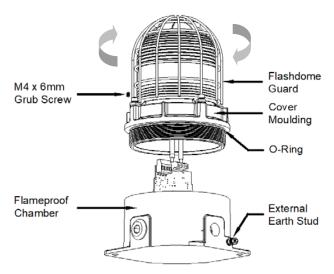


Figure 3: Accessing the Explosion Proof Enclosure.

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.

Repair of the flame path / flameproof joints is not permitted.

Ensure that the 'O' ring seal is in place.

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 beacon enclosure. Tighten the M4 grub screw.

7) Installation Requirements

7.1. Installation Standards Compliance



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

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

The installation of the units must also be in accordance with any local codes that may apply and should only be carried out by a competent electrical engineer who has the necessary training.

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7.2. 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 beacons 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 beacons connected to the line.

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.

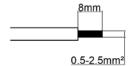


Figure 4: Wire Preparation.

Terminal screws need to be tightened down with a tightening torque of 0.45 Nm / 5 Lb-in.

See section 9.1 for terminal positions.

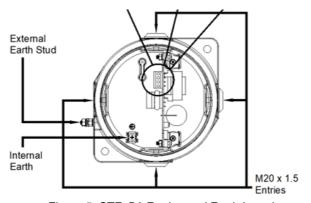


Figure 5: STExB2 Entries and Earth Location.

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.

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 9 and notes below).

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.

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.

7.3. Cable Glands, Blanking Elements & Adapters

Follow the minimum temperature ratings of cables and cable glands according to the approvals applied.

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

		Max Ambient Temperature (°C)													
Model STExB2	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85
X05DC								72	77	82	87	92	97	102	107
X05AC						74	79	84	89	94	99	104	109	114	119
X10DC				71	76	81	86	91	96	101	106	111	116	121	126
X10AC						72	77	82	87	92	102	107	112	117	122
X15DC		72	77	82	87	92	97	102	107	112	117	122	127	132	
X15AC	73	78	83	88	93	98	103	108	113	118	123				

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

Cable Glands & Blanking Plugs

Appropriate cable glands to be customer supplied.

The cable entries have an M20 x 1.5-6H entry thread. Only suitably rated and ATEX / IECEx & 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 ATEX / IECEx & UKEx certified blanking plugs.

Ingress Protection

Follow instructions according to the approvals applied.

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.

For combustible dust applications, the cable entry device and blanking elements shall be in type of explosion protection and shall have an IP 6X rating.

Adapters

The STEx Beacon 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 adapters.

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8) Flash Pattern Settings

8.1 Flash Rate Setting



Warning – high-intensity light source. Avoid looking directly at the light source for extended periods of time.

The STExB2 beacons can produce different flash patterns as shown in Table 3. The flash patterns are selected by operation of the flash setting DIP switch on the PCBA (See Fig 6).

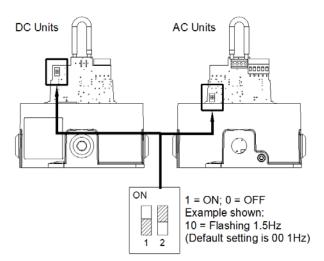


Figure 6: DIP Switch Location.

Switch Setting	S1 Mode
00	1Hz (60FPM)
01	1.33Hz (80FPM)
10	1.5Hz (90FPM)
11	Double Flash

Table 4: Switch Positions for Flash Patterns

9) Relay / Telephone Inputs and Settings

9.1 Power Input Terminal for AC & DC Wiring

A suitable power supply (DC or AC voltage) cable should enter via one of the M20 entries and is to be connected to terminal TB1 (see Fig. 5 below). This provides the beacon with continuous power.

DC Unit option: Connect the beacon power input (+) to the (L/+) terminal (TB1) and power input (-) to the (N/-) at terminal (TB1).

AC Unit option: Connect the beacon input (L) to the (L/+) terminal (TB1) and power input (N) to (N/-) also an earth/ground input to the (E) terminal (TB1).

Please note: the earth/ground terminal of TB1 provides termination only for an earth/ground cable. Refer to section 7.2.

For AC and DC voltage wiring diagrams see document D250-06-001

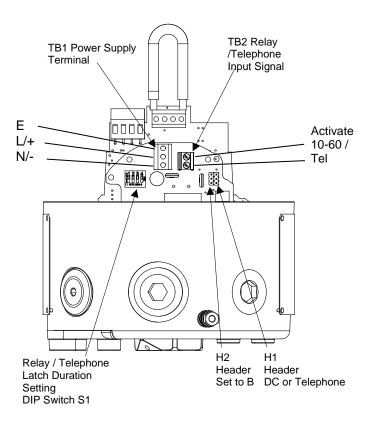


Fig 7: Input Wiring, DIP settings and Header Positions

9.2 Activation, Relay / Telephone Wiring Inputs and Signal Type Header Setting (H1)

The H1 header selection configures the activation signal type.

Select H1 position marked AC for activation from an analogue telephone external ringer output REN1 (typically low current AC voltage around 90 to 150Vac)

Select H1 position marked DC for activation via a DC voltage input of 10 to 60Vdc e.g. a digital PBX external ringer output or a safety system relay output.

The activation input cables should utilise the second M20 cable entry and connect to terminal TB2.

Note: there is no polarity for this input. Factory default H1 is set as AC for activation signal.

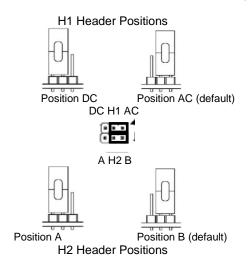


Fig 8: Header H1 and H2 Positions

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9.3 Unit Activation Mode - Pulsed or Latched, Header Setting (H2)

The H2 header selection configures the beacon operation depending upon the type of activation signal.

Option B is the factory default setting. The beacon visual output will start when an initiation signal is received and will not follow the telephone ringing cadence. See section 9.4

If the unit is set to Option A the beacon will not work effectively.

9.4 Unit Latch mode duration DIP switch S1 setting

The relay/telephone latch duration setting is only applicable when Header H2 is set to latched mode via header pin set to position option B.

The beacon is activated on the first telephone ring (or relay pulsed input) and any other subsequent inputs and will remain activated for the duration as set by DIP switch S1.

This feature is useful where some countries have short ringing cadence with long off cycle times and the customer requires the beacon to operate for longer periods to better attract attention.

Where this feature becomes essential is for telephone/relay activated beacons to function correctly in these parameters.

Factory default for the relay/telephone latch duration switch setting is 0000.

See table for DIP switch S1 delay timing.

Unit activation period (s) from start of	DIP Switch S1 Setting (0000) = All off
activation signal.	(0000)
1.5	0000
2.0	1000
2.5	0100
3.0	1100
3.5	0010
4.0	1010
4.5	0110
5.0	1110
5.5	1111

10) 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:

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.

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

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

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11) 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 is interchangeable, contact European Safety Systems Ltd for a replacement lens available in various colours.

The guard is an integral part of the protection and must be reassembled exactly the same way as it was disassembled.

To change the lens, unscrew the M5 socket head screws and remove the M5 screws, M5 spring & flat washers.

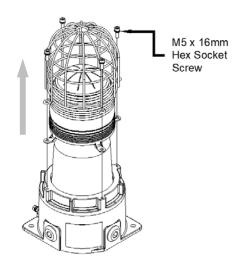


Figure 9: Removal of Lens.

Remove the guard and replace the old lens with the new lens.

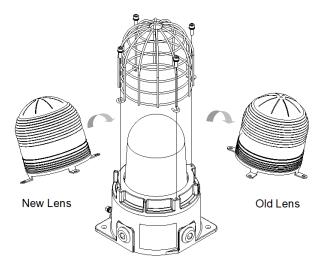


Figure 10: Changing of Lens.

Fit the guard back on to the lens and casting, align the holes of the guard, lens and casting. To reattach the lens, the fixings MUST be in the order shown in Figure 11.

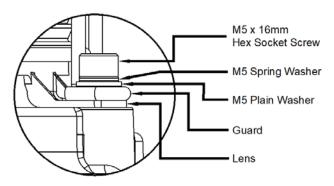
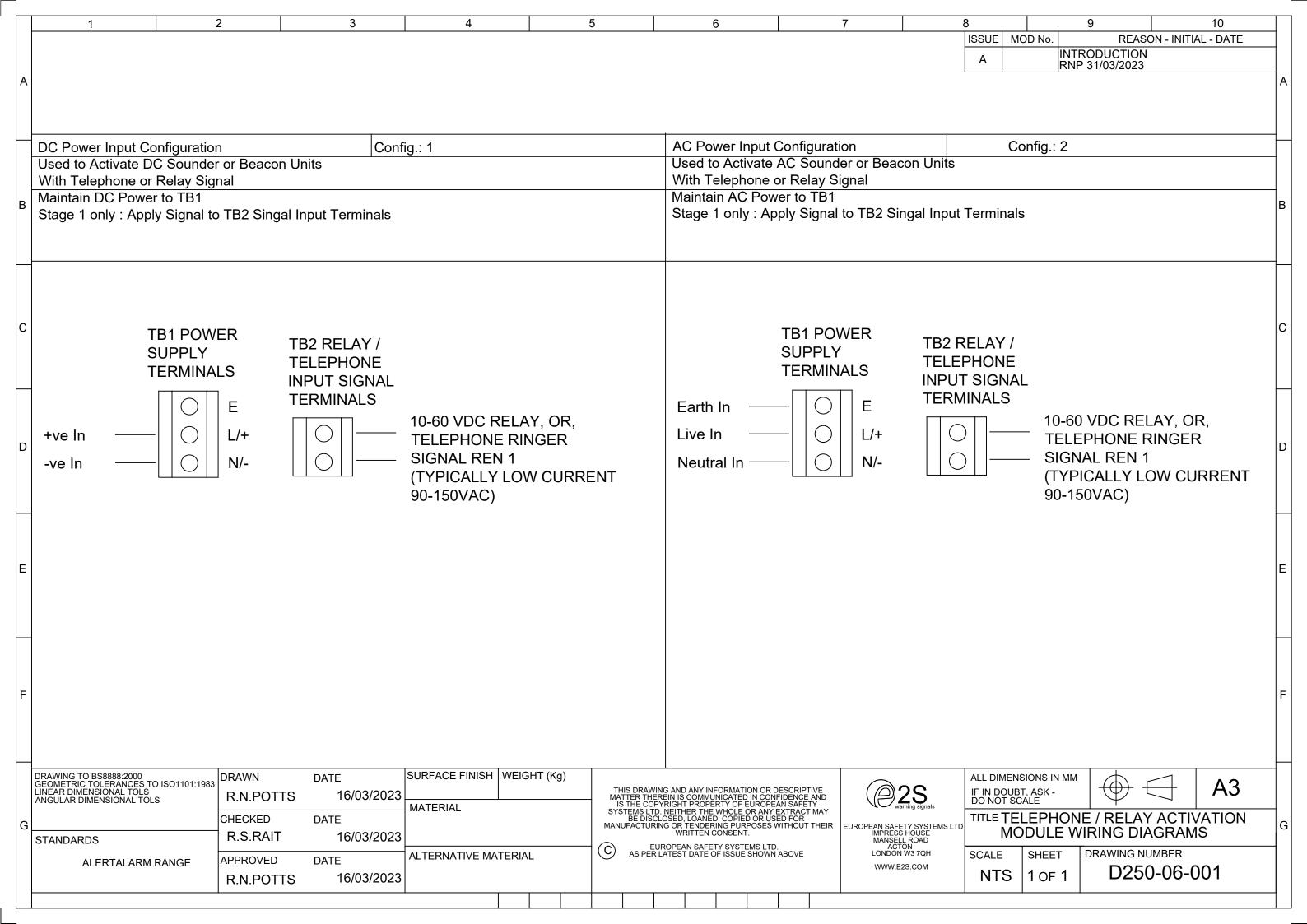


Figure 11: Lens & Guard Fixings Order.



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: STExS1, STExS2, STExL1, STExL2

STExB2X05, STExB2X10, STExB2X15, STExB2X21

STExB2LD2, STExB2RT1

STExC1X05 STExJ2

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 16ATEX1466X

Notified Body for Quality Assurance Notification / Conformity to EU-type

ased on

Sira Certification Service Notified Body No.: 2813

quality assurance of the production process (Module D): CSA Group Netherlands B.V, Utrechtseweg 310, 6812 AR, Arnhem, Netherlands

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...T137°C Db

IP6X Dust Protection to EN60079-0 / EN60079-31

Standards applied: EN IEC 60079-0: 2018

EN 60079-1: 2014 EN 60079-31: 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 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 60529:1991 / A1:2000 / 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-070_Issue_G
Date and Place of Issue: London, 03/12/2021



UKCA Declaration of Conformity



Manufacturer: European Safety Systems Ltd.

Impress House, Mansell Road, Acton

London, W3 7QH United Kingdom

Equipment Type: STExS1, STExS2, STExL1, STExL2

STExB2X05, STExB2X10, STExB2X15, STExB2X21

STExB2LD2, STExB2RT1

STExC1X05 STExJ2

<u>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)</u>

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): UL21UKEX2019X

Notified Body for Quality Assurance Notification / Conformity to EU-type

based on

Sira Certification Service Notified Body No.: 0518

quality assurance of the production process (Module D):

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 T85°C...T137°C Db

IP6X Dust Protection to EN60079-0 / EN60079-31

Standards applied: EN IEC 60079-0: 2018

EN 60079-1: 2014 EN 60079-31: 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 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)

E2S Telephone: +44 (0)20 8743 8880 Fax: +44 (0)20 8740 4200 Email: sales@e2s.com www.e2s.com

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

Other Standards and Regulations

EN 60529:1991 / A1:2000 / A2:2013 - Degrees of protection provided by enclosures (IP code) – enclosure rated IP66

UKCA 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-100_Issue_A
Date and Place of Issue: London, 24/02/2022

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