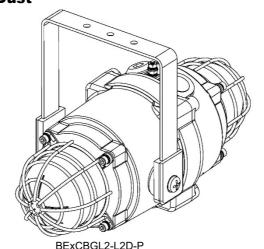
INSTRUCTION MANUAL BExCBL2-L2D-P Combined Beacon/ Beacon ATEX/IECEX & UKEX Gas & Dust





1. Product Table

| Unit Type Code | Nominal Input Voltage | Chamber Beacon Nominal Input Current | Cover Beacon Nominal Input Current | Max I/P Voltage |
|--------------------|-----------------------------|---|--|-----------------|
| BExCBGL2-L2DPDC024 | 24Vdc | 240mA | 240mA | 28V |
| BExCBGL2-L2DPAC115 | 115Vac | 85mA | 85mA | 126V |
| BExCBGL2-L2DPAC230 | 230Vac | 48mA | 48mA | 253V |

The table shows the input current taken by the various units. Nominal current at nominal voltage.

Table 1: Electrical Ratings.

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 of the units.

The above table shows the input current taken by the various units and shows the maximum voltage at which they can be operated:

The input current will vary according to the voltage input level and flash rates selected.

2. Warnings



- DO NOT OPEN WHEN AN EXPLOSIVE ATMOSPHERE IS PRESENT
- DO NOT OPEN WHEN ENERGIZED
- POTENTIAL ELECTROSTATIC CHARGING HAZARD CLEAN ONLY WITH A DAMP CLOTH
- COVER BOLTS CLASS A4-80
- USE HEAT RESISTING CABLES AND CABLE GLANDS (RATED 110°C) AT AMB. TEMPERATURES OVER 40°C

3. Marking & Rating Information

The BExCBGL2-L2D-P Alarm Horns comply with the following standards for hazardous locations:

3.1 ATEX / IECEx & UKEx Ratings

| Standards | | | | |
|---|---|-------------------------------|------------------------------|--|
| EN60079-0:2018/IEC60079-0:2017 (ed.7): Explosiv | | | | |
| 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: | R | ating | | |
| BExCBGL2-L2D-P | Ex db IIB T6 Gb Ta Ex db IIB T5 Gb Ta Ex tb IIIC T65°C Db Ex tb IIIC T80°C Db Ex tb IIIC T95°C Db | 50°C to + Ta50°C Ta50°C | 70°C to +40°C to +55°C | |

Certificate No.

KEMA 01ATEX2222X IECEx KEM 10.0024 UL22UKEX2637X

See Product table for electrical ratings of each unit model

Epsilon x **Equipment Group** and Category:

II 2G II 2D

CE Marking and Notified Body No.

UKCA Marking and Approval Body No.



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 & Acetylene | | |
| Tem | perature Classification for Gas Applications | | |
| T1 | 450° C | | |
| T2 | 300° C | | |
| Т3 | 200° C | | |
| T4 | 135° C | | |
| T5 | 100°C | | |
| Т6 | 85°C (up to 55°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, Db, | | | |
| Maximu | um Surface Temperature for Dust Applications | | |
| | 65°C at +40°C 80°C at +55°C 95°C at +70°C | | |
| | Ambient Temperature Range | | |
| -50°C to +70°C Gas Groups IIA and IIB and -IIIC -50°C to +70°C Dust Groups IIIA, IIIB and IIIC | | | |
| | IP Rating | | |
| | /IEC60529 and C60079-0, EN/IEC60079-31 | | |
| | t only be installed by suitably qualified personnel in ith 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 unit 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.

www.e2s.com

5. Special Conditions for Safe Use

Repair of the flamepath / flameproof joints is not permitted.

The enclosure is non-conducting and may generate an ignition-capable level of electrostatic charges under certain extreme conditions (such as high-pressure steam). 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.

Additionally, cleaning of the equipment should be done only with a damp cloth.

6. Product Mounting and Access

The location of the unit 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 BEx combined sounder beacon should be secured to any flat surface using at least two of the three 7mm fixing holes on the stainless steel U shaped mounting bracket. See Figure 1. The required angle can be achieved by loosening the two large bracket screws in the side of the unit, which allow adjustment of the sounder in steps of 18°. On completion of the installation then two large bracket adjustment screws on the side of the unit must be fully tightened to ensure that the unit cannot move in service.

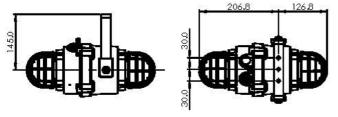


Fig. 1 Fixing Location for Combined Beacon/Beacon

7. Access to the Flameproof 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 Ex d chamber, remove the four M6 hexagon socket head screws and withdraw the flameproof cover taking extreme care not to damage the flameproof joints in the process. M6 cover screws are Class A4-80 stainless steel and only screws of this category can be used for the enclosure.

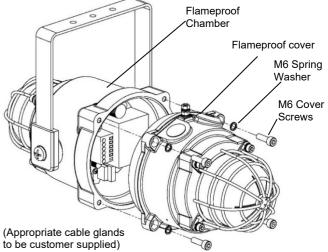


Fig. 2 Accessing the Explosion proof Enclosure.

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

Check that the earth bonding wire between the two castings is secure and the 'O' ring seal is in place. When replacing the flameproof cover casting ensure that it is square with the flameproof chamber casting before inserting. Carefully push the cover in place allowing time for the air to be expelled. Only after the cover is fully in place should the four M6 Stainless Steel A4-80 cover bolts and their spring washer be inserted and tightened down. If the cover jams while it is being inserted, carefully remove it and try again. Never use the cover bolts to force the cover into position.

8. 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 above), 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.

For ambient temperatures over +40°C the cable entry temperature may exceed +70°C and therefore suitable heat resisting cables and cable glands must be used, with a rated service temperature of at least 110°C

The dual cable gland entries have an M20 x 1.5 entry thread. To maintain the ingress protection rating and mode of protection, the cable entries must be fitted with suitably rated ATEX / IECEx or UKEx certified cable glands and/or suitably rated ATEX / IECEx or UKEx certified blanking devices during installation according to EN / IEC60079-14.

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.

The BEx combined sounder/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 ATEX / IECEx or UKEx certified adapters.

9. Earthing

Both AC and DC combined beacon / beacon units must be connected to an earth. The units are provided with internal and external earth terminals which are both located on the terminal chamber section of the unit.

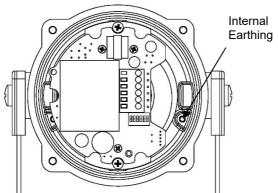


Fig. 3 Internal View of Chamber

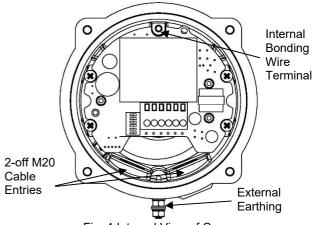


Fig. 4 Internal View of Cover

When using the internal earth terminal ensure that the stainless steel M4 flat washer is between the incoming earth wire and the enclosure.

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. Tighten M4 Earth screw to 1Nm.

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. Tighten the Earth nut to 3Nm. Please firmly tighten the external grounding terminal so that the stud does not become loose and lay the ground wire so that it is not caught by twisting and sagging.

10. Cable Connections

The combined beacon / beacon unit BExCBGL2-L2D has separate printed circuit boards in the chamber and cover sections. The terminals for the sounder are on the printed circuit board in the sounder section and the terminals for the beacon are on the printed circuit board in the beacon section (see figures 5 and 6). See section 7 of this manual for access to the enclosure. See section 11 and 12 for AC and DC wiring diagrams respectively.

Wires having a cross sectional area between 0.5 mm² to 2.5mm² 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 2.5mm². Strip wires to 8mm. Wires may also be fitted using ferrules. Terminal screws need to be tightened down with a tightening torque of 0.45 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 2.5mm².

11. AC Wiring

A 4-way terminal block is provided on the AC chamber beacon for power. There are 2-off Live and 2-off Neutral terminals in total. A 4-way terminal block is provided on the AC cover beacon for power. There are 2-off Live and 2-off Neutral terminals in total.

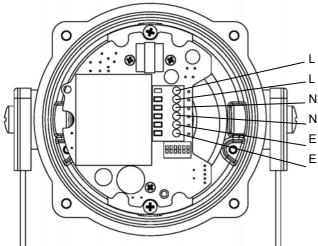
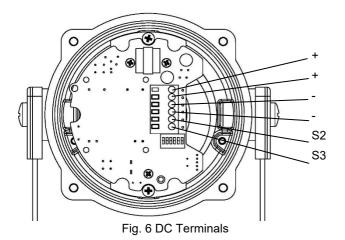


Fig. 5 AC Terminals

12. DC Wiring

A 4-way terminal block is provided on the DC chamber beacon for power. There are 2-off +ve and 2-off -ve terminals in total. A 4-way terminal block is provided on the AC cover beacon for power. There are 2-off +ve and 2-off -ve terminals in total.



12.1 **Line Monitoring**

On BExCBGL2-L2D DC units, dc reverse line monitoring can be used if required. All DC sounders 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. If an end of line resistor is used it must have a minimum resistance value of $3k3\Omega$ and a minimum power rating of 0.5 watts or a minimum resistance value of 500Ω and a minimum power rating of 2 watts.

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.

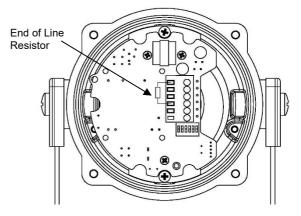


Fig. 7 End of Line Resistor Placement

13. Flash Rate Settings



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

The BExB2L2D beacons can produce different flash patterns as shown in Table 1. The flash patterns are selected by operation of the flash setting DIP switch on the PCB, Fig 9.

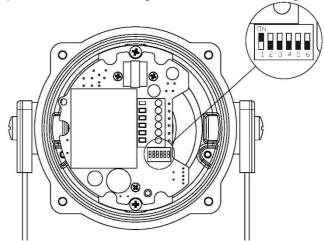


Fig. 8: DIP Switch Location

Table 1: Switch Positions for Flash Patterns

| Switch Setting | S1 Mode | S2 Mode | S3 Mode |
|-------------------|---------------------------|---------------------------|---------------------------|
| (123456) | (DC & AC) | (DC Only) | (DC Only) |
| 000000 | Steady High Power | Flashing 1Hz | Flashing Triple Strike |
| 000001 | Steady Low Power | Flashing 1Hz | Flashing Triple Strike |
| 100000 | Flashing 1Hz | Flashing Double Strike | Flashing Triple Strike |
| 101000 | Flashing 1.5Hz | Flashing 2Hz | Flashing Double Strike |
| 010000 | Flashing 2Hz | Flashing Triple Strike | Flashing Triple Strike |
| 110000 | Flashing Double Strike | Steady High Power | Flashing Triple Strike |
| 001000 | Flashing Triple Strike | Flashing 2Hz | Flashing Double Strike |

14. Interchangeable & Spare Parts



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

The beacon covers are interchangeable, contact E2S Ltd for a replacement cover available in various colours.

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

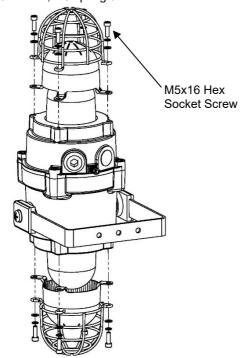


Fig. 9 Removal of cover

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

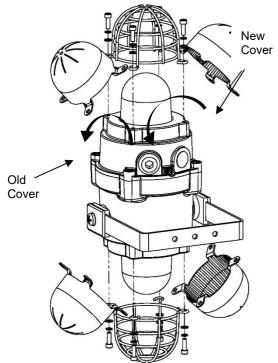


Fig. 10 Changing of cover

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



Fig. 11 Cover and Guard Fixtures

15 Maintenance, Overhaul & Repair

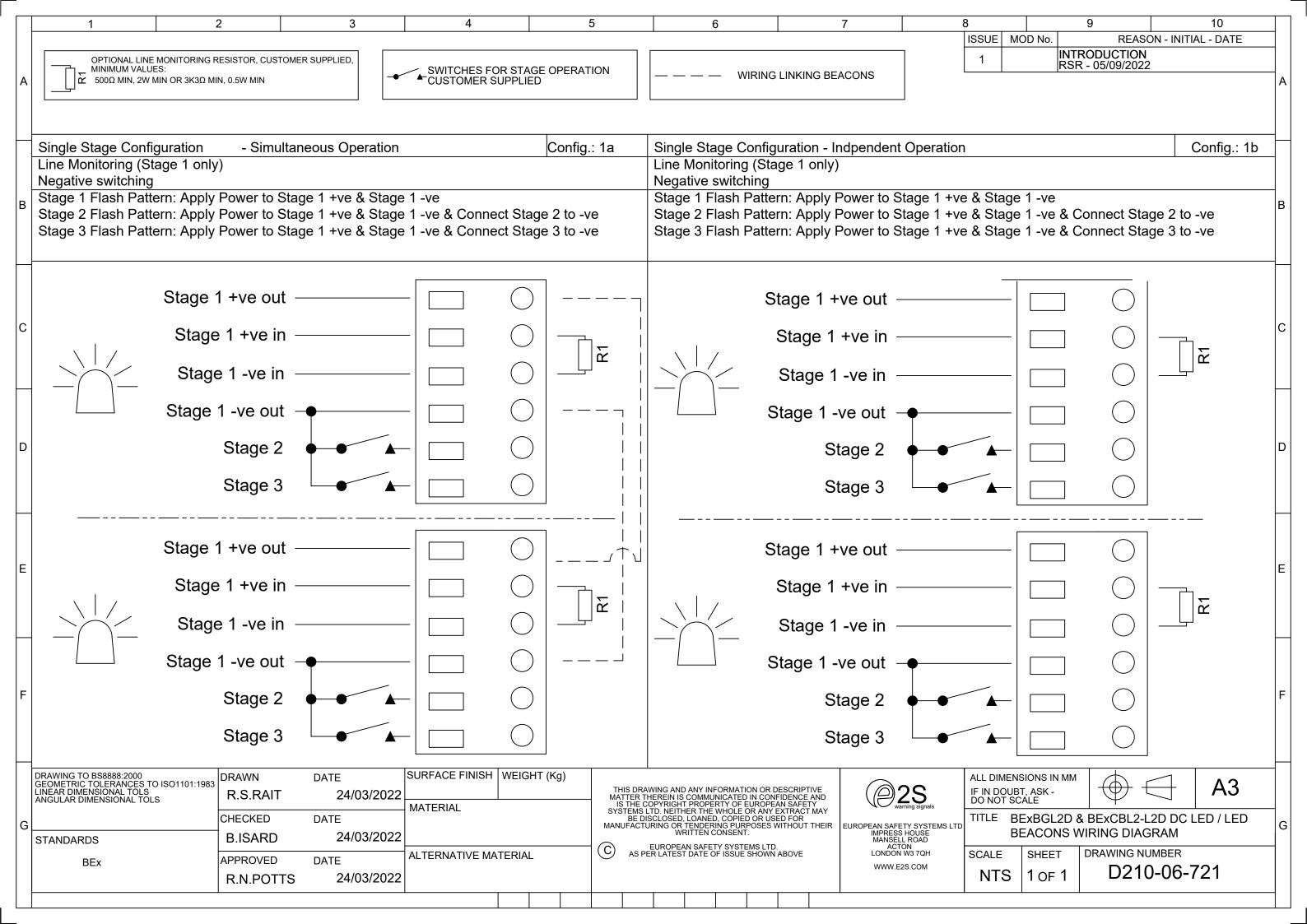
Maintenance, repair and overhaul of the equipment should only be carried out by suitably qualified personnel in accordance with the current relevant standards:

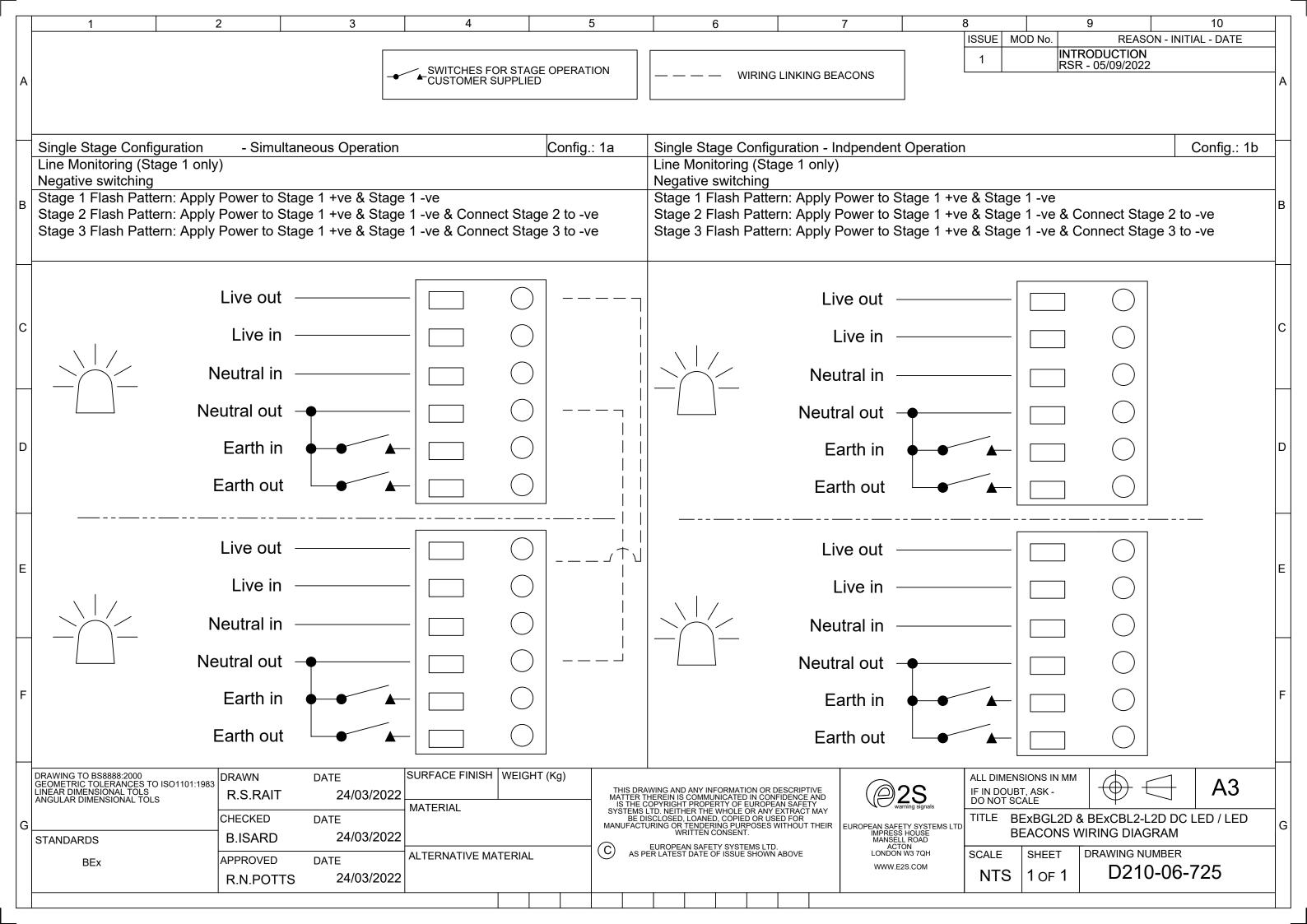
| EN60079-19 IEC60079-19 | Explosive atmospheres - Equipment repair, overhaul and reclamation |
|----------------------------|---|
| EN 60079-17 IEC60079-17 | Explosive atmospheres - Electrical installations inspection and maintenance |

The acoustic horn is made out of ABS plastic, therefore to avoid a possible ELECTROSTACTIC CHARGE the unit must only be cleaned with a damp cloth.

Units must not be opened while an explosive atmosphere is

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





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: BExCBG05-05D, BExCBG05-05D-P

> BExCBGL2-L2D BExCBGL2-05D

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

Notified Bodyfor EU type Examination (Module B):

Notified Body No.: 0344

Sira Certification Service

Meander 1051, 6825 MJ Arnhem, The Netherlands

KEMA 01ATEX2222X EU-type Examination Certificate (Module B):

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

Notified Body No.: 2813

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

SIRA 05 ATEX M342 Quality Assurance Notification (Module D):

Provisions fulfilled by the equipment: II 2G Ex db IIB T6 to T4 Gb

II 2D Ex tb IIIC T65°C to T130°C Db

IP6X Dust Protection to EN60079-0 / EN60079-31

EN 60079-0:2012 + A11:2013 / EN IEC 60079-0:2018 Standards applied:

EN 60079-1:2014

EN 60079-31:2014

IP6X Dust Protection to EN60079-0 / EN60079-31

<u>Directive 2014/30/EU: Electromagnetic Compatibility Directive (EMC)</u>

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 IP66/67

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-006_Issue_K
Date and Place of Issue: London, 23/12/2020



UKCA Declaration of Conformity



Manufacturer: European Safety Systems Ltd.

Impress House, Mansell Road, Acton

London, W3 7QH **United Kingdom**

Equipment Type: BExCBG05-05D, BExCBG05-05D-P

> BExCBGL2-L2D BExCBGL2-05D

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

UL21UKEX2637X UK-type Examination Certificate (Module B):

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

CSAE 22UKQAN0046 Quality Assurance Notification (Module D):

Provisions fulfilled by the equipment: II 2G Ex db IIB T6...T4 Gb

II 2D Ex tb IIIC T65°C...T130° Db

IP6X Dust Protection to EN60079-0 / EN60079-31

EN IEC 60079-0: 2018 Standards applied:

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 IP66/67

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-107_Issue_A
Date and Place of Issue: London, 12/09/2022

E2S Telephone: +44 (0)20 8743 8880 Fax: +44 (0)20 8740 4200 Email: sales@e2s.com www.e2s.com DC-107_Issue_A (BExCBG) - Page 2 of 2 - QAF_252_Issue_5