INSTRUCTION & SERVICE MANUAL
E2xB05UL BEACONS
For Use In Hazardous Locations

- 5 Joules
- Type 4 / 4X 13
- Operating Temperature Range
  -20ºC to 55ºC

c UL us
27KJ

Unit Type No. E2xB05UL

Input Voltages: DC Units 12V or 24V or 48V
AC Units 120V or 230V 50/60Hz

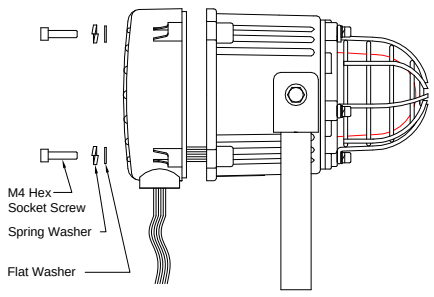
Max. Operating Temperature / Code at +55ºC Ambient	
Hazardous Location	**Temperature Code**
Class I, Division 2, Groups A, B, C, D	T2D (215ºC)
Class II, Division 2, Groups F and G	T5 (100ºC)
Class III, Divisions 1 and 2	T5 (100ºC)

Max. Operating Temperature / Code at +40ºC Ambient	
Hazardous Location	**Temperature Code**
Class I, Division 2, Groups A, B, C, D	T3 (200ºC)
Class II, Division 2, Groups F and G	T6 (85ºC)
Class III, Divisions 1 and 2	T6 (85ºC)

The equipment is suitable for use in the hazardous locations listed above or non-hazardous locations only.

PRE-INSTALLATION

WARNING - The E2xB05UL beacon is supplied with flying leads so it should not be necessary to open the unit before it is installed.

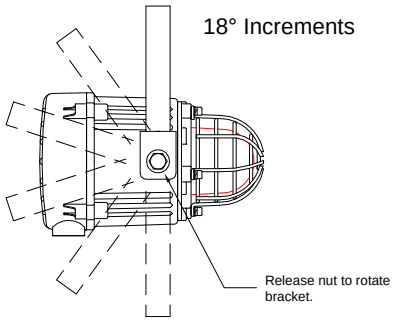


WARNING – NOT TO BE USED AS A VISUAL PUBLIC MODE NOTIFICATION APPLIANCE

WARNING – HIGH VOLTAGE SHOCK HAZARD. WAIT 5 MINUTES AFTER REMOVING POWER BEFORE OPENING THE ENCLOSURE

MOUNTING

The E2xB05UL beacon must be mounted using the rotating bracket as shown.



WARNING - EXPLOSION HAZARD - SUBSTITUTION OF COMPONENTS MAY IMPAIR SUITABILITY FOR CLASS I, II DIVISION 2.

WIRING INSTALLATION

The E2xB05UL beacon is provided with 2 off M20 x 1.5 cable entries.
1 x ½" NPT adaptor and 1 x M20 stopping plug are provided.

Installation using Field Wiring Leads and Conduit

If the sounder is supplied pre-wired with flying leads, these are colour coded and should be connected as shown in the diagram below.
The conduit running from the supply to the sounder must include an equipment grounding conductor that is at earth potential to facilitate ground connection of the device. A number of sounders can be connected in a chain to the same supply using field installed wiring compartments that are appropriate for the hazardous location, provided that the conductor at earth potential can be readily connected to the ground lead on each sounder in the chain.

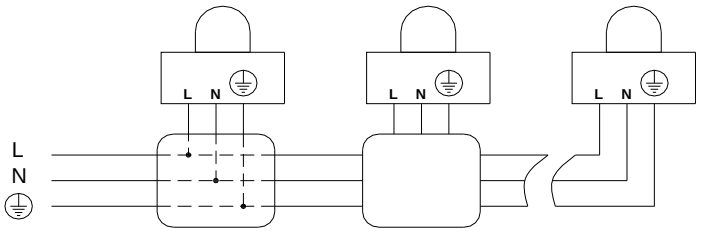
Installation using Cable Glands without Field Wiring Leads

If the sounder is supplied without field wiring leads, the cable connections are made into the terminal blocks on the electronic PCB assembly. Terminal blocks are suitable for field wiring (AWG 18-12). Strain relief has to be ensured by installation with a suitable cable gland. Follow the markings for the terminals on the PCB and install wiring as shown in the diagram below.

Cable glands need to be UL certified to ANSI/UL 2225 or C22.2 NO. 174-M1984. and to UL514B / CSA-C22.2 No. 18.3-12, ratings for hazardous locations must be equal to or better than the rating of the sounder used.
If a high IP (Ingress Protection) rating is required then a suitable sealing washer must be fitted under the cable gland.
WARNING - ALL ELECTRICAL WIRING MUST BE INSTALLED IN ACCORDANCE TO THE NATIONAL ELECTRICAL CODE

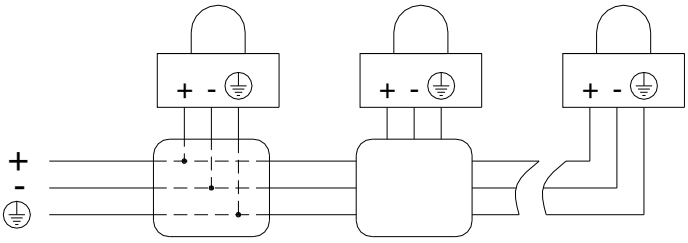
AC BEACONS

Black	Live
White	Neutral
Green/Yellow	Ground

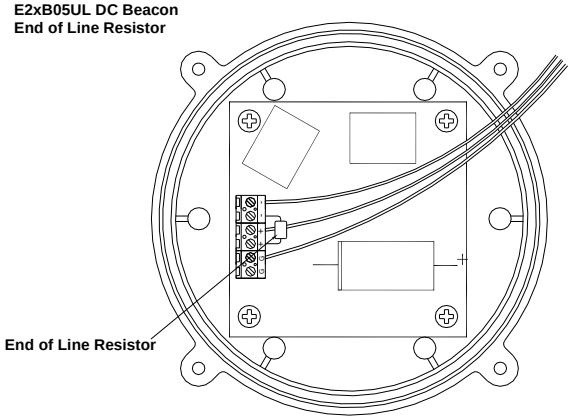


DC BEACONS

Red	Positive
Black	Negative
Green/Yellow	Ground



E2xB05UL DC Beacon
End of Line Resistor



POWER SUPPLY SELECTION

It is important that a suitable power supply is used to run the beacons. The power supply selected must have the necessary capacity to provide the input current to all of the beacons connected to the system.

Unit Type	Input Voltage	Input Current	Max. I/P Volts
E2xB05UL	12V DC	520mA	15V
E2xB05UL	24V DC	275mA	30V
E2xB05UL	48V DC	145mA	58V
E2xB05UL	230V 50/60Hz AC	30mA	253V
E2xB05UL	120V 50/60Hz AC	80mA	132V

END OF LINE MONITORING

On E2xB05UL 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 wattage 0.5W
Minimum Resistance 1k ohms	Minimum wattage 2.0W

48V DC Beacons

Minimum Resistance 15k ohms	Minimum wattage 0.5W
Minimum Resistance 3k9 ohms	Minimum wattage 2.0W

The resistor must be connected directly across the +ve and –ve terminals as shown in the following drawing. Whilst keeping its leads as short as possible, a spacing of at least 1/16 inch (1.58mm) must be provided through air and over surfaces between uninsulated live parts.

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1) Introduction

The E2xB05 is an ATEX, IECEx and UL certified Beacon which produces a bright visual signal in a hazardous area. The beacon may be used for Gas applications in Zone 2 as well as for Dust applications in Zone 22.

2) Warnings

POTENTIAL ELECTROSTATIC CHARGING HAZARD – CLEAN ONLY WITH A DAMP CLOTH
DO NOT OPEN WHEN AN EXPLOSIVE ATMOSPHERE IS PRESENT.

3) Ratings and Markings ATEX/IECEx

The E2xB05 Beacon complies with the following standards:

EN60079-0:2012 / IEC60079-0 ed.6.0 (2011-06)
EN60079-15:2010 / IEC60079-15 ed 4.0 (2010-01)
EN60079-31:2009 / IEC60079-31 ed2.0 (2013-11)

The Type Examination Certificate DEMKO 06ATEX0421554X / IECEx ULD 14.0012X has been issued by UL. This confirms compliance with the European ATEX Directive 94/9/EC for Group II, Category 3G/D equipment. The alarm horn carries the Community Mark and subject to local codes of practice, may be installed in any of the EEA member countries. This instruction sheet describes installations which conform to the current issue of EN60079-14/IEC60079-14 Electrical Installation in Hazardous Areas; EN60079-10-1 / IEC 60079-10-1 Explosive Atmospheres - Classification of Areas. Explosive Gas Atmospheres; EN60079-10-2 / IEC 60079-10-2 Explosive Atmospheres - Classification of Areas. Explosive Dust Atmospheres. When designing systems for installation, the local Code of Practice should be consulted.

The E2XB05 Beacon is rated as follows:

II 3G	Ex nA IIC T3 Gc Tamb -20°C to 40°C
II 3G	Ex nA IIC T2 Gc Tamb -20°C to 55°C
II 3D	Ex tc IIIC 85°C Dc Tamb -20°C to 40°C
II 3D	Ex tc IIIC 100°C Dc Tamb -20°C to 55°C

CE Marking

Zones, Gas / Dust Groups and Temperature Classification

When connected to an approved system the E2xB05 beacon 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	450ºC
T2	300ºC
T3	200ºC (up to 40ºC ambient)

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:

100ºC
85ºC (up to 40ºC ambient)

3.5 Ambient Temperature Range:

-20ºC to +55ºC

3.6 Ingress Protection Ratings

The product is rated for ingress Protection as follows:
IP rating per EN60529: IP66

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

3.7 Electrical Ratings

Model No.	Nominal Voltage	Voltage Range	Current draw
E2xB05UL 12DC	12Vdc	10-14Vdc	520mA
E2xB05UL 24DC	24Vdc	20-28Vdc	275mA
E2xB05UL 48DC	48Vdc	42-58Vdc	145mA
E2xB05UL 115AC	115Vac	115Vac +/- 10% 50/60Hz	80mA
E2xB05UL 230AC	230Vac	230Vac +/- 10% 50/60Hz	30mA

4) Special Conditions for Safe Use

Special Condition for safe Use as stated on the Type Examination Certificate DEMKO 06ATEX0421554X / CoC IECEx ULD 14.0012X

4.1 Installation

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 any local codes that may apply and should only be carried out by a competent electrical engineer who has the necessary training.

The Enclosure is non-conducting and 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 (such as high-pressure steam) which may cause a built-up of electrostatic charges on non-conducting surfaces.

The equipment has not been assessed as a safety-related device (as referred to by Directive 94/9/EC Annex II, clause 1.5).

To maintain the ingress protection rating and mode of protection, the cable entries must be fitted with suitably rated ATEX / IECEx certified cable glands and/or suitably rated ATEX / IECEx 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 gland.

For use in explosive gas atmospheres, a minimum ingress protection rating of IP54 must be maintained. For use in explosive dust atmospheres, a minimum ingress protection rating of IP64 must be maintained.

The enclosure is accessed by removing the 4 M4 Hex cover bolts fastening the enclosure. Do not open other joints of the enclosure for installation, service and maintenance.

Connections are to be made into the terminal blocks using solid wire, sizes 0.5-4mm^2 or stranded wire, sizes 0.5-2.5 mm^2. Wire insulation needs to be stripped 8mm. Stranded wires may be fitted securely with crimped ferrules. Terminal screws need to be tightened down with a tightening torque of 0.45 Nm.

Earthing connections should be made to the Internal Earth terminal on the PCBA. The internal earth bonding wire connects the PCBA earth terminal to the internal earth terminal in the enclosure.

Check that the earth bonding wire between the two enclosure parts is secure and the ‘O’ ring seal is in place before closing.

4.2 Maintenance, Repair and Overhaul

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.

Electrostatic charging hazard - Clean only with a damp cloth

EU Declaration of Conformity

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

Equipment Type: E2xS112UL, E2xS121UL
E2xB05UL, E2xB10UL
E2xCS1125UL
E2xL15UL, E2xL25UL

Directive 94/9/EC: Electrical and Mechanical equipment for use in explosive atmospheres (ATEX)

Notified Body for Type Examination:	UL International Demko A/S Notified Body No.: 0539 Borupvang 5A, 2750 Ballerup, Denmark
Type Examination Certificate:	DEMKO 06 ATEX 0421554X
Notified Body for Quality Assurance Notification:	Sira Certification Service Notified Body No.: 0518 Rake Lane, Eccleston, Chester CH4 9JN, UK
Quality Assurance Notification:	SIRA 05 ATEX M342
Provisions fulfilled by the equipment:	Ex na IIC T4/T3/T2 Gc (Ta -20°C to +55°C) Ex tc IIIC T85°C/100°C Dc (Ta -20°C to +55°C)
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

Directive 2011/65/EU: RoHS Directive

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.

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.

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

Martin Streetz
Quality Assurance Manager

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Date and Place of Issue: London, 02/03/2015