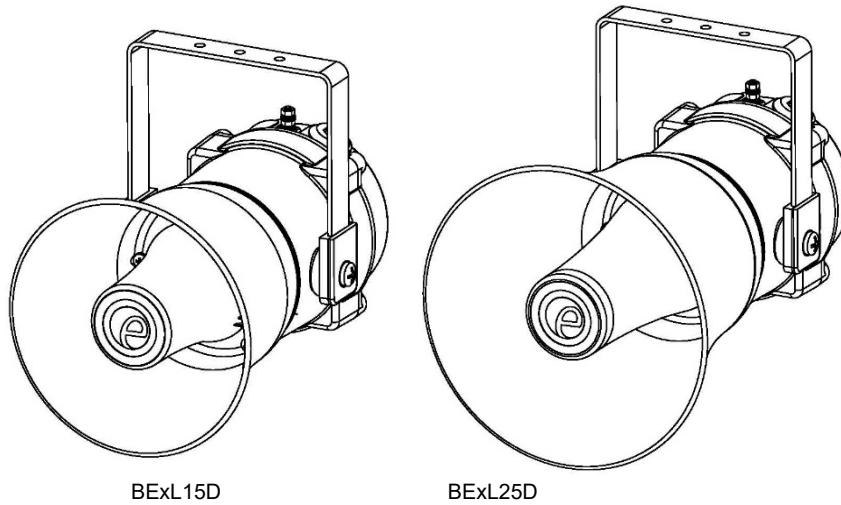


INSTRUCTION MANUAL
BExL15D & BExL25D
Loudspeakers
ATEX/IECEX & UKEx Gas & Dust



1. Product Table

Unit Type Code	Input	Power	Max I/P Voltage	Sound Pressure Level dB(A)	
				Max*	Nom [†]
BExL15DFV070	70V Line	15W	70V	102dB(A)	113dB(A)
BExL15DFV100	100V Line	15W	100V		
BExL15DFR008	8Ω	15W	10.95		
BExL15DFR016	16Ω	15W	15.49V		
BExL25DFV070	70V Line	25W	70V	105dB(A)	119dB(A)
BExL25DFV100	100V Line	25W	100V		
BExL25DFR008	8Ω	25W	14.14		
BExL25DFR016	16Ω	25W	20V		
The table shows the input current taken by the various loudspeakers. Nominal current at nominal voltage.					
Table 1: Electrical Ratings.					

It is important that the loudspeakers are connected to power amplifiers that have outputs that are compatible to the type of loudspeaker being used. Loudspeakers with a 70V or 100V line matching transformer fitted must be connected to a power amplifier with a 70V or 100V line output. Low impedance 8 ohm or 16 ohm loudspeakers must be connected to amplifiers with a suitable low impedance output.

The above table shows the maximum AC signal voltages at which the loudspeakers can be operated. The input current will vary according to the voltage input level and the frequency of the tone selected.

The current levels taken by the each loudspeaker will depend on which output tapping has been selected (see section 12 & 13 of this instruction manual). BExL25D 70V and 100V Line units have output levels of 25W, 12.5W, 6W and 2W; BExL15D 70V and 100V Line units have output levels of 15W, 7.5W, 3W and 1W.

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 BExS110E, BExS110E-R & BExS120E 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):	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
BExS110D / BExS110D-R	Ex db IIC T4 Gb Ta. -50°C to +55°C Ex db IIB T4 Gb Ta. -50°C to +70°C Ex tb IIIC T100°C Db Ta. -50°C to +55°C Ex tb IIIC T115°C Db Ta. -50°C to +70°C
See Product table for electrical ratings of each unit model	

Certificate No. KEMA 99ATEX6312X
IECEX KEM 10.0003X
UL22UKEX2638X

Epsilon x
Equipment Group
and Category:



II 2G
II 2D

CE Marking and
Notified Body No.



2813

UKCA Marking and
Approval 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 (up to 55°C ambient)
Temperature Classification for Gas Applications	
T1	450° C
T2	300° C
T3	200° C
T4	135° C
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,	
Maximum Surface Temperature for Dust Applications	
100°C at +55°C 115°C at +70°C	
Ambient Temperature Range	
-50°C to +55°C Gas Groups IIA, IIB and IIC -50°C to +70°C Gas Groups IIA and IIB -50°C to +70°C Dust Groups IIIA, IIIB and IIIC	
IP Rating	
IP66/67 to EN/IEC60529 and IP6X to EN/IEC60079-0, EN/IEC60079-31	
The sounder 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 sounder 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.	

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 sounder 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 sounder 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.

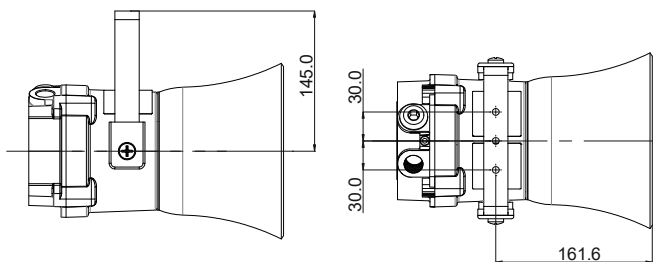


Fig. 1a Fixing Location for BExL15D Sounder

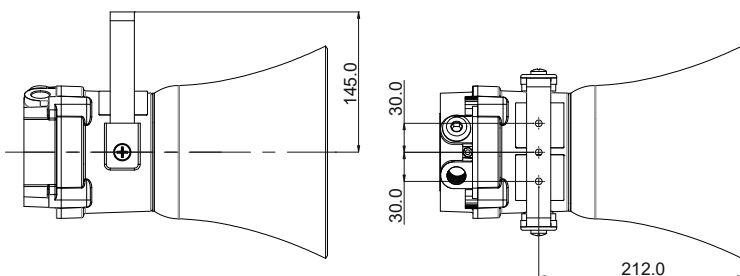


Fig. 1b Fixing Location for BExL25D Sounder

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.

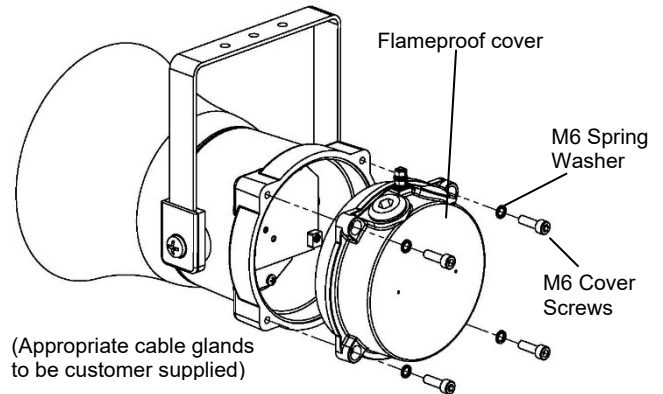


Fig. 2 Accessing the Explosion proof Enclosure.

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 sounder 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.

Any other adapters used must be suitably rated IECEx or UKEx certified adapters.

9. Earthing

Both AC and DC sounder units must be connected to earth. The units are provided with internal and external terminals which are both located on the top section of the unit.

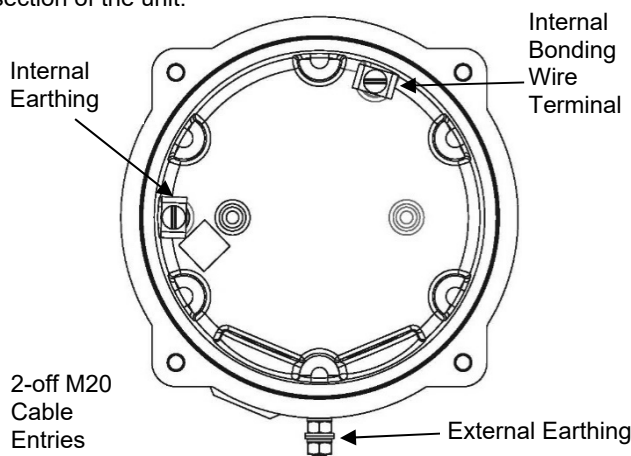


Fig. 3 Internal View of Cover

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. 70V & 100V Line In Wiring

The cable connections are made into the terminal blocks on the PCB assembly located in the explosion proof enclosure. See section 7 of this manual for access to the explosion proof enclosure. The 70V & 100V Line loudspeakers are fitted with a five way terminal block. Terminal A is common and one of the other terminals B, C, D or E should be selected depending on what output level is required (see table below).

Terminals	BExL25D (25W)	BExL15D (15W)
A – B	25W	15W
A – C	12.5W	7.5W
A – D	6W	3W
A – E	2W	1W

A single wire with a cross sectional area of up to 4mm² can be connected to each terminal way or if an input and output wire is required two 2.5mm² wires can be connected to each terminal way. When connecting wires to the terminals great care should be taken to dress the wire so that when the cover

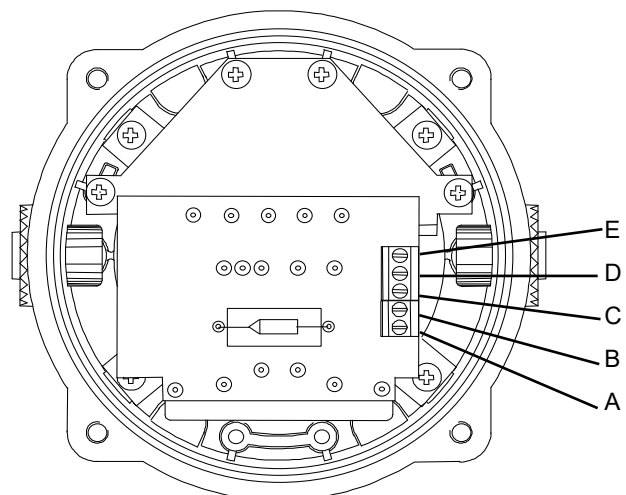


Fig. 4 Line In Terminals

11 Low Impedance Wiring

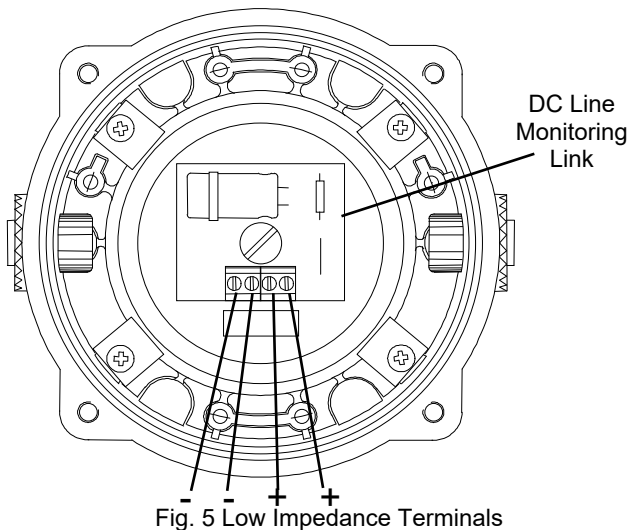


Fig. 5 Low Impedance Terminals

BExL15D/BExL25D 8 Ω and 16 Ω low impedance loudspeakers have dual input terminals on the pcb assembly for input and output wiring. A cable of up to 2.5mm² can be connected to each terminal. If dc line monitoring is used cut the link on the board (see figure 5 and section 14 of this manual).

12.2 Line Monitoring

On BExL15D and BExL25D loudspeakers, dc line monitoring can be used if required. Both the 70V and 100V Line units and the Low Impedance units have blocking capacitors fitted. It should be noted that each loudspeaker has a 1M ohm bleed resistor connected across the blocking capacitor and this should be taken into account when selecting the value of the end of line monitoring resistance.

The end of line monitoring resistor can be connected across the terminals on the end of line unit. On the low impedance units care must be taken with the polarity of the monitoring voltage.

On 100V and 70V line units the end of line resistor used must have a minimum resistance value of 4k7 ohms and a minimum wattage of 2.5 watts.

On low impedance units the end of line resistor used must have a minimum resistance value of 2k ohms and a minimum wattage of 0.5 watts or a minimum resistance value of 500 ohms and a minimum wattage of 2 watts. On the low impedance units care must be taken with the polarity of the monitoring voltage. If an end of line resistor is fitted to a unit the links on the printed circuit boards of all loudspeakers in the

line must be cut for the dc blocking capacitors to be in circuit in order to dc monitor the line (see figure 5).

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


The acoustic horn is made out of ABS plastic, therefore 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.

8	9	10
ISSUE	MOD No.	REASON - INITIAL - DATE
1		INTRODUCTION RSR - 05/08/2022

OPTIONAL LINE MONITORING RESISTOR, CUSTOMER SUPPLIED,
REQUIRED MINIMUM VALUES:
70V LINE-IN: 1KΩ MIN, 2W MIN OR 3K9Ω MIN, 0.5W MIN
100V LINE-IN: 3.9KΩ MIN, 2W MIN OR 15KΩ MIN, 0.5W MIN

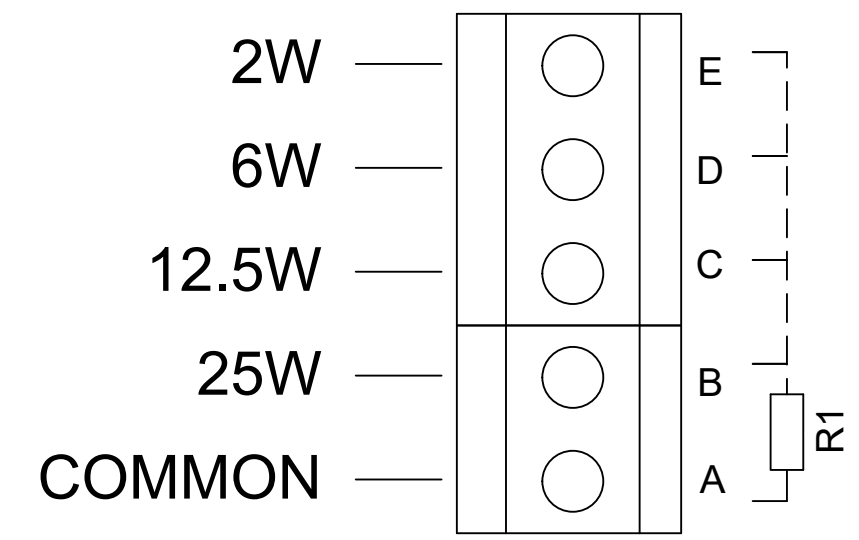
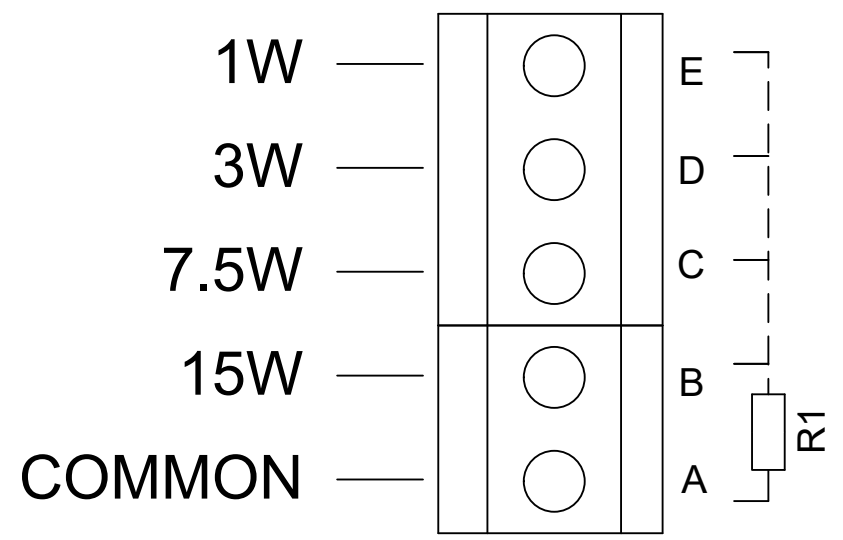


BExL15V070 / BExL15V100 LINE-IN UNITS 70V / 100V

BExL25V070 / BExL25V100 LINE-IN UNITS 70V / 100V

Optional Line Monitoring
15W: Apply Signal to Common & 15W
7.5W: Apply Signal to Common & 7.5W
3W: Apply Signal to Common & 3W
1W: Apply Signal to Common & 1W

Optional Line Monitoring
25W: Apply Signal to Common & 25W
12.5W: Apply Signal to Common & 12.5W
6W: Apply Signal to Common & 6W
2W: Apply Signal to Common & 2W



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

STANDARDS
BEx

DRAWN	DATE
R.S.RAIT	05/08/2022
CHECKED	DATE
R.N.POTTS	05/08/2022
APPROVED	DATE
R.N.POTTS	05/08/2022

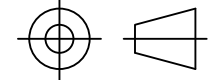
SURFACE FINISH	WEIGHT (Kg)
MATERIAL	
ALTERNATIVE MATERIAL	

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warning signals

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ALL DIMENSIONS IN MM IF IN DOUBT, ASK - DO NOT SCALE		A3
TITLE BExL15, BExL25 LOUDSPEAKER WIRING DIAGRAMS		
SCALE NTS	SHEET 1 OF 2	DRAWING NUMBER D210-06-101

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: Electronic Sounders, Types BExS110D(-R)(-SIL), BExS120D(-R),
Electronic Sounders, Types BExS110E(-R), BExS120E(-R),
Loudspeakers, Types BExL15D(-R), BExL25D(-R),
Loudspeakers, Types BExL15E(-R), BExL25E(-R),
Appello Speech Sounders, Types BExA110(-R),
Sontel, Types BExTS110D(-R),
Hootronic Sounder, Types BExH120D(-R),
Monitored Loudspeaker, Types BExL25GD(-R)

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

Notified Body for EU type Examination (Module B):	Dekra Certification B.V. Notified Body No.: 0344 Meander 1051, 6825 MJ Arnhem, The Netherlands
EU-type Examination Certificate (Module B):	KEMA 99ATEX6312X
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 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 IIB or IIC T4 Gb II 2G Ex db eb IIB or IIC T4 Gb II 2D Ex tb IIIC T100 °C or T105 °C or T115 °C Db
Standards applied:	EN IEC 60079-0 : 2018 EN 60079-1 : 2014 EN 60079-7 : 2015 + A1 : 2018 EN 60079-31 : 2014

Regulation EU No. 305/2011: Construction Products Regulation (CPR) – BExS110D24DC/BExS120D24DC (tones 2, 3, 9, 15, 16, 17) only

Notified Product Certification Body for Certificate of Constancy of Performance or EC Type Examination Certificate and continuous surveillance, assessment and evaluation of factory production control:	VdS Schadenverhütung GmbH Notified Body No.: 0786 Amsterdamer Str 172-174, 50735 Köln, Germany
Certificate of Constancy of Performance or EC Type Examination Certificate:	0708-CPD-20225
Standards applied:	EN 54-3:2001 + A1:2002

Directive 2014/90/EU: Marine Equipment Directive (MED) – part codes specified below only - BExS110D24DC-M only

Notified Body for EU type Examination (Module B) and Conformity to EU-type based on quality assurance of the production process (Module D):	DNV GL SE Notified Body No.: 0098 Brooktorkai 18, 20457 Hamburg, Germany
EU-Certificate Type Examination (Module B):	MEDB00001BU
EU Certificate of Conformity for the Quality Assurance System (Module D):	MEDD00000GV
Standards applied:	EN 54-3:2014 incl. A1: 2019 IEC 60092-504: 2016

EU Declaration of Conformity



IEC 60533: 2015

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 IP66/67

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.

A handwritten signature in black ink, appearing to read 'Martin Streetz', written over a light blue circular stamp.

Martin Streetz
Quality Assurance Manager

Document No.: DC-001_Issue_O
Date and Place of Issue: London, 20/04/2022



UKCA Declaration of Conformity



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

Equipment Type: Electronic Sounders, Types BExS110D(-R)(-SIL), BExS120D(-R),
Electronic Sounders, Types BExS110E(-R), BExS120E(-R),
Loudspeakers, Types BExL15D(-R), BExL25D(-R),
Loudspeakers, Types BExL15E(-R), BExL25E(-R),
Appello Speech Sounders, Types BExA110(-R),
Sontel, Types BExTS110D(-R),
Hootronic Sounder, Types BExH120D(-R),
Monitored Loudspeaker, Types BExL25GD(-R)

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):	UL21UKEX2638X
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 IIB <i>or</i> IIC T4 Gb II 2G Ex db eb IIB <i>or</i> IIC T4 Gb II 2D Ex tb IIIC T100°C <i>or</i> T105°C <i>or</i> T115° Db IP6X Dust Protection to EN60079-0 / EN60079-31
Standards applied:	EN IEC 60079-0: 2018 EN 60079-1: 2014 EN IEC 60079-7: 2015 + A1: 2018 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
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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, 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

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.

A handwritten signature in black ink, appearing to read 'Martin Streetz'.

Martin Streetz
Quality Assurance Manager

Document No.: DC-104_Issue_A
Date and Place of Issue: London, 12/09/2022

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