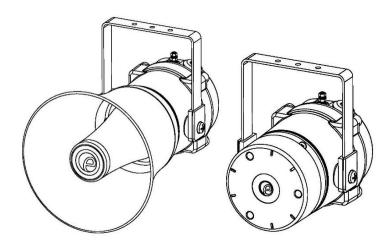
### INSTRUCTION MANUAL BExH120D & BExH120D-R **Alarm Horn Sounder** ATEX/IECEX & UKEX Gas & Dust





#### BExH120D

BExH120D-R

#### 1. Product Table

Unit Type Code	Unit Type Code Nominal Nominal Input Voltage Input Current		Max I/P Voltage	Sound Pressure Level dB(A)	
				Max*	Nom <sup>.†</sup>
BExH120DDC024	24Vdc	400mA	30V	Flare:	Flare:
BExH120DAC115	115Vac	130mA	126.5V	123dB(A) 117dB(A) Radial: Radial:	
BExH120DAC230	230Vac	65mA	253V	115dB(A)	110dB(A)

\*Max = Tone 4 †Nom. = Tone 44

The table shows the input current taken by the various sounders.

The current levels shown above are for the 440Hz Continuous tone @ nominal input voltage.

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 sounders and shows the maximum voltage at which the sounders can be operated:

The input current will vary according to the voltage input level and the frequency of the tone 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 BExH120D 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:	1	Rating	
BExH120D	Ex db IIC T4 Gb Ta. Ex db IIB T4 Gb Ta. Ex tb IIIC T100°C Db Ex tb IIIC T115°C Db	50°C to +70°0 Ta50°C to -	- +55°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.

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 and Acetylene (up to 55°C ambient)		
Tempe	rature 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 +70°C	Gas Groups IIA, IIB and IIC Gas Groups IIA and IIB Dust Groups IIIA, IIIB and IIIC		
	IP Rating		
IP66/67 to EN/IE IP6X to EN/IEC6	EC60529 and 50079-0, EN/IEC60079-31		
	ust only be installed by suitably qualified personnel in 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.

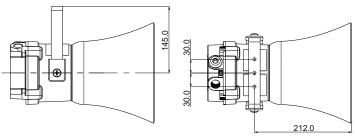


Fig. 1a Fixing Location for Sounder Flare

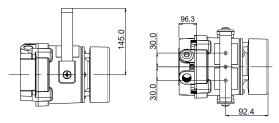


Fig. 1b Fixing Location for Sounder Radial

#### 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.

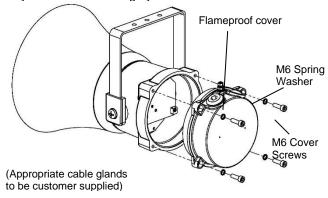


Fig. 2 Accessing the Explosion proof Enclosure.

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.

**European Safety Systems Ltd.** Impress House, Mansell Road, Acton, London W3 7QH Document No. D210-00-031-IS Issue 6 11-03-2025

Tel: +44 (0)208 743 8880 Sheet 3 of 6

#### 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 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 / IEĆEx certified adapters.

#### 9. Earthing

Both AC and DC sounder 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.

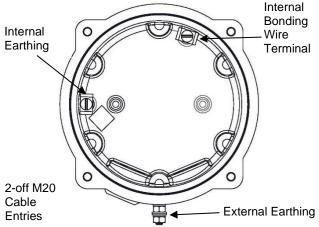


Fig. 3 Internal View of Cover

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

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 4mm<sup>2</sup> 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

Electrical connections are to be made into the terminal blocks on the PCBA located in the flameproof enclosure. See section 7 of this manual for access to the flameproof 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 0.45 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 2.5mm<sup>2</sup>.

#### 11. AC Wiring

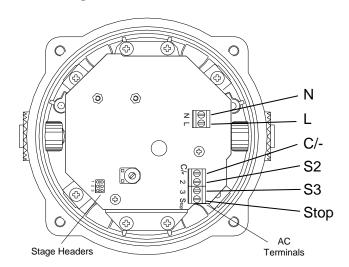


Fig. 4 AC Terminals

#### 12. DC Wiring

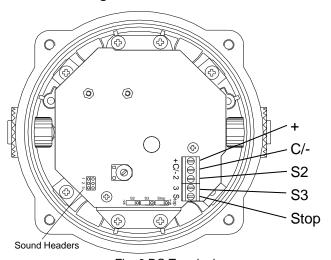


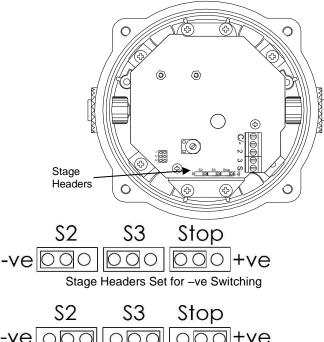
Fig. 6 DC Terminals

#### 12.1 Stop Terminal

The user can remotely activate and deactivate the BExH120D Hootronic DC sounder by switching a connection from the "Stop" terminal to the -ve or +ve supply lines, depending on which switching mode is being used +ve or -ve (see above) whilst the unit is powered. To achieve the "tail off" sound at switch off the unit must remain powered.

#### 12.2Stage Switching Polarity (DC Units Only)

The BExH120D DC sounders have the facility to use either +ve or -ve switching to change the tone to the second and third stages. Negative switching is the default setting. For -ve switching connect the two headers on the pcb to the left-hand (marked -ve) and centre pins. For +ve switching connect the headers to the right hand (marked +ve) and the centre pins. (Refer to Fig. 7)



Stage Headers Set for +ve Switching

Fig. 7 Stage Switching Polarity

#### 12.3 Line Monitoring

On BExH120D 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 3k3Ω 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.

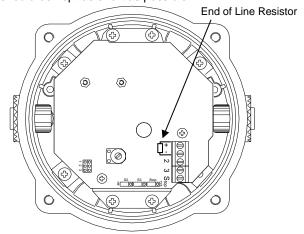


Fig. 8 End of Line Resistor Placement

#### 13. Settings

The BExH120D Hootronic sounder has 5 different traditional sounds that can be selected for the first stage alarm. The sounders can then be switched to sound second and third stage alarm sounds. The sounds are selected by pin headers on the pcb for both DC and AC units. The sound table below shows the pin header positions for the 5 sounds and which sounds are available for the second and third stages.

The BExH120D Hootronic sounder has the facility to replicate the "tail off" traditionally associated with these sounds when generated by electro-mechanical devices. The switching is achieved using the "Stop" terminal (see section 12 & 13).

See figure 5 for header location on AC units and Figure 7 for header location on DC units.

#### **Sound Selection Table**

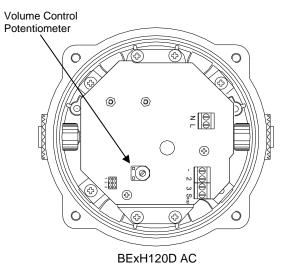
Stage 1	Description	Stage 2	Stage 3	Header
Sound 1	Industrial Hooter	Sound 3	Sound 5	0 0 0 0 0 0 1 2 3
Sound 2	High Frequency Mechanical Siren	Sound 1	Sound 5	000
Sound 3	Medium Frequency Mechanical Siren	Sound 1	Sound 5	000
Sound 4	Electro Mechanical Buzzer	Sound 2	Sound 5	000
Sound 5	Mechanical Bell	Sound 1	Sound 2	000

#### 13.1 Volume Control



Warning - High noise levels above 85dB(A) during operation. High levels of noise may cause hearing loss, wear suitable ear protection when equipment is in operation.

The output level of the BEx sounder can be set by adjusting the volume control potentiometer (see Fig 9). For maximum output, set the potentiometer fully clockwise.



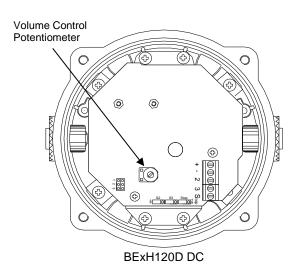


Fig.10 Location of Volume Control Potentiometer

#### 14. Maintenance, Overhaul & Repair

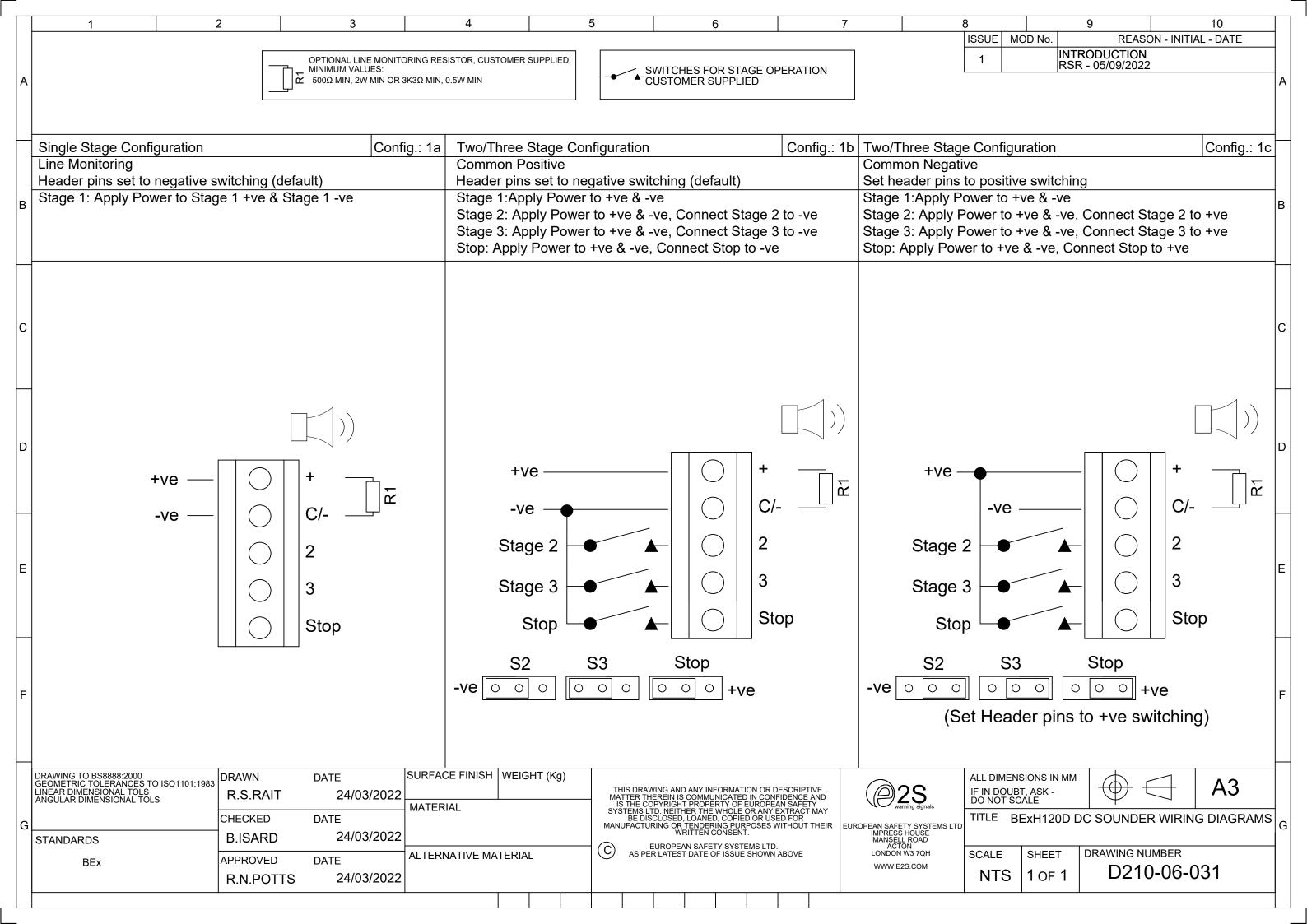
Maintenance, repair and overhaul of the equipment should only be carried out by suitably qualified personnel in accordance with the current relevant standards:

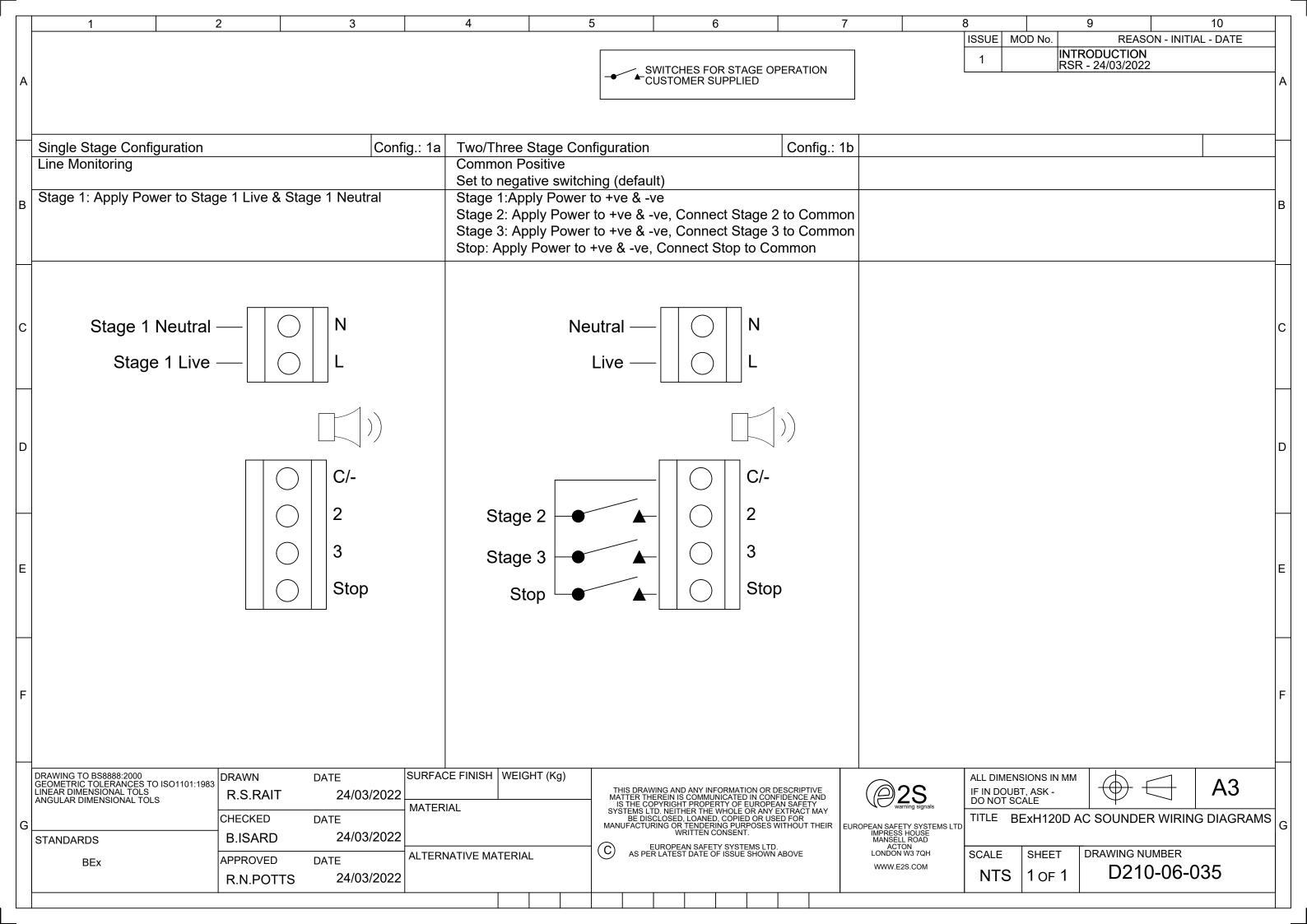
EN60079-19 IEC60079-19	Explosive atmospheres - Equipment repair, overhaul and reclamation
EN 60079-17 IEC60079-17	Explosive atmospheres - Electrical installations inspection and maintenance

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 present.

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

Electronic Sounders, Types BExS110D(-R)(-SIL), BExS120D(-R), **Equipment Type:** 

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

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 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

EN IEC 60079-0: 2018 Standards applied:

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 VdS Schadenverhütung GmbH Performance or EC Type Examination Certificate and continuous Notified Body No.: 0786

surveillance, assessment and evaluation of factory production control: Amsterdamer Str 172-174, 50735 Köln, Germany

Certificate of Constancy of Performance or EC Type Examination

Certificate:

0786-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

Notified Body No.: 0575 DNV Høvik, Norway

EU-Certificate Type Examination (Module B): MEDB00001BU

EU Certificate of Conformity for the Quality Assurance System (Module

MEDD00000GV

FN 54-3:2014 incl. A1: 2019 Standards applied:

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.

Martin Streetz

Quality Assurance Manager

Document No.:
Date and Place of Issue:

DC-001\_lssue\_Q London, 01/07/2024



# 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)

<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): UL21UKEX2638X

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

based on

ity to EU-type Sira Certification Service

Notified Body No.: 0518 Rake Lane, Eccleston, Chester CH4 9JN, UK

quality assurance of the production process (Module D):

Rake Lane, Eccleston, Che

Quality Assurance Notification (Module D):

CSAE 22UKQAN0046

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° 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

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.

Martin Streetz

Quality Assurance Manager

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