



# INSTRUCTION MANUAL (ATEX / IECEx)

## BExDS120D and BExDS110D

### Flameproof Sounders

#### For use in Flammable Gas and Dust Atmospheres

### 1) Introduction

The BExDS120D and BExDS110D are flameproof sounders which are certified to meet the requirements of the ATEX directive 94/9/EC and the IECEx scheme. The sounders produce loud warning signals and can be used in hazardous areas where potentially flammable gas and dust atmospheres may be present. Thirty-two different first stage alarm sounds can be selected by internal switches, and each one can be externally changed to a second or third stage alarm sound (see tone table on Page 4). The BExDS120D unit produces output levels in the 117dB(A) range and the BExDS110D unit produces output levels in the 110dB(A) range. Both sounders can be used in Zone 1 and Zone 2 areas with gases in groups IIA, IIB and IIC and temperature Classifications of T1, T2, T3 and T4. For ambient temperatures over +55°C the gas groups are limited to IIA and IIB. They can also be used in Zone 21 and Zone 22 areas for combustible dusts and have an IP rating of IP 67 and a surface temperature rating of T100°C up to +55°C and T115°C over +55°C.

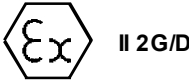
### 2) Marking

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

Input Voltage: DC Units 12V or 24V or 48V  
AC Units 230V or 110V or 115V

Codes: Ex d IIC T4 for Ta -50°C to +55°C  
Ex d IIB T4 for Ta -50°C to +70°C  
Ex tD A21 IP67 T115°C based on max Ta of +70°C

Certificate No's KEMA 99ATEX6312  
IECEX KEM 10.0003

Epsilon x:  II 2G/D  
Equipment Group and Category:

CE Marking:  0518  
Notified Body No.

**“Warnings”** DO NOT OPEN WHEN AN EXPLOSIVE GAS OR DUST ATMOSPHERE IS PRESENT

COVER BOLTS CLASS A4-80

USE HEAT RESISTING CABLES AND CABLE GLANDS (Rated 110°C) AT AMB. TEMPERATURES OVER 40°C

Year of Construction / Serial No. i.e. 10 / 1DS2200001

### 3) Type Approval Standards

The sounders have EC Type Examination and IECEx certificates issued by KEMA and have been approved to the following standards:-

EN60079-0:2006	IEC60079-0:2004 (Ed4)	General Requirements
EN60079-1:2007	IEC60079-1:2007 (Ed6)	Flameproof Enclosure 'd'
EN61241-0:2006	IEC61241-0:2004 (Ed1)	Dust General Requirements
EN61241-1:2004	IEC60079-1:2004 (Ed1)	Dust Enclosures 'd'

### 4) Installation Requirements

The sounders must be installed in accordance with the latest issues of the relevant parts of the EN60079 standards or the equivalent IEC standards – Selection, Installation and maintenance of electrical apparatus for use in potentially explosive atmospheres (other than mining applications or explosive processing and manufacture):-

EN60079-14:2008	Electrical Installations in Hazardous Areas (other than mines)
IEC60079-14:2007 (Ed4)	
EN60079-10:2003	Classification of Hazardous Areas
IEC60079-10:2008 (Ed1)	

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.

### 5) Zones, Gas Group, Category, IP Rating and Temperature Classification

The BExDS120D and BExDS110D sounders have been certified Ex de IIC T4 for Ta -50°C to +55°C and Ex de IIB T4 for Ta -50°C to +70°C for gas and Ex tD A21 IP67 T115°C based on max. Ta of +70°C for dust. This means that 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, and if it does, it will only exist for a short time.

#### Gas Groupings:

Group IIA	Propane
Group IIB	Ethylene
Group IIC (Up to +55°C only)	Hydrogen and Acetylene

#### Temperature Classification:

T1	400°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, and if it does, it will only exist for a short time.

**IP Rating:** IP67      T100°C Ta ≤ +55°C  
 T115°C Ta ≤ +70°C

**Equipment Category:** 2G/D

### Ambient Temperature Range:

-50°C to +55°C Gas Groups IIA, IIB and IIC  
 -50°C to +70°C Gas Group IIA and IIB

### 6) Sounder Location and Mounting

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

The sounder should be securely bolted to a suitable surface using the 7mm diameter boltholes in the stainless steel U shaped mounting bracket (see figure 1). The angle can then be adjusted in the direction that the sound is primarily required to cover. This can be achieved by loosening the two large bracket screws in the side of the unit, which allow adjustment in steps of 18°. On completion of the installation the two large bracket adjustment screws on the side of the unit must be fully tightened to ensure that the unit cannot move in service.

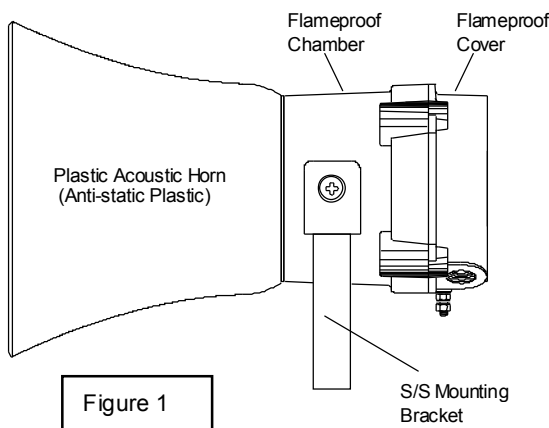


Figure 1

### 7) Access to the Flameproof Enclosure

In order to connect the electrical supply cables to the sounder it is necessary to remove the flameproof cover to gain access to the flameproof chamber. To achieve this remove the four M6 hexagon socket head screws (see figure 2) and withdraw the flameproof cover taking extreme care not to damage the flameproof joints in the process.

Note the four **M6 screws** are **Class A4-80 stainless steel** and **only screws of this category can be used on these sounders**. It is therefore important that these screws and their spring washers are kept in a safe place during installation.

On completion of the cable wiring installation the flameproof joints should be inspected to ensure that they are clean and that they have not been damaged during installation. Also check that the earth bonding wire between the two casting sections is secure and the 'O' ring seal is in place.

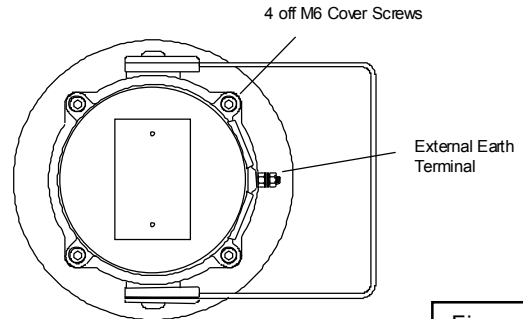


Figure 2

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) Power Supply Selection

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

The following table shows the input current taken by the various sounder units:-

Unit Type	Input Voltage	Input Current	Max. I/P Volts
BExDS120D	24V DC	800mA	30V
BExDS120D	12V DC	850mA	15V
BExDS120D	48V DC	420mA	58V
BExDS120D	230V AC	90mA	264V
BExDS120D	110V AC	200mA	121V
BExDS120D	115V AC	180mA	126V
BExDS110D	24V DC	265mA	30V
BExDS110D	12V DC	195mA	15V
BExDS110D	48V DC	130mA	58V
BExDS110D	230V AC	56mA	264V
BExDS110D	110V AC	93mA	121V
BExDS110D	115V AC	110mA	126V

The input current will vary according to the voltage input level and the frequency of the tone selected. The current levels shown above are for the 440Hz Continuous tone @ nominal input voltage. The 24V and 48V DC units and the 230V AC, 115V AC and 110V AC units have a switching voltage regulator circuit and therefore the input current level will decrease slightly as the input voltage is increased and will increase slightly as the input voltage is reduced. The 12V units do not have a voltage regulator and therefore their input current will increase when the input voltage is increased.

The above table also shows the maximum voltages at which the sounders can be operated.

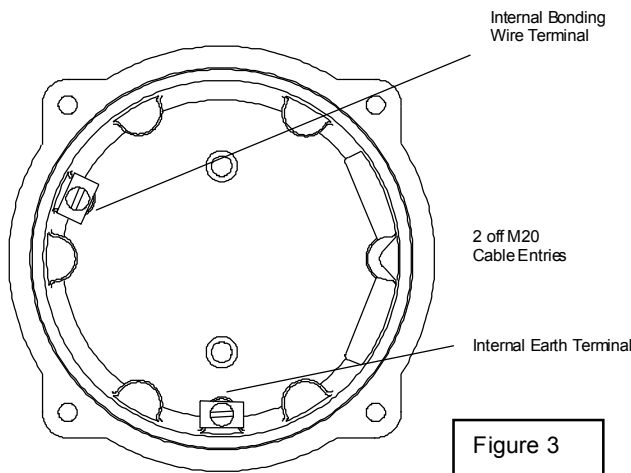
### 9) Cable Selection

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.

**SAFETY WARNING:** If the high output BExDS120D sounders are used at high ambient temperatures, i.e. over +40°C, then the cable entry temperature may exceed +70°C and therefore suitable heat resisting cables must be used, with a rated service temperature of at least 110°C.

### 10) Earthing

Both AC and DC sounder units must be connected to a good quality earth. The units are provided with internal and external earthing terminals which are both located on the terminal chamber section of the unit (see figures 2 and 3).



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

When using the external earth terminal a cable crimp lug must be used. The cable lug should be located between the two M5 stainless steel flat washers. The M5 stainless steel spring washer must be fixed between the outer flat washer and the M5 stainless steel nut to ensure that the cable lug is secured against loosening and twisting.

The internal earth bonding wire ensures that a good quality earth is maintained between the flameproof chamber casting and the flameproof cover casting.

### 11) Cable Glands

The BExDS120D and BExDS110D sounders have dual cable gland entries which have an M20 x 1.5 entry thread as standard. Only cable glands approved for Ex 'd' applications can be used, which must be suitable for the type of cable being

used and also meet the requirements of the Ex 'd' flameproof installation standard EN60079-14:2008 / IEC60079-14:2007.

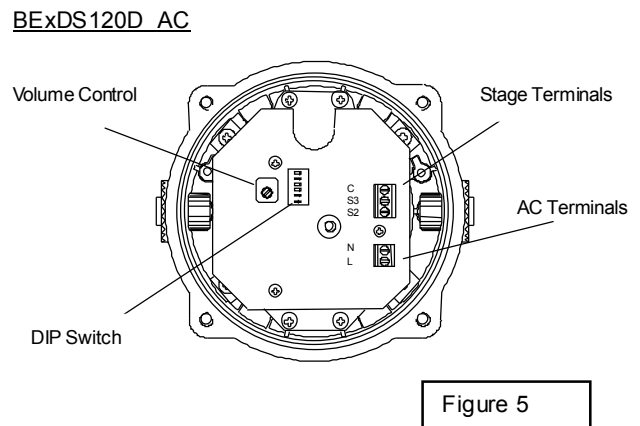
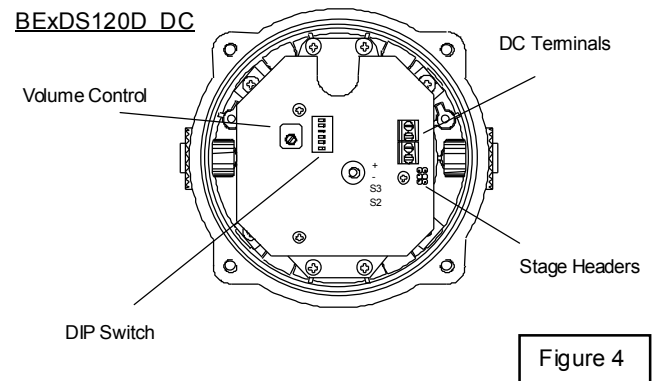
When only one cable entry is used the other one must be closed with an Ex 'd' flameproof blanking plug, which must be suitably approved for the installation requirements.

For combustible dust applications, the cable entry device and blanking elements shall be in type of explosion protection increased safety "e" or flameproof enclosure "d" and shall have an IP 6X rating according to EN60529:1992.

**SAFETY WARNING:** If the high output BExDS120D sounders are used at high ambient temperatures, i.e. over +40°C, then the cable entry temperature may exceed +70°C and therefore suitable heat resisting cable glands must be used, with a rated service temperature of at least 110°C.

### 12) Cable Connections

The cable connections are made into the terminal blocks on the electronic pcb assembly located in the flameproof enclosure. See section 7 of this manual for access to the flameproof enclosure. On the AC units a two-way terminal block is provided for the live and neutral mains supply wires and a three way terminal block is provided for linking the second and third stages, (see figures 5 and 7). On the DC units a four way terminal block is provided for +ve and -ve supply input and second and third stage modes of operation, (see figures 4 and 6).



A single wire with a cross sectional area of up to 4mm<sup>2</sup> can be connected to each terminal way or if an input and output wire is required two 2.5mm<sup>2</sup> 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 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> and above.

**BExDS110D DC Sounder**

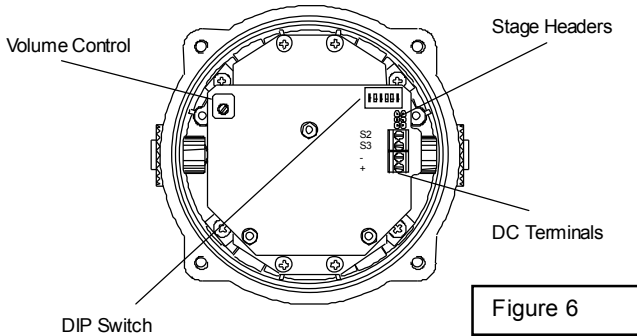


Figure 6

**BExDS110D AC**

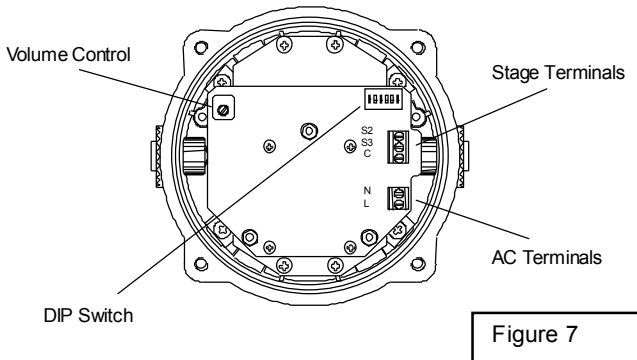


Figure 7

**13) Tone Selection and 2nd and 3rd Stage Alarms**

The BExDS120D and BExDS110D sounders have 32 different tones that can be selected for the first stage alarm. The sounders can then be switched to sound second and third stage alarm tones. The tones are selected by operation of a DIP switch on the pcb for both DC and AC units. The tone table on page four shows the switch positions for the 32 tones and which tones are available for the second and third stages. To operate the sounder on stage one simply connect the supply voltage to the normal supply terminals (+ve and -ve for DC units, L and N for AC units).

The operation of the second and third stages is different for DC and AC units.

**DC Units Second and Third Stage Tone Selection**

The BExDS120D and BExDS110D DC sounders have the facility to use either +ve or -ve switching to change the tone to the second and third stages. 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. To change to the second stage tone, connect either a -ve or +ve supply line to terminal S2, depending on which switching mode is being used while maintaining the dc supply to the +ve and -ve terminals. Similarly for the third stage tone, connect a -ve or +ve supply line to terminal S3. The supply to the S3 terminal will automatically override a supply to the S2 terminal.

**AC Units Second and Third Stage Tone Selection**

To select the second and third stage tones on the BExDS120D and BExDS110D AC sounders the Common (C) terminal on the three way terminal block on the pcb is connected to the S2 terminal for the second stage tone and the S3 terminal for the third stage tone.

**14) Volume Control**

All BExDS120D and BExDS110D sounders, with the exception of 12V DC units, have a volume control to adjust the output level. To set the required output level, adjust the potentiometer on the pcb. For maximum output level the potentiometer should be set to the fully clockwise position.

**15) End of Line Monitoring (DC Units)**

On BExDS120D and BExDS110D 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 ohms and a minimum wattage of 0.5 watts or a minimum resistance value of 500 ohms and a min. wattage of 2 watts.

**STONE SELECTION TABLE** *Note Switch No. 6 is not used*

Tone Selection		DIP Switch Settings					Stage Selection	
Stage 1	Frequency Description	1	2	3	4	5	Stage 2	Stage 3
1	Continuous 1000Hz <i>Taxic gasalam</i>	0	0	0	0	0	Tone 31	Tone 11
2	Akermating 800/1000Hz at 0.25s intervals	1	0	0	0	0	Tone 17	Tone 5
3	Slow Whoop 500/1200Hz at 0.3Hz with 0.5s gap repeated	0	1	0	0	0	Tone 2	Tone 5
4	Sweeping 800/1000 at 1Hz	1	1	0	0	0	Tone 6	Tone 5
5	Continuous at 2400Hz	0	0	1	0	0	Tone 3	Tone 27
6	Sweeping 2400/2900Hz at 7Hz	1	0	1	0	0	Tone 7	Tone 5
7	Sweeping 2400/2900Hz at 1Hz	0	1	1	0	0	Tone 10	Tone 5
8	Siren 500/1200/500Hz at 0.3Hz	1	1	1	0	0	Tone 2	Tone 5
9	Sawtooth 1200/500Hz at 1Hz	0	0	0	1	0	Tone 15	Tone 2
10	Akermating 2400/2900Hz at 2Hz	1	0	0	1	0	Tone 7	Tone 5
11	Intermittent 1000Hz at 0.5Hz <i>General alarm</i>	0	1	0	1	0	Tone 31	Tone 1
12	Akermating 800/1000Hz at 0.875Hz	1	1	0	1	0	Tone 4	Tone 5
13	Intermittent 2400Hz at 1Hz	0	0	1	1	0	Tone 15	Tone 5
14	Intermittent 800Hz 0.25s on 1s off	1	0	1	1	0	Tone 4	Tone 5
15	Continuous at 800Hz	0	1	1	1	0	Tone 2	Tone 5
16	Intermittent 660Hz 150mS on, 150mS off	1	1	1	1	0	Tone 18	Tone 5
17	Akermating 544Hz (100mS)/440Hz(400mS)	0	0	0	0	1	Tone 2	Tone 27
18	Intermittent 660Hz 1.8s on, 1.8s off	1	0	0	0	1	Tone 2	Tone 5
19	1400Hz to 1600Hz sweep up over 1s - 1600Hz to 1400Hz sweep down over 0.5s	0	1	0	0	1	Tone 2	Tone 5
20	Continuous 660Hz	1	1	0	0	1	Tone 2	Tone 5
21	Akermating 554/440Hz at 1Hz	0	0	1	0	1	Tone 2	Tone 5
22	Intermittent 554Hz at 0.875Hz	1	0	1	0	1	Tone 2	Tone 5
23	800Hz pulsing at 2Hz	0	1	1	0	1	Tone 6	Tone 5
24	Sweeping 800/1000Hz at 50Hz	1	1	1	0	1	Tone 29	Tone 5
25	Sweeping 2400/2900Hz at 50Hz	0	0	0	1	1	Tone 29	Tone 5
26	Simulated bell sound	1	0	0	1	1	Tone 2	Tone 1
27	Continuous 554Hz	0	1	0	1	1	Tone 26	Tone 5
28	Continuous 440Hz	1	1	0	1	1	Tone 2	Tone 5
29	Sweeping 800/1000Hz at 7Hz	0	0	1	1	1	Tone 7	Tone 5
30	420Hz repeating 0.625s on, 0.625s off <i>Australian alert signal</i>	1	0	1	1	1	Tone 32	Tone 5
31	1200/500Hz at 1Hz <i>Prepare to abandon platform</i>	0	1	1	1	1	Tone 11	Tone 1
32	Sweeping 500/1200Hz 3.75s on, 0.25s off 15Hz	1	1	1	1	1	Tone 26	Tone 1

## 2) Marking

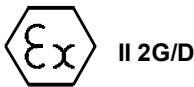
All units have a rating label, which carries the following important information:-

Unit Type No. BExDS120D or BExDS110D

Input Voltage: DC Units 12V or 24V or 48V  
 AC Units 230V or 110V or 115V

Codes: Ex d IIC T4 for Ta -50°C to +55°C  
 Ex d IIB T4 for Ta -50°C to +70°C  
 Ex tD A21 IP67 T115°C based on max Ta of +70°C

Certificate No's KEMA 99ATEX6312  
 IECEx KEM 10.0003

Epsilon x:  II 2G/D  
 Equipment Group and Category:

CE Marking:  0518  
 Notified Body No.

**“Warnings”** DO NOT OPEN WHEN AN EXPLOSIVE  
 GAS OR DUST ATMOSPHERE IS PRESENT

COVER BOLTS CLASS A4-80

USE HEAT RESISTING CABLES AND CABLE GLANDS  
 (Rated 110°C) AT AMB. TEMPERATURES OVER 40°C

## 4) Installation Requirements

Sounders must be installed in accordance with the following or equivalent standards.

EN60079-14:2008 Electrical Installations in Hazardous  
 IEC60079-14:2007 (Ed4) Areas (other than mines)  
 EN60079-10:2003 Classification of Hazardous Areas  
 IEC60079-10:2008 (Ed1)

Installation should only be carried by competent personnel and any local codes of practice applied.

## 5) 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, and if it does, it will only exist for a short time.

### Gas Groupings:

Group IIA	Propane
Group IIB	Ethylene
Group IIC < +55°C	Hydrogen and Acetylene

### Temperature Classification:

T1	400° 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, and if it does, it will only exist for a short time.

**IP Rating:** IP67 T100°C Ta ≤ +55°C  
 T115°C Ta ≤ +70°C

**Equipment Category:** 2G/D

### Ambient Temperature Range:

-50°C to +55°C Gas Groups IIA, IIB and IIC  
 -50°C to +70°C Gas Group IIA and IIB

## 6) Sounder Location and Mounting

See drawing A

## 7) Access to the Flameproof Enclosure

See drawing B

Note the four **M6 screws** are **Class A4-80 stainless steel** and **only screws of this category can be used on these sounders**. It is therefore important that these screws and their spring washers are kept in a safe place during installation.

## 8) Power Supply Selection

The system power supply must have the necessary capacity to provide the input current to all of the sounders connected to the system.

The following table shows the input current taken by the various sounder units:-

Unit Type	Input Voltage	Input Current	Max. I/P Volts
BExDS120D	24V DC	800mA	30V
BExDS120D	12V DC	850mA	15V
BExDS120D	48V DC	420mA	58V
BExDS120D	230V AC	90mA	264V

BExDS120D	110V AC	200mA	121V
BExDS120D	115V AC	180mA	126V
BExDS110D	24V DC	265mA	30V
BExDS110D	12V DC	195mA	15V
BExDS110D	48V DC	130mA	58V
BExDS110D	230V AC	56mA	264V
BExDS110D	110V AC	93mA	121V
BExDS110D	115V AC	110mA	126V

The above table also shows the maximum voltages at which the sounders can be operated.

## 9) Cable Selection

Cables must be capable of handling the current drawn from all of the units on the line.

**SAFETY WARNING:** If the high output BExDS120D sounders are used at high ambient temperatures, i.e. over +40°C, then the cable entry temperature may exceed +70°C and therefore suitable heat resisting cables must be used, with a rated service temperature of at least 110°C.

## 10) Earthing

Both AC and DC sounder units must be connected to a good quality earth. The units are provided with internal and external-earthing terminals, which are, both located on the terminal chamber section of the unit (see figures 2 and 3).

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

When using the external earth terminal a cable crimp lug must be used. The cable lug should be located between the two M5 stainless steel flat washers. The M5 stainless steel spring washer must be fixed between the outer flat washer and the M5 stainless steel nut to ensure that the cable lug is secured against loosening and twisting.

## 11) Cable Glands

The BExDS120D and BExDS110D sounders have dual cable gland entries with M20 x1.5 entry threads. Only cable glands approved for Ex 'd' applications can be used, which must be suitable for the type of cable being used and also meet the requirements of the Ex 'd' flameproof installation standard EN60079-14:2008 / IEC60079-14:2007.

When only one cable entry is used the other one must be closed with an Ex 'd' flameproof blanking plug, which must be suitably approved for the installation requirements.

For combustible dust applications, the cable entry device and blanking elements shall be in type of explosion protection increased safety "e" or flameproof enclosure "d" and shall have an IP 6X rating according to EN60529:1992.

**SAFETY WARNING:** If the high output BExDS120D sounders are used at high ambient temperatures, i.e. over +40°C, then the cable entry temperature may exceed +70°C and therefore suitable heat resisting cable glands must be used, with a rated service temperature of at least 110°C.

## 12) Cable Connections

See drawing C and D

## 13) Tone Selection and 2nd and 3rd Stage Alarms

See wiring diagram E

## 14) Volume Control

See drawing F

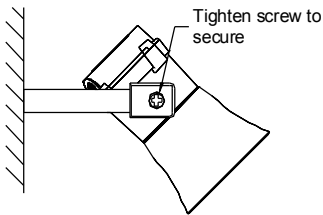
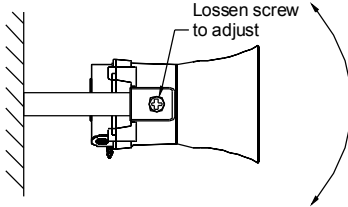
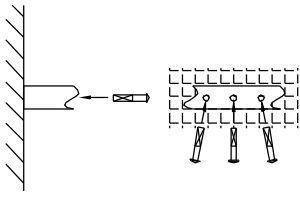
## 15) End of Line Monitoring (DC Units)

On BExDS120D and BExDS110D 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 ohms and a minimum wattage of 0.5 watts or a minimum resistance value of 500 ohms and a min. wattage of 2 watts.

## STONE SELECTION TABLE

Tone Selection		DIP Switch Settings	Stage Selection	
Stage 1	Frequency Description	1 2 3 4 5	Stage 2	Stage 3
1	Continuous 1000Hz <i>Toxic Gas Alarm</i>	0 0 0 0 0	Tone 31	Tone 11
2	Alternating 800/1000Hz at 0.25s intervals	1 0 0 0 0	Tone 17	Tone 5
3	Slow Whoop 500/1200Hz at 0.3Hz with 0.5s gap repeated	0 1 0 0 0	Tone 2	Tone 5
4	Sweeping 800/1000 at 1Hz	1 1 0 0 0	Tone 6	Tone 5
5	Continuous at 2400Hz	0 0 1 0 0	Tone 3	Tone 27
6	Sweeping 2400/2900Hz at 7Hz	1 0 1 0 0	Tone 7	Tone 5
7	Sweeping 2400/2900Hz at 1Hz	0 1 1 0 0	Tone 10	Tone 5
8	Siren 500/1200/500Hz at 0.3Hz	1 1 1 0 0	Tone 2	Tone 5
9	Sawtooth 1200/500Hz at 1Hz	0 0 0 1 0	Tone 15	Tone 2
10	Alternating 2400/2900Hz at 2Hz	1 0 0 1 0	Tone 7	Tone 5
11	Intermittent 1000Hz at 0.5Hz <i>General alarm</i>	0 1 0 1 0	Tone 31	Tone 1
12	Alternating 800/1000Hz at 0.875Hz	1 1 0 1 0	Tone 4	Tone 5
13	Intermittent 2400Hz at 1Hz	0 0 1 1 0	Tone 15	Tone 5
14	Intermittent 800Hz 0.25s on 1s off	1 0 1 1 0	Tone 4	Tone 5
15	Continuous at 800Hz	0 1 1 1 0	Tone 2	Tone 5
16	Intermittent 660Hz 150mS on, 150mS off	1 1 1 1 0	Tone 18	Tone 5
17	Alternating 544Hz (100mS)/440Hz(400mS)	0 0 0 0 1	Tone 2	Tone 27
18	Intermittent 660Hz 1.8s on, 1.8s off	1 0 0 0 1	Tone 2	Tone 5
19	1400Hz to 1600Hz sweep up over 1s - 1600Hz to 1400Hz sweep down over 0.5s	0 1 0 0 1	Tone 2	Tone 5
20	Continuous 660Hz	1 1 0 0 1	Tone 2	Tone 5
21	Alternating 554/440Hz at 1Hz	0 0 1 0 1	Tone 2	Tone 5
22	Intermittent 554Hz at 0.875Hz	1 0 1 0 1	Tone 2	Tone 5
23	800Hz pulsing at 2Hz	0 1 1 0 1	Tone 6	Tone 5
24	Sweeping 800/1000Hz at 50Hz	1 1 1 0 1	Tone 29	Tone 5
25	Sweeping 2400/2900Hz at 50Hz	0 0 0 1 1	Tone 29	Tone 5
26	Simulated bell sound	1 0 0 1 1	Tone 2	Tone 1
27	Continuous 554Hz	0 1 0 1 1	Tone 26	Tone 5
28	Continuous 440Hz	1 1 0 1 1	Tone 2	Tone 5
29	Sweeping 800/1000Hz at 7Hz	0 0 1 1 1	Tone 7	Tone 5
30	420Hz repeating 0.625s on, 0.625s off <i>Australian alert signal</i>	1 0 1 1 1	Tone 32	Tone 5
31	1200/500Hz at 1Hz <i>Prepare to Abandon Platform</i>	0 1 1 1 1	Tone 11	Tone 1
32	Sweeping 500/1200Hz 3.75s on, 0.25s off 15Hz	1 1 1 1 1	Tone 26	Tone 1

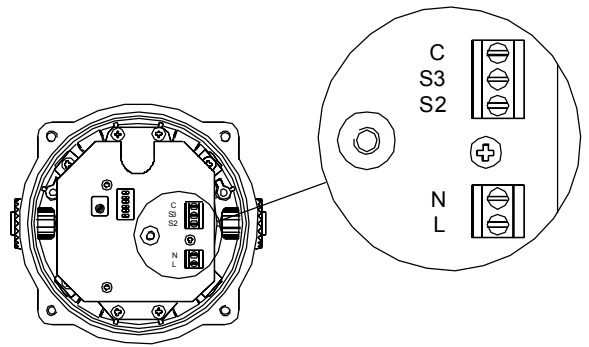
## Drawing A



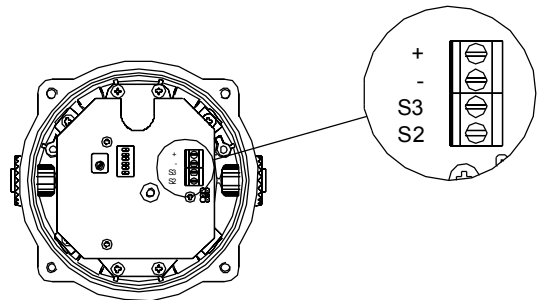
Loosen screw to adjust.  
 Løsn skruen for at tilpasse.  
 Schroef losdraaien om af te stellen.  
 Desserrer la vis pour régler.  
 Zum Regulieren Schraube lockern.  
 Allentare la vite per poter effettuare la regolazione.  
 Løse skruen for å justere.  
 Desaperte o parafuso para ajustar.  
 Afloje el tornillo para ajustar.  
 Lossa skruven för att justera.

Tighten screw to secure.  
 Spænd skruen for at fastgøre.  
 Schroef aandraaien om vast te zetten.  
 Serrer la vis pour une fixation sûre.  
 Zum Sichern Schraube anziehen.  
 Stringere la vite per il fissaggio.  
 Stram skruen for å feste.  
 Aperte o parafuso para fixar.  
 Apriete el tornillo para asegurar.  
 Dra åt skruven för att fästa.

## Drawing C

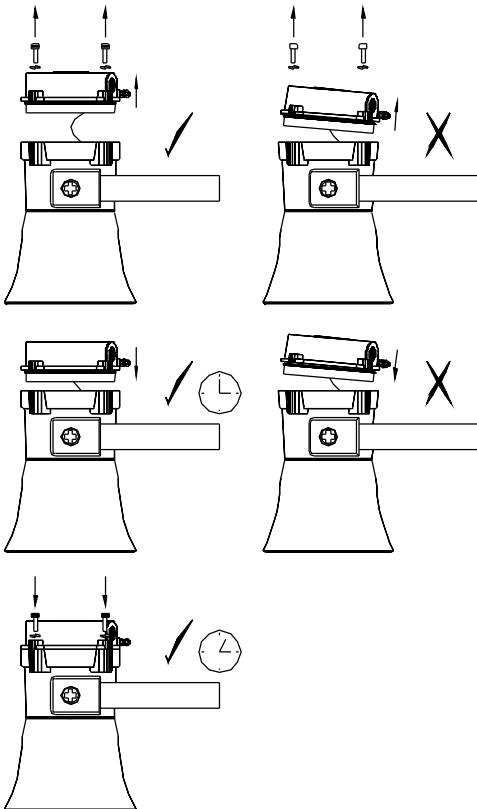


BExS120D AC

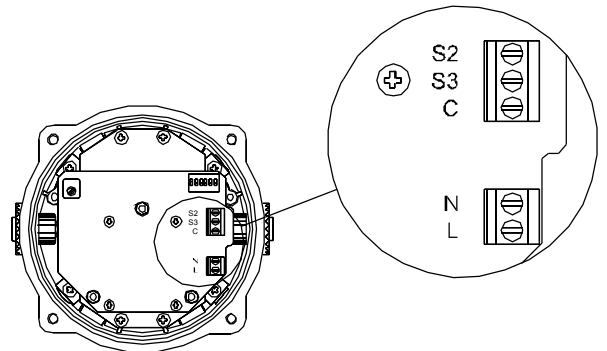


BExS120D DC

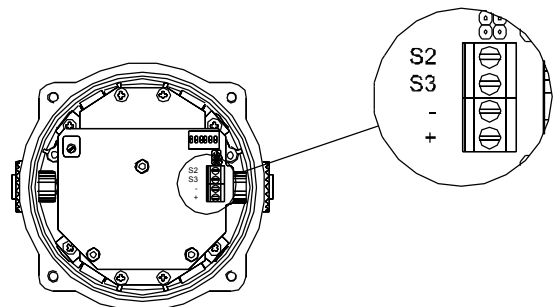
## Drawing B



## Drawing D



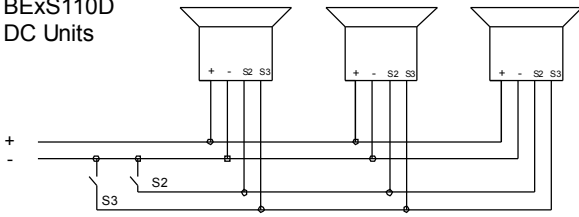
BExS110D AC



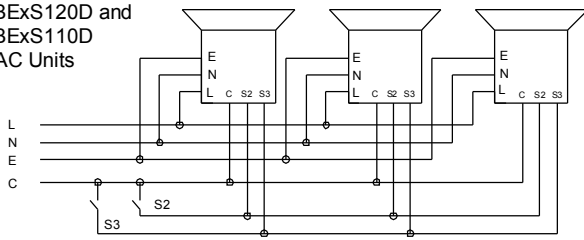
BExS110D DC

# Wiring Diagram E

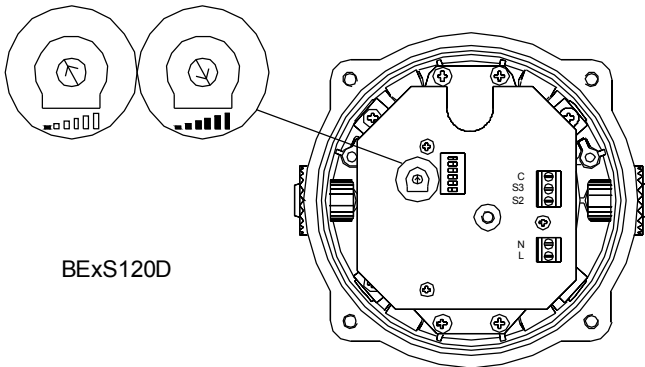
BExS120D and  
BExS110D  
DC Units



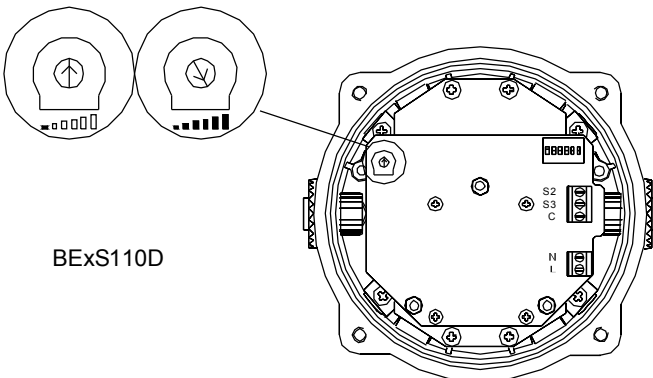
BExS120D and  
BExS110D  
AC Units



# Drawing F



BExS120D



BExS110D



## 2) Mærkater

Alle enheder har en klassificeringsmærkat, der bærer følgende vigtige oplysninger:

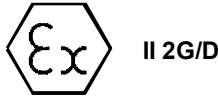
Enhedstypenr. BExDS120D eller BExDS110D

Indgangsspænding: DC-enheder 12V eller 24V eller 48V  
AC-enheder 230V eller 110V eller 115V

Kodes: Ex d IIC T4 for Ta -50°C to +55°C  
Ex d IIB T4 for Ta -50°C to +70°C  
Ex tD A21 IP67 T115°C based on max Ta of +70°C

Certifikatnr. KEMA 99ATEX6312  
IECEx KEM 10.0003

Epsilon x:  
Udstyrets gruppe  
og kategori:



CE-mærke:  
Noteret  
myndighedsnr.



### "Advarsler"

MÅ IKKE ÅBNES,  
NÅR DER ER EKSPLOSIVE  
GASSER ELLER STØV TIL STEDE

DÆKBOLTE KLASSE A4-80

BRUG VARMEBESTANDIGE KABLER OG PAKDÅSER  
(Mærket 110°C) VED OMGIVENDE TEMP. OVER 40°C

## 4) Installationskrav

Soundere skal installeres i overensstemmelse med følgende eller tilsvarende standarder.

EN60079-14:2008	Elektriske installationer i sundhedsfarlige områder (undtagen miner)
IEC60079-14:2007 (Ed4)	
EN60079-10:2003	Klassifikation af sundhedsfarlige områder
IEC60079-10:2008 (Ed1)	

Installation bør kun udføres af kompetent personale og under iagttagelse af lokale regler.

## 5) Zone-, gasgruppe-, kategori- og temperaturklassifikation

Enhederne kan installeres på områder med følgende forhold:

### Klassificeringsareal for gasser:

Zone 1	Ekspllosiv gas- og luftblanding kan forekomme ved normal drift.
Zone 2	Ekspllosiv gas- og luftblanding forekommer sandsynligvis ikke, og hvis det sker, vil det kun være for en kort tidsperiode.

### Gasgrupperinger:

Gruppe IIA	Propan
Gruppe IIB	Ethylen
Gruppe IIC < +55°C	Hydrogen og acetylen

### Temperaturklassifikation:

T1	400°C
T2	300°C
T3	200°C
T4	135°C

### Klassificeringsareal for støv:

Zone 21	En eksplosiv blanding af støv og luft kan forekomme under den normale drift
Zone 22	En eksplosiv blanding af støv og luft vil sandsynligvis ikke forekomme, og hvis dette skulle ske, vil det kun vare et kort stykke tid.

**IP dimensionering:** IP67 T100°C Ta ≤ +55°C  
T115°C Ta ≤ +70°C

**Udstyrskategori:** 2G/D

### Omgivende temperatur:

-50°C til +55°C Gasgrupperinger IIA, IIB og IIC  
-50°C til +70°C Gasgrupperinger IIA og IIB

## 6) Sounderplacering og -montering

Se illustration A

## 7) Adgang til flammesikker indkapsling

Se illustration B

Bemærk, at de fire **M6 skruer er klasse A4-80, rustfri stål, og der må kun anvendes skruer af denne kategori på sounderne**. Det er derfor vigtigt, at skruerne og deres fjederskiver opbevares på et sikkert sted under installation.

## 8) Strømforsyningsudvalg

Systemets strømforsyning skal have den nødvendige kapacitet for at kunne yde indgangsstrøm til alle soundere forbundet til systemet.

Nedenstående tabel viser indgangsstrømbehovet for forskellige sounderenheder:

Enhedstype	Indgangsspænding	Indgangsstrøm	Maks. I/P Volt
BExDS120D	24V DC	800mA	30V
BExDS120D	12V DC	850mA	15V
BExDS120D	48V DC	420mA	58V
BExDS120D	230V AC	90mA	264V
BExDS120D	110V AC	200mA	121V
BExDS120D	115V AC	180mA	126V

BExDS110D	24V DC	265mA	30V
BExDS110D	12V DC	195mA	15V
BExDS110D	48V DC	130mA	58V
BExDS110D	230V AC	56mA	264V
BExDS110D	110V AC	93mA	121V
BExDS110D	115V AC	110mA	126V

Ovenstående tabel viser også maksimalspændingen, som sounderne kan betjenes ved.

## 9) Kabeludvalg

Kablerne skal kunne håndtere den samlede strøm fra alle anvendte enheder.

**SIKKERHEDSADVARSEL:** Hvis de højtydende BExDS120D-soundere anvendes ved høje omgivende temperaturer, dvs. over +40°C, kan kablets indgangstemperatur overstige +70°C, og der skal derfor anvendes passende varmebestandige kabler med en nominel arbejdstemperatur på mindst 110°C.

## 10) Jordforbindelse

Både AC- og DC-souderenheder skal være forbundet til en jordforbindelse af høj kvalitet. Enhederne har indvendige og udvendige jordklemmer, der begge befinder sig på enhedens klemkammerdel (se figur 2 og 3).

Når den udvendige jordklemmel anvendes, skal der bruges en kabelklemmesko. Kabelskoen skal befinde sig mellem to flade M5-spændeskiverr af rustfrit stål. De rustfri stål M5-spændeskiver skal fastgøres mellem den ydre flade skive og M5-møtrikken af rustfrit stål for at sikre, at kabelskoen ikke løsner eller vrider sig.

## 11) Kabelafslutning

Sounderne har dobbelte kabelafslutningsindgange med M20 x1,5 indgangsgevind. Kun kabelafslutninger godkendt til Ex 'd'-applikationer må anvendes og skal passe til den type kabel, der anvendes samt opfylde kravene i Ex 'd', standard for flammesikker installation EN60079-14:2008 / IEC60079-14:2007.

Når der kun anvendes en kabelindgang, skal den anden lukkes med en Ex 'd', flammesikker blindprop, der skal være korrekt godkendt i overensstemmelse med installationskravene.

I forbindelse med letantændelige støvapplikationer skal kabelindføringsanordningen og stansningselementerne være med eksplosionsbeskyttelse for forhøjet sikkerhed af type "e" eller et flammesikkert indelukke af type "d" og skal have en IP 6X dimensionering i overensstemmelse med EN60529:1992.

**SIKKERHEDSADVARSEL:** Hvis de højtydende BExDS120D-soundere anvendes ved høje omgivende temperaturer, dvs. temperaturer over +40°C, kan kablets indgangstemperatur overstige +70°C, og der skal derfor anvendes passende varmebestandige kabler med en nominel arbejdstemperatur på mindst 110°C.

## 12) Kabelforbindelser

Se illustrationen C og D

## 13) Tonevalg og 2. og 3. niveau alarmer

Se ledningsdiagram E

## 14) Volumenkontrol

Se illustration F

## 15) Linieslutovervågning (DC-enheder)

På BExDS120D og BExDS110D DC-enheder kan der anvendes returlinieovervågning, efter behov. Alle DC-souderne har en spærrediode i strømindsledningerne. En diode til linieslutovervågning eller en linieslutmodstand kan forbindes på tværs af +ve- og -ve- klemmerne. Hvis en linieslutmodstand anvendes, skal den have en minimum modstandsværdi på 3k3 ohm og et minimum watt-tal på 0,5 watt eller en minimum modstandsværdi på 500 ohm og et minimum watt-tal på 2 watt.

## TONEVALGSTABEL

Tone Selection		DIP Switch Settings					Stage Selection	
Stage 1	Frequency Description	1	2	3	4	5	Stage 2	Stage 3
1	Continuous 1000Hz <i>Toxic Gas Alarm</i>	0	0	0	0	0	Tone 31	Tone 11
2	Alternating 800/1000Hz at 0.25s intervals	1	0	0	0	0	Tone 17	Tone 5
3	Slow Whoop 500/1200Hz at 0.3Hz with 0.5s gap repeated	0	1	0	0	0	Tone 2	Tone 5
4	Sweeping 800/1000 at 1Hz	1	1	0	0	0	Tone 6	Tone 5
5	Continuous at 2400Hz	0	0	1	0	0	Tone 3	Tone 27
6	Sweeping 2400/2900Hz at 7Hz	1	0	1	0	0	Tone 7	Tone 5
7	Sweeping 2400/2900Hz at 1Hz	0	1	1	0	0	Tone 10	Tone 5
8	Siren 500/1200/500Hz at 0.3Hz	1	1	1	0	0	Tone 2	Tone 5
9	Sawtooth 1200/500Hz at 1Hz	0	0	0	1	0	Tone 15	Tone 2
10	Alternating 2400/2900Hz at 2Hz	1	0	0	1	0	Tone 7	Tone 5
11	Intermittent 1000Hz at 0.5Hz <i>General alarm</i>	0	1	0	1	0	Tone 31	Tone 1
12	Alternating 800/1000Hz at 0.875Hz	1	1	0	1	0	Tone 4	Tone 5
13	Intermittent 2400Hz at 1Hz	0	0	1	1	0	Tone 15	Tone 5
14	Intermittent 800Hz 0.25s on 1s off	1	0	1	1	0	Tone 4	Tone 5
15	Continuous at 800Hz	0	1	1	1	0	Tone 2	Tone 5
16	Intermittent 660Hz 150mS on, 150mS off	1	1	1	1	0	Tone 18	Tone 5
17	Alternating 544Hz (100mS)/440Hz(400mS)	0	0	0	0	1	Tone 2	Tone 27
18	Intermittent 660Hz 1.8s on, 1.8s off	1	0	0	0	1	Tone 2	Tone 5
19	1400Hz to 1600Hz sweep up over 1s - 1600Hz to 1400Hz sweep down over 0.5s	0	1	0	0	1	Tone 2	Tone 5
20	Continuous 660Hz	1	1	0	0	1	Tone 2	Tone 5
21	Alternating 554/440Hz at 1Hz	0	0	1	0	1	Tone 2	Tone 5
22	Intermittent 554Hz at 0.875Hz	1	0	1	0	1	Tone 2	Tone 5
23	800Hz pulsing at 2Hz	0	1	1	0	1	Tone 6	Tone 5
24	Sweeping 800/1000Hz at 50Hz	1	1	1	0	1	Tone 29	Tone 5
25	Sweeping 2400/2900Hz at 50Hz	0	0	0	1	1	Tone 29	Tone 5
26	Simulated bell sound	1	0	0	1	1	Tone 2	Tone 1
27	Continuous 554Hz	0	1	0	1	1	Tone 26	Tone 5
28	Continuous 440Hz	1	1	0	1	1	Tone 2	Tone 5
29	Sweeping 800/1000Hz at 7Hz	0	0	1	1	1	Tone 7	Tone 5
30	420Hz repeating 0.625s on, 0.625s off <i>Australian alert signal</i>	1	0	1	1	1	Tone 32	Tone 5
31	1200/500Hz at 1 Hz <i>Prepare to Abandon Platform</i>	0	1	1	1	1	Tone 11	Tone 1
32	Sweeping 500/1200Hz 3.75s on, 0.25s off 15Hz	1	1	1	1	1	Tone 26	Tone 1

## 2) Labels

Alle eenheden zijn voorzien van een label, waarop de volgende belangrijke informatie staat:

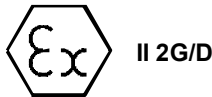
Typenr. eenheid: BExDS120D of BExDS110D

Ingangsspanning: DC-eenheden 12 V of 24 V of 48 V  
AC-eenheden 230 V of 110 V of 115 V

Codes: Ex d IIC T4 for Ta -50°C to +55°C  
Ex d IIB T4 for Ta -50°C to +70°C  
Ex tD A21 IP67 T115°C based on max Ta of +70°C

Certificate No. KEMA 99ATEX6312  
IECEx KEM 10.0003

Epsilon x:  
Groep en categorie  
van apparatuur:



CE-certificaat:  
Instantienr.



**“Waarschuwingen”** NIET OPENEN WANNEER  
ER EEN EXPLOSIEVE GAS-  
OF STOFATMOSFEER AANWEZIG IS

DEKSELBOUTEN KLASSE A4-80

BIJ OMGEVINGSTEMP. HOGER DAN 40°C  
HITTEBESTENDIGE KABELS EN KABELWARTELS  
GEBRUIKEN (geschikt voor 110°C)

## 4) Vereisten voor installatie

Alarmgevers moeten worden geïnstalleerd in overeenstemming met de volgende of equivalente normen.

EN60079-14:2008 Elektrische installaties in gevaarlijke  
IEC60079-14:2007 (Ed4) omgevingen (anders dan mijnen)  
EN60079-10:2003 Classificatie van gevaarlijke  
IEC60079-10:2008 (Ed1) omgevingen

Installatie mag alleen worden uitgevoerd door deskundig personeel en met inachtneming van plaatselijke gedragscodes en praktijkrichtlijnen.

## 5) Classificatie t.a.v. zones, gasgroep, categorie en temperatuur

De eenheden kunnen worden geïnstalleerd op plaatsen waar de volgende omstandigheden heersen:

### Zoneclassificatie gas:

Zone 1	Ontpofbaar gas-/luchtmengsel is waarschijnlijk bij normaal bedrijf.
Zone 2	Ontpofbaar gas-/luchtmengsel is onwaarschijnlijk, en indien dit ontstaat zal het waarschijnlijk slechts korte tijd aanwezig blijven.

### Gasgroeperingen:

Groep IIA	Propana
Groep IIB	Ethyleen
Groep IIC < +55°C	Waterstof en acetyleen

### Temperatuurclassificatie:

T1	400°C
T2	300°C
T3	200°C
T4	135°C

### Zoneclassificatie stof:

Zone 21	Explosief stof-luchtmengsel waarschijnlijk aanwezig bij normaal functioneren.
Zone 22	Explosief stof-luchtmengsel waarschijnlijk niet aanwezig, of alleen van korte duur.

**IP-classificatie:** IP67 T100°C Ta ≤ +55°C  
T115°C Ta ≤ +70°C

**Categorie van apparatuur:** 2G/D

### Omgevingstemperatuur:

-50°C tot +55°C Gasgroeperingen IIA, IIB en IIC  
-50°C tot +70°C Gasgroeperingen IIA en IIB

## 6) Plaatsing en bevestiging van alarmgever

Zie tekening A

## 7) Toegang tot de vuurvaste behuizing

Zie tekening B

Houdt u er rekening mee dat de vier **M6-schroeven van Klasse A4-80 roestvrij staal zijn en dat op deze alarmgevers alleen schroeven van deze categorie kunnen worden gebruikt.** Het is derhalve belangrijk dat deze schroeven en de bijbehorende veerringen tijdens de installatie op een veilige plaats worden bewaard.

## 8) Kiezen van voedingsbron

De voedingsbron van het systeem dient voldoende capaciteit te hebben om alle alarmgevers die op het systeem zijn aangesloten van elektrische voeding te voorzien.

In de onderstaande tabel staat vermeld welke ingangsstroom de verschillende alarmgevers trekken:

Type eenheid	Ingangsspanning	Ingangsstroom	Max. I/P volt
BExDS120D	24 V DC	800 mA	30 V
BExDS120D	12 V DC	850 mA	15 V
BExDS120D	48 V DC	420 mA	58 V

BExDS120D	230 V AC	90 mA	264 V
BExDS120D	110 V AC	200 mA	121 V
BExDS120D	115 V AC	180 mA	126 V

BExDS110D	24 V DC	265 mA	30 V
BExDS110D	12 V DC	195 mA	15 V
BExDS110D	48 V DC	130 mA	58 V
BExDS110D	230 V AC	56 mA	264 V
BExDS110D	110 V AC	93 mA	121 V
BExDS110D	115 V AC	110 mA	126 V

In de bovenstaande tabel wordt tevens vermeld op welke maximumspanningen de alarmgevers kunnen werken.

## 9) Kiezen van kabels

Kabels moeten bestand zijn tegen de stroom die door alle eenheden op de lijn wordt getrokken.

**VEILIGHEIDSWAARSCHUWING:** als de BExDS120D alarmgevers met hoge uitvoer worden gebruikt bij hoge omgevingstemperaturen, m.a.w. hoger dan +40° C, dan kan de temperatuur bij de kabelgang hoger zijn dan +70°C en moeten dus geschikte hittebestendige kabels worden gebruikt, met een nominale werktemperatuur van ten minste 110° C.

## 10) Aarding

Zowel alarmgevers op wisselstroom als gelijkstroom moeten worden aangesloten op aarding van goede kwaliteit. De eenheden worden geleverd met interne en externe aardaansluitingen, beide aangebracht op het gedeelte met de aansluitkast op de eenheid (zie Afb. 2 en 3).

Bij gebruik van de externe aardaansluiting dient een kabelkrimp kous te worden gebruikt. De kabelkous moet worden aangebracht tussen de twee M5 roestvrijstalen platte borgschijfjes. De M5 roestvrijstalen veerring moet worden bevestigd tussen het buitenste platte borgschijfje en de M5 roestvrijstalen moer, zodat de kabelkous goed is vastgezet en niet kan draaien of losraken.

## 11) Kabelwartels

De alarmgevers zijn voorzien van dubbele kabelwartelingen met M20 x 1,5 ingangsschroefdraad. Er kunnen alleen kabelwartels worden gebruikt die zijn goedgekeurd voor Ex 'd'-toepassingen, geschikt zijn voor het bekabelingstype dat wordt gebruikt en voldoen aan de vereisten van de norm EN60079-14:2008 / IEC60079-14:2007 ten aanzien van de Ex 'd' vuurvaste installatie.

Indien slechts een kabelgang wordt gebruikt, dient de andere te worden afgesloten met een Ex 'd' vuurvaste afdichtplug, die moet zijn goedgekeurd voor de installatievereisten.

Voor brandbare stoftoepassingen zullen de kabelinvoer en blokkeerelementen van het type explosiebescherming met verhoogde beveiliging "e" of vuurvaste omhulling "d" zijn en een IP 6X-classificatie hebben overeenkomstig EN60529:1992.

**VEILIGHEIDSWAARSCHUWING:** als de BExDS120D alarmgevers met hoge uitvoer worden gebruikt bij hoge omgevingstemperaturen, m.a.w. hoger dan +40° C, dan kan de temperatuur bij de kabelgang hoger zijn dan +70°C en moeten dus geschikte hittebestendige kabelwartels worden

gebruikt, met een nominale werktemperatuur van ten minste 110° C.

## 12) Kabelaansluitingen

Zie tekening C en D

## 13) Toonkeuze en alarmen in 2e en 3e fase

Zie bedradingsschema E

## 14) Volumeregeling

Zie tekening F

## 15) Bewaking aan einde van lijn (DC-eenheden)

Op BExDS120D en BExDS110D DC-eenheden kan desgewenst omgekeerde gelijkstroomlijnbewaking worden gebruikt. Alle DC-alarmgevers zijn uitgerust met een blokkeringsdiode in de ingangslijnen voor de elektrische voeding. Een bewakingsdiode of bewakingsweerstand aan het einde van de lijn kan worden aangesloten op de +ve en -ve contacten. Indien een weerstand aan het einde van de lijn wordt gebruikt, dient deze een minimumweerstandswaarde van 3k3 ohm en een minimumwattage van 0,5 watt te hebben, of een minimumweerstandswaarde van 500 ohm en een minimumwattage van 2 watt.

TABEL VOOR TOONKEUZE

Tone Selection		DIP Switch Settings	Stage Selection	
Stage 1	Frequency Description	1 2 3 4 5	Stage 2	Stage 3
1	Continuous 1000Hz <i>Toxic Gas Alarm</i>	0 0 0 0 0	Tone 31	Tone 11
2	Alternating 800/1000Hz at 0.25s intervals	1 0 0 0 0	Tone 17	Tone 5
3	Slow Whoop 500/1200Hz at 0.3Hz with 0.5s gap repeated	0 1 0 0 0	Tone 2	Tone 5
4	Sweeping 800/1000 at 1Hz	1 1 0 0 0	Tone 6	Tone 5
5	Continuous at 2400Hz	0 0 1 0 0	Tone 3	Tone 27
6	Sweeping 2400/2900Hz at 7Hz	1 0 1 0 0	Tone 7	Tone 5
7	Sweeping 2400/2900Hz at 1Hz	0 1 1 0 0	Tone 10	Tone 5
8	Siren 500/1200/500Hz at 0.3Hz	1 1 1 0 0	Tone 2	Tone 5
9	Sawtooth 1200/500Hz at 1Hz	0 0 0 1 0	Tone 15	Tone 2
10	Alternating 2400/2900Hz at 2Hz	1 0 0 1 0	Tone 7	Tone 5
11	Intermittent 1000Hz at 0.5Hz <i>General alarm</i>	0 1 0 1 0	Tone 31	Tone 1
12	Alternating 800/1000Hz at 0.875Hz	1 1 0 1 0	Tone 4	Tone 5
13	Intermittent 2400Hz at 1Hz	0 0 1 1 0	Tone 15	Tone 5
14	Intermittent 800Hz 0.25s on 1s off	1 0 1 1 0	Tone 4	Tone 5
15	Continuous at 800Hz	0 1 1 1 0	Tone 2	Tone 5
16	Intermittent 660Hz 150ms on, 150ms off	1 1 1 1 0	Tone 18	Tone 5
17	Alternating 544Hz (100mS)/440Hz(400mS)	0 0 0 0 1	Tone 2	Tone 27
18	Intermittent 660Hz 1.8s on, 1.8s off	1 0 0 0 1	Tone 2	Tone 5
19	1400Hz to 1600Hz sweep up over 1s - 1600Hz to 1400Hz sweep down over 0.5s	0 1 0 0 1	Tone 2	Tone 5
20	Continuous 660Hz	1 1 0 0 1	Tone 2	Tone 5
21	Alternating 554/440Hz at 1Hz	0 0 1 0 1	Tone 2	Tone 5
22	Intermittent 554Hz at 0.875Hz	1 0 1 0 1	Tone 2	Tone 5
23	800Hz pulsing at 2Hz	0 1 1 0 1	Tone 6	Tone 5
24	Sweeping 800/1000Hz at 50Hz	1 1 1 0 1	Tone 29	Tone 5
25	Sweeping 2400/2900Hz at 50Hz	0 0 0 1 1	Tone 29	Tone 5
26	Simulated bell sound	1 0 0 1 1	Tone 2	Tone 1
27	Continuous 554Hz	0 1 0 1 1	Tone 26	Tone 5
28	Continuous 440Hz	1 1 0 1 1	Tone 2	Tone 5
29	Sweeping 800/1000Hz at 7Hz	0 0 1 1 1	Tone 7	Tone 5
30	420Hz repeating 0.625s on, 0.625s off <i>Australian alert signal</i>	1 0 1 1 1	Tone 32	Tone 5
31	1200/500Hz at 1 Hz <i>Prepare to Abandon Platform</i>	0 1 1 1 1	Tone 11	Tone 1
32	Sweeping 500/1200Hz 3.75s on, 0.25s off 15Hz	1 1 1 1 1	Tone 26	Tone 1

**2) Marquage**

Les caractéristiques nominales de toutes les unités figurent sur une étiquette comportant les informations importantes suivantes :

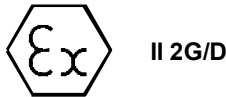
N° de type d'unité : BExDS120D ou BExDS110D

Tension d'entrée : Unités CC 12 V, 24 V ou 48 V  
Unités CA 230 V, 110 V ou 115 V

Codes: Ex d IIC T4 for Ta -50°C to +55°C  
Ex d IIB T4 for Ta -50°C to +70°C  
Ex tD A21 IP67 T115°C based on max Ta of +70°C

Certificate No. KEMA 99ATEX6312  
IECEX KEM 10.0003

Epsilon x :  
Groupe et classe  
de l'équipement :



Marquage CE :  
N° de l'organisme notifié



**Avertissements** NE PAS OUVRIR EN PRESENCE D'UN GAZ  
EXPLOSIF OU DANS UNE ATMOSPHERE  
POUSSIÉREUSE

BOULONS DE COUVERCLE DE CLASSE A4-80

UTILISER DES CABLES ET DES PRESSE-ETOUPE  
RESISTANTS A LA CHALEUR (Valeur nominale 110°C)  
A DES TEMPERATURES AMBIANTES  
SUPERIEURES A 40°C

**4) Spécifications d'installation**

Les alarmes sonores doivent être installées selon les normes suivantes, ou des équivalents.

EN60079-14:20008 Installations électriques dans des zones dangereuses (autres que des mines)  
IEC60079-14:2007 (Ed4)  
EN60079-10:2003 Classification des zones dangereuses  
IEC60079-10:2008 (Ed1)

L'installation doit être effectuée uniquement par un personnel compétent et conformément aux codes de pratique locaux.

**5) Classification des zones, du groupe et de la catégorie de gaz et des températures**

Les unités peuvent être installées dans des endroits respectant les conditions suivantes :

**Classification de zone : gaz:**

Zone 1	Mélange d'air et de gaz explosif pouvant survenir en condition normale.
--------	---

Zone 2	Mélange d'air et de gaz explosif ne pouvant pas survenir et qui, dans le cas contraire, serait présent que très brièvement.
--------	---

**Groupes de gaz :**

Groupe IIA	Propane
Groupe IIB	Ethylène
Groupe IIC < +55°C	Hydrogène et Acétylène

**Classification des températures :**

T1	400° C
T2	300° C
T3	200° C
T4	135° C

**Classification des zones : poussière :**

Zone 21	Mélange air-poussière explosif susceptible de se former durant le cours normal des opérations
Zone 22	Mélange air-poussière explosif non susceptible de se former et qui, s'il se forme, ne subsistera pas longtemps.

**Indice IP :** IP67 T100°C Ta ≤ +55°C  
T115°C Ta ≤ +70°C

**Classe de l'équipement:** 2G/D

**Plage de températures ambiantes :**

-50°C à +55°C Groupes de gaz IIA, IIB et IIC  
-50°C à +70°C Groupes de gaz IIA et IIB

**6) Assemblage et emplacement de l'alarme sonore**

Se reporter au schéma A

**7) Accès au boîtier antidéflagrant**

Se reporter au schéma B

Remarque : les quatre **vis M6 sont en acier inoxydable de classe A4-80 et seules des vis de ce type doivent être utilisées sur ces alarmes sonores.** C'est pourquoi il est important de les conserver, ainsi que leurs rondelles à ressort, en un endroit sûr pendant l'installation.

**8) Sélection de l'alimentation électrique**

L'alimentation électrique du système doit posséder la capacité nécessaire pour procurer le courant d'entrée à toutes les alarmes sonores connectées au système.

Le tableau suivant indique le courant d'entrée pour les diverses unités d'alarme sonore :

Type d'unité	Tension d'entrée	Courant d'entrée	Volts I/P max.
BExDS120D	24 V CC	800 mA	30 V
BExDS120D	12 V CC	850 mA	15 V
BExDS120D	48 V CC	420 mA	58 V
BExDS120D	230 V CA	90 mA	264 V
BExDS120D	110 V CA	200 mA	121 V
BExDS120D	115 V CA	180 mA	126 V
BExDS110D	24 V CC	265 mA	30 V
BExDS110D	12 V CC	195 mA	15 V
BExDS110D	48 V CC	130 mA	58 V
BExDS110D	230 V CA	56 mA	264 V
BExDS110D	110 V CA	93 mA	121 V
BExDS110D	115 V CA	110 mA	126 V

Le tableau ci-dessus indique également les tensions maximales de fonctionnement des alarmes sonores.

## 9) Sélection des câbles

Les câbles doivent pouvoir prendre en charge le courant utilisé par toutes les unités sur la ligne.

**AVERTISSEMENT DE SECURITE :** si les alarmes sonores BExDS120D à haut rendement sont utilisées à des températures ambiantes élevées, c'est-à-dire supérieures à +40°C, la température d'entrée du câble peut excéder +70°C et des câbles résistants à la chaleur doivent être utilisés, d'une température de service assignée de 110°C minimum.

## 10) Mise à la terre

Les unités d'alarme sonore CA et CC doivent être connectées à un système de mise à la terre de bonne qualité. Les unités sont fournies avec des bornes de mise à la terre externe et interne qui sont toutes les deux situées sur la section de chambre terminale de l'unité (se reporter aux figures 2 et 3).

Lors de l'utilisation de la borne de mise à la terre externe, employer une cosse à sertir. La cosse à sertir doit être située entre les deux rondelles plates M5 en acier inoxydable. La rondelle à ressort M5 en acier inoxydable doit être fixée entre la rondelle plate externe et l'écrou M5 en acier inoxydable afin que la cosse à sertir ne se desserre ni ne se torde.

## 11) Presse-étoupe

Les alarmes sonores ont deux entrées de presse-étoupe avec des filetages d'entrée M20 x1,5. Seuls les presse-étoupe approuvés pour les applications Ex 'd' peuvent être utilisés, et ils doivent être adéquats pour le type de câble utilisé et répondre aux exigences d'installation d'antidéflagrant Ex 'd' de norme EN60079-14:2008 / IEC60079-14:2007.

Lorsqu'une seule entrée de câble est utilisée, un bouchon obturateur antidéflagrant Ex 'd', répondant aux exigences d'installation, doit être appliqué sur l'autre entrée.

Pour les applications avec présence de poussière combustible, le dispositif d'entrée de câble et les obturateurs requièrent un type de protection antidéflagrante accrue « e » ou un boîtier ignifugé « d » et doivent présenter un indice de protection IP 6X conforme à EN60529:1992.

**AVERTISSEMENT DE SECURITE :** si les alarmes sonores BExDS120D à haut rendement sont utilisées à des températures ambiantes élevées, c'est-à-dire supérieures à

+40°C, la température d'entrée du câble peut excéder +70°C et des câbles résistants à la chaleur doivent être utilisés, d'une température de service assignée de 110°C minimum.

## 12) Connexions de câble

Se reporter au schéma C et D

## 13) Sélection du timbre et alarmes de 2<sup>ème</sup> et 3<sup>ème</sup> étape

Se reporter au schéma de câblage E

## 14) Contrôle du volume

Se reporter au schéma F

## 15) Contrôle de fin de ligne (Unités CC)

Sur les unités CC BExDS120D et BExDS110D, un contrôle de ligne inverse cc peut être utilisé si nécessaire. Toutes les alarmes sonores CC possèdent une diode de blocage installée sur leur ligne d'entrée d'alimentation. Une diode de contrôle de fin de ligne ou une résistance de contrôle de fin de ligne peut être connectée sur les bornes positive et négative. En cas d'utilisation d'une résistance de fin de ligne, celle-ci doit avoir une valeur de résistance minimum de 3k3 ohms et une puissance minimum de 0,5 watt ou une résistance minimum de 500 ohms ainsi qu'une puissance minimum de 2 watts.

## TABLEAU DE SELECTION DU TIMBRE

Tone Selection		DIP Switch Settings	Stage Selection	
Stage 1	Frequency Description	1 2 3 4 5	Stage 2	Stage 3
1	Continuous 1000Hz <i>Toxic Gas Alarm</i>	0 0 0 0 0	Tone 31	Tone 11
2	Alternating 800/1000Hz at 0.25s intervals	1 0 0 0 0	Tone 17	Tone 5
3	Slow Whoop 500/1200Hz at 0.3Hz with 0.5s gap repeated	0 1 0 0 0	Tone 2	Tone 5
4	Sweeping 800/1000 at 1Hz	1 1 0 0 0	Tone 6	Tone 5
5	Continuous at 2400Hz	0 0 1 0 0	Tone 3	Tone 27
6	Sweeping 2400/2900Hz at 7Hz	1 0 1 0 0	Tone 7	Tone 5
7	Sweeping 2400/2900Hz at 1Hz	0 1 1 0 0	Tone 10	Tone 5
8	Siren 500/1200/500Hz at 0.3Hz	1 1 1 0 0	Tone 2	Tone 5
9	Sawtooth 1200/500Hz at 1Hz	0 0 0 1 0	Tone 15	Tone 2
10	Alternating 2400/2900Hz at 2Hz	1 0 0 1 0	Tone 7	Tone 5
11	Intermittent 1000Hz at 0.5Hz <i>General alarm</i>	0 1 0 1 0	Tone 31	Tone 1
12	Alternating 800/1000Hz at 0.875Hz	1 1 0 1 0	Tone 4	Tone 5
13	Intermittent 2400Hz at 1Hz	0 0 1 1 0	Tone 15	Tone 5
14	Intermittent 800Hz 0.25s on 1s off	1 0 1 1 0	Tone 4	Tone 5
15	Continuous at 800Hz	0 1 1 1 0	Tone 2	Tone 5
16	Intermittent 660Hz 150mS on, 150mS off	1 1 1 1 0	Tone 18	Tone 5
17	Alternating 544Hz (100mS)/440Hz(400mS)	0 0 0 0 1	Tone 2	Tone 27
18	Intermittent 660Hz 1.8s on, 1.8s off	1 0 0 0 1	Tone 2	Tone 5
19	1400Hz to 1600Hz sweep up over 1s - 1600Hz to 1400Hz sweep down over 0.5s	0 1 0 0 1	Tone 2	Tone 5
20	Continuous 660Hz	1 1 0 0 1	Tone 2	Tone 5
21	Alternating 554/440Hz at 1Hz	0 0 1 0 1	Tone 2	Tone 5
22	Intermittent 554Hz at 0.875Hz	1 0 1 0 1	Tone 2	Tone 5
23	800Hz pulsing at 2Hz	0 1 1 0 1	Tone 6	Tone 5
24	Sweeping 800/1000Hz at 50Hz	1 1 1 0 1	Tone 29	Tone 5
25	Sweeping 2400/2900Hz at 50Hz	0 0 0 1 1	Tone 29	Tone 5
26	Simulated bell sound	1 0 0 1 1	Tone 2	Tone 1
27	Continuous 554Hz	0 1 0 1 1	Tone 26	Tone 5
28	Continuous 440Hz	1 1 0 1 1	Tone 2	Tone 5
29	Sweeping 800/1000Hz at 7Hz	0 0 1 1 1	Tone 7	Tone 5
30	420Hz repeating 0.625s on, 0.625s off <i>Australian alert signal</i>	1 0 1 1 1	Tone 32	Tone 5
31	1200/500Hz at 1 Hz <i>Prepare to Abandon Platform</i>	0 1 1 1 1	Tone 11	Tone 1
32	Sweeping 500/1200Hz 3.75s on, 0.25s off 15Hz	1 1 1 1 1	Tone 26	Tone 1



## 2) Kennzeichnung

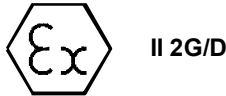
Alle Geräte sind mit einem Typenschild mit den folgenden wichtigen Informationen versehen:-

Gerätetyp-Nr. BExDS120D oder BExDS110D

Eingangsspannung:


Gleichstromgeräte (DC) 12V, 24V oder 48V  
Wechselstromgeräte (AC) 230V, 110V oder 115V

Epsilon x:  
Gerätegruppe und  
-kategorie:



Codes: Ex d IIC T4 for Ta -50°C to +55°C  
Ex d IIB T4 for Ta -50°C to +70°C  
Ex tD A21 IP67 T115°C based on max Ta of +70°C

Certificate No. KEMA 99ATEX6312  
IECEx KEM 10.0003

CE-Kennzeichnung:/  
Bekannt gegebene Nr.  0518

**Warnung** NICHT IN EXPLOSIONSFÄHIGEN GAS- ODER STAUBATMOSPHEREN ÖFFNEN  
ABDECKSCHRAUBEN KLASSE A4-80  
WÄRMEBESTÄNDIGE KABEL UND KABELFLANSCHEN VERWENDEN  
(Nennleistung 110°C) BEI UMGEB.-TEMP. ÜBER 40°C

## 4) Installationsanforderungen

Die Sounder müssen gemäß den folgenden oder vergleichbaren Standards installiert werden.

EN60079-14:2008 Elektrische Installationen in  
IEC60079-14:2007 (Ed4) Gefahrenbereichen (außer Bergwerken)  
EN60079-10:2003 Klassifizierung von Gefahrenbereichen  
IEC60079-10:2008 (Ed1)

Die Installation sollte nur von qualifiziertem Fachpersonal vorgenommen werden. Örtliche anerkannte Verfahren sind zu beachten.

## 5) Zonen, Gasgruppe, Kategorie und Temperaturklassifizierung

Die Geräte können an Standorten aufgestellt werden, an denen die folgenden Bedingungen vorliegen:-

### Bereichseinteilung Gas:

Zone 1	Bei normalem Betrieb kann mit hoher Wahrscheinlichkeit eine explosive Gas-Luft-Mischung vorliegen.
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Zone 2	Explosive Gas-Luft-Mischung unwahrscheinlich und sollte sie doch auftreten, dann nur kurzfristig.
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### Gasgruppen:

Gruppe IIA	Propan
Gruppe IIB	Äthylen
Gruppe IIC < +55°C	Wasserstoff und Azetylen

### Temperaturklassifizierung:

T1	400°C
T2	300°C
T3	200°C
T4	135°C

### Bereichseinteilung Staub:

Zone 21	Explosionsgefährdetes Staub-/Luftgemisch, das beim normalen Betrieb durchaus auftreten kann
Zone 22	Explosionsgefährdetes Staub-/Luftgemisch, dessen Auftreten unwahrscheinlich bzw. von kurzer Dauer ist.

**IP-Schutzklasse:** IP67 T100°C Ta ≤ +55°C  
T115°C Ta ≤ +70°C

**Geräteklasse:** 2G/D

### Umgebungstemperaturbereich:

-50°C bis +55°C Gasgruppen IIA, IIB und IIC  
-50°C bis +70°C Gasgruppen IIA und IIB

## 6) Sounder-Standort und Montage

Siehe Zeichnung A

## 7) Zugang zum schwer entflammbaren Gehäuse

Siehe Zeichnung B

Hinweis: Die vier **Schrauben M6 sind aus Edelstahl Klasse A4-80 gefertigt. Für diese Sounder sind nur Schrauben dieser Kategorie geeignet.** Diese Schrauben und die zugehörigen Federringe sind beim Einbau daher sorgfältig aufzubewahren.

## 8) Stromversorgung

Die Stromversorgung der Anlage muss ausreichen, um alle angeschlossenen Sounder mit Eingangsstrom zu versorgen.

Folgende Tabelle zeigt den von den verschiedenen Sounder-Geräten entnommenen Eingangsstrom:-

Gerätetyp	Eingangsspannung	Eingangsstrom	Max. I/P Spannung
BExDS120D	24V DC	800 mA	30V
BExDS120D	12V DC	850 mA	15V
BExDS120D	48V DC	420 mA	58V
BExDS120D	230V AC	90 mA	264V
BExDS120D	110V AC	200 mA	121V
BExDS120D	115V AC	180 mA	126V
BExDS110D	24V DC	265 mA	30V

BExDS110D	12V DC	195 mA	15V
BExDS110D	48V DC	130 mA	58V
BExDS110D	230V AC	56 mA	264V
BExDS110D	110V AC	93 mA	121V
BExDS110D	115V AC	110 mA	126V

Obige Tabelle zeigt auch die maximale Spannung an, mit der die Sounder betrieben werden können.

## 9) Kabelwahl

Die Kabel müssen den Strom aller angeschlossenen Geräte führen können.

**SICHERHEITSHINWEIS:** Wenn die BExDS120D High-Output-Sounder bei hohen Umgebungstemperaturen eingesetzt werden (d. h. bei über +40°C), kann die Kabeleingangstemperatur +70°C übersteigen. Daher sind geeignete hitzebeständige Kabel mit einer Nennbetriebstemperatur von mindestens 110°C zu verwenden.

## 10) Erdung

Die Wechsel- und Gleichstrom-Soundergeräte müssen mit einer hochwertigen Erdung verbunden werden. Die Geräte sind mit internen und externen Erdklemmen (am Klemmkammerteil des Geräts, siehe Abb. 2 und 3) versehen.

Bei Verwendung der externen Erdklemme ist ein Quetschkabelschuh zu verwenden, der zwischen den beiden flachen M5-Edelstahl-Unterlegscheiben eingesetzt werden sollte. Die M5-Unterlegscheiben sind zwischen der äußeren flachen Unterlegscheibe und der M5-Edelstahlmutter einzusetzen, um zu gewährleisten, dass der Kabelschuh sich nicht lösen oder verdrehen kann.

## 11) Kabelflansche

Die Sounder sind mit doppelten Kabelflanscheingängen mit Eingangsgewinden von M20 x1.5 versehen. Es dürfen nur Kabelflansche verwendet werden, die für Ex 'd'-Anwendungen zugelassen sind. Die Kabelflansche müssen für den eingesetzten Kabeltyp geeignet sein und zudem den Anforderungen der Ex 'd'-Norm zur Installation schwer entflammbarer Geräte EN60079-14:2008 / IEC60079-14:2007 entsprechen.

Wenn nur ein Kabeleingang verwendet wird, muss der andere mit einem schwer entflammaren Ex 'd' Handlochverschluss, der für die Installationsbedingungen zugelassen ist, verschlossen werden.

Bei Anwendungen in brennbaren Staubbereichen sind der Kabelanschluss und die Abdeckelemente in einem Gehäuse mit erhöhtem Explosionsschutz (Typ „e“) oder erhöhtem Entflammbarkeitsschutz („Typ „d“) zu installieren und müssen der Schutzklasse IP 6X gemäß EN60529:1992 entsprechen.

**SICHERHEITSHINWEIS:** Wenn die BExDS120D High-Output-Sounder bei hohen Umgebungstemperaturen eingesetzt werden (d. h. bei über +40°C), kann die Kabeleingangstemperatur +70°C übersteigen. Daher sind geeignete hitzebeständige Kabelflansche mit einer Nennbetriebstemperatur von mindestens 110°C zu verwenden.

## 12) Kabelanschlüsse

Siehe Zeichnung Cund D

## 13) Tonwahl und Alarm der 2. und 3. Stufe

Siehe Schaltbild E

## 14) Lautstärkeregelung

Siehe Zeichnung F

## 15) Überwachung des Leitungsendes (Gleichstromgeräte)

Bei BExS120D- und BExS110D-Gleichstromgeräten kann bei Bedarf eine Wechselstrom-Sperroleitungs-kontrolle eingesetzt werden. Alle Gleichstrom-Sounder sind mit einer Sperrdiode versehen, die in die Speise-Eingangleitungen eingesetzt ist. Eine Überwachungsdiode oder ein Kontrollwiderstand für das Leitungsende können über die Klemmen +ve und -ve miteinander verbunden werden. Wird ein Widerstand für das Leitungsende verwendet, muss sein Widerstandswert mindestens 3k3 Ohm und die Mindestleistung 0,5 Watt betragen, oder aber es muss ein Widerstandswert von mindestens 500 Ohm und eine Mindestleistung von 2 Watt vorliegen.

## TONEVALGSTABEL

Tone Selection		DIP Switch Settings	Stage Selection	
Stage 1	Frequency Description	1 2 3 4 5	Stage 2	Stage 3
1	Continuous 1000Hz <i>Toxic Gas Alarm</i>	0 0 0 0 0	Tone 31	Tone 11
2	Alternating 800/1000Hz at 0.25s intervals	1 0 0 0 0	Tone 17	Tone 5
3	Slow Whoop 500/1200Hz at 0.3Hz with 0.5s gap repeated	0 1 0 0 0	Tone 2	Tone 5
4	Sweeping 800/1000 at 1Hz	1 1 0 0 0	Tone 6	Tone 5
5	Continuous at 2400Hz	0 0 1 0 0	Tone 3	Tone 27
6	Sweeping 2400/2900Hz at 7Hz	1 0 1 0 0	Tone 7	Tone 5
7	Sweeping 2400/2900Hz at 1Hz	0 1 1 0 0	Tone 10	Tone 5
8	Siren 500/1200/500Hz at 0.3Hz	1 1 1 0 0	Tone 2	Tone 5
9	Sawtooth 1200/500Hz at 1Hz	0 0 0 1 0	Tone 15	Tone 2
10	Alternating 2400/2900Hz at 2Hz	1 0 0 1 0	Tone 7	Tone 5
11	Intermittent 1000Hz at 0.5Hz <i>General alarm</i>	0 1 0 1 0	Tone 31	Tone 1
12	Alternating 800/1000Hz at 0.875Hz	1 1 0 1 0	Tone 4	Tone 5
13	Intermittent 2400Hz at 1Hz	0 0 1 1 0	Tone 15	Tone 5
14	Intermittent 800Hz 0.25s on 1s off	1 0 1 1 0	Tone 4	Tone 5
15	Continuous at 800Hz	0 1 1 1 0	Tone 2	Tone 5
16	Intermittent 660Hz 150mS on, 150mS off	1 1 1 1 0	Tone 18	Tone 5
17	Alternating 544Hz (100mS)/440Hz(400mS)	0 0 0 0 1	Tone 2	Tone 27
18	Intermittent 660Hz 1.8s on, 1.8s off	1 0 0 0 1	Tone 2	Tone 5
19	1400Hz to 1600Hz sweep up over 1s - 1600Hz to 1400Hz sweep down over 0.5s	0 1 0 0 1	Tone 2	Tone 5
20	Continuous 660Hz	1 1 0 0 1	Tone 2	Tone 5
21	Alternating 554/440Hz at 1Hz	0 0 1 0 1	Tone 2	Tone 5
22	Intermittent 554Hz at 0.875Hz	1 0 1 0 1	Tone 2	Tone 5
23	800Hz pulsing at 2Hz	0 1 1 0 1	Tone 6	Tone 5
24	Sweeping 800/1000Hz at 50Hz	1 1 1 0 1	Tone 29	Tone 5
25	Sweeping 2400/2900Hz at 50Hz	0 0 0 1 1	Tone 29	Tone 5
26	Simulated bell sound	1 0 0 1 1	Tone 2	Tone 1
27	Continuous 554Hz	0 1 0 1 1	Tone 26	Tone 5
28	Continuous 440Hz	1 1 0 1 1	Tone 2	Tone 5
29	Sweeping 800/1000Hz at 7Hz	0 0 1 1 1	Tone 7	Tone 5
30	420Hz repeating 0.625s on, 0.625s off <i>Australian alert signal</i>	1 0 1 1 1	Tone 32	Tone 5
31	1200/500Hz at 1 Hz <i>Prepare to Abandon Platform</i>	0 1 1 1 1	Tone 11	Tone 1
32	Sweeping 500/1200Hz 3.75s on, 0.25s off 15Hz	1 1 1 1 1	Tone 26	Tone 1



## 2) Marchio

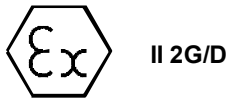
Tutte le unità sono dotate di etichetta contenente le seguenti importanti informazioni:-

N. tipo unità BExDS120D o BExDS110D

Tensione in ingresso: Unità CC 12 V o 24 V o 48 V  
Unità CA 230 V o 110 V o 115 V

Codice: Ex d IIC T4 for Ta -50°C to +55°C  
Ex d IIB T4 for Ta -50°C to +70°C  
Ex tD A21 IP67 T115°C based on max Ta of +70°C

N. certificato KEMA 99ATEX6312  
IECEx KEM 10.0003



Marchio CE:  0518  
N. notifica

**“Attenzione”** NON APRIRE IN CASO DI PRESENZA DI GAS O POLVERI ESPLOSIVE

COPRIRE I BULLONI CON UNA COPERTURA CLASSE A4-80

USARE CAVI E PREMISTOPPA PER CAVI RESISTENTI AL CALORE (temp. nominale 110°C) SE LA TEMPERATURA AMB. È SUPERIORE A 40°C

## 4) Requisiti di installazione

Le sirene devono essere installate in conformità con i seguenti standard o standard equivalenti.

EN60079-14:2008 Installazioni elettriche in aree pericolose (tranne che nelle miniere)  
IEC60079-14:2007 (Ed4)  
EN60079-10:2003 Classificazione delle aree pericolose  
IEC60079-10:2008 (Ed1)

L'installazione deve essere eseguita da personale competente e devono essere applicati tutti i codici professionali I °Cali.

## 5) Classificazione delle zone, dei gruppi di gas, delle categorie e delle temperature

Le unità possono essere installate in ambienti che presentano le seguenti condizioni:-

### Classificazione area Gas:

Zona 1	È probabile la presenza di gas esplosivo durante il normale funzionamento.
Zona 2	Non è probabile che sia presente gas esplosivo, e se esso dovesse essere presente, potrà esserlo solo per un breve periodo di tempo.

### Gruppi di gas:

Gruppo IIA	Propano
Gruppo IIB	Etilene
Gruppo IIC < +55°C	Idrogeno e Acetilene

### Classificazione delle temperature:

T1	400 °C
T2	300 °C
T3	200 °C
T4	135 °C

### Classificazione area Polvere:

Zona 21	Probabile formazione di miscele esplosive polvere/aria durante il normale funzionamento.
Zona 22	Improbabile formazione, eventualmente solo temporanea, di miscele esplosive polvere/aria.

**Classificazione IP:** IP67 T100°C Ta ≤ +55°C  
T115°C Ta ≤ +70°C

**Categoria di attrezzature:** 2G/D

### Intervallo della temperatura ambientale:

da -50 °C a +55 °C Gruppi di gas IIA, IIB e IIC  
da -50 °C a +70 °C Gruppi di gas IIA e IIB

## 6) Posizione e montaggio delle sirene

Vedere figura A

## 7) Accesso al sistema antincendio

Vedere figura B

Le quattro viti **M6** sono in acciaio inossidabile classe **A4-80**; su queste sirene possono essere usate solo viti di questa categoria. Quindi è importante che queste viti e le relative rondelle a molla siano conservate in un luogo sicuro durante l'installazione.

## 8) Scelta dell'alimentazione

L'alimentazione deve essere in grado di fornire una corrente in ingresso a tutte le sirene collegate al sistema.

La seguente tabella mostra la corrente in ingresso prelevata da varie unità sirene:-

Tipo unità	Tensione in ingresso	Corrente in ingresso	Volt I/P max.
BExDS120D	24 V CC	800 mA	30 V
BExDS120D	12 V CC	850 mA	15 V
BExDS120D	48 V CC	420 mA	58 V

BExDS120D	230 V CA	90 mA	264 V
BExDS120D	110 V CA	200 mA	121 V
BExDS120D	115 V CA	180 mA	126 V
BExDS110D	24 V CC	265 mA	30 V
BExDS110D	12 V CC	195 mA	15 V
BExDS110D	48 V CC	130 mA	58 V
BExDS110D	230 V CA	56 mA	264 V
BExDS110D	110 V CA	93 mA	121 V
BExDS110D	115 V CA	110 mA	126 V

La tabella sopra riportata mostra inoltre le tensioni massime previste per il funzionamento delle sirene.

## 9) Scelta dei cavi

I cavi devono essere capaci di sostenere la corrente proveniente da tutte le unità presenti sulla linea.

**AVVISO DI SICUREZZA:** Se le sirene BExDS120D ad alta emissione vengono utilizzate in ambienti a temperature elevate, ad esempio superiori a +40 °C, la temperatura in ingresso dei cavi può superare +70 °C, per cui occorre utilizzare cavi adeguati resistenti al calore, con una temperatura nominale di esercizio di almeno 110 °C.

## 10) Collegamento di terra

Sia le unità sirene CA sia quelle CC devono essere collegate correttamente a terra. Le unità vengono fornite con morsetti di collegamento a terra interni ed esterni, entrambi situati sulla morsettiera dell'unità (vedere figure 2 e 3).

Quando si utilizza il morsetto di collegamento a terra esterno, occorre utilizzare un capocorda aggraffato per cavi. Il capocorda deve essere posto tra due rondelle piatte in acciaio inossidabile M5. La rondella a molla in acciaio inossidabile M5 deve essere fissata tra la rondella piatta esterna e il dado in acciaio inossidabile M5, in modo da garantire che il capocorda sia fissato saldamente e che quindi non possa allentarsi o attorcigliarsi.

## 11) Premistoppa per cavi

Le sirene sono dotate di due ingressi per premistoppa con filettature M20 x1.5. Utilizzare solo premistoppa approvati per le applicazioni Ex 'd'; essi inoltre devono essere adeguati al tipo di cavo in uso e devono rispettare gli standard di installazione antincendio Ex 'd' EN60079-14:2008 / IEC60079-14:2007.

Quando si utilizza solo un ingresso per cavi, l'altro ingresso deve essere chiuso con un maschio di chiusura antincendio Ex 'd' che deve essere approvato per i requisiti di installazione.

Per applicazioni in presenza di polveri combustibili, il dispositivo di ingresso del cavo e gli elementi di protezione devono essere di tipo "e" con protezione superiore contro le esplosioni o di tipo "d" con chiusura antideflagrante e presentare una classificazione IP 6X conforme alla norma EN 60529:1992.

**AVVISO DI SICUREZZA:** Se le sirene BExDS120D ad alta emissione vengono utilizzate in ambienti a temperature elevate, ad esempio superiori a +40 °C, la temperatura in ingresso dei cavi può superare +70 °C, per cui occorre utilizzare premistoppa adeguati resistenti al calore, con una temperatura nominale di esercizio di almeno 110 °C.

## 12) Connessioni dei cavi

Vedere figura C e D

## 13) Scelta del tono e allarmi di secondo e terzo livello

Vedere lo schema dei collegamenti elettrici E

## 14) Controllo del volume

Vedere figura F

## 15) Sistema di controllo di fine linea (unità CC)

Sulle unità CC BExS120D e BExS110D, se richiesto, è possibile utilizzare il sistema di controllo della linea di inversione CC. Tutte le sirene CC sono dotate di un diodo di bloccaggio nelle linee di ingresso dell'alimentazione. È possibile collegare ai morsetti positivo e negativo un diodo o un resistore di controllo di fine linea. Se viene utilizzato un resistore di fine linea, questo deve avere un valore di resistenza minimo di 33k ohm ed un wattaggio minimo di 0,5 W oppure un valore di resistenza minimo di 500 ohm ed un wattaggio minimo di 2 W.

## TABELLA DI SELEZIONE DEI TONI

Tone Selection		DIP Switch Settings					Stage Selection	
Stage 1	Frequency Description	1	2	3	4	5	Stage 2	Stage 3
1	Continuous 1000Hz <i>Toxic Gas Alarm</i>	0	0	0	0	0	Tone 31	Tone 11
2	Alternating 800/1000Hz at 0.25s intervals	1	0	0	0	0	Tone 17	Tone 5
3	Slow Whoop 500/1200Hz at 0.3Hz with 0.5s gap repeated	0	1	0	0	0	Tone 2	Tone 5
4	Sweeping 800/1000 at 1Hz	1	1	0	0	0	Tone 6	Tone 5
5	Continuous at 2400Hz	0	0	1	0	0	Tone 3	Tone 27
6	Sweeping 2400/2900Hz at 7Hz	1	0	1	0	0	Tone 7	Tone 5
7	Sweeping 2400/2900Hz at 1Hz	0	1	1	0	0	Tone 10	Tone 5
8	Siren 500/1200/500Hz at 0.3Hz	1	1	1	0	0	Tone 2	Tone 5
9	Sawtooth 1200/500Hz at 1Hz	0	0	0	1	0	Tone 15	Tone 2
10	Alternating 2400/2900Hz at 2Hz	1	0	0	1	0	Tone 7	Tone 5
11	Intermittent 1000Hz at 0.5Hz <i>General alarm</i>	0	1	0	1	0	Tone 31	Tone 1
12	Alternating 800/1000Hz at 0.875Hz	1	1	0	1	0	Tone 4	Tone 5
13	Intermittent 2400Hz at 1Hz	0	0	1	1	0	Tone 15	Tone 5
14	Intermittent 800Hz 0.25s on 1s off	1	0	1	1	0	Tone 4	Tone 5
15	Continuous at 800Hz	0	1	1	1	0	Tone 2	Tone 5
16	Intermittent 660Hz 150mS on, 150mS off	1	1	1	1	0	Tone 18	Tone 5
17	Alternating 544Hz (100mS)/440Hz(400mS)	0	0	0	0	1	Tone 2	Tone 27
18	Intermittent 660Hz 1.8s on, 1.8s off	1	0	0	0	1	Tone 2	Tone 5
19	1400Hz to 1600Hz sweep up over 1s - 1600Hz to 1400Hz sweep down over 0.5s	0	1	0	0	1	Tone 2	Tone 5
20	Continuous 660Hz	1	1	0	0	1	Tone 2	Tone 5
21	Alternating 554/440Hz at 1Hz	0	0	1	0	1	Tone 2	Tone 5
22	Intermittent 554Hz at 0.875Hz	1	0	1	0	1	Tone 2	Tone 5
23	800Hz pulsing at 2Hz	0	1	1	0	1	Tone 6	Tone 5
24	Sweeping 800/1000Hz at 50Hz	1	1	1	0	1	Tone 29	Tone 5
25	Sweeping 2400/2900Hz at 50Hz	0	0	0	1	1	Tone 29	Tone 5
26	Simulated bell sound	1	0	0	1	1	Tone 2	Tone 1
27	Continuous 554Hz	0	1	0	1	1	Tone 26	Tone 5
28	Continuous 440Hz	1	1	0	1	1	Tone 2	Tone 5
29	Sweeping 800/1000Hz at 7Hz	0	0	1	1	1	Tone 7	Tone 5
30	420Hz repeating 0.625s on, 0.625s off <i>Australian alert signal</i>	1	0	1	1	1	Tone 32	Tone 5
31	1200/500Hz at 1Hz <i>Prepare to Abandon Platform</i>	0	1	1	1	1	Tone 11	Tone 1
32	Sweeping 500/1200Hz 3.75s on, 0.25s off 15Hz	1	1	1	1	1	Tone 26	Tone 1

# INSTRUKSJONSHÅNDBOK (ATEX / IECEx) (NOR)

## BExDS120D og BExDS110D

### Flammesikre lydalarmer

#### For bruk i atmosfærer med brennbar gass og brennbart støv

## 2) Merking

Alle enheter har en etikett med følgende viktige informasjon:

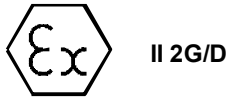
Enhetsstypenr. BExDS120D eller BExDS110D

Inngangsspenning: DC-enheter 12 V eller 24 V eller 48 V  
AC-enheter 230 V eller 110 V eller 115 V

Kode: Ex d IIC T4 for Ta -50°C to +55°C  
Ex d IIB T4 for Ta -50°C to +70°C  
Ex tD A21 IP67 T115°C based on max Ta of +70°C

Sertifikat nr. KEMA 99ATEX6312  
IECEx KEM 10.0003

Epsilon x:  
Utstyrsguppe og –  
kategori:



CE-merking:  
Varslet organ nr.



### “Advarsler”

MÅ IKKE ÅPNES I ATMOSFÆRE  
MED EKSPLOSIV GASS  
ELLER EKSPLOSIVT STØV

DEKKEBOLTER KLASSE A4-80

BRUK VARMEBESTANDIGE KABLER OG  
KABELMUFFER (godkjent for 110°C) VED  
OMGIVELSESTEMPERATURER OVER 40°C

## 4) Installasjonskrav

Lydalarmer må installeres i samsvar med følgende eller tilsvarende standarder.

EN60079-14:2008 Elektriske installasjoner i farlige  
IEC60079-14:2007 (Ed4) områder (unntatt gruver)  
EN60079-10:2003 Klassifisering av farlige områder  
IEC60079-10:2008 (Ed1)

Installering må kun utføres av kompetente personer, og alle gjeldende lokale bransjestandarder må overholdes.

## 5) Soner, gassgruppe, kategori og temperatur klassifisering

Enheterne kan installeres på steder med følgende forhold:

### Soneklassifisering, gass:

Sone 1	Eksplisiv gass/luft-blanding som sannsynligvis forekommer ved normal drift.
Sone 2	Eksplisiv gass/luft-blanding som ikke vanligvis vil forekomme, og om den gjør det, kun vil forekomme i kort tid.

### Gassgrupperinger:

Gruppe IIA	Propan
Gruppe IIB	Etylen
Gruppe IIC < +55°C	Hydrogen og acetylen

### Temperaturklassifisering:

T1	400 °C
T2	300 °C
T3	200 °C
T4	135 °C

### Soneklassifisering, støv:

Sone 21	Eksplisiv støv/luft-blanding vil sannsynligvis opptre ved normal bruk.
Sone 22	Eksplisiv støv/luft-blanding vil sannsynligvis ikke opptre, og hvis det skjer, vil den kun foreligge i kort tid.

IP-klasse: IP67 T100°C Ta ≤ +55°C  
T115°C Ta ≤ +70°C

Utstyrskategori: 2G/D

### Omgivelsestemperaturområde:

-50°C til +55°C Gassgrupperinger IIA, IIB og IIC  
-50°C til +70°C Gassgrupperinger IIA og IIB

## 6) Plassering og montering av lydalarmer

Se tegningen. A

## 7) Tilgang til flammesikkert hus

Se tegningen. B

Merk: De fire **M6-skrueene** er av rustfritt stål klasse **A4-80**, og kun skruer i denne kategorien kan brukes til disse lydalarmene. Derfor er det viktig at disse skruene med tilhørende fjærskiver oppbevares på et sikkert sted under installeringen.

## 8) Valg av strømtilførsel

Strømtilførselen til systemet må ha nødvendig kapasitet til å gi inngangsstrøm til alle lydalarmene som er koplet til systemet.

Følgende tabell viser inngangsstrømmen som benyttes av de forskjellige lydalarmerne:

Enhetsstype	Inngangsspenning	Inngangsstrøm	Maks I/P volt
BExDS120D	24 V DC	800 mA	30 V
BExDS120D	12 V DC	850 mA	15 V
BExDS120D	48 V DC	420 mA	58 V
BExDS120D	230 V AC	90 mA	264 V
BExDS120D	110 V AC	200 mA	121 V
BExDS120D	115 V AC	180 mA	126 V
BExDS110D	24 V DC	265 mA	30 V
BExDS110D	12 V DC	195 mA	15 V
BExDS110D	48 V DC	130 mA	58 V
BExDS110D	230 V AC	56 mA	264 V
BExDS110D	110 V AC	93 mA	121 V
BExDS110D	115 V AC	110 mA	126 V

Tabellen ovenfor viser også maksimale spenninger som lydalarmene kan benyttes ved.

## 10) Valg av kabler

Kablene må kunne håndtere strømmen som trekkes fra alle enhetene på linjen.

**SIKKERHETSVARSEL:** Hvis høyeffektsalarmene BExDS120D benyttes ved høye omgivelsestemperaturer, dvs. over +40 °C kan kabelinngangstemperaturen overstige +70 °C, og derfor må egnede varmebestandige kabler benyttes, med godkjent driftstemperatur på minst 95 °C.

## 11) Jording

Både AC- og DC-alarmerhøyet må koples til jordforbindelse av god kvalitet. Enhetene leveres med interne og eksterne jordingsterminaler, som begge sitter på terminalkammerdelen av enheten (se figur 2 og 3).

Ved bruk av eksterne jordterminaler må en benytte en kabelkrumpe. Kabelskoen skal settes mellom de to flate M5-fjærskivene av rustfritt stål. M5-fjærskiven må festes mellom den ytre flate skiven og M5-mutteren av rustfritt stål for å sikre at kabelskoen ikke kan løsnes eller vrís.

## 12) Kabelmuffer

Lydalarmene har doble kabelmuffeinnganger med M20 x 1,5 inngangsgjenger. Kun kabelmuffer godkjent for Ex 'd'-bruk kan brukes, og de må være egnede for typen kabel som brukes, samt overholde kravene i standarden for Ex 'd' flammesikker installering, EN60079-14:2008 / IEC60079-14:2007.

Når kun én kabelinngang benyttes, må den andre lukkes med en Ex 'd' flammesikker lukkeplugg, som må være godkjent for de aktuelle installasjonskravene.

For bruk med brennbar støv skal kabelinnføringsenheten og tetningsdelene være av typen med økt eksplosjonssikkerhet "e" eller flammesikker kapsling "d", og den skal ha IP 6X-klasse ifølge EN60529:1992.

**SIKKERHETSVARSEL:** Hvis lydalarmene BExDS120D med høy effekt brukes ved høye omgivelsestemperaturer, dvs. over +40 °C, kan kabelinngangstemperaturen overstige +70 °C, og derfor må egnede varmebestandige kabelmuffer benyttes, med godkjent driftstemperatur på minst 95 °C.

## 13) Kabelforbindelser

Se tegningen. C og D

## 14) Tonevalg og 2.- og 3.-trinnsalarmer

Se kablingsskjemaet. E

## 15) Volumkontroll

Se tegningen. F

## 16) Slutt på linje-overvåking (DC-enheter)

På BExDS120D- og BExDS110D DC-enheter, kan likestrømsreversert linjeovervåking benyttes om nødvendig. Alle DC-alarmer har en blokkeringsdiode montert i inngangslinjene. En slutt på linje-overvåkingsdiode eller slutt på linje-overvåkingsresistor kan kobles over +ve- og -ve-terminalene. Hvis en slutt på linje-resistor benyttes, må den ha minste motstandsverdi 3k3 ohm, og minste wattverdi 0,5 watt, eller minste motstandsverdi 500 ohm og minste wattverdi 2 watt.

## TONEVALGTABELL

Tone Selection		DIP Switch Settings					Stage Selection	
Stage 1	Frequency Description	1	2	3	4	5	Stage 2	Stage 3
1	Continuous 1000Hz <i>Toxic Gas Alarm</i>	0	0	0	0	0	Tone 31	Tone 11
2	Alternating 800/1000Hz at 0.25s intervaks	1	0	0	0	0	Tone 17	Tone 5
3	Slow Whoop 500/1200Hz at 0.3Hz with 0.5s gap repeated	0	1	0	0	0	Tone 2	Tone 5
4	Sweeping 800/1000 at 1Hz	1	1	0	0	0	Tone 6	Tone 5
5	Continuous at 2400Hz	0	0	1	0	0	Tone 3	Tone 27
6	Sweeping 2400/2900Hz at 7Hz	1	0	1	0	0	Tone 7	Tone 5
7	Sweeping 2400/2900Hz at 1Hz	0	1	1	0	0	Tone 10	Tone 5
8	Siren 500/1200/500Hz at 0.3Hz	1	1	1	0	0	Tone 2	Tone 5
9	Sawtooth 1200/500Hz at 1Hz	0	0	0	1	0	Tone 15	Tone 2
10	Alternating 2400/2900Hz at 2Hz	1	0	0	1	0	Tone 7	Tone 5
11	Intermittent 1000Hz at 0.5Hz <i>General alarm</i>	0	1	0	1	0	Tone 31	Tone 1
12	Alternating 800/1000Hz at 0.875Hz	1	1	0	1	0	Tone 4	Tone 5
13	Intermittent 2400Hz at 1Hz	0	0	1	1	0	Tone 15	Tone 5
14	Intermittent 800Hz 0.25s on 1s off	1	0	1	1	0	Tone 4	Tone 5
15	Continuous at 800Hz	0	1	1	1	0	Tone 2	Tone 5
16	Intermittent 660Hz 150mS on, 150mS off	1	1	1	1	0	Tone 18	Tone 5
17	Alternating 544Hz (100mS/440Hz/400mS)	0	0	0	0	1	Tone 2	Tone 27
18	Intermittent 660Hz 1.8s on, 1.8s off	1	0	0	0	1	Tone 2	Tone 5
19	1400Hz to 1600Hz sweep up over 1s - 1600Hz to 1400Hz sweep down over 0.5s	0	1	0	0	1	Tone 2	Tone 5
20	Continuous 660Hz	1	1	0	0	1	Tone 2	Tone 5
21	Alternating 554/440Hz at 1Hz	0	0	1	0	1	Tone 2	Tone 5
22	Intermittent 554Hz at 0.875Hz	1	0	1	0	1	Tone 2	Tone 5
23	800Hz pulsing at 2Hz	0	1	1	0	1	Tone 6	Tone 5
24	Sweeping 800/1000Hz at 50Hz	1	1	1	0	1	Tone 29	Tone 5
25	Sweeping 2400/2900Hz at 50Hz	0	0	0	1	1	Tone 29	Tone 5
26	Simulated bell sound	1	0	0	1	1	Tone 2	Tone 1
27	Continuous 554Hz	0	1	0	1	1	Tone 26	Tone 5
28	Continuous 440Hz	1	1	0	1	1	Tone 2	Tone 5
29	Sweeping 800/1000Hz at 7Hz	0	0	1	1	1	Tone 7	Tone 5
30	420Hz repeating 0.625s on, 0.625s off <i>Australian alert signal</i>	1	0	1	1	1	Tone 32	Tone 5
31	1200/500Hz at 1 Hz <i>Prepare to Abandon Platform</i>	0	1	1	1	1	Tone 11	Tone 1
32	Sweeping 500/1200Hz 3.75s on, 0.25s off 15Hz	1	1	1	1	1	Tone 26	Tone 1

## 2) Marcação

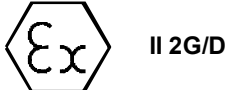
Todas as unidades têm uma placa de especificações com a seguinte informação importante:

Nº de Tipo de Unidade BExDS120D ou BExDS110D

Tensão de entrada: Unidades CC 12V ou 24V ou 48V  
Unidades CA 230V ou 110V ou 115V

Código: Ex d IIC T4 for Ta -50°C to +55°C  
Ex d IIB T4 for Ta -50°C to +70°C  
Ex tD A21 IP67 T115°C based on max Ta of +70°C

Certificado Nº KEMA 99ATEX6312  
IECEX KEM 10.0003

Épsilon x:  
Grupo e Categoria do Equipamento: 

Marcação CE:  0518  
Nº Entidade Notificada

**“Advertências” NÃO ABRIR QUANDO EXISTE  
UMA ATMOSFERA EXPLOSIVA  
DE GÁS OU POEIRAS**

PARAFUSOS COBERTURA CLASSE A4-80

USE CABOS E TUBOS RESISTENTES AO CALOR  
(Capacidade 110°C) A TEMPERATURAS AMB. ACIMA 40°C

## 4) Requisitos de instalação

As sirenes devem ser instaladas em conformidade com as seguintes normas ou outras equivalentes.

EN60079-14:2008 Instalações eléctricas em áreas  
IEC60079-14:2007 (Ed4) perigosas (excepto minas)  
EN60079-10:2003 Classificação de áreas perigosas  
IEC60079-10:2008 (Ed1)

A instalação deve ser efectuada apenas por pessoal competente e aplicam-se quaisquer códigos de prática vigentes no local.

## 5) Classificação de zonas, grupo de gases, categoria e temperatura

As unidades podem ser instaladas em locais com as seguintes condições:

### Classificação da Área Gás:

Zona 1	Probabilidade de ocorrência de mistura gasosa explosiva em funcionamento normal.
Zona 2	Improbabilidade de ocorrência de mistura gasosa explosiva; mesmo que tal ocorra, só será por período curto.

### Grupos de gases:

Grupo IIA	Propano
Grupo IIB	Etileno
Grupo IIC < +55°C	Hidrogénio e acetileno

### Classificação da temperatura:

T1	400° C
T2	300° C
T3	200° C
T4	135° C

### Classificação da Área Poeiras:

Zona 21	Possibilidade de ocorrência de mistura explosiva de ar e poeiras durante o funcionamento normal.
Zona 22	A ocorrência de mistura explosiva de ar e poeiras não é provável, e se existir, será apenas por um curto período de tempo.

**Classificação IP:** IP67 T100°C Ta ≤ +55°C  
T115°C Ta ≤ +70°C

**Categoria do equipamento:** 2G/D

### Variação da temperatura ambiente:

-50°C a +55°C Grupos de gases IIA, IIB e IIC  
-50°C a +70°C Grupos de gases IIA e IIB

## 6) Localização e montagem da sirene

Consulte o desenho A

## 7) Acesso à caixa à prova de fogo

Consulte o desenho B

Note que os quatro parafusos M6 são de aço inoxidável da Classe A4-80; apenas podem ser utilizados parafusos desta categoria nestas sirenes. Por isso, é importante que estes parafusos e respectivas anilhas de mola sejam guardados num lugar seguro durante a instalação.

## 8) Seleção da fonte de alimentação

A fonte de alimentação do sistema deve ter a capacidade necessária para fornecer a corrente de entrada a todas as sirenes ligadas ao sistema.

A tabela que se segue mostra a corrente de entrada de várias unidades de sirene:

Tipo de Unidade	Tensão de entrada	Corrente de entrada	Tensão máx.
-----------------	-------------------	---------------------	-------------

BExDS120D	24V CC	800mA	30V
BExDS120D	12V CC	850mA	15V
BExDS120D	48V CC	420mA	58V
BExDS120D	230V CA	90mA	264V
BExDS120D	110V CA	200mA	121V
BExDS120D	115V CA	180mA	126V

BExDS110D	24V CC	265mA	30V
BExDS110D	12V CC	195mA	15V
BExDS110D	48V CC	130mA	58V
BExDS110D	230V CA	56mA	264V
BExDS110D	110V CA	93mA	121V
BExDS110D	115V CA	110mA	126V

A tabela acima mostra também as tensões máximas permitidas para funcionamento das sirenes.

### 10) Seleção de cabos

Os cabos têm de suportar a corrente consumida por todas as unidades na linha.

**AVISO DE SEGURANÇA:** Se as sirenes BExDS120D de elevada saída forem usadas a temperaturas ambiente elevadas, isto é acima de +40° C, então a temperatura de entrada do cabo pode exceder os +70° C e, por isso, devem usar-se cabos resistentes ao calor, com uma capacidade nominal de temperatura de serviço nunca inferior a 110° C.

### 11) Ligação à terra

Tanto as unidades de sirene CA como CC devem ter uma boa ligação à terra. As unidades estão equipadas com terminais internos e externos de ligação à terra, ambos localizados na secção da câmara de terminais da unidade (veja as figuras 2 e 3).

Quando usar o terminal externo de ligação à terra deve usar um terminal do condutor cravado. O terminal do condutor deve estar localizado entre as duas anilhas chatas de aço inoxidável M5. A anilha de mola em aço inoxidável M5 deve estar presa entre a anilha chata externa e a porca em aço inoxidável M5 para garantir a fixação do terminal do condutor e que o mesmo não se solta nem torce.

### 12) Tubos

As sirenes possuem tubos para entrada de dois cabos com fios de entrada M20 x1.5. Pode-se usar somente tubos aprovados para aplicações à prova de explosão, que devem ser adequados ao tipo de cabo a ser usado e satisfazer também os requisitos da norma EN60079-14:2008 / IEC60079-14:2007 relativa à instalação à prova de fogo e de explosão.

Quando se usar somente uma entrada de cabo, a outra deve estar fechada com tampão de disco à prova de fogo e explosão, que deve ser aprovado para os requisitos de instalação.

Para aplicações de poeiras combustíveis, o dispositivo de entrada de cabo e os elementos de supressão devem ser do tipo "e" de maior protecção contra explosão ou ter isolamento à prova de chama "d" e devem ter uma classificação IP 6X de acordo com EN60529:1992

**AVISO DE SEGURANÇA:** Se as sirenes BExDS120D de elevada saída forem utilizadas a temperaturas ambiente elevadas, isto é acima de +40° C, então a temperatura de

entrada do cabo pode exceder os +70° C e, por isso, devem usar-se tubos resistentes ao calor, com uma capacidade de temperatura de serviço nunca inferior a 110° C.

### 13) Ligações do cabo

Consulte o desenho C e D

### 14) Seleção de tom e alarmes de 2ª e 3ª fases

Consulte o diagrama de ligações E

### 15) Controlo do volume

Consulte o desenho F

### 16) Monitorização de fim de linha (Unidades CC)

Nas unidades CC BExDS120D e BExDS110D DC, pode-se utilizar monitorização de linha inversa cc, se necessário. Todas as sirenes CC possuem um diodo de bloqueio nas suas linhas de entrada de alimentação. Um diodo de monitorização de fim de linha ou uma resistência de monitorização de fim de linha podem ser ligada aos terminais +ve e -ve. Se for utilizada uma resistência de fim de linha, esta deve ter um valor de resistência mínimo de 3k3 ohms e uma potência mínima de 0,5 watts ou um valor de resistência mínimo de 500 ohms e uma potência mínima de 2 watts.

### TONE SELECTION TABLE

Tone Selection		DIP Switch Settings	Stage Selection	
Stage 1	Frequency Description	1 2 3 4 5	Stage 2	Stage 3
1	Continuous 1000Hz <i>Toxic Gas Alarm</i>	0 0 0 0 0	Tone 31	Tone 11
2	Alternating 800/1000Hz at 0.25s intervals	1 0 0 0 0	Tone 17	Tone 5
3	Slow Whoop 500/1200Hz at 0.3Hz with 0.5s gap repeated	0 1 0 0 0	Tone 2	Tone 5
4	Sweeping 800/1000 at 1Hz	1 1 0 0 0	Tone 6	Tone 5
5	Continuous at 2400Hz	0 0 1 0 0	Tone 3	Tone 27
6	Sweeping 2400/2900Hz at 7Hz	1 0 1 0 0	Tone 7	Tone 5
7	Sweeping 2400/2900Hz at 1Hz	0 1 1 0 0	Tone 10	Tone 5
8	Siren 500/1200/500Hz at 0.3Hz	1 1 1 0 0	Tone 2	Tone 5
9	Sawtooth 1200/500Hz at 1Hz	0 0 0 1 0	Tone 15	Tone 2
10	Alternating 2400/2900Hz at 2Hz	1 0 0 1 0	Tone 7	Tone 5
11	Intermittent 1000Hz at 0.5Hz <i>General alarm</i>	0 1 0 1 0	Tone 31	Tone 1
12	Alternating 800/1000Hz at 0.875Hz	1 1 0 1 0	Tone 4	Tone 5
13	Intermittent 2400Hz at 1Hz	0 0 1 1 0	Tone 15	Tone 5
14	Intermittent 800Hz 0.25s on 1s off	1 0 1 1 0	Tone 4	Tone 5
15	Continuous at 800Hz	0 1 1 1 0	Tone 2	Tone 5
16	Intermittent 660Hz 150mS on, 150mS off	1 1 1 1 0	Tone 18	Tone 5
17	Alternating 544Hz (100mS)/440Hz(400mS)	0 0 0 0 1	Tone 2	Tone 27
18	Intermittent 660Hz 1.8s on, 1.8s off	1 0 0 0 1	Tone 2	Tone 5
19	1400Hz to 1600Hz sweep up over 1s - 1600Hz to 1400Hz sweep down over 0.5s	0 1 0 0 1	Tone 2	Tone 5
20	Continuous 660Hz	1 1 0 0 1	Tone 2	Tone 5
21	Alternating 554/440Hz at 1Hz	0 0 1 0 1	Tone 2	Tone 5
22	Intermittent 554Hz at 0.875Hz	1 0 1 0 1	Tone 2	Tone 5
23	800Hz pulsing at 2Hz	0 1 1 0 1	Tone 6	Tone 5
24	Sweeping 800/1000Hz at 50Hz	1 1 1 0 1	Tone 29	Tone 5
25	Sweeping 2400/2900Hz at 50Hz	0 0 0 1 1	Tone 29	Tone 5
26	Simulated bell sound	1 0 0 1 1	Tone 2	Tone 1
27	Continuous 554Hz	0 1 0 1 1	Tone 26	Tone 5
28	Continuous 440Hz	1 1 0 1 1	Tone 2	Tone 5
29	Sweeping 800/1000Hz at 7Hz	0 0 1 1 1	Tone 7	Tone 5
30	420Hz repeating 0.625s on, 0.625s off <i>Australian alert signal</i>	1 0 1 1 1	Tone 32	Tone 5
31	1200/500Hz at 1 Hz <i>Prepare to Abandon Platform</i>	0 1 1 1 1	Tone 11	Tone 1
32	Sweeping 500/1200Hz 3.75s on, 0.25s off 15Hz	1 1 1 1 1	Tone 26	Tone 1



# MANUAL DE INSTRUCCIONES (ATEX / IECEx) (ESP)

## Sondas acústicas antideflagrantes BExDS120D y BExDS110D

### Para su utilización en ambientes con polvo y gases inflamables

## 2) Marcas

Todas las unidades llevan una etiqueta de clasificación con la siguiente información importante: -

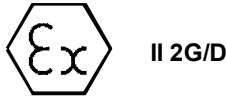
Nº de tipo de unidad. BExDS120D o BExDS110D

Voltaje de entrada: Unidades de CC 12 V o 24 V o 48V  
Unidades de CA 230 V o 110 V o 115V

Código: Ex d IIC T4 for Ta -50°C to +55°C  
Ex d IIB T4 for Ta -50°C to +70°C  
Ex tD A21 IP67 T115°C based on max Ta of +70°C

Nº de certificado KEMA 99ATEX6312  
IECEx KEM 10.0003

Epsilon x:  
Categoría y grupo  
de equipamiento:



Marca CE:  
Nº de cuerpo de  
notificación



**“Avisos”** NO ABRIR EN AMBIENTES CON POLVO  
O PRESENCIA DE UN GAS EXPLOSIVO

PERNOS DE LA CUBIERTA CLASE A4-80

UTILICE CABLES Y CASQUILLOS DE CABLE RESISTENTES AL  
CALOR (Clasificados a 110°C) A TEMPERATURAS AMBIENTE  
SUPERIORES A 40°C

## 4) Requisitos de instalación

Las sondas acústicas deben instalarse conforme a las siguientes normas o sus equivalentes.

EN60079-14:2008 Instalaciones eléctricas en áreas  
IEC60079-14:2007 (Ed4) peligrosas (exceptuando minas)  
EN60079-10:2003 Clasificación de áreas peligrosas  
IEC60079-10:2008 (Ed1)

La instalación únicamente debe llevarse a cabo por parte de personal competente y debe observarse cualquier código de práctica local.

## 5) Clasificación de zonas, grupo de gas, categoría y temperatura

Las unidades pueden instalarse en ubicaciones que cumplan las siguientes condiciones: -

### Gas de clasificación por área:

Zona 1	Mezcla explosiva de aire y gas que es posible ocurra durante el funcionamiento normal.
Zona 2	Mezcla explosiva improbable de aire y gas que, de producirse, lo hará sólo por breve tiempo.

### Grupos de gas:

Grupo IIA	Propano
Grupo IIB	Etileno
Grupo IIC < +55°C	Hidrógeno y acetileno

### Clasificación de temperatura:

T1	400° C
T2	300° C
T3	200° C
T4	135° C

### Polvo de clasificación por área:

Zona 21	Es posible la existencia de una mezcla de aire y polvo explosivo durante el funcionamiento.
Zona 22	La existencia de una mezcla de aire y polvo explosivo no es muy probable y si se da sólo durará un breve espacio de tiempo.

**Clasificación IP:** IP67 T100°C Ta ≤ +55°C  
T115°C Ta ≤ +70°C

**Categoría de equipo:** 2G/D

### Rango de temperatura ambiente:

-50°C a +55°C Grupos de gas IIA, IIB y IIC  
-50°C a +70°C Grupos de gas IIA y IIB

## 6) Ubicación y montaje de la sonda acústica

Véase el diagrama A

## 7) Acceso a la caja antideflagrante

Véase el diagrama B

Obsérvese que los cuatro **tornillos M6 son de acero inoxidable de clase A4-80** y que con estas sondas acústicas únicamente deben utilizarse tornillos de esta categoría. Por ello, es importante que estos tornillos, y las arandelas elásticas se guarden en un lugar seguro durante la instalación.

## 8) Selección de la fuente de alimentación

La fuente de alimentación del sistema debe tener la capacidad necesaria para proporcionar la corriente de entrada a todas las sondas acústicas conectadas al sistema.

La tabla que aparece a continuación muestra la corriente de entrada que usan las diferentes unidades de sondas acústicas: -

Tipo de unidad	Voltaje entrada	Corriente entrada	IP máx volts
BExDS120D	24V CC	800mA	30V
BExDS120D	12V CC	850mA	15V
BExDS120D	48V CC	420mA	58V
BExDS120D	230V CA	90mA	264V
BExDS120D	110V CA	200mA	121V
BExDS120D	115V CA	180mA	126V
BExDS110D	24V CC	265mA	30V
BExDS110D	12V CC	195mA	15V
BExDS110D	48V CC	130mA	58V
BExDS110D	230V CA	56mA	264V
BExDS110D	110V CA	93mA	121V
BExDS110D	115V CA	110mA	126V

Esta tabla también muestra los voltajes máximos con los que pueden funcionar las sondas acústicas.

### 9) Selección de cables

Los cables deben tener la capacidad necesaria para manipular la corriente extraída de todas las unidades en la línea.

**AVISO SOBRE SEGURIDAD:** Si las sondas acústicas de salida alta BExDS120D se utilizan a temperaturas ambiente altas, es decir, superiores a 40°C, la temperatura de entrada del cable puede superar +70°C; por lo tanto, deben usarse cables resistentes al calor adecuados, con una temperatura de servicio nominal de al menos 110°C.

### 10) Puesta a tierra

Tanto las sondas acústicas de CA como de CC deben tener una buena conexión a tierra. Las unidades tienen bornes de tierra internos y externos, ubicadas en la sección de la cámara de bornes de la unidad (véanse las ilustraciones 2 y 3).

Cuando se utilicen los bornes de tierra externos, debe utilizarse un talón de cable fruncido. El talón de cable se situará entre las dos arandelas planas M5 de acero inoxidable. La arandela elástica M5 de acero inoxidable debe colocarse entre la arandela plana exterior y la tuerca M5 de acero inoxidable a fin de asegurar que el talón del cable no se afloje ni retuerza.

### 11) Casquillos de los cables

Las sondas acústicas tienen casquillos de cable de entrada doble con roscas de entrada de M20 x 1,5. Únicamente deben utilizarse casquillos de cable aprobados para aplicaciones Ex 'd', los cuales deben ser adecuados para el tipo de cable que se está utilizando, además de satisfacer los requisitos de la norma EN 60079-14:2008 / IEC60079-14:2007 para instalaciones antideflagrantes Ex 'd'.

Cuando solamente se utilice una entrada de cable, la otra deberá cerrarse con un tapón de obturación antideflagrante Ex 'd' debidamente aprobado para los requisitos de la instalación.

Para las aplicaciones de polvo combustible, el dispositivo de entrada del cable y los elementos de supresión deberán estar en la protección de tipo de explosión de seguridad aumentada "e" o en el recinto a prueba de explosión "d" y tendrán que tener una clasificación IP 6X de acuerdo con EN 60529:1992.

**AVISO SOBRE SEGURIDAD:** Si las sondas acústicas BExDS120D de salida alta se utilizan a temperaturas ambiente altas, es decir, superiores a 40°C, la temperatura

de entrada del cable puede superar +70°C; por lo tanto, deben usarse casquillos de cable resistentes al calor adecuados, con una temperatura de servicio nominal de al menos 110°C.

### 12) Conexiones de los cables

Véase el diagrama C y D

### 13) Selección de tono y alarmas de 2ª y 3ª fase

Véase el diagrama de cableado E

### 14) Control del volumen

Véase el diagrama F

### 15) Vigilancia de fin de línea (Unidades de CC)

En las unidades BExDS120D y BExDS110D de CC, puede utilizarse la vigilancia de línea inversa si fuera necesario. Todas las sondas acústicas de CC llevan un diodo de bloqueo en las líneas de entrada de suministro. Puede ajustarse un diodo de vigilancia de fin de línea o una resistencia de vigilancia de fin de línea a lo largo de los bornes +ve y -ve. Si se utiliza una resistencia de fin de línea, ésta deberá tener un valor mínimo de resistencia de 3k3 ohmios y un vatiaje mínimo de 0,5 vatios o un valor mínimo de resistencia de 500 ohmios y un vatiaje mín. de 2 vatios.

### TABLA DE SELECCIÓN DE TONO

Tone Selection		DIP Switch Settings	Stage Selection	
Stage 1	Frequency Description	1 2 3 4 5	Stage 2	Stage 3
1	Continuous 1000Hz <i>Toxic Gas Alarm</i>	0 0 0 0 0	Tone 31	Tone 11
2	Alternating 800/1000Hz at 0.25s intervals	1 0 0 0 0	Tone 17	Tone 5
3	Slow Whoop 500/1200Hz at 0.3Hz with 0.5s gap repeated	0 1 0 0 0	Tone 2	Tone 5
4	Sweeping 800/1000 at 1Hz	1 1 0 0 0	Tone 6	Tone 5
5	Continuous at 2400Hz	0 0 1 0 0	Tone 3	Tone 27
6	Sweeping 2400/2900Hz at 7Hz	1 0 1 0 0	Tone 7	Tone 5
7	Sweeping 2400/2900Hz at 1Hz	0 1 1 0 0	Tone 10	Tone 5
8	Siren 500/1200/500Hz at 0.3Hz	1 1 1 0 0	Tone 2	Tone 5
9	Sawtooth 1200/500Hz at 1Hz	0 0 0 1 0	Tone 15	Tone 2
10	Alternating 2400/2900Hz at 2Hz	1 0 0 1 0	Tone 7	Tone 5
11	Intermittent 1000Hz at 0.5Hz <i>General alarm</i>	0 1 0 1 0	Tone 31	Tone 1
12	Alternating 800/1000Hz at 0.875Hz	1 1 0 1 0	Tone 4	Tone 5
13	Intermittent 2400Hz at 1Hz	0 0 1 1 0	Tone 15	Tone 5
14	Intermittent 800Hz 0.25s on 1s off	1 0 1 1 0	Tone 4	Tone 5
15	Continuous at 800Hz	0 1 1 1 0	Tone 2	Tone 5
16	Intermittent 660Hz 150mS on, 150mS off	1 1 1 1 0	Tone 18	Tone 5
17	Alternating 544Hz (100mS)/440Hz(400mS)	0 0 0 0 1	Tone 2	Tone 27
18	Intermittent 660Hz 1.8s on, 1.8s off	1 0 0 0 1	Tone 2	Tone 5
19	1400Hz to 1600Hz sweep up over 1s - 1600Hz to 1400Hz sweep down over 0.5s	0 1 0 0 1	Tone 2	Tone 5
20	Continuous 660Hz	1 1 0 0 1	Tone 2	Tone 5
21	Alternating 554/440Hz at 1Hz	0 0 1 0 1	Tone 2	Tone 5
22	Intermittent 554Hz at 0.875Hz	1 0 1 0 1	Tone 2	Tone 5
23	800Hz pulsing at 2Hz	0 1 1 0 1	Tone 6	Tone 5
24	Sweeping 800/1000Hz at 50Hz	1 1 1 0 1	Tone 29	Tone 5
25	Sweeping 2400/2900Hz at 50Hz	0 0 0 1 1	Tone 29	Tone 5
26	Simulated bell sound	1 0 0 1 1	Tone 2	Tone 1
27	Continuous 554Hz	0 1 0 1 1	Tone 26	Tone 5
28	Continuous 440Hz	1 1 0 1 1	Tone 2	Tone 5
29	Sweeping 800/1000Hz at 7Hz	0 0 1 1 1	Tone 7	Tone 5
30	420Hz repeating 0.625s on, 0.625s off <i>Australian alert signal</i>	1 0 1 1 1	Tone 32	Tone 5
31	1200/500Hz at 1 Hz <i>Prepare to Abandon Platform</i>	0 1 1 1 1	Tone 11	Tone 1
32	Sweeping 500/1200Hz 3.75s on, 0.25s off 15Hz	1 1 1 1 1	Tone 26	Tone 1



## 2) Märkning

Samtliga enheter är försedda med märkplåt med följande viktiga information:

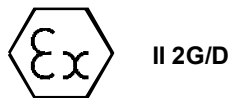
Typ: BExDS120D eller BExDS110D

Matningsspänning: DC-enheter 12V, 24V eller 48V  
AC-enheter 230V, 110V eller 115V

Kod: Ex d IIC T4 for Ta -50°C to +55°C  
Ex d IIB T4 for Ta -50°C to +70°C  
Ex tD A21 IP67 T115°C based on max Ta of +70°C

Certifiering: KEMA 99ATEX6312  
IECEx KEM 10.0003

Epsilon x:  
Utrustningsgrupp  
och kategori:



CE-märkning:  
Ansvarigt organ:



**VARNING!** ÖPPNAS EJ I NÄRVARO AV EXPLOSIVA  
GAS- ELLER DAMMATMOSFÄRER

KAPSLINGSBULTAR KLASS A4-80

ANVÄND VÄRMEBESTÄNDIGA KABLAR OCH  
KABELGENOMFÖRINGAR (med märktemp 110°C) VID  
OMGIVNINGSTEMPERATURER ÖVER 40°C

## 4) Installationskrav

Högtalarna skall installeras enligt följande eller likvärdiga standarder.

EN60079-14:2008 Elektriska installationer inom  
IEC60079-14:2007 (Ed4) riskområden (utom gruvor)  
EN60079-10:2003 Klassning av explosionsfarliga  
IEC60079-10:2008 (Ed1) områden

Installation skall endast göras av behörig personal under tillämpande av lokala bestämmelser.

## 5) Zoner, explosionsgrupper, kategori och T-klasser

Enheterna får installeras på platser där följande förhållanden råder:-

### Zonindelning för gas:

<b>Zon 1</b>	Explosiv gasblandning förväntas förekomma vid normal drift.
<b>Zon 2</b>	Explosiv gasblandning förväntas förekomma sällan och då endast kortvarigt.

### Explosionsgrupper:

Grupp IIA	Propan
Grupp IIB	Etylen
Grupp IIC < +55°C	Väte och acetylen

### T-klasser:

T1	400° C
T2	300° C
T3	200° C
T4	135° C

### Zonindelning för damm:

<b>Zon 21</b>	Explosiv dammatmosfär i form av moln kan väntas förekomma under normal drift.
<b>Zon 22</b>	Explosiv dammatmosfär i form av moln väntas inte förekomma och, om den likväl förekommer, i så fall sannolikt endast kortvarigt.

IP-klassning: IP67 T100°C Ta ≤ +55°C  
T115°C Ta ≤ +70°C

Kategori på utrustning: 2G/D

### Omgivningstemperatur:

-50°C till +55°C Explosionsgrupper IIA, IIB och IIC  
-50°C till +70°C Explosionsgrupper IIA och IIB

## 6) Monteringsinstruktion och val av plats för högtalare

Se ritning A

### 7) Åtkomst till den explosionstäta kapslingen

Se ritning B

Observera att de fyra **M6-skruvarna** är av klass **A4-80** och av rostfritt stål. Endast dessa skruvar skall användas till högtalarna. Därför är det viktigt att dessa skruvar och dess fjäderbrickor läggs på ett säkert ställe under installationen.

## 8) Val av strömförsörjning

Strömförsörjningsaggregatet måste ha tillräcklig kapacitet för att förse alla högtalare anslutna till systemet med ström.

Tabellen nedan visar den ingångsspänning som behövs för de olika högtalarna:

Typ	Ingångsspänning	Ingångsström	Max. spänning
BExDS120D	24V DC	800mA	30V
BExDS120D	12V DC	850mA	15V
BExDS120D	48V DC	420mA	58V
BExDS120D	230V AC	90mA	264V
BExDS120D	110V AC	200mA	121V
BExDS120D	115V AC	180mA	126V
BExDS110D	24V DC	265mA	30V
BExDS110D	12V DC	195mA	15V
BExDS110D	48V DC	130mA	58V
BExDS110D	230V AC	56mA	264V
BExDS110D	110V AC	93mA	121V
BExDS110D	115V AC	110mA	126V

Tabellen ovan visar också högtalarnas högsta driftspänning.

## 9) Val av kabel

Kablarna måste vara dimensionerade för att klara strömbelastningen från alla anslutna enheter.

**SÄKERHETSVARNING:** Om BExDS120D-högtalarna med hög uteffekt används vid höga omgivningstemperaturer, dvs över +40°C, kan ledningarnas temperatur överskrida +70°C vid införingsstället. Därför skall lämpliga värmeresistenta kablar, med en märktemperatur på minst 110°C, användas.

## 10) Jordning

Både AC- och DC-högtalarna måste jordas på tillfredsställande sätt. Enheterna har interna och externa jordanslutningar, vilka båda är placerade i enhetens kopplingshus (se bild 2 och 3).

När den externa jordanslutningen används skall en kontaktpressad kabelsko monteras. Kabelskon skall placeras mellan de två flata rostfria stålbrickorna (M5). Fjäderbrickorna av rostfritt stål (M5) skall monteras mellan den yttre flata brickan och den rostfria stålmuttern (M5) för att säkerställa att kabelskon inte lossnar eller vrids.

## 11) Kabelgenomföringar

Högtalarna har dubbla kabelgångar med M20 x 1,5 gänga. Endast kabelgenomföringar godkända för Ex 'd'-bruk får användas. Dessa måste passa den typ av kabel som används och dessutom uppfylla kraven för explosionstät kapsling (Ex 'd') enligt EN60079-14:2008 / IEC60079-14:2007.

Om endast en kabelgång används skall den andra tillslutas med en Ex 'd' explosionssäker avslutningsnippel som är certifierad enligt installationskraven

För lättantändliga dammanvändningsområden, skall kabelgenomföringsprodukten och blindpluggar vara av typen explosionsskydd med förhöjd säkerhet "e" eller explosionstät kapsling "d", och skall vara IP 6X-klassad enligt EN60529:1992.

**SÄKERHETSVARNING:** Om BExDS120D-högtalarna med hög uteffekt används vid höga omgivningstemperaturer, dvs över +40°C, kan ledningarnas temperatur överskrida +70°C vid införingsstället. Därför skall lämpliga värmeresistenta kablar, med en märktemperatur på minst 110°C, användas.

## 12) Kabelanslutningar

Se ritning C och D

## 13) Tonval och 2- och 3-lägeslarm

Se kopplingschema. E

## 14) Volymkontroll

Se ritning F

## 15) Ledningsövervakning (DC-enheter)

Ledningsövervakning kan vid behov användas på DC-enheterna BExDS120D och BExDS110D. Alla DC-högtalare har en blockeringsdiod installerad i ingångsledningen. En bevakningsdiod eller ett bevakningsmotstånd kan anslutas över plus- och minuspolerna. Om ett bevakningsmotstånd används skall resistansen vara minst 3,3 kohm och effekten minst 0,5 watt eller minst 500 ohm och minst 2 watt.

## TONVALSTABELL

Tone Selection		DIP Switch Settings					Stage Selection	
Stage 1	Frequency Description	1	2	3	4	5	Stage 2	Stage 3
1	Continuous 1000Hz <i>Toxic Gas Alarm</i>	0	0	0	0	0	Tone 31	Tone 11
2	Alternating 800/1000Hz at 0.25s intervals	1	0	0	0	0	Tone 17	Tone 5
3	Slow Whoop 500/1200Hz at 0.3Hz with 0.5s gap repeated	0	1	0	0	0	Tone 2	Tone 5
4	Sweeping 800/1000 at 1Hz	1	1	0	0	0	Tone 6	Tone 5
5	Continuous at 2400Hz	0	0	1	0	0	Tone 3	Tone 27
6	Sweeping 2400/2900Hz at 7Hz	1	0	1	0	0	Tone 7	Tone 5
7	Sweeping 2400/2900Hz at 1Hz	0	1	1	0	0	Tone 10	Tone 5
8	Siren 500/1200/500Hz at 0.3Hz	1	1	1	0	0	Tone 2	Tone 5
9	Sawtooth 1200/500Hz at 1Hz	0	0	0	1	0	Tone 15	Tone 2
10	Alternating 2400/2900Hz at 2Hz	1	0	0	1	0	Tone 7	Tone 5
11	Intermittent 1000Hz at 0.5Hz <i>General alarm</i>	0	1	0	1	0	Tone 31	Tone 1
12	Alternating 800/1000Hz at 0.875Hz	1	1	0	1	0	Tone 4	Tone 5
13	Intermittent 2400Hz at 1Hz	0	0	1	1	0	Tone 15	Tone 5
14	Intermittent 800Hz 0.25s on 1s off	1	0	1	1	0	Tone 4	Tone 5
15	Continuous at 800Hz	0	1	1	1	0	Tone 2	Tone 5
16	Intermittent 660Hz 150mS on, 150mS off	1	1	1	1	0	Tone 18	Tone 5
17	Alternating 544Hz (100mS)/440Hz(400mS)	0	0	0	0	1	Tone 2	Tone 27
18	Intermittent 660Hz 1.8s on, 1.8s off	1	0	0	0	1	Tone 2	Tone 5
19	1400Hz to 1600Hz sweep up over 1s - 1600Hz to 1400Hz sweep down over 0.5s	0	1	0	0	1	Tone 2	Tone 5
20	Continuous 660Hz	1	1	0	0	1	Tone 2	Tone 5
21	Alternating 554/440Hz at 1Hz	0	0	1	0	1	Tone 2	Tone 5
22	Intermittent 554Hz at 0.875Hz	1	0	1	0	1	Tone 2	Tone 5
23	800Hz pulsing at 2Hz	0	1	1	0	1	Tone 6	Tone 5
24	Sweeping 800/1000Hz at 50Hz	1	1	1	0	1	Tone 29	Tone 5
25	Sweeping 2400/2900Hz at 50Hz	0	0	0	1	1	Tone 29	Tone 5
26	Simulated bell sound	1	0	0	1	1	Tone 2	Tone 1
27	Continuous 554Hz	0	1	0	1	1	Tone 26	Tone 5
28	Continuous 440Hz	1	1	0	1	1	Tone 2	Tone 5
29	Sweeping 800/1000Hz at 7Hz	0	0	1	1	1	Tone 7	Tone 5
30	420Hz repeating 0.625s on, 0.625s off <i>Australian alert signal</i>	1	0	1	1	1	Tone 32	Tone 5
31	1200/500Hz at 1 Hz <i>Prepare to Abandon Platform</i>	0	1	1	1	1	Tone 11	Tone 1
32	Sweeping 500/1200Hz 3.75s on, 0.25s off 15Hz	1	1	1	1	1	Tone 26	Tone 1

# EC DECLARATION OF CONFORMITY



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

**Equipment Type:** BExS110D, BExS120D, BExS110E, BExS120E,  
BExDS120D, BExDS110D, BExDS120E, BExDS110E,  
BExL25D, BExL15D, BExL25E, BExL15E,  
BExDL25D, BExDL15D, BExDL25E, BExDL15E,  
BExA110D, BExA120D, BExA110E, BExA120E,  
BExDA110D, BExDA120D, BExDA110E, BExDA120E,  
BExTS110D, BExDTS110D, BExH120D, BExDH120D, BExL25GD, BExDL25GD

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

**Notified Body for EC type Examination:** KEMA Quality B.V.  
Notified Body No.: 0344  
Utrechtseweg 310, 6812 AR Arnhem, The Netherlands

**EC-type Examination Certificate:** KEMA 99ATEX6312

**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:** II2 G Ex d IIB or IIC T4 or  
II2 G Ex de IIB or IIC T4  
II2 D Ex tD A21 IP66 or IP67 T100 °C or T115 °C

**Standards applied:** EN 60079-0:2006  
EN 60079-1:2007  
EN 60079-7:2003  
EN 61241-0:2006  
EN 61241-1:2004

## **Directive 89/106/EEC: Construction Products Directive (CPD) – BExS110D24DC / BExS120D24DC (tones 2, 3, 9, 15, 16, 17) only**

**Notified Body for EC type Examination:** VdS Schadensverhütung GmbH  
Notified Body No.: 0786  
Amsterdamer Str 172-174, 50735 Köln, Germany

**EC-type Examination Certificate:** 0708-CPD-20225

**Standards applied:** EN 54-3:2001 + A1:2002

## **Directive 2009/26/EC: Marine Equipment Directive (MED) – BExS110D24DC-M only**

**Notified Body for EC type Examination:** Germanischer Lloyd SE  
Notified Body No.: 0098  
Brooktorkai 18, 20457 Hamburg, Germany

**EC-type Examination Certificate:** 19 702 - 11 HH

**Standards applied:** EN 54-3:2001 + A1:2002 + A2:2006  
IEC 60092-504: 2001  
IEC 60533: 1999

## **Directive 2004/108/EC: Electromagnetic Compatibility Directive (EMC)**

**Standards applied:** EN 61000-6-1:2007  
EN 61000-6-2:2005  
EN 61000-6-3:2007  
EN 61000-6-4:2007

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The standards EN 60079-0: 2006, EN 60079-7:2003, EN 61241-0:2006 and EN 61241-1:2004 are no longer harmonized. The requirements of these standards have been checked against the harmonized standards EN 60079-0:2009, EN 60079-7:2007 and EN 60079-31:2009 and there were no major technical changes affecting the latest technical knowledge for the products listed above.

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.

**Martin Streetz**  
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