

# INSTRUCTION & SERVICE MANUAL

## E2xS121UL ALARM HORN SOUNDERS

### For Use In Hazardous Locations

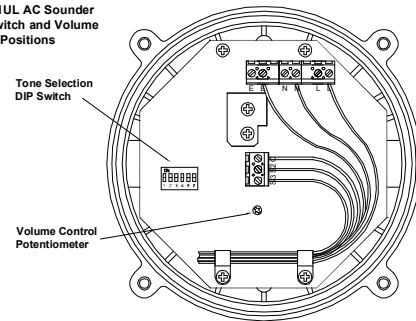
- 45 Tones 3 stage Alarm Horn Sounder
- Automatic Synchronisation
- Volume control
- Type 4 / 4X / 13
- Operating Temperature Range  
-20°C to +55°C



**Unit Type No.** E2xS121UL

**Input Voltages:** DC Units 10-30V or 48V  
AC Units 120V or 230V 50/60Hz

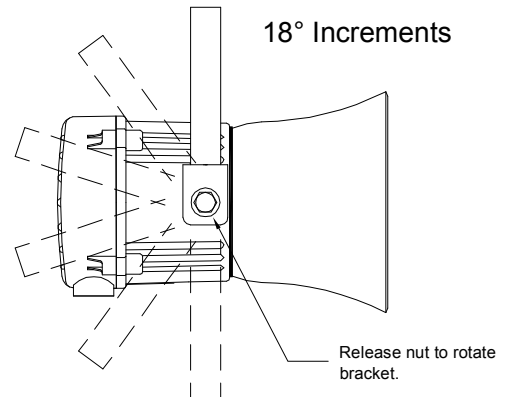
E2xS121UL AC Sounder  
Tone Switch and Volume  
Control Positions



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

#### MOUNTING

The E2xS121UL sounder must be mounted using the rotating bracket as shown. If the cover has been removed to set the tone or volume control ensure that it has been correctly replaced before the sounder is mounted.



#### WIRING INSTALLATION

The E2xS121UL sounder has one 1/2 NPT cable entry, the blanking plug adjacent to the cable entry is permanently fixed and must not be removed. The sounder is pre-wired with flying leads which are colour coded and should be connected as shown in the diagram below.

The conduit running from the supply to the sounder must include an equipment grounding conductor that is at earth potential to facilitate ground connection of the device. A number of sounders can be connected in a chain to the same supply using field installed wiring compartments that are appropriate for the hazardous location, provided that the conductor at earth potential can be readily connected to the ground lead on each sounder in the chain.

**WARNING - ALL ELECTRICAL WIRING MUST BE INSTALLED IN ACCORDANCE TO THE NATIONAL ELECTRICAL CODE**

#### AC SOUNDERS

Black	Live	Violet	C
White	Neutral	Orange	S2
Green/Yellow	Ground	Yellow	S3

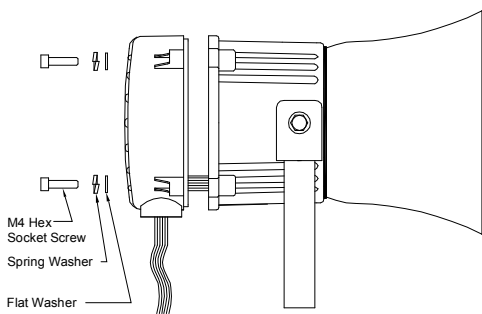
Max. Operating Temperature / Code at +55°C Ambient	
Hazardous Location	Temperature Code
Class I, Division 2, Groups A, B, C, D	T3C (160°C)
Class II, Division 2, Groups F and G	T6 (85°C)
Class III, Divisions 1 and 2	T6 (85°C)

Max. Operating Temperature / Code at +40°C Ambient	
Hazardous Location	Temperature Code
Class I, Division 2, Groups A, B, C, D	T4 (135°C)

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

#### PRE-INSTALLATION

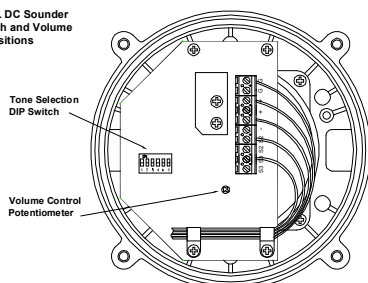
**WARNING** - Before the E2xS121UL sounder is installed the required tone and output volume must be set. *Note the units are factory set to tone 2 (800/1000Hz alternating at 2Hz) and maximum output.* If necessary the unit should be connected to a suitable power supply in a safe area to determine what tone pattern and output level is required.

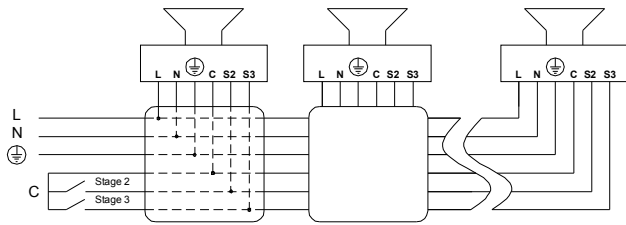


**WARNING - DO NOT OPEN WHEN ENERGISED**

**CAUTION - DO NOT OPEN WHEN AN EXPLOSIVE GAS OR DUST ATMOSPHERE IS PRESENT**

E2xS121UL DC Sounder  
Tone Switch and Volume  
Control Positions

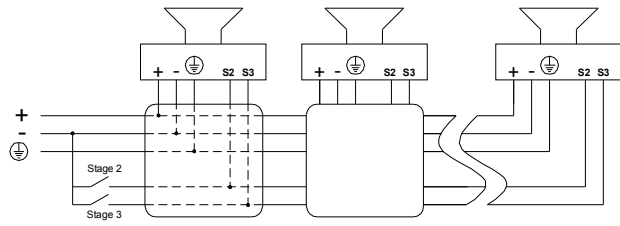




NOTE if the second and third stage wires are not used they must be individually insulated to ensure that cannot make contact to any other wires.

**DC SOUNDERS**

Red	Positive	Orange	S2
Black	Negative	Yellow	S3
Green/Yellow	Ground		



NOTE if the second and third stage wires are not used they must be individually insulated to ensure that cannot make contact to any other wires.

**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.

Unit Type	Input Voltage	Input @ 1kHz Current	Max. I/P Volts
E2xS121UL	24V DC	280mA	30V
E2xS121UL	48V DC	215mA	58V
E2xS121UL	230V 50/60Hz AC	76mA	253V
E2xS121UL	120V 50/60Hz AC	142mA	132V

**TONE SELECTION**

The E2xS121UL sounders have 45 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 opposite shows the switch positions for the 45 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 flying leads (Red and Black for DC units, Black, White and Green/Yellow 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

To activate the second stage, remotely switch the S2 orange wire to the negative supply. To activate the third stage, remotely switch the S3 orange wire to the negative supply. NOTE the DC power supply to the Red and Black wires must be maintained for 2<sup>nd</sup> and 3<sup>rd</sup> stages.

AC Units Second and Third Stage Tone Selection

To select the second and third stages on the E2xS121UL AC sounders the Common (C) Violet wire must be remotely connected to the S2 orange wire for the second stage and to the S3 yellow wire for third stage. NOTE the AC power supply to the Black and White lead must be maintained for 2<sup>nd</sup> and 3<sup>rd</sup> stages.

**VOLUME CONTROL**

The volume on the E2xS121UL sounder can be set using the volume control (see figures 2 and 3). For maximum output level the potentiometer should be set to the fully clockwise position.

**WARNING – HIGH VOLUME MAY CAUSE HARM TO PERSONNEL IN CLOSE PROXIMITY**

**END OF LINE MONITORING**

On E2xS121UL 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 resistor can be connected across the +ve and –ve terminals. If an end of line resistor is used it must have the following values:-

**24V DC Sounders**

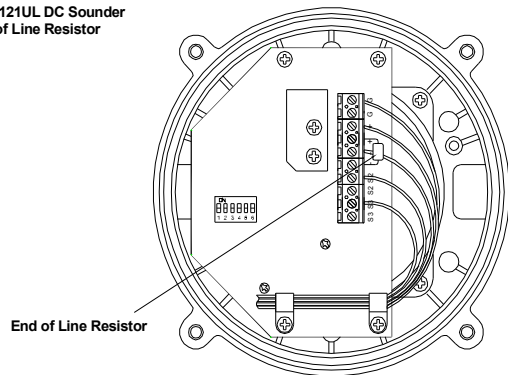
Minimum Resistance 3k9 ohms	Minimum wattage 0.5W
Minimum Resistance 1k ohms	Minimum wattage 2.0W

**48V DC Sounders**

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

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

E2xS121UL DC Sounder End of Line Resistor



## STONE SELECTION TABLE

Stage 1	Frequency Description	Switch						Stage 2	Stage 3
		1	2	3	4	5	6		
1	340Hz Continuous	0	0	0	0	0	0	Tone 2	Tone 5
2	800/1000Hz @ 0.25 sec Alternating	1	0	0	0	0	0	Tone 17	Tone 5
3	500/1200Hz @ 0.3Hz sec Slow Whoop	0	1	0	0	0	0	Tone 2	Tone 5
4	800/1000Hz @ 1Hz Sweeping	1	1	0	0	0	0	Tone 6	Tone 5
5	2400Hz Continuous	0	0	1	0	0	0	Tone 3	Tone 20
6	2400/2900Hz @ 7Hz Sweeping	1	0	1	0	0	0	Tone 7	Tone 5
7	2400/2900Hz @ 1Hz Sweeping	0	1	1	0	0	0	Tone 10	Tone 5
8	500/1200/500Hz @ 0.3Hz Sweeping	1	1	1	0	0	0	Tone 2	Tone 5
9	1200/500Hz @ 1Hz - DIN PFEER P.T.A.P.	0	0	0	1	0	0	Tone 15	Tone 2
10	2400/2900Hz @ 2Hz Alternating	1	0	0	1	0	0	Tone 7	Tone 5
11	1000Hz @ 1Hz Intermittent	0	1	0	1	0	0	Tone 2	Tone 5
12	800/1000Hz @ 0.875Hz Alternating	1	1	0	1	0	0	Tone 4	Tone 5
13	2400Hz @ 1Hz Intermittent	0	0	1	1	0	0	Tone 15	Tone 5
14	800Hz 0.25 sec on, 1 sec off Intermittent	1	0	1	1	0	0	Tone 4	Tone 5
15	800Hz Continuous	0	1	1	1	0	0	Tone 2	Tone 5
16	660Hz 150mS on, 150mS off Intermittent	1	1	1	1	0	0	Tone 18	Tone 5
17	544Hz (100mS)/440 Hz (400mS) - NF S 32-001	0	0	0	0	1	0	Tone 2	Tone 27
18	660Hz 1.8 sec on, 1.8 sec off Intermittent	1	0	0	0	1	0	Tone 2	Tone 5
19	1.4KHz - 1.6KHz 1s, 1.6KHz - 1.4 KHz 0.5s - NFC48-265	0	1	0	0	1	0	Tone 2	Tone 5
20	660Hz Continuous	1	1	0	0	1	0	Tone 2	Tone 5
21	554Hz/440Hz @ 1Hz Alternating	0	0	1	0	1	0	Tone 2	Tone 5
22	544Hz @ 0.875 sec Intermittent	1	0	1	0	1	0	Tone 2	Tone 5
23	800Hz @ 2Hz Intermittent	0	1	1	0	1	0	Tone 6	Tone 5
24	800/1000Hz @ 50Hz Sweeping	1	1	1	0	1	0	Tone 29	Tone 5
25	2400/2900Hz @ 50Hz Sweeping	0	0	0	1	1	0	Tone 29	Tone 5
26	Bell	1	0	0	1	1	0	Tone 2	Tone 15
27	554Hz Continuous	0	1	0	1	1	0	Tone 26	Tone 5
28	440Hz Continuous	1	1	0	1	1	0	Tone 2	Tone 5
29	800/1000Hz @ 7Hz Sweeping	0	0	1	1	1	0	Tone 7	Tone 5
30	300Hz Continuous	1	0	1	1	1	0	Tone 2	Tone 5
31	660/1200Hz @ 1Hz Sweeping	0	1	1	1	1	0	Tone 26	Tone 5
32	Two tone chime	1	1	1	1	1	0	Tone 26	Tone 15
33	745Hz @ 1Hz Intermittent	0	0	0	0	0	1	Tone 2	Tone 5
34	1000 & 2000Hz @ 0.5 sec Alternating - Signapore	1	0	0	0	0	1	Tone 38	Tone 45
35	420Hz @ 0.625 Sec Australian Alert	0	1	0	0	0	1	Tone 36	Tone 5
36	500-1200Hz 3.75 sec /0.25 sec Australian Evac.	1	1	0	0	0	1	Tone 35	Tone 5
37	1000Hz Continuous - PFEER Toxic Gas	0	0	1	0	0	1	Tone 9	Tone 45
38	2000Hz Continuous	1	0	1	0	0	1	Tone 34	Tone 45
39	800Hz 0.25 sec on, 1 sec off Intermittent	0	1	1	0	0	1	Tone 23	Tone 17
40	544Hz (100mS)/440Hz (400mS) - NF S 32-001	1	1	1	0	0	1	Tone 31	Tone 27
41	Motor Siren - slow rise to 1200Hz	0	0	0	1	0	1	Tone 2	Tone 5
42	Motor Siren - slow rise to 800Hz	1	0	0	1	0	1	Tone 2	Tone 5
43	1200Hz Continuous	0	1	0	1	0	1	Tone 2	Tone 5
44	Motor Siren - slow rise to 2400Hz	1	1	0	1	0	1	Tone 2	Tone 5
45	1KHz 1s on, 1s off Intermittent - PFEER Gen. Alarm	0	0	1	1	0	1	Tone 38	Tone 34

## SWITCH POSITION EXPLANATION

1 = Switch in the ON position.  
0 = Switch in the OFF position..