60XSB/901SB MKII SOUNDER BASES
PRODUCT APPLICATION & SYSTEM DESIGN

INTRODUCTION

The 60XSB/901SB MKII range of Sounder Bases provide the following facilities:

- 601SB Type 'A' Sounder Base - provides an additional sounder function primarily on conventional systems. The 601SB Sounder Base operates independently of the detector circuit and may be used without an associated detector. When used without a detector, a cap Part No. 557.001.040 must be fitted and if loop wiring is required then the alternative wiring method must be used.
  If used with MX/Minerva, the wiring will require monitoring as the sounder is independent of the panel function, ie, Not in Bell Map.
- 601SBD Type 'A' Sounder Diode Base - as for the 601SB but fitted with a diode. The 601SBD must be used in zones that comply with BS5839: Part 1 : 1988 which requires that, if callpoints are wired after detectors on a zone circuit, removal of a detector or use without a detector will not affect the operation of these callpoints.
  The 601SBD Type 'A' Sounder Base operates independently of the detector circuit and may be used without an associated detector. When used without a detector, a cap Part No. 557.001.040 must be fitted and if loop wiring is required, then the alternative wiring method should be used.
- 602SB Type 'A' Intelligent Sounder Base provides an additional sounder function on the MXC range of conventional systems and is powered off the detection circuit. The 602SB Sounder Base may be used with or without an associated detector. When used with an associated detector, removal of any detector or loss of power to the detection circuit may cause the sounder to cease operating. When used without an associated detector, the wiring should be as shown in the alternate wiring scheme and a cap, Part No. 557.001.040 should be fitted in place of a detector.
  602SBD Type 'A' Intelligent Sounder Diode Base - as for the 602SB but fitted with a diode and must be used with a detector fitted. The 602SBD must be used in zones that comply with BS5839 : Part 1 : 1988 which requires that, if callpoints are wired after detectors on a zone circuit, removal of a detector will not affect the operation of these callpoints.

602SB/602SBD

601SB/601SBD/901SB

TEMPORARY PARK PLUNGER

The Temporary Park Plungers are coloured as follows:

601SB/601SBD:	Green
602SB/602SBD:	Yellow
901SB:	Blue

Fig. 1: General View of Sounder Bases

The 602SBD Diode Sounder Base should be used with an associated detector. Removal of the detector should not prevent the sounder operating but will flag up a fault at the control panel.

- 901SB Addressable Type 'A' Sounder Base - provides an additional sounder function on addressable (MX) and analogue addressable (Minerva) systems. The 901SB Sounder Base requires an associated detector in order to operate, as it uses the address of the detector that is fitted to it. Removal of the detector or loss of power to the loop will cause the sounder to cease operating.

  The 901SB is not loop powered. If an external supply is used the PSU must be monitored by the system.

  901SBs may be used to supplement 802SBs on MX systems where there is insufficient power available. As far as possible, 802 and 901 bases should be kept in groups of similar types to improve synchronisation on setup.

The Sounder Bases are designed to be fitted to a 4" mounting flange mounted to a flat surface or an electrical box with 50mm to 70mm fixing centres. Fig.1 shows a general view of the bases.

For the 901SB Sounder Bases, the part of the moulding onto which the detector plugs, is designed to receive the standard low profile detector address "smartcard" and detector address label carrier.

Note: For LPCB approval, detectors and caps must be locked into the sounder base using a locking device (Factory fitted). See Fig. 2.

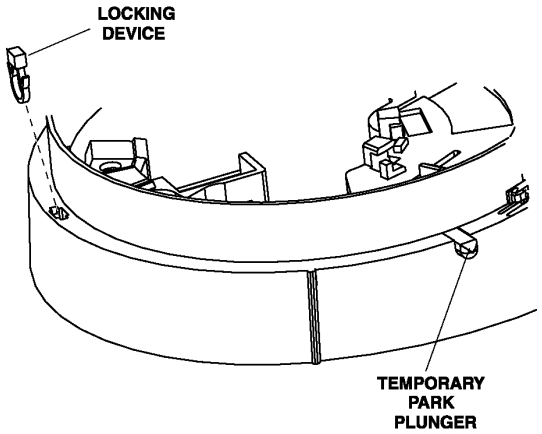

Fig. 2: Locking Device

TECHNICAL DESCRIPTION

MECHANICAL CHARACTERISTICS

DIMENSIONS (all variants) see Fig. 3:

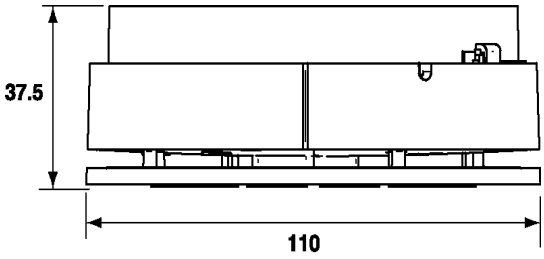

Fig. 3: Sounder Base with Mounting Flange Dimensions

WEIGHT:

All variants: 0.192 kg

MATERIALS:

The mouldings are UL approved flame retardant plastic and the colour matches that of the low profile detector range.

All pressings are nickel plated stainless steel.

ENVIRONMENTAL:

Temperature:

Operating: -25°C to +70°C.

Storage: -40°C to +80°C.

Humidity: Up to 96% RH (non condensing).

Pressure: Sounder output is quoted for atmospheric pressure of 1000mBar.

Vibration: Designed to meet the requirements of EN 54-3.

Corrosion: The functional base is designed to pass the SO_2 corrosion test from EN 54-3

EMC:

The bases comply with the following:

Product family standard EN50130-4 in respect of Conducted Disturbances, Radiated Immunity, Electrostatic Discharge, Fast Transients and Slow High Energy

EN61000-6-3 for Emissions

IP Rating: IP21C (EN 60529).

ELECTRICAL CHARACTERISTICS

All functional bases have four main contacts.

601SB/ Additional 18-32V (nominal) sounder supply polarity conscious.

601SBD/ Additional 18-32V (nominal) sounder supply polarity conscious.

602SB: Powered from detection circuit polarity conscious.

602SBD Powered from detection circuit polarity conscious.

901SB: Additional 24V (nominal) sounder supply polarity conscious.

CAUTION

Ensure that site plan defines the polarity of polarity conscious functional bases.

DETECTOR SUPPLY VOLTAGE

600 bases: 18 - 32V.

900 bases: Minerva 18 - 32V.
MX loop 20 - 40V.

CURRENT CONSUMPTION

601SB/601SBD

Sounder operating: 6.8mA at full volume (90dBA)
1.2mA at low volume (68dBA)

602SB/602SBD

Standby: <100µA (Dumb Mode)
<1.5mA (Intelligent Mode, for future use)

Alarm: 6.8mA at full volume (90dBA)
1.2mA at low volume (68dBA)

901SB

Loop voltage: 18 - 32V

Loop current

Standby: <5µA typical

Alarm: <20µA typical

External 24V
6.8mA at full volume (90dBA)
1.2mA at low volume (68dBA)

Sounder circuit power up surge: <200mA for <5ms

901SB SOUNDER CONFIGURATION

For fully loaded systems, the system should be tested in excess of ten minutes in full alarm (all sounders). It may be found necessary to add further Minerva power supplies.

SOUNDER OUTPUT OPTIONS

The sounder output may be adjusted by means of one potentiometer (volume) on the side of the unit (Fig. 4) and a 4-way DIL switch (sound tone options) on the underside of the unit (Fig. 4).

The Factory Settings are:

Volume: high

Sound Option: 1 0 0 x (Fast Sweep)

Table 1 gives the sounder tone options available.

DIL Switch Settings					
1	**2**	**3**	**4**	**Response Sound**	**Marketing Tone No.**
0	0	0	x	Dutch Slow Whoop*	7
0	0	1	x	Temporal 4	-
0	1	0	x	Slow Sweep	3
0	1	1	x	March Time Beep	25
1	0	0	x	Fast Sweep	2
1	0	1	x	Temporal 3*	-
1	1	0	x	Two Tone	11
1	1	1	x	Continuous*	14

Table 1: Sounder tone options

* These tones are EN54-3 compliant.

Fig. 4: Setting Volume and Tone

BASE CONNECTIONS

SOUNDER BASES (601SB/601SBD)

Sounder and detection circuit connection to the Sounder Bases is shown in Fig. 5:.

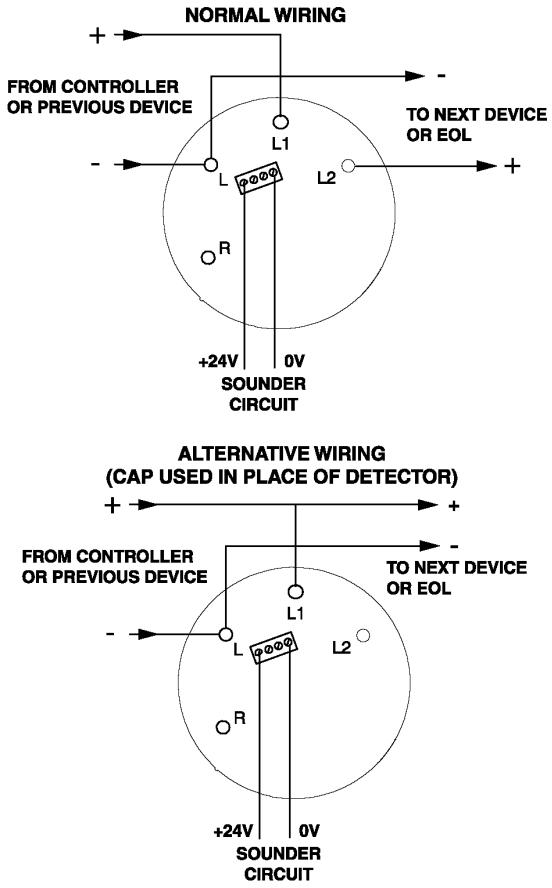

Fig. 5: Wiring to 601SB/601SBD Sounder Base - Sounder Circuit Connections

SOUNDER BASE 602SB/602SBD NORMAL CONNECTION

602SB/602SBD normal connection is shown in Fig. 6.

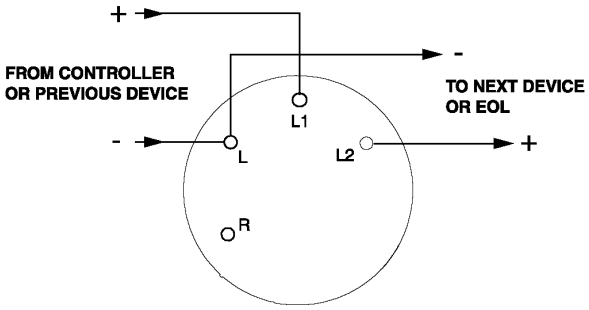

Fig. 6: 602SB/602SBD normal connection

SOUNDER BASE 602SB ALTERNATIVE CONNECTION

602SB alternative wiring is shown in Fig. 7.

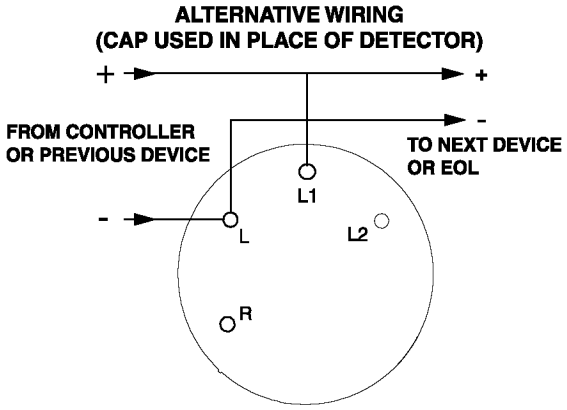

Fig. 7: 602SB alternative wiring

SOUNDER BASE 901SB

901SB connection is shown in Fig. 8.

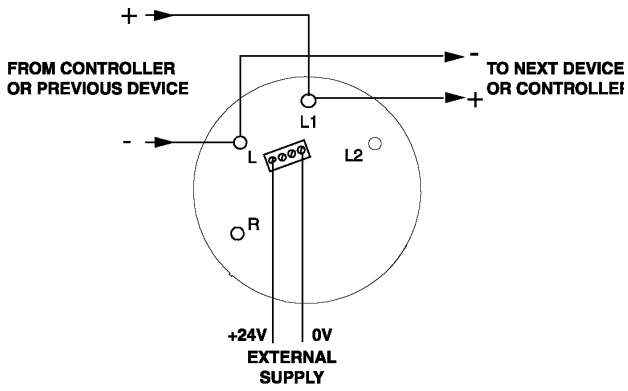

Fig. 8: 901SB connection

WARNING

USING THE 'ISOLATE SOUNDERS' FUNCTION FROM THE MINERVA CONTROL PANEL DOES NOT ISOLATE FUNCTIONAL SOUNDER BASES.

WARNING

ISOLATING A DETECTOR FROM THE MINERVA CONTROL PANEL WILL ALSO ISOLATE THE FUNCTIONAL SOUNDER BASE.

MINERVA 'CONSYS' CONFIGURATION

The 901SB configured in Minerva 'CONSYS' as follows:

- When a Sounder Base unit is attached to an addressable detector, the "Point" and "Point Type" configuration in CONSYS does not require any change, ie, they remain the same as for the detector in question.
- Minerva will regard such a device primarily as a detector, but additionally, it will now allow output commands like "Switch ON", "Switch OFF", "Switch to P1", "Force", etc. to be fired at the Input Group to which the detector belongs! These commands will only affect the output (Sounder or Relay) and not the detector.

BELL MAPPING

If it is required for the output to operate as a Bell Map output, then put the Input Group to which the device belongs into the Bell Map Outputs Supergroup.

To achieve this use the 'Edit' menu, select 'Edit Group Data' and then select 'Supergroups'. Select the first 'SuperGroup' (SG082 Bell Map Outputs SG) and then select 'Edit'. By default, 'Bell Map Alarm Sounders ON186' is the only output group included and as such is indicated by a tick. Select the group to be added, (the group the Sounder/Relay Base is in) and press the space bar. A tick will appear next to it. Now press F5 to save. The chosen group will now operate as if it were 'Bell Map Alarm Sounders ON186'. Do not forget to program the Bell Map as required!

POINT-TO-POINT ACTIVATION

If it is required for the detector to activate its own Sounder/Relay Base ONLY and no other, eg, where there are no more than 16 devices per Zone.

- Instead of using only one Input Group for all detectors (eg, IN001 Alert Inputs), create (up to) 16 of them, all doing the same thing eg, generating a "FIRE ALARM (alert)" event. Then, activate the outputs by targeting back each one of the 16 Input Groups respectively, making sure to specify the Target Area as Input; this requires 16 commands in this example.
- Those same 16 Input Groups may be used in as many Zones as needed, assigning only one device per Zone to each Group; each device will then belong to a unique Zone/Group intersection and hence will only respond to its own activations.

PULSING OUTPUTS

No more than 20 outputs should be pulsed simultaneously on a single loop. This restriction has not changed and also applies to the Sounder/Relay bases. It is, however, important to remember that Minerva does not know how many devices actually have sounder bases attached to them.

Therefore, if the above method of programming using 'SuperGroups' is used, then the Minerva will try to switch on and/or pulse every device which happens to be in the group(s) contained in the 'Supergroup'. Practically, this may be more than 20 because devices which do not have Sounder/Relay Bases will be in the same group as those that do. The solution is to ensure devices which need to be pulsed are in a different group to the devices which do not have Sounder/Relay Bases. The effective solution is to create a 'User Defined Group' with the same functions as the non-Sounder/Relay Base devices and only use this for the detectors which have Sounder/Relay Bases.

To summarize, **if pulsing Sounder / Relay Bases, do not put more than** 20 devices into a single group if they are to pulse simultaneously.

OPERATING SOUNDER/RELAY BASES

An addressable detector fitted with a Sounder Base or Relay Base is treated almost as two separate devices; an input and an output. However, this separation is not perfect and there are some resources which are shared. For example, there is only one Point Description - also, both input and output share the same Zone assignment. These examples are obvious, since they derive from the fact that there is only one device configured into CONSYS for each I/O unit.

When it comes to the Minerva Controller resources, be aware that there is only one Isolate status for both the input and the output sharing the same address, so either both are isolated or both de-isolated.

As a consequence, Minerva has to decide when an Isolate/De-isolate command should have an effect on an I/O device. The general rule is that Minerva treats the I/O device primarily as an input (detector in this case) and hence an "Isolate Sounders" command will NOT isolate the Sounder Base since we don't want to also isolate the detector with such a command. However, an "Isolate Point" command WILL isolate both sounder base and detector.

If it is required to activate detectors without activating sounders, it is recommend that Walk Test is used.

If an "Isolate Sounders" type command is required for the Sounder Bases, a Group configuration structure which can stop their activation when an input switch is operated, will have to be created. It is recommended that the DISABLE LED is activated as well, using "Force ON" and "Unforce" commands – **do not use "Switch**

ON" and "Switch OFF" because it may clear a valid DISABLE indication.

MX 'CONSYS' CONFIGURATION

The 901SB is configured in MX CONSYS (refer to Publication 17A-06-X1 - MX CONSYS Configuration Tool) as follows:

- When a Sounder Base unit is Attached to an addressable detector, the "Point" and "Point Type" configuration in MX CONSYS requires that the Sounder Base is added to the detector configuration. To add the Sounder Base to the point, select the point, select the 'Advanced' option then click the Sounder box.
- MX will regard such a device primarily as a detector, but additionally, it will allow output commands like "Switch ON", "Switch OFF", "Switch to P1", "Force", etc. to be fired at the Group assigned. These commands will only affect the output and not the detector.

BELL MAPPING

If it is required for the output to operate as a Bell Map output, then put the Input Group to which the device belongs must be put into the Bell Map Outputs Supergroup.

To achieve this, select group 50 Bell Map Output SG and then select "Edit Members". Use "Add member" to append the Bell Map Output SG with the points Input Group.

If the sounder base needs including in any sounder Walk Test then super group number 51 "Sounders to walktest SG" will have to be edited to add the point's input group to the list of supergroup members.

OPERATING SOUNDER BASES

An addressable detector fitted with a Sounder Base is treated almost as two separate devices; an input and an output. However, this separation is not perfect and there are some resources which are shared. For example, there is only one Point Description - also, both input and output share the same Zone assignment. These examples are obvious, since they derive from the fact that there is only one device configured into MX CONSYS for each I/O unit.

Using MX, the Sounder Base can be Isolated and De-isolated independently from the detector. There are two separate isolate states, one for the input and one for the output.

CABLING

A maximum of two 1.5mm^2 cables or one 2.5mm^2 cable may be connected at any one terminal.

OPERATIONAL PERFORMANCE

Tables 1 to 9 give the operational perfomance for the three approved tones.

ORDERING INFORMATION

601SB Type 'A' Sounder Base:	577.001.035
601SBD Type 'A' Sounder Diode Base:	577.001.037
602SB Type 'A' Sounder Base Fulleon Interface:	577.001.036
602SBD Type 'A' Sounder Diode Base Fulleon Interface:	577.001.038
901SB Type 'A' Sounder Base:	516.800.911
Sounder Base Cap:	557.001.040*
Volume Adjustment Trimmer Tool:	517.050.015

* Append Part Number with .A, .T or .Y.

	Output dB(A)
Angle	**Vertical Plane**
15°	76
45°	76
75°	79
105°	80
135°	76
165°	72

Table 2: 601SB/601SBD Continuous 880Hz

	Output dB(A)
Angle	**Vertical Plane**
15°	77
45°	78
75°	82
105°	81
135°	77
165°	76

Table 3: 601SB/601SBD Dutch Slow Whoop 500Hz to 1200Hz

	Output dB(A)
Angle	**Vertical Plane**
15°	77
45°	77
75°	79
105°	80
135°	75
165°	72

Table 4: 601SB/601SBD Temporal 3 880Hz

	Output dB(A)
Angle	**Vertical Plane**
15°	76
45°	76
75°	82
105°	81
135°	75
165°	75

Table 5: 602SB/602SBD Continuous 880Hz

	Output dB(A)
Angle	**Vertical Plane**
15°	77
45°	77
75°	82
105°	82
135°	77
165°	77

Table 6: 602SB/602SBD Dutch Slow Whoop 500Hz to 1200Hz

	Output dB(A)
Angle	**Vertical Plane**
15°	75
45°	75
75°	81
105°	81
135°	74
165°	73

Table 7: 602SB/602SBD Temporal 3 880Hz

	Output dB(A)
Angle	**Vertical Plane**
15°	78
45°	77
75°	82
105°	82
135°	79
165°	77

Table 8: 901SB Continuous 880Hz

	Output dB(A)
Angle	**Vertical Plane**
15°	79
45°	79
75°	83
105°	83
135°	80
165°	78

Table 9: 901SB Dutch Slow Whoop 500Hz to 1200Hz

	Output dB(A)
Angle	**Vertical Plane**
15°	78
45°	77
75°	80
105°	80
135°	78
165°	76

Table 10: 901SB Temporal 3 880Hz

CPR INFORMATION

CE 2831 UKCA 0832

Tyco Fire & Security GmbH,
Victor von Bruns-Strasse 21,
8212 Neuhausen am Rheinfall,
Switzerland
15
2831-CPR-F1004
21
0832-UKCA-CPR-F0121
DoP-2015-4014

EN54-3:2001 + A1:2002
Conventional Type A sounder base for use in fire detection and alarm systems in buildings
601SB

Essential Characteristics
EN54-3:2001 + A1:2002
Performance under fire condition: Pass
Operational reliability: Pass
Durability of operational reliability: temperature resistance: Pass
Durability of operational reliability; humidity resistance: Pass
Durability of operational reliability; corrosion resistance: Pass
Durability of operational reliability: shock and vibration resistance: Pass
Durability of operational reliability; electrical stability: Pass
Durability of operational reliability: resistance to ingress: Pass

Installation Instructions: 120.415.558_01B-09-I3

CE 2831 UKCA 0832

Tyco Fire & Security GmbH,
Victor von Bruns-Strasse 21,
8212 Neuhausen am Rheinfall,
Switzerland
15
2831-CPR-F1987
21
0832-UKCA-CPR-F0123
DoP-2015-4056

EN54-3:2001 + A1:2002
Conventional Type A sounder base for use in fire detection and alarm systems in buildings
602SB

Essential Characteristics
EN54-3:2001 + A1:2002
Performance under fire condition: Pass
Operational reliability: Pass
Durability of operational reliability: temperature resistance: Pass
Durability of operational reliability; humidity resistance: Pass
Durability of operational reliability; corrosion resistance: Pass
Durability of operational reliability: shock and vibration resistance: Pass
Durability of operational reliability; electrical stability: Pass
Durability of operational reliability: resistance to ingress: Pass

Installation Instructions: 120.415.559_01B-9-I3

CE 2831 UKCA 0832

Tyco Fire & Security GmbH
Victor von Bruns-Strasse 21
8212 Neuhausen am Rheinfall
Switzerland
15
2831-CPR-F1003
21
0832-UKCA-CPR-F0122
DoP-2015-4015

EN 54-3:2001 + A1: 2002
Conventional Type A sounder base for use in fire detection and alarm systems in buildings.

601SBD

Essential Characteristics
EN 54-3:2001 + A1: 2002
Performance under fire condition: Pass
Operational reliability: Pass
Durability of operational reliability: temperature resistance: Pass
Durability of operational reliability; humidity resistance: Pass
Durability of operational reliability; corrosion resistance: Pass
Durability of operational reliability: shock and vibration resistance: Pass
Durability of operational reliability; electrical stability: Pass
Durability of operational reliability: resistance to ingress: Pass

Installation Instructions: 120.415.566_01B-9-I2

CE 2831 UKCA 0832

Tyco Fire & Security GmbH
Victor von Bruns-Strasse 21
8212 Neuhausen am Rheinfall
Switzerland
15
2831-CPR-F1984
21
0832-UKCA-CPR-F0124
DoP-2015-4051

EN 54-3:2001 + A1: 2002
Conventional Type A sounder base for use in fire detection and alarm systems in buildings.

602SBD

Essential Characteristics
EN 54-3:2001 + A1: 2002
Performance under fire condition: Pass
Operational reliability: Pass
Durability of operational reliability: temperature resistance: Pass
Durability of operational reliability; humidity resistance: Pass
Durability of operational reliability; corrosion resistance: Pass
Durability of operational reliability: shock and vibration resistance: Pass
Durability of operational reliability; electrical stability: Pass
Durability of operational reliability: resistance to ingress: Pass

Installation Instructions: 120.415.567_01B-9-I4

CE 2831 UKCA 0832

Tyco Fire & Security GmbH,
Victor von Bruns-Strasse 21,
8212 Neuhausen am Rheinfall,
Switzerland

15
2831-CPR-F1986
21
0832-UKCA-CPR-F0125
DoP-2015-4055

EN54-3:2001 + A1:2002

Analogue addressable Type A sounder base for use in fire detection and alarm systems in buildings

901SB

Essential Characteristics

EN54-3:2001 + A1:2002

Performance under fire condition: Pass

Operational reliability: Pass

Durability of operational reliability: temperature resistance: Pass

Durability of operational reliability; humidity resistance: Pass

Durability of operational reliability; corrosion resistance: Pass

Durability of operational reliability: shock and vibration resistance: Pass

Durability of operational reliability; electrical stability: Pass

Durability of operational reliability: resistance to ingress: Pass

Installation Instructions: 120.415.573_01B-9-I5
Service Instructions: 17A-04-S