

INSTRUCTION MANUAL

IS-pA1 Intrinsically Safe

ATEX and IECEx Panel Mount Sounder



The equipment has the following safety parameters:-

$U_i = 40V$ $I_i = 660mA$ $P_i = \text{See below}$
 $L_i = 0$ $C_i = 32.5nF$

With respect to Temperature Class the following limitations on maximum input power P_i are applicable:

| Temperature Class | Maximum input Power P_i |
|-------------------|---------------------------|
| T1, T2, T3, T4 | 1.3W |
| T5 | 0.6W |
| T6 | 0.3W |


1) Introduction

The IS-pA1 is an ATEX and IECEx certified intrinsically safe Panel Mount Sounder which can produce a loud warning signal in a hazardous area. The sounder has been designed to operate in gas groups IIA and IIB via ATEX and IECEx certified Zener Barriers or Galvanic Isolators. The sounder may be tested or used in safe areas without using a Zener Barrier or Galvanic Isolator,

2) Intrinsic Safety Certification

2.1 ATEX and IECEx certificates

SIRA 10ATEX2137 IECEx SIR 10.0073

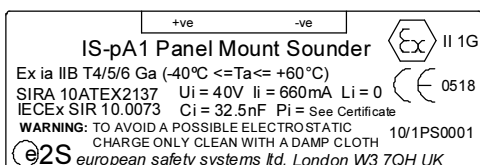
 II 1G Ex ia IIB T4/5/6 Ga (-40°C ≤ Ta ≤ +60°C)

The IS-pA1 sounder complies with the following standards:-

EN60079-0:2006 IEC60079-0:2004 (Ed4)
 EN60079-11:2007 IEC60079-11:2006 (Ed5)
 EN60079-26:2007 IEC60079-26:2006 (Ed2)
 IEC60079-0:2007 (used for guidance in respect of marking)

The sounder carries the Community Mark and subject to local codes of practice, may be installed in any of the EEA member countries. This instruction sheet describes installations which conform to standard EN60079:14:2008 Electrical Installation in Hazardous Areas. When designing systems for installation outside the UK, the local Code of Practice should be consulted.

1 The certification marking is as follows:



The equipment may be used in Zones 0, 1 and 2 with flammable gases and vapours with Apparatus Groups IIA and IIB Temperature Classes T1, T2, T3, T4, T5 and T6.

- 4 The equipment is only certified for use in ambient temperatures in the range -40°C to +60°C and shall not be used outside this range.
- 5 Installation of this equipment shall only be carried out by suitably trained personnel in accordance with the applicable code of practice e.g. IEC 60079-14 / EN 60079-14.
- 6 Repair of this equipment is not possible and shall not be attempted.
- 7 The equipment has not been assessed as a safety-related device (as referred to by Directive 94/9/EC Annex II, Clause 1.5).
- 8 The certification of this equipment relies on the following materials used in its construction:

Enclosure:
 ABS
 Encapsulation:
 Polyurethane casting compound

If the equipment is likely to come into contact with aggressive substances, then it is the responsibility of the user to take suitable precautions that prevent it from being adversely affected, thus ensuring that the type of protection is not compromised.

“Aggressive substances” - e.g. acidic liquids or gases that may attack metals, or solvents that may affect polymeric materials.

“Suitable precautions” - e.g. regular checks as part of routine inspections or establishing from the material’s data sheet that it is resistant to specific chemicals.

2.2 Zones, Gas Groups and Temperature Class

The IS-pA1 sounder has been certified Ex ia IIB T4/5/6 and when connected to an approved system it may be installed in:

Zone 0 explosive gas air mixture continuously present.

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.

Be used with gases in groups:

Group A Propane
Group B Ethylene

Having a temperature class of:

T1 450°C
T2 300°C
T3 200°C
T4 135°C
T5 100°C (Pi ≤ 600mW)
T6 85°C (Pi ≤ 300mW)

If the IS-pA1 sounder is installed in an application requiring temperature class of T5 or T6, the safety parameter Pi is reduced as shown above.

2.3 Terminals +ve and -ve

Power is supplied to the sounder via the +ve and -ve terminals which have the following input safety parameters:

Ui = 40V
Ii = 660mA
Pi = 1.3W (T4)
600mW (T5)
300mW (T6)

Ci = 32.5nF Li = 0

The IS-pA1 sounder must be powered from an ATEX or IECEx certified zener barrier or galvanic isolator having output parameters equal to or less than 40V, 660mA and 1.3W(T4) / 600mW(T5) / 300mW(T6), The cable parameters stated on the selected zener barrier or galvanic isolator certificate must be observed.

3) Installation

IS-pA1 sounders should only be installed by trained competent personnel.

3.1 Mounting and Wiring

The IS-pA1 panel mount sounder is design to be mounted into a 28mm diameter hole in a control panel. The control panel must have an IP rating suitable for the environment into which it is being installed.

Electrical connections to the sounder are made using 6.3mm insulated spade connectors to the rear of the unit.

4) Electrical System Design For Installation In Hazardous Areas Using Zener Barriers

The IS-pA1 sounder may be powered by a zener barrier having output parameters within the limits specified in section 2.3, which has been certified Ex ia by an accredited Notified Body. If the control switch is in the positive supply, or the power supply is being turned on and off, only a single channel zener barrier is required as shown in Fig 1. This circuit may also be used if the sounder is being controlled by a mechanically activated switch on the hazardous area side of the barrier.

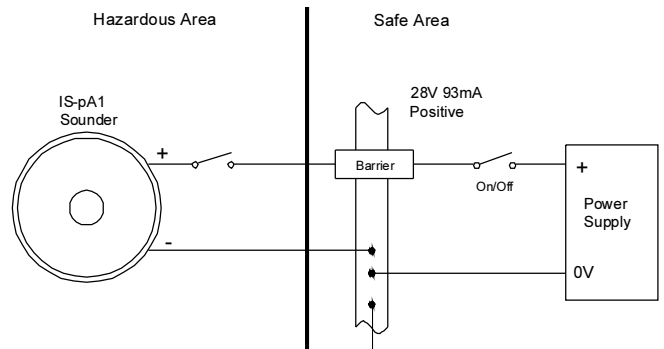


Fig 1 Zener barrier.

5) Electrical System Design For Installation In Hazardous Areas Using Galvanic Isolators

Galvanic isolators do not require a high integrity earth connection. For small systems where a high integrity earth is not already available, the use of galvanic isolators often reduces the overall installation cost and simplifies design.

The IS-pA1 sounder may be powered by any galvanic isolator having output parameters within the limits specified in section 2.3, which has been certified Ex ia by an accredited Notified Body. The sounder may be controlled by turning the galvanic isolator on and off, or by a mechanically activated switch on the hazardous area side of the isolator.

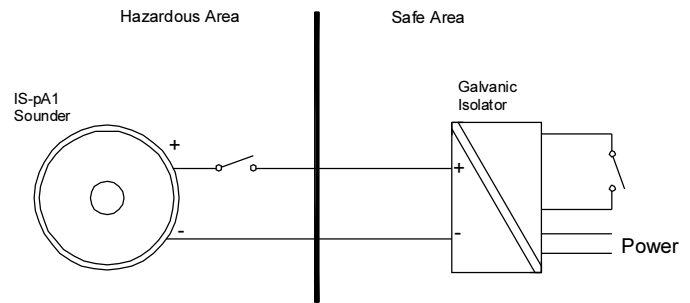


Fig 2 Galvanic isolator.

Declaration of Conformity

European Safety Systems Ltd. Impress House, Mansell Road, Acton, London W3 7QH

herewith declares that the equipment detailed below is in conformity with the provisions of the ATEX directive 94/9/EC including the latest amendments, and with national legislation implementing these directives

IS-pA1 Panel Mount Sounder

the following harmonised standards have been applied

EN60079-0:2006
EN69979-1:2007
EN60079-26:2007
IEC60079-0:2007 (used for guidance in respect of making)