

Hazardous (Classified) Location
Class I, Division 1, Groups A, B, C, D
Class I, Zone 0, Groups IIA, IIB, IIC

Unclassified Location

IS-mA1 Sounder
IS Class I, Zone 0, AEx ia IIC T4
(-40°C ≤ Ta ≤ +60°C)

Entity Parameters:

Terminals + w.r.t. -

Terminals S2 & S3 w.r.t. -

Entity Parameters:

Terminals + w.r.t. -

Terminals S2 & S3 w.r.t. -

+

-

S2

S3

Associated Apparatus - Shunt Zener Diode Barrier with Entity Parameters:

Uo ≤ 28V
Io ≤ 93mA
Po ≤ 660mW
Co ≥ Ccable (see note 10)
Lo ≥ Lcable

Associated Apparatus - Diode Return Barrier with Entity Parameters:

Uo ≤ 28V
Io = 0
Co ≥ Ccable

Associated Apparatus - Diode Return Barrier with Entity Parameters:

Uo ≤ 28V
Io = 0
Co ≥ Ccable

1. No revision to drawing without prior FM approval.
2. The associated apparatus must be FM approved.
3. The associated apparatus manufacturer's installation drawing must be followed when installing this equipment.
4. Installation should be in accordance with ANSI/ISA RP12.06.01 "Installation of Intrinsically Safe Systems for Hazardous (Classified) Locations" and the National Electrical Code (ANSI/NFPA 70).
5. The resistance between the intrinsically safe ground and the earth ground must be less than 1 ohm.
6. The Shunt Zener Diode Barrier must be a FM approved, resistively limited, single channel barrier having parameters less than, or equal to, those quoted, and for which the output is non-ignition capable for the Class, Division or Zone and Group of use.
7. The IS-mA1 Sounder enclosure has an ingress protection rating of IP 65. If supplied without cable entry devices then metallic or plastic cable glands, or conduit hubs, shall be fitted that provide the required environmental protection.
8. To prevent ignition of flammable or combustible atmospheres, disconnect power before servicing.
9. Substitution of components may impair safety.
10. The total capacitance connected to terminals +/- of the sounder, i.e. Ccable plus any other capacitance, shall not exceed 83nF.

Notes:

- CAUTION - Bonding between conduit connections is not automatic and must be provided as part of this installation.
- CAUTION - The clearance between sounder terminals S2 and S3 is less than 6mm.

SCHEDULE DRAWING
No modification permitted without reference to the "Notified Body"

A	MRS	10-01-07		
Issue:	Appd.	Date:	Drawn: MRS	Date: 21-04-06

Title
IS-mA1 Sounder
Control Drawing for shunt zener diode barrier / diode return barrier.

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

 Drawing No. Computer Ref. D5035a.dwg

D 5035 Sheet 1 of 2

Hazardous (Classified) Location
Class I, Division 1, Groups A, B, C, D
Class I, Zone 0, Groups IIA, IIB, IIC

Unclassified Location

IS-mA1 Sounder
IS Class I, Zone 0, AEx ia IIC T4
(-40°C ≤ T_a ≤ +60°C)

Entity Parameters:

Terminals + w.r.t. -

U_i = 28V
I_i = 93mA
P_i = 660mW
C_i = 0
L_i = 0

Terminals S2 & S3 w.r.t. -

U_i = 28V
I_i = 0
C_i = 0
U_o = 16.8V
I_o = 7.3mA
P_o = 31mW

+

-

S2

-

S3

-

Associated Apparatus - Galvanically Isolated Supply with Entity Parameters:

U_o ≤ 28V
I_o ≤ 93mA
P_o ≤ 660mW
C_o ≥ C_{cable} (see note 9)
L_o ≥ L_{cable}

Associated Apparatus - Galvanically Isolated Relay with Entity Parameters:

U_o = 0
I_o = 0
(See Note 10)

Associated Apparatus - Galvanically Isolated Relay with Entity Parameters:

U_o = 0
I_o = 0
(See Note 10)

- No revision to drawing without prior FM approval.
- The associated apparatus must be FM approved.
- The associated apparatus manufacturer's installation drawing must be followed when installing this equipment.
- Installation should be in accordance with ANSI/ISA RP12.06.01 "Installation of Intrinsically Safe Systems for Hazardous (Classified) Locations" and the National Electrical Code (ANSI/NFPA 70).
- The Galvanically Isolated Supply must be a FM approved, resistively limited, single channel supply having parameters less than, or equal to, those quoted, and for which the output is non-ignition capable for the Class, Division or Zone and Group of use.
- The IS-mA1 Sounder enclosure has an ingress protection rating of IP 65. If supplied without cable entry devices then metallic or plastic cable glands, or conduit hubs, shall be fitted that provide the required environmental protection.
- To prevent ignition of flammable or combustible atmospheres, disconnect power before servicing.
- Substitution of components may impair safety.
- The total capacitance connected to terminals +/- of the sounder, i.e. C_{cable} plus any other capacitance, shall not exceed 83nF.
- The C_{cable} and L_{cable} of the cables connecting the galvanically isolated relays to sounder terminals S2/- and S3/- shall be less than, or equal to, the C_{cable} and L_{cable} of the cable connecting the galvanically isolated supply to sounder terminals +/-.

Notes:

- CAUTION - Bonding between conduit connections is not automatic and must be provided as part of this installation.
- CAUTION - The clearance between sounder terminals S2 and S3 is less than 6mm.

SCHEDULE DRAWING
No modification permitted without reference to the "Notified Body"

A	MRS	10-01-07		
Issue:	Appd.	Date:	Drawn: MRS	Date: 21-04-06

Title
IS-mA1 Sounder
Control Drawing for galvanically isolated supply / isolated relay installation.

European Safety Systems Ltd.
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e2S
warning signals

Drawing No. Computer Ref. D5035b.dwg
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