

Loop Powered Fire / Smoke Detector Interface DIN-Rail Models D1022S, D1022D

Characteristics:

General Description:

The D1022S or D1022D is a loop-powered single or dual channel isolated interface to be used with fire and smoke detectors located in hazardous areas, or with similar switched resistor systems requiring a wide output current range (from 1 to 40 mA) to operate properly. The triggering of a detector causes a corresponding change in the safe area circuit. The unit has reverse input polarity protection. This unit can also be used to drive an I/P located in hazardous areas but with reduced accuracy ($\leq 1\%$).

Function:

1-2 channels (D1022S-D1022D) I.S. mA analog output for fire-smoke detectors providing input-output isolation.

EMC:

Fully compliant with CE marking applicable requirements.

Technical Data:

Supply:

No supply voltage required because loop-powered.

Power dissipation: ≤ 1.1 W per channel at 40 mA, 30 V.

Isolation (Test Voltage):

I.S. Out/In 1.5 KV; I.S. Out/I.S. Out 500 V; In/In 500 V.

Output Signal to Hazardous Area:

Output: 1 to 40 mA.

Output characteristic (typical):

$V_{out} = (V_{in} - 1.5) - (0.4 \times I_{out})$ for $6\text{ V} < V_{in} < 23\text{ V}$.

$V_{out} = 22 - (0.4 \times I_{out})$ for $23\text{ V} < V_{in} < 30\text{ V}$.

4-20 mA output on output load of 100 to 600 Ω ; Accuracy $\leq 1\%$.

Response time: 50 ms (10 to 90 % step change).

Input Signal to Safe Area:

Operating voltage range: 6 to 30 V (loop powered).

Input current: 1 to 40 mA (loop powered).

Voltage drop-out: 9.5 V at 20 mA and with 500 Ω load.

Open circuit consumption: ≤ 0.4 mA at 20 V.

Performance:

Reference ambient temperature conditions: 23 ± 1 °C.

Current transfer error: 400 μA ($6\text{ V} < V_{in} < 23\text{ V}$; $1\text{ mA} < I_{out} < 40\text{ mA}$).

Temperature influence: $\leq \pm 0.01\%$ for a 1 °C change.

Compatibility:

 CE mark compliant, conforms to 94/9/EC Atex Directive and to 89/336/CEE EMC Directive.


Environmental conditions:

Operating: Temperature limits -20 to + 60 °C,

relative humidity max 90 % non condensing, up to 35 °C.

Storage: Temperature limits - 40 to + 80 °C.

Safety Description:

 II (1) G D [EEx ia] IIC or I (M2) [EEx ia] I associated electrical apparatus.

$U_0/V_{oc} = 25.2\text{ V}$, $I_0/I_{sc} = 93\text{ mA}$, $P_0/P_o = 581\text{ mW}$ at terminals 13-14, 15-16.

$U_m = 250\text{ Vrms}$, $-20\text{ °C} \leq T_a \leq 60\text{ °C}$.

Approvals: DMT 01 ATEX E 042 X conforms to EN50014, EN50020.

Mounting:

T35 DIN Rail according to EN50022.

Weight: about 175 g D1022D, 120 g D1022S.

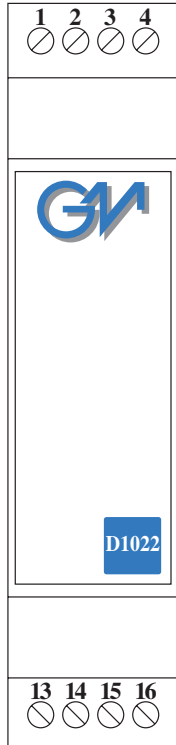
Connection: By polarized plug-in disconnect screw terminal blocks to accommodate terminations up to 2.5 mm².

Location: Safe Area installation.

Protection class: IP 20.

Dimensions: Width 22.5 mm, Depth 99 mm, Height 114.5 mm.

Front Panel and Features:



Wide operating current range from 1 to 40 mA.

EMC Compatibility to EN61000-6-2, EN61000-6-4.

ATEX Certification.

High Reliability, SMD components.

High Density, two channels per unit.

Simplified installation using standard DIN Rail plug-in terminal blocks.

250 Vrms (U_m) max. voltage applied to the instruments associated with barrier.

Ordering Information:

Model:	D1022
1 channel	S
2 channels	D

Parameters Table:

Safety Description	Maximum External Parameters			
	Group Cenelec	Co/Ca (μF)	Lo/La (mH)	Lo/Ro ($\mu\text{H}/\Omega$)
Terminals 13-14, 15-16				
Uo/Voc = 25.2 V	II C	0.107	4.2	61.2
Io/Isc = 93 mA	II B	0.820	16.4	244.9
Po/Po = 581 mW	II A	2.900	32.8	489.8



Function Diagram:

