INTERNATIONAL
TECHNOLOGY FOR SAFETY

Characteristics:

General Description:
The single and dual channel DIN Rail Switch/Proximity Detector Interface, D1034S and D1034D is a high integrity repeater designed to interface contacts or proximity detectors located in Hazardous Area, maintaining a high level of loop integrity (safety integrity level SIL 3 according to IEC61508).
Field loop integrity and status (line plus contact or proximitor) are continuously and directly monitored, in transparent mode, into the PLC, ESD, DCS using their existing input line, without requiring an additional channel for failure detection.
This solution results in 100 % input channel saving with evident space, cost and failure risk benefits.

Function:
1 or 2 totally independent and isolated channels I.S. for voltage free contact or EN60947-5-6 proximity switches. Provides 3 port isolation (input/output/supply).

Signalling LED:
Power supply indication (green).

EMC:
Fully compliant with CE marking applicable requirements.

Front Panel and Features:

| 1 | 2 | 3 | 4 |
| 5 | 6 | 7 | 8 |

1 ● ● 2
PWR ON

D1034

| 9 | 10 | 11 | 12 |
| 13 | 14 | 15 | 16 |

- SIL 3 according to IEC 61508 for Tproof = 1 / 2 years (10 / 20 % of total SIF).
- SIL 2 according to IEC 61508 for Tproof = 10 years (10 % of total SIF).
- PFDavg (1 year) 8.41 E-05, SFF 93.24 %.
- 2 fully independent channels.
- Input from Zone 0 (Zone 20), Division 1, installation in Zone 2, Division 2.
- Contact/Proximity Detector Input.
- Short and open circuit fault detection.
- Three port isolation, Input/Output/Supply.
- EMC Compatibility to EN61000-6-2, EN61000-6-4.
- ATEX, IECEx, UL & C-UL, FM & FM-C, Russian and Ukrainian Certifications.
- Type Approval Certificate DNV and KR for marine applications.
- High Reliability, SMD components.
- High Density, two channels per unit.
- Simplified installation using standard DIN Rail and plug-in terminal blocks.
- 250 Vrms (Um) max. voltage allowed to the instruments associated with the barrier.

Ordering Information:

Model:	D1034		
1 channel		S	
2 channels		D	
Power Bus enclosure			/B

Technical Data:

Supply:
12-24 Vdc nom (10 to 30 Vdc) reverse polarity protected, ripple within voltage limits ≤ 5 Vpp.
Current consumption @ 24 V: 40 mA for 2 channels D1034D, 20 mA for 1 channel D1034S with short circuit input typical.
Current consumption @ 12 V: 80 mA for 2 channels D1034D, 40 mA for 1 channel D1034S with short circuit input typical.
Power dissipation: 1.4 W for 2 channels D1034D, 0.7 W for 1 channel D1034S with 24 V supply voltage, short circuit input and 24 V loop output voltage.
Max. power consumption: at 30 V supply voltage and short circuit input, 1.2 W for 2 channels D1034D, 0.6 W for 1 channel D1034S.

Isolation (Test Voltage):
I.S. In/Out 1.5 KV; I.S. In/Supply 1.5 KV; I.S. In/I.S. In 500 V; Out/Supply 500 V; Out/Out 500 V.

Input:
Current levels: ≥ 0.1 mA, ≤ 7.0 mA
Input equivalent source: 8 V 1 KΩ typical (8 V no load, 8 mA short circuit).

Output:
0.1 to 7.0 mA in sink mode, V min. 5 V at 0 Ω load V max. 30 V, current limited at ≈ 8 mA, repeats input current level.
Response time: 5 ms (10 to 90 % step change).

Compatibility:
CE mark compliant, conforms to 94/9/EC Atex Directive and to 2004/108/CE EMC Directive.

Environmental conditions:
Operating: temperature limits -20 to + 60 °C, relative humidity max 90 % non condensing, up to 35 °C.
Storage: temperature limits – 45 to + 80 °C.

Safety Description:

II (1) G [Ex ia Ga] IIC, II (1) D [Ex ia Da] IIIC, I (M1) [Ex ia Ma] I, II 3G Ex nA II T4, [Ex ia Ga] IIC, [Ex ia Da] IIIC, [Ex ia Ma] I associated electrical apparatus.
Uo/Voc = 9.6 V, Io/Isc = 11 mA, Po/Po = 25 mW at terminals 14-15, 10-11.
Um = 250 Vrms, -20 °C ≤ Ta ≤ 60 °C.

Approvals:
DMT 01 ATEX E 042 X conforms to EN60079-0, EN60079-11, EN60079-26, EN61241-0, EN61241-11, IECEx BVS 07.0027X conforms to IEC60079-0, IEC60079-11, IEC60079-26, IEC61241-0, IEC61241-11, IMQ 09 ATEX 013 X conforms to EN60079-0, EN60079-15, UL & C-UL E222308 conforms to UL913 (Div.1), UL 60079-0 (General, All Zones), UL60079-11 (Intrinsic Safety "i" Zones 0 & 1), UL60079-15 ("n" Zone 2), UL 1604 (Div.2) for UL and CSA-C22.2 No.157-92 (Div.1), CSA-E60079-0 (General, All Zones), CSA-E60079-11 (Intrinsic Safety "i" Zones 0 & 1), CSA-C22.2 No. 213-M1987 (Div. 2) and CSA-E60079-15 ("n" Zone 2) for C-UL, refer to control drawing ISM0132 for complete UL and C-UL safety and installation instructions, FM & FM-C No. 3024643, 3029921C, conforms to Class 3600, 3610, 3611, 3810 and C22.2 No.142, C22.2 No.157, C22.2 No.213, E60079-0, E60079-11, E60079-15, Russia according to GOST 12.2.007.0-75, R 51330.0-99, R 51330.10-99 [Exia] IIC X, Ukraine according to GOST 12.2.007.0,22782.0,22782.5 Exia IIC X, TUV Certificate No. C-IS-183645-01, SIL 2 / SIL 3 according to IEC 61508. Please refer to Functional Safety Manual for SIL applications. DNV and KR Type Approval Certificate for marine applications.
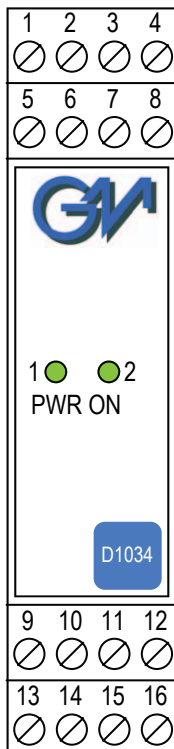
Mounting:
T35 DIN Rail according to EN50022.
Weight: about 160 g D1034D, 110 g D1034S.
Connection: by polarized plug-in disconnect screw terminal blocks to accomodate terminations up to 2.5 mm².
Location: Safe Area/Non Hazardous Locations or Zone 2, Group IIC T4, Class I, Division 2, Groups A, B, C, D Temperature Code T4 and Class I, Zone 2, Group IIC, IIB, IIA T4 installation.
Protection class: IP 20.
Dimensions: Width 22.5 mm, Depth 99 mm, Height 114.5 mm.

Parameters Table:

Safety Description	Maximum External Parameters			
	Group Cenelec	Co/Ca (µF)	Lo/La (mH)	Lo/Ro (µH/Ω)
Terminals 14-15, 10-11 Uo/Voc = 9.6 V Io/Isc = 11 mA Po/Po = 25 mW	IIC	3.6	336	1449
	IIB	26.0	1345	5790
	IIA	210.0	2690	11590

NOTE for USA and Canada:
IIC equal to Gas Groups A, B, C, D, E, F and G
IIB equal to Gas Groups C, D, E, F and G
IIA equal to Gas Groups D, E, F and G

Image:

Function Diagram:

HAZARDOUS AREA ZONE 0 (ZONE 20) GROUP IIC, HAZARDOUS LOCATIONS CLASS I, DIVISION 1, GROUPS A, B, C, D, CLASS II, DIVISION 1, GROUPS E, F, G, CLASS III, DIVISION 1, CLASS I, ZONE 0, GROUP IIC

SAFE AREA, ZONE 2 GROUP IIC T4, NON HAZARDOUS LOCATIONS, CLASS I, DIVISION 2, GROUPS A, B, C, D T-Code T4, CLASS I, ZONE 2, GROUP IIC T4

MODEL D1034D

MODEL D1034S