

Characteristics:
General Description:

The single and dual channel Switch/Proximity Detector Interface, D5034S and D5034D is a high integrity repeater, designed to interface contacts or proximity detectors (EN60947-5-6, NAMUR) located in Hazardous Area and is suitable for applications requiring SIL 3 level (according to IEC 61508) in safety related systems for high risk industries.

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 line fault detection.

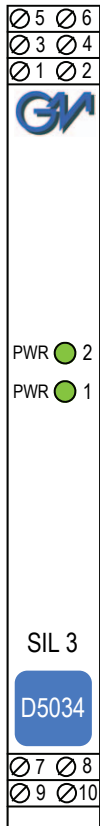
PLC / DCS can detect the following conditions:

- 0.5 to 1.3 mA Input open condition
- 2.0 to 6.0 mA Input close condition
- 0 to 0.4 mA Input fault condition (Line break)
- 6.5 to 8.0 mA Input fault condition (Short circuit)

These are automatically detected for proximity switches inputs.

For contact inputs is necessary to install end of line resistors close to the contacts (see Instruction manual for details).

Mounting on standard DIN-Rail, with or without Power Bus, or on customized Termination Boards, in Safe Area or in Zone 2.

Front Panel and Features:


- SIL 3 according to IEC 61508 for Tproof = 1 / 2 yrs (10 / 20 % of total SIF).
- SIL 2 according to IEC 61508 for Tproof = 10 / 20 yrs (10 / 20 % of total SIF).
- PFDavg (1 year) 8.43 E-05, SFF 93.88 %.
- 2 fully independent channels.
- Input from Zone 0 (Zone 20), installation in Zone 2.
- Transparent mode operation.
- Field open and short circuit detection available to the PLC/DCS card.
- Input and Output short circuit proof
- High Accuracy.
- Three port isolation, Input/Output/Supply.
- EMC Compatibility to EN61000-6-2, EN61000-6-4, EN61326-1, EN61326-3-1 for safety system.
- ATEX, IECEx Certifications.
- High Density, two channels per unit.
- Simplified installation using standard DIN-Rail and plug-in terminal blocks, with or without Power Bus, or customized Termination Boards.
- 250 Vrms (Um) max. voltage allowed to the instruments associated with the barrier.

Ordering Information:

Model:	D5034
1 channel	S
2 channels	D

Power Bus and DIN-Rail accessories:

Connector JDFT049 Cover and fix MCHP196
 Terminal block male MOR017 Terminal block female MOR022

Technical Data:
Supply:

24 Vdc nom (18 to 30 Vdc) reverse polarity protected, ripple within voltage limits ≤ 5 Vpp, 2 A time lag fuse internally protected.

Current consumption @ 24 V: 30 mA for 2 channels D5034D,

15 mA for 1 channel D5034S with short circuit input, typical.

Power dissipation: 0.72 W for 2 channels D5034D, 0.36 W for 1 channel D5034S with 24 V supply voltage and short circuit input, typical.

Isolation (Test Voltage):

I.S. In/Out 2.5 KV; I.S. In/Supply 2.5 KV; I.S. In/I.S. In 500 V;

Out/Supply 500 V; Out/Out 500 V.

Input:

Current levels: ≥ 0.1 mA to ≤ 8.0 mA

Input equivalent source: 8 V 1 K Ω typical (8 V no load, 8 mA short circuit).

Output:

0.1 to 8.0 mA in sink mode, V max. 30 V, current limited at ≈ 8 mA, repeats input current level.

Response time: 1 ms (0 to 100 % step change).

Output ripple: ≤ 20 mVrms.

Power dissipation: 0.4 W for 2 channels D5034D, 0.2 W for 1 channel D5034S short circuit input/output and 24 Vdc loop voltage, typical.

Performance:

Ref. Conditions 24 V supply, 23 ± 1 °C ambient temperature.

Calibration accuracy: $\leq \pm 0.25$ % of full scale.

Linearity error: $\leq \pm 0.25$ % of full scale.

Supply voltage influence: $\leq \pm 0.05$ % of full scale for a min to max supply change.

Load influence: $\leq \pm 0.05$ % of full scale for a 0 to 100 % load resistance change.

Temperature influence: $\leq \pm 0.03$ % of full scale on zero and span for a 1 °C change.

Compatibility:

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

Environmental conditions:

Operating: temperature limits - 40 to + 70 °C, relative humidity 95 %, up to 55 °C.

Storage: temperature limits - 45 to + 80 °C.

Safety Description:


ATEX: II 3(1) G Ex nA [ia Ga] IIC T4 Gc, II (1) D [Ex ia Da] IIIC, I (M1) [Ex ia Ma] I

IECEx: Ex nA [ia Ga] IIC T4 Gc, [Ex ia Da] IIIC, [Ex ia Ma] I,

associated apparatus and non-sparking electrical equipment.

Uo/Voc = 10.5 V, Io/Isc = 15 mA, Po/Po = 39 mW at terminals 7-8, 9-10.

Um = 250 Vrms, -40 °C \leq Ta \leq 70 °C.

Approvals:

BVS 10 ATEX E 113 X conforms to EN60079-0, EN60079-11, EN60079-15,

EN60079-26, EN61241-11, EN50303,

IECEx BVS 10.0072 X conforms to IEC60079-0, IEC60079-11, IEC60079-15,

IEC60079-26, IEC1241-11.

Russia according to GOST 12.2.007.0-75, R 51330.0-99, R 51330.10-99,

R 51330.14-99 2ExnA[ia]IIC T4 X.

Ukraine according to GOST 12.2.007.0, 22782.0, 22782.3, 22782.5 2Exs[ia]IIC T4 X.

TUV Certificate No. C-IS-204194-01, SIL 2 / SIL 3 conforms to IEC61508.

Mounting:

T35 DIN-Rail according to EN50022, with or without Power Bus or on customized Termination Board.

Weight: about 145 g D5034D, 120 g D5034S.

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

Location: Safe Area/Non Hazardous Locations or Zone 2, Group IIC T4 installation.

Protection class: IP 20.

Dimensions: Width 12.5 mm, Depth 123 mm, Height 120 mm.

Parameters Table:

Safety Description	Maximum External Parameters			
	Group Cenelec	Co/Ca (µF)	Lo/La (mH)	Lo/Ro (µH/Ω)
Terminals 7-8, 9-10	IIC	2.41	163.2	918.2
Uo/Voc = 10.5 V	IIB	16.80	652.8	3672.9
Io/Isc = 15 mA	IIA	75.00	1305.6	7345.8
Po/Po = 39 mW	I	66.00	2142.0	12051.8
	iaD	16.80	652.8	3672.9

Image:



Function Diagram:

HAZARDOUS AREA ZONE 0 (ZONE 20) GROUP IIC

SAFE AREA, ZONE 2 GROUP IIC T4

