



Switch Amplifier

HiD2824

- 4-channel isolated barrier
- 24 V DC supply (bus powered)
- Dry contact or NAMUR inputs
- 4 relay contact outputs
- Line fault detection (LFD)
- Up to SIL 2 acc. to IEC/EN 61508



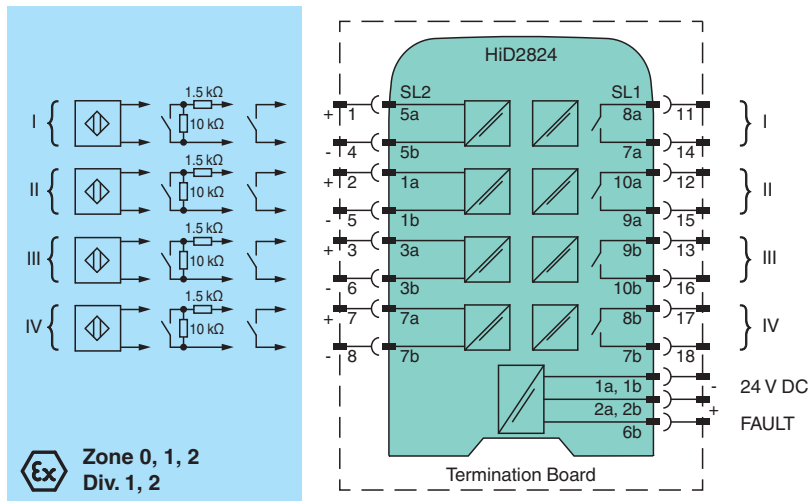
SIL 2



Function

This isolated barrier is used for intrinsic safety applications. It transfers digital signals (NAMUR sensors/mechanical contacts) from a hazardous area to a safe area. The proximity sensor or switch controls two form A normally open relay outputs for the safe area load. The module output changes state when the input signal changes state. The normal output state can be reversed with the selector switches on the side of the unit. Line fault detection (LFD) can be selected or disabled via a selector switch. During an error condition, the relay reverts to its de-energized state and the LEDs indicate the fault. A separate fault output bus is available. The fault conditions can be monitored via a Fault Indication Board. This module mounts on a HiD Termination Board.

Connection



Technical Data

General specifications

Signal type Digital Input

Functional safety related parameters

Safety Integrity Level (SIL) SIL 2

Supply

Connection	SL1: 1a(-), 1b(-); 2a(+), 2b(+)
Rated voltage	U_r 20.4 ... 30 V DC bus powered via Termination Board
Rated current	I_r 15 mA at 24 V, relay energized (per channel)
Power dissipation	0.35 W at 24 V (per channel)

Input

Refer to "General Notes Relating to Pepperl+Fuchs Product Information".

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Technical Data

Connection side		field side
Connection		SL2: 5a(+), 5b(-); 1a(+), 1b(-); 3a(+), 3b(-); 7a(+), 7b(-)
Rated values		acc. to EN 60947-5-6 (NAMUR)
Connectable sensor types		potential free contact or proximity sensor
Switching point		contact open 0.2 ... 1.2 mA, contact closed 2.1 ... 6.5 mA
Line fault detection		breakage 0 ... 0.2 mA, short-circuit 6.5 mA ... maximum value
Output		
Connection side		control side
Connection		SL1: 8a, 7a; 10a, 9a; 10b, 9b; 8b, 7b
Output		signal: relay SPST per channel, phase selectable
Response time		20 ms
Contact loading		50 V DC / 0.5 A non-inductive
Mechanical life		10 ⁷ switching cycles
Fault indication output		
Connection		SL1: 6b
Output type		open collector transistor (internal fault bus)
Transfer characteristics		
Switching frequency		< 10 Hz
Galvanic isolation		
Output/power supply		functional insulation acc. to DIN EN 50178, rated insulation voltage 50 V _{eff}
Output/Output		functional insulation acc. to DIN EN 50178, rated insulation voltage 50 V _{eff}
Indicators/settings		
Display elements		LEDs
Control elements		DIP switch
Configuration		via DIP switches
Labeling		space for labeling at the front
Directive conformity		
Electromagnetic compatibility		
Directive 2014/30/EU		EN 61326-1:2013 (industrial locations)
Conformity		
Galvanic isolation		EN 50178:1997
Electromagnetic compatibility		NE 21:2006 For further information see system description.
Degree of protection		IEC 60529:2001
Ambient conditions		
Ambient temperature		-20 ... 60 °C (-4 ... 140 °F)
Relative humidity		5 ... 90 %, non-condensing up to 35 °C (95 °F)
Mechanical specifications		
Degree of protection		IP20
Mass		approx. 140 g
Dimensions		18 x 114 x 130 mm (0.7 x 4.5 x 5.1 inch) (W x H x D)
Mounting		on termination board
Coding		pin 1 and 2 trimmed For further information see system description.
Data for application in connection with hazardous areas		
EU-type examination certificate		CESI 02 ATEX 086
Marking		Ⓔ II (1)G [Ex ia Ga] IIC , Ⓔ II (1)D [Ex ia Da] IIIC
Input		Ex ia, Ex iaD
Voltage	U _o	13.2 V
Current	I _o	20 mA
Power	P _o	66 mW
Supply		
Maximum safe voltage	U _m	250 V AC (Attention! U _m is no rated voltage.)
Certificate		PF 11 CERT 2109 X

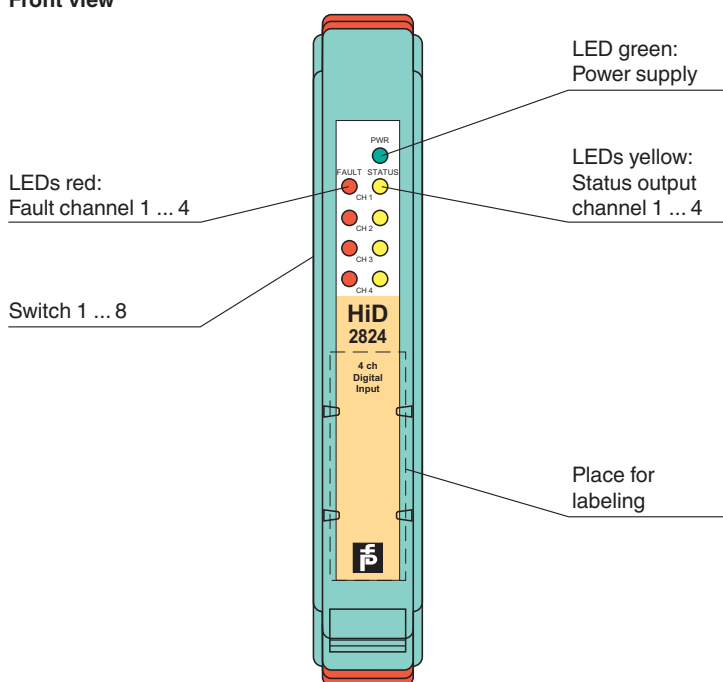
Release date: 2023-02-22 Date of issue: 2023-02-22 Filename: 121451_eng.pdf

Technical Data

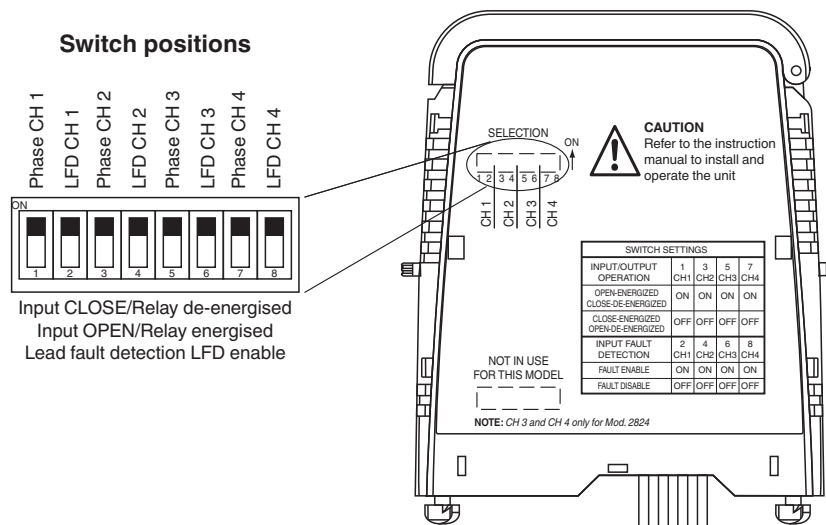
Marking		II 3G Ex nA nC IIC T4 Gc
Galvanic isolation		
Input/input		safe electrical isolation acc. to EN 60079-11:2007, voltage peak value 60 V
Input/Output		safe electrical isolation acc. to EN 60079-11: 2007, voltage peak value 375 V
Input/power supply		safe electrical isolation acc. to EN 60079-11: 2007, voltage peak value 375 V
Directive conformity		
Directive 2014/34/EU		EN 60079-0:2012+A11:2013 , EN 60079-11:2012 , EN 60079-15:2010
International approvals		
CSA approval		
Control drawing		366-005CS-12B (cCSAus)
IECEx approval		
IECEx certificate		IECEx TUN 04.0012
IECEx marking		[Ex ia] IIC
General information		
Supplementary information		Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable. For information see www.pepperl-fuchs.com .

Assembly

Front view



Configuration



Channel 3 and 4 (switch 5 ... 8) only for HiD2824.

Configuration

Configure the device in the following way:

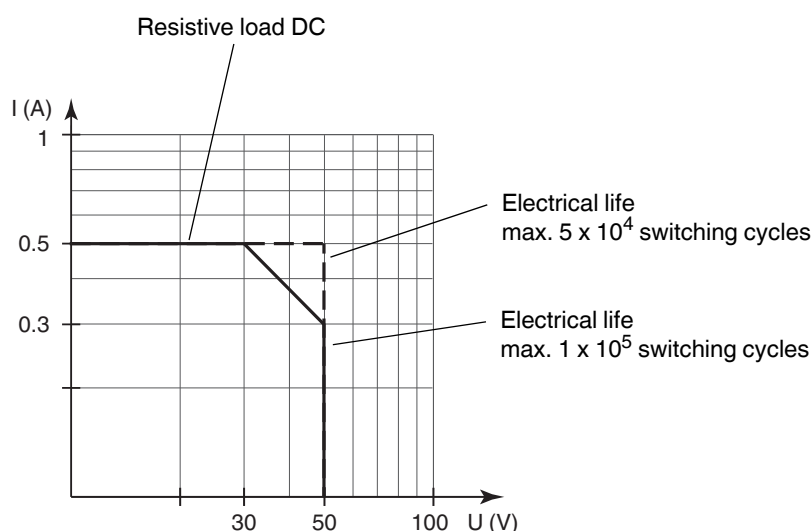
- Push the red Quick Lok Bars on each side of the device in the upper position.
- Remove the device from Termination Board.
- Set the DIP switches according to the figure.



The pins for this device are trimmed to polarize it according to its safety parameter. Do not change!
For further information see system description.

Characteristic Curve

Maximum switching power of output contacts



The maximum number of switching cycles is depending on the electrical load and may be higher when reduced currents and voltages are applied.