Features

- 1-channel isolated barrier
- 24 V DC supply (bus powered)
- Thermocouple, RTD or potentiometer input
- Linearized output 4 mA ... 20 mA, sink/source or 1 V ... 5 V
- Sensor breakage detection
- Configurable by **PACTware**
- Line fault detection (LFD)

Function

This isolated barrier is used for intrinsic safety applications.

This device accepts thermocouples (TC), millivolts, potentiometers, or resistance temperature detectors (RTD) from a hazardous area and converts them to an isolated, linearized analog output in the safe area.

The outputs can be selected as a current source, current sink, or voltage source with DIP switches on the side panel.

Line fault detection of the field circuit is indicated by a red LED and an output on the fault bus. The fault conditions are monitored via a Fault Indication Board.

The device is easily configured by the use of the PACTware configuration software.

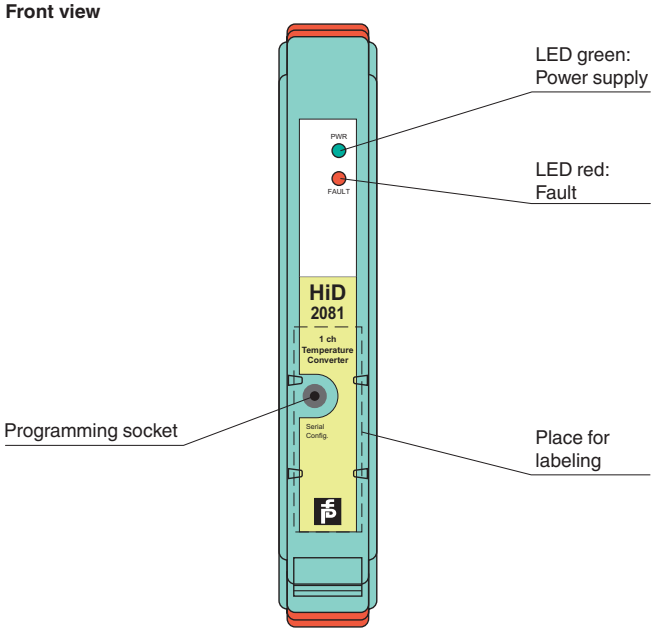
This device mounts on a HiD Termination Board.

Application

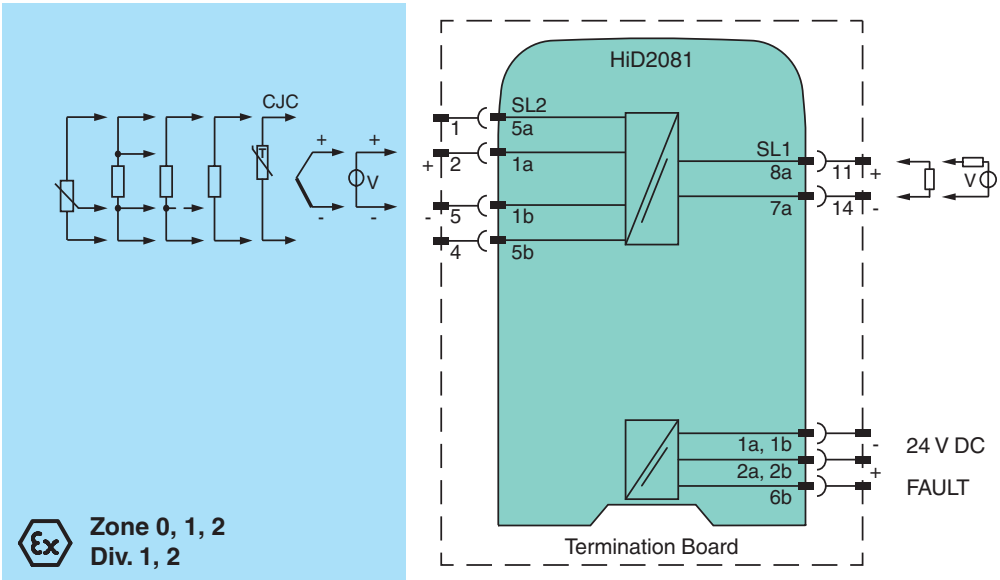
The resistance thermometer for cold junction compensation H-CJC-**-8 is available as an accessory for temperature measurements with thermocouples.

Assembly

Front view



Connection



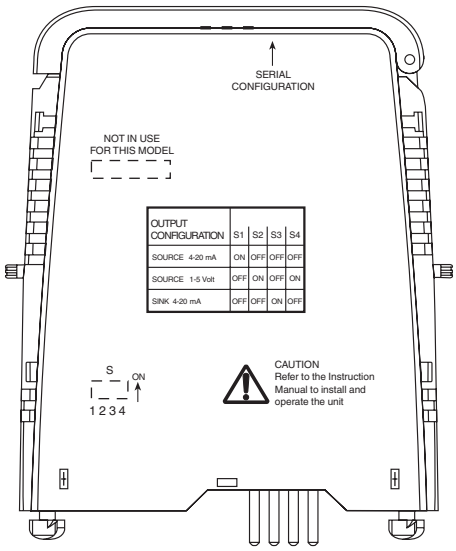
Release date 2014-06-26 12:18 Date of issue 2014-06-26 244224_eng.xml

General specifications	
Signal type	Analog input
Supply	
Connection	SL1: 1a(-), 1b(-); 2a(+), 2b(+)
Rated voltage	20.4 ... 30 V via Termination Board
Ripple	within the supply tolerance
Current	60 mA
Power consumption	1.2 W
Input	
Connection	SL2: 5a(+), 1a(+), 1b(-), 5b(-)
RTD	type Cu10, Cu50, Cu100, Pt10, Pt50, Pt100, Pt500, Pt1000, Ni100 (EN 60751: 1995) type Pt10GOST, Pt50GOST, Pt100GOST, Pt50GOST, Pt1000GOST (P50353-92)
Measuring current	approx. 200 µA with RTD
Types of measuring	2-, 3-, 4-wire connection
Lead resistance	≤ 50 Ω per lead
Measuring circuit monitoring	sensor breakage, sensor short-circuit
Thermocouples	type B, E, J, K, N, R, S, T (IEC 584-1: 1995) type L (DIN 43710: 1985) type TXK, TXKH, TXA (P8.585-2001)
Cold junction compensation	at field terminals
Measuring circuit monitoring	sensor breakage
Voltage	selectable within the range -100 ... 100 mV
Potentiometer	0.1 ... 20 kΩ
Types of measuring	3-wire connection
Input resistance	≥ 1 MΩ (-100 ... 100 mV)
Output	
Connection	SL1: 8a(+), 7a(-)
Output	analog, current or voltage output
Current range	0/4 ... 20 mA
Voltage range	0 ... 5 V or 1 ... 5 V (on 250 Ω, 0.1 % internal shunt)
Fault signal	downscale 0 or 2 mA, upscale 21.5 mA (acc. NAMUR NE43)
Source	load 0 ... 550 Ω , open-circuit voltage ≤ 18 V
Sink	0/4 ... 20 mA (sink mode), working voltage 7 ... 30 V
Error message output	
Connection	SL1: 6b
Output type	open collector transistor (internal fault bus)
Transfer characteristics	
Deviation	
After calibration	Pt100: ± (0.05 % of measurement value in °C + 0.05 % of span + 0.1 K (4-wire connection)) thermocouple: ± (0.05 % of measurement value in °C + 0.05 % of span + 1 K (1.2 K for types R and S)) This includes ± 0.8 K error of the cold junction compensation
Influence of ambient temperature	current output (deviation of CJC included): Pt100: ± (0.0015 % of measurement value in K + 0.006 % of span)/K ΔT_{amb} *) thermocouple: ± (0.02 K + 0.01 % of measurement value in K + 0.006 % of span)/K ΔT_{amb} *) *) ΔT_{amb} = ambient temperature change referenced to 23 °C (296 K)
Influence of supply voltage	< 0.01 % of span
Influence of load	≤ 0.1% of full scale from 0 ... 550 Ω
Reaction time	worst case value (sensor breakage and/or sensor short circuit detection enabled) mV: 1.2 s, thermocouples with CJC: 1.4 s, thermocouples with fixed ref. temp: 1.4 s, 3- or 4-wire RTD: 1.1 s, 2-wire RTD: 920 ms
Electrical isolation	
Power supply/programming input	There is no electrical isolation between the programming input and the supply. The programming cable provides galvanic isolation so that ground loops are avoided.
Directive conformity	
Electromagnetic compatibility	
Directive 2004/108/EC	EN 61326-1:2006
Conformity	
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

Release date 2014-06-26 12:18 Date of issue 2014-06-26 244224_eng.xml

Dimensions		18 x 106 x 128 mm (0.7 x 4.2 x 5 in)
Mounting		on Termination Board
Coding		pin 2 and 4 trimmed For further information see system description.
Data for application in connection with Ex-areas		
EC-Type Examination Certificate		CESI 02 ATEX 086 , for additional certificates see www.pepperl-fuchs.com
Group, category, type of protection		⟨Ex⟩ II (1)G [Ex ia Ga] IIC , ⟨Ex⟩ II (1)D [Ex ia Da] IIIC , (-20 °C ≤ T_{amb} ≤ 60 °C)
Input		[Ex ia Ga] IIC, [Ex ia Da] IIIC
Voltage	U_o	10 V
Current	I_o	15 mA
Power	P_o	38 mW
Analog outputs, power supply, collective error		
Maximum safe voltage	U_m	250 V (Attention! This is not the rated voltage.)
Interface		
Maximum safe voltage	U_m	250 V (Attention! The rated voltage is lower.), RS 232
Electrical isolation		
Input/Output		safe electrical isolation acc. to IEC/EN 60079-11, voltage peak value 375 V
Input/power supply		safe electrical isolation acc. to IEC/EN 60079-11, voltage peak value 375 V
Input/Programming input		safe electrical isolation acc. to IEC/EN 60079-11, voltage peak value 375 V
Directive conformity		
Directive 94/9/EC		EN 60079-0:2009, EN 60079-11:2007, EN 60079-26:2007, EN 61241-11:2006
International approvals		
CSA approval		
Control drawing		366-005CS-12B (cCSAus)
General information		
Supplementary information		EC-Type Examination Certificate, Statement of Conformity, Declaration of Conformity, Attestation of Conformity and instructions have to be observed where applicable. For information see www.pepperl-fuchs.com.
Accessories		
Designation		optional accessories: - resistance thermometer for cold junction compensation H-CJC-SP-8 - adapter with USB Interface K-ADP-USB

Configuration



Switch position

Switch	Function		
	Source 4 mA ... 20 mA	Source 1 V ... 5 V	Sink 4 mA ... 20 mA
S1	ON	OFF	OFF
S2	OFF	ON	OFF
S3	OFF	OFF	ON
S4	OFF	ON	OFF

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.

Release date 2014-06-26 12:18 Date of issue 2014-06-26 244224_eng.xml