

Features

- 1-channel signal conditioner
- 24 V DC supply (Power Rail)
- Current and voltage inputs
- 2 relay contact outputs
- Programmable high/low alarm
- DIP switch programmable
- Terminals with test points

Function

This signal conditioner is a trip alarm with two independently adjustable trip points that provides isolation for non-intrinsically safe applications.

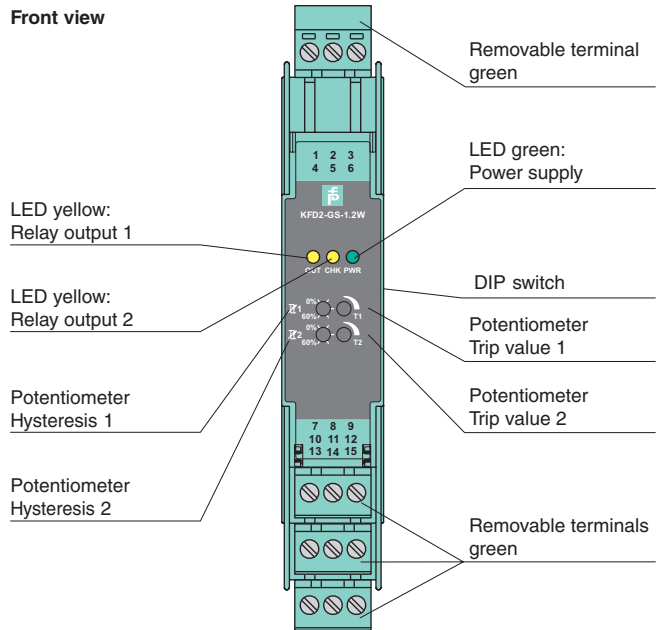
The unit actuates a relay output when it reaches a user-programmed input level.

DIP switches are used to program voltage input low alarms and high alarms.

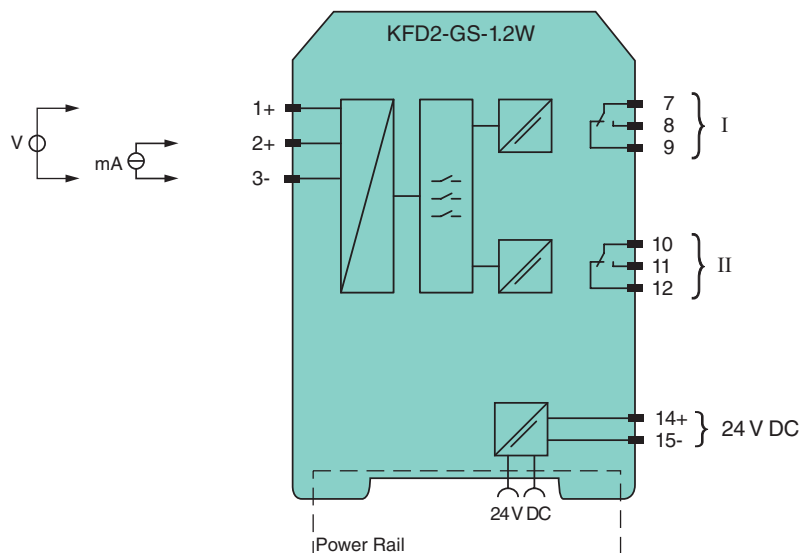
The hysteresis, the operating mode of the relay outputs, and the type of alarm are selectable for each trip point.

For additional information, refer to www.pepperl-fuchs.com.

Assembly



Connection



Release date 2010-03-17 14:52 Date of issue 2010-03-17 038311_ENG.xml

General specifications	
Signal type	Analog input
Supply	
Connection	Power Rail or terminals 14+, 15-
Rated voltage	20 ... 30 V DC
Rated current	75 mA
Power loss	1 W
Power consumption	2.25 W (typ. 1.68 W)
Input	
Measurement range	terminals 1+, 3- ; voltage: 0/1 ... 5 V ; 50 k Ω or 0/2 ... 10 V ; 100 k Ω terminals 2+, 3- ; current: 0/4 ... 20 mA ; 50 Ω
Output	
Output I	trip value: terminals 7, 8, 9
Output II	trip value: terminals 10, 11, 12
Contact loading	250 V AC / 5 A / 1250 VA; 125 V DC / 5 A / 150 W
Transfer characteristics	
Deviation	$\leq 0.5 \%$
Influence of ambient temperature	0.01 % / K of adjusted trip value
Input delay	100 ms
Electrical isolation	
Input/Output	safe isolation acc. to DIN VDE 0106, rated insulation voltage 253 V _{eff}
Input/power supply	functional insulation acc. to DIN EN 50178, rated insulation voltage 50 V _{eff}
Output/power supply	safe isolation acc. to DIN VDE 0106, rated insulation voltage 253 V _{eff}
Directive conformity	
Electromagnetic compatibility	
Directive 89/336/EEC	EN 50081-2, EN 50082-2
Conformity	
Insulation coordination	EN 50178
Electrical isolation	EN 50178
Electromagnetic compatibility	NE 21
Protection degree	IEC 60529
Ambient conditions	
Ambient temperature	-20 ... 60 °C (-4 ... 140 °F)
Mechanical specifications	
Protection degree	IP20
Mass	approx. 120 g
Dimensions	20 x 124 x 115 mm (0.8 x 4.9 x 4.5 in) , housing type B2
General information	
Supplementary information	Statement of Conformity, Declaration of Conformity, Attestation of Conformity and instructions have to be observed where applicable. For information see www.pepperl-fuchs.com .

Function

The device converts the electrical unit signals 0/4 mA ... 20 mA, 0/1 V ... 5 V, 0/2 V ... 10 V into a proportional internal voltage. A comparator compares this internal voltage with the two preset reference values. The hysteresis, the operating mode of the relay outputs and the type of alarm (high or low) is selectable for each trip point.

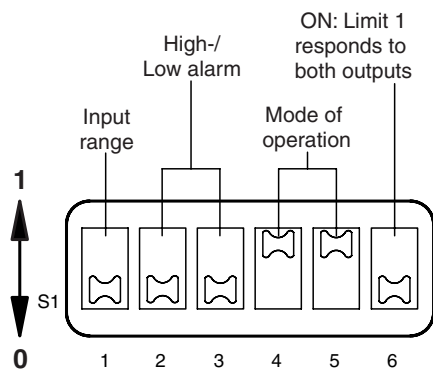
High alarm indicates that the status of the relay has changed when the calibrated trip value is exceeded. This status changes when a lower value is not met. The difference of both values represents the hysteresis which can be adjusted on the front panel. In a low alarm condition, the alarm signal occurs when the trip value is not met.

A monitoring voltage of 0 V ... 10 V can be used via the 2 mm test sockets for the adjustment of the device (trip value, hysteresis). It is possible in this way to adjust the device during operation or without a measurement signal at the input.

Configuration

DIP switches function

Delivery status of S1 DIP switch



Switch	Position	Function
S1.1	0	0/2 V ... 10 V input range
	1	0/1 V ... 5 V input range
S1.2	0	Low alarm output I
	1	High alarm output I
S1.3	0	Low alarm output II
	1	High alarm output II
S1.4	0	Relays open in alarm state output I
	1	Relays closed on alarm state output I
S1.5	0	Relays open in alarm state output II
	1	Relays closed on alarm state output II
S1.6	0	Output I independent of output II
	1	Trip value 1 responds to both outputs

Adjustment instructions for the following applies to the 0 mA ... 20 mA, 0 V ... 5 V, 0 V ... 10 V unit input signals:

1. Connect a voltmeter to terminals 5+, 3- for trip value 1 or to terminals 6+, 3- for trip value 2. 10 V represent 100 %, 0 V represent 0 % of the input measurement range.
2. The trip point for trip value 1 or trip value 2 are set with potentiometers T1 or T2.

Example:

Input signal 0 V ... 5 V
 Trip point 2.5 V

2.5 V represent 50 % of the input measurement range. The voltage between terminals 5+, 3- or 6+, 3- should then be adjusted to 5 V (represent 50 %).

Adjustment instructions for the following applies to the 4 mA ... 20 mA, 1 V ... 5 V, 2 V ... 10 V unit input signals:

1. Connect a voltmeter to terminals 5+, 3- for trip value 1 or to terminals 6+, 3- for trip value 2. 10 V represent 100 %, 2 V represent 0 % of the input measurement range.
2. The trip point for trip value 1 or trip value 2 are set with potentiometers T1 or T2.
 The selected trip point (TP) represents y % of the input measurement range.
 $y = (TP - \text{lower input value}) / (\text{upper input value} - \text{lower input value})$
 The trip value (TV) is calculated using the following formula: $TV = (y \times 8 V) + 2 V$

Example:

Input signal 4 mA ... 20 mA
 Trip point (TP) 12 mA

$y = (12 \text{ mA} - 4 \text{ mA}) / (20 \text{ mA} - 4 \text{ mA}), y = 50 \%$
 $TV = (50 \% \times 8 V) + 2 V, TV = 6 V$

12 mA represent 50 % of the input measurement range. The voltage (TV) between terminals 5+, 3- or 6+, 3- should be adjusted to 6 V (represent 50 %).

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Accessories

Power feed modules KFD2-EB2...

The power feed module is used to supply the devices with 24 V DC via the Power Rail. The fuse-protected power feed module can supply up to 100 individual devices depending on the power consumption of the devices. A galvanically isolated mechanical contact uses the Power Rail to transmit collective error messages.

Power Rail UPR-03

The Power Rail UPR-03 is a complete unit consisting of the electrical inset and an aluminium profile rail 35 mm x 15 mm. To make electrical contact, the devices are simply engaged.

The Power Rail must not be fed via the device terminals of the individual devices!