Features

- 4-channel signal conditioner
- 24 V DC supply (Power Rail)
- Output 600 mA per channel
- Logic inputs
- Common safety-oriented disable input
- Line fault detection (LFD)
- Up to SIL2 acc. to IEC 61508

Function

This signal conditioner is a 4-channel barrier with outputs that switch 600 mA to high-power solenoids. It is also used as power amplifier up to a switching frequency of 1 kHz.
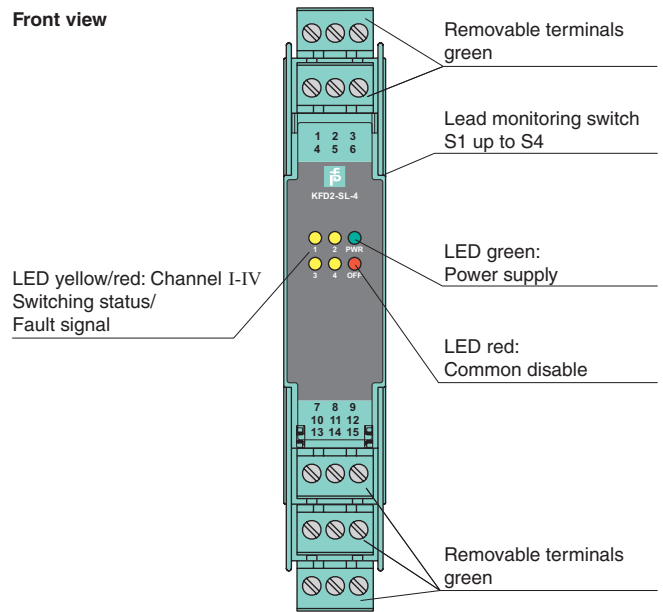
Two channels per module can be paralleled. The output current of a parallel combination is 1.2 A. If the supply voltage falls below 18 V, the outputs will be switched off.

The outputs are sustained short-circuit proofed and overload-proofed.

Lead breakage and short circuit, which is selected via DIP switch, is indicated by a red LED and through the collective error output via Power Rail.
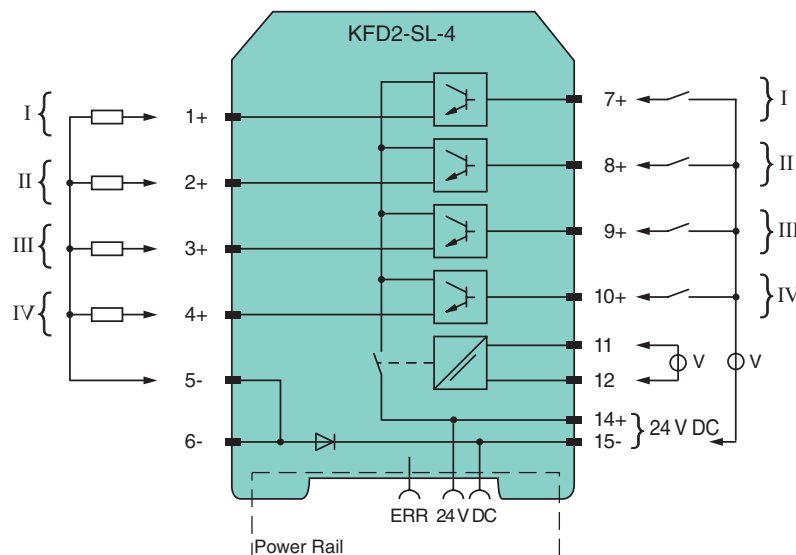
With the common disable input (terminals 11 and 12), the auxiliary power for all 4 channels can be switched off simultaneously. This central switch-off is also indicated by a red LED and reported as an error signal to the Power Rail.

Assembly

Front view

Removable terminals green

Lead monitoring switch S1 up to S4

LED green: Power supply

LED red: Common disable

LED yellow/red: Channel I-IV Switching status/ Fault signal

Removable terminals green

CE   SIL2

Connection

KFD2-SL-4

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

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General specifications		
Signal type		Digital Output
Supply		
Connection		Power Rail or terminals 14+, 15-
Rated voltage	U_n	20 ... 30 V DC
Undervoltage switching-off		≤ 18 V DC
Quiescent current indication		< 50 mA at 24 V DC
Power loss		< 2 W supply voltage 30 V, all outputs loaded with 600 mA
Input		
Connection		Terminals 7+, 8+, 9+, 10+, 15-
Input current		approx. 2 mA at 24 V DC
Signal level		0-signal: 0 ... 5 V DC 1-signal: 16 ... 30 V
Common disable		
Connection		terminals 11, 12
Input current		≤ 50 mA at 24 V, depolarized currentless state: downscale of the outputs
Switch on		≥ 15 V
Switch off		≤ 5 V
Output		
Open loop voltage	U_s	24 V DC
Connection		terminals 1+, 2+, 3+, 4+, 5-, 6-
Switching frequency	f	1 kHz
Output rated operating current		600 mA , sustained short-circuit proof and overload-proof
Output voltage		operating voltage - 0.2 V at 0 ... 600 mA
Off-state current	I_r	< 1 mA at 24 V DC
Line fault detection		lead breakage: ≤ 4 mA
Electrical isolation		
Common disable/input and outputs		basic insulation according to IEC/EN 61010-1, rated insulation voltage 50 V_{eff}
Directive conformity		
Electromagnetic compatibility		
Directive 2004/108/EC		EN 61326-1:2006
Conformity		
Electromagnetic compatibility		NE 21:2011
Degree of protection		IEC 60529:2001
Ambient conditions		
Ambient temperature		-20 ... 60 °C (-4 ... 140 °F)
Mechanical specifications		
Degree of protection		IP20
Mass		approx. 100 g
Dimensions		20 x 119 x 115 mm (0.8 x 4.7 x 4.5 in) , housing type B2
Mounting		on 35 mm DIN mounting rail acc. to EN 60715:2001
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.

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

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Notes

The outputs are switched high and current-limited for each channel (electronically pulsed). They are suited for inductive loads such as magnet operated valves or solenoid coils and incandescent lamps or indicator lamps.

Each channel is continuous short circuit- and overload-proof. In this case, the max. power loss in the device of 2 W (U_b = 24 V) is not exceeded.

2 channels per device may be paralleled input- and output-sided. The output current of this dual combination may not exceed 1.2 A. Both remaining channels may not be loaded with more than (in sum) 200 mA.

The maximum current loading capacity of the Power Rail is to be considered. Alternatively, the device may be supplied with the terminals 14+, 15-.

Device behavior

Behavior in the event of lead breakage (LB)

Input (control side)	Switch position S1 ... S4 line fault detection	LED indication switching state/fault signal	Collective error
0-Signal	II	off	not active
1-Signal	II	yellow	not active
0-Signal	I	flashing red	active
1-Signal	I	yellow	not active

Lead breakage detection is only active when the output is deactivated (0-Signal).

Behavior in the event of a short circuit (SC)

Input (control side)	Switch position S1 ... S4 line fault detection	LED indication switching state/fault signal	Collective error
0-Signal	II	off	not active
1-Signal	II	yellow	not active
0-Signal	I	off	not active
1-Signal	I	flashing red	active

Short circuit detection is only active when the output is activated (1-Signal).

Behavior when common disable is active

If common disable is active (0-Signal at terminals 11, 12), all outputs are switched to a de-energized state. When line fault monitoring S1 ... S4 of a channel is active, its switching state/fault signal LED flashes red and the collective error is output to the Power Rail.
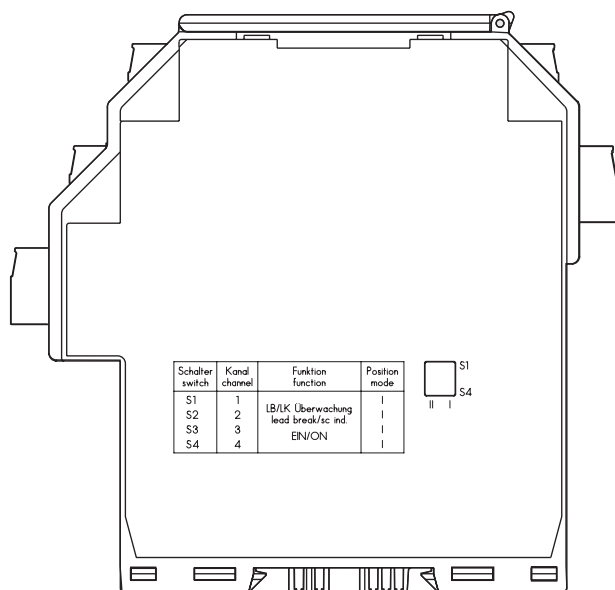
Behavior in the event of undervoltage

If the supply voltage falls below 18 V, the device reacts as follows:
• All outputs are disabled.
• The green power LED goes out.
• A collective error message is output.

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Configuration

Switch position

Switch	Channel	Function		Position
S1	1	LB/SC	ON	I
			OFF	II
S2	2	LB/SC	ON	I
			OFF	II
S3	3	LB/SC	ON	I
			OFF	II
S4	4	LB/SC	ON	I
			OFF	II

Accessories

Power feed module 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.

Profile Rail K-DUCT with Power Rail

The profile rail K-DUCT is an aluminum profile rail with Power Rail insert and two integral cable ducts for system and field cables. Due to this assembly no additional cable guides are necessary.

⚠️ **Attention**

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

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