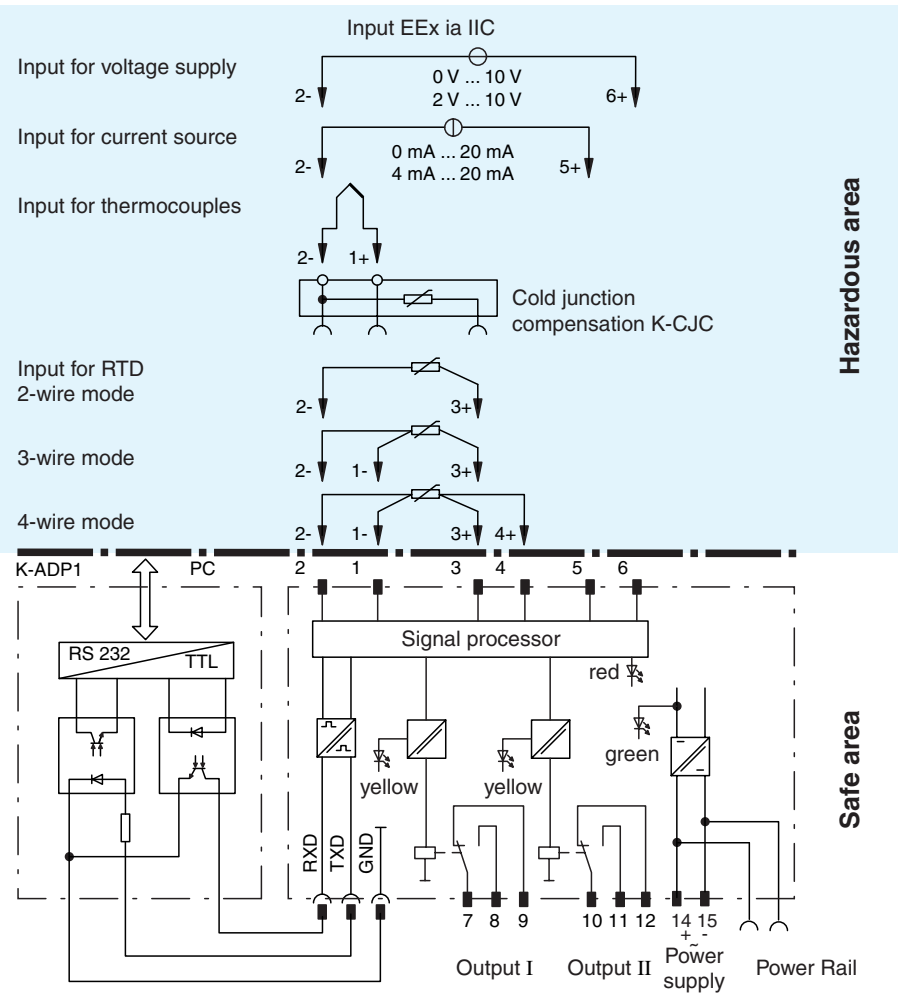
24 V DC

- 1-channel
- Input EEx ia IIC
- 2 relay outputs
- High/low alarm settable
- Mode of operation adjustable
- Internal/external cold junction compensation
- Inputs for voltage (0 V ... 10 V), current (0 mA ... 20 mA) RTDs (Pt100, Ni100) thermocouples (B, E, J, K, L, N, R, S, or T)
- Sensor burnout monitoring for thermocouples
- Sensor burnout and short-circuit monitoring for Pt100, current and voltage
- Online adjustments via serial interface to PC
- EMC acc. to NAMUR NE 21

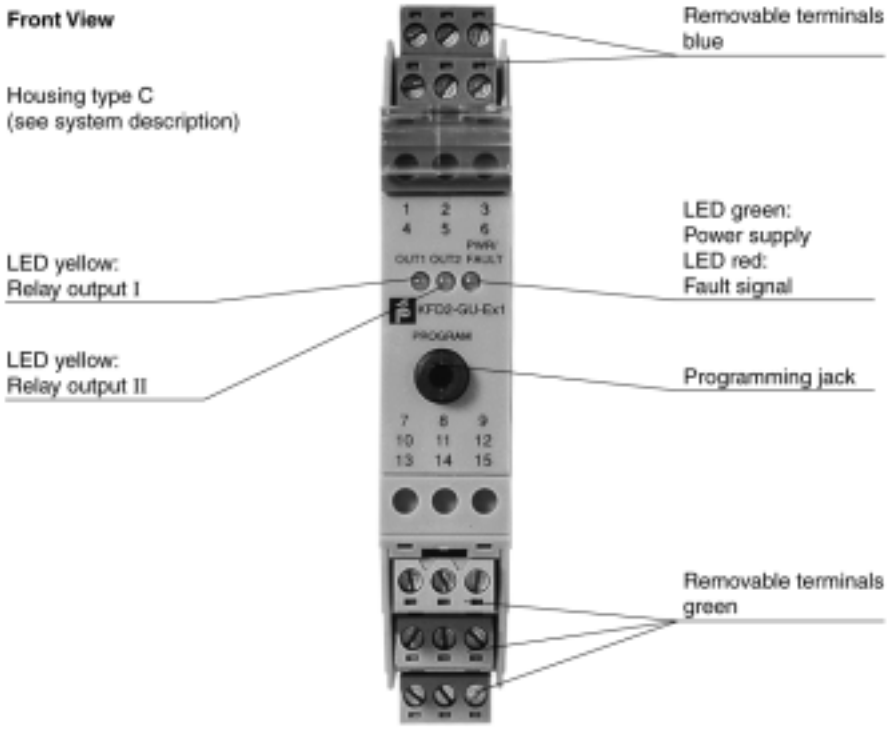
Standard model, replaces models KFD2-GR-Ex1* , KHD2-GT-Ex1*, KFD2-GS-Ex1*



Function

The limit switches are used with temperature measurements with Pt100 or thermocouples. In addition, inputs for current/voltage unit signals are available.
The parameterisation is accomplished via **PACT***ware*™, a K-ADP1 adapter and a PC (surface in accordance with VDI/VDE GMA 2187). The input is galvanically isolated from the output, the programming input and the power supply. The PC's serial interface is galvanically isolated from the programming input by connecting the K-ADP1 programming adapter. The isolation of the programming jack from the input makes programming during operation and through a connected measurement circuit possible.
The internal or external cold junction compensation options can be selected when using thermocouples. Terminal K-CJC is available for internal compensation.
The action taken during error conditions can be adjusted at the switch outputs. A fault is indicated by a red flashing LED per NAMUR NE 44.

Composition



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Supply				
Rated voltage		20 ... 35 V DC		
Ripple		within the supply tolerance		
Power loss		0,8 W		
Power consumption		approx. 1,5 W		
Input				
Connection		terminals 1, 2, 3, 4, 5, 6 ; suitable for Pt100, Ni100, thermocouples type B, E, J, K, L, N, R, S or T. 0 ... 10 V, 0 ... 20 mA Configuration via programming socket.		
Lead resistance		≤ 50 Ω per lead		
Measuring current		for Pt100: approx. 400 µA ; current for lead monitoring switched off during the measurement		
Load		20 Ohm for 20 mA; 200 kOhm for 10 V		
Output				
Output I		limit value 1: terminals 7, 8, 9		
Output II		limit value 2: terminals 10, 11, 12		
Contact loading		253 V AC, 2 A, cos φ > 0.6		
Mechanical life		2 x 10^7 switching cycles		
Transfer characteristics				
Deviation				
Pt100		± 0.01 % of abs. temperature value of switching point in K + 0.2 K (4-wire connection)		
Thermocouple		± 0.05 % of abs. temperature value of switching point in Kelvin + 1.1 K (1.2 K for thermocouple types R and S) this includes ± 0.8 K error of the cold junction compensation (+0.9 K for thermocouple types R and S).		
Current source		± 0.02 % of 20 mA measuring range + 1 µA		
Voltage source		± 0.02 % of 10 V measuring range + 500 µV		
Influence of the power supply				
Pt100		(± 0.0015 % of abs. temperature value of switching point in K + 0.01 K) / KΔT_U*)		
Thermocouple		(± 0.004 % of abs. temperature value of switching point in K + 0.01 K) / KΔT_U*)		
Thermocouple type R and S		(± 0.005 % of abs. temperature value of switching point in K + 0.01 K) / KΔT_U*)		
Voltage source		(± 0.007 % of the switching point voltage) / KΔT_U*)		
Current source		(± 0.007 % of the switching point current) / KΔT_U*) *) ΔT_U = ambient temperature change referenced to 23 °C (296 K)		
Influence of supply voltage				
Voltage source		< 0.001 % of span		
Pt100, Ni100, thermocouples, voltage source C_o		< 0.001 % of span		
Current source		0.0035 % of span		
Input delay		≤ 370 ms (rise time and energising delay of relay)		
Electrical isolation				
Input/Output		safe electrical isolation acc. to EN 50020, voltage peak value 375 V		
Input/Power supply		safe electrical isolation acc. to EN 50020, voltage peak value 375 V		
Output/Power supply		according to DIN VDE 0106 Part 101 safety isolated, rated insulation voltage 253 V_{eff}		
Standard conformity				
Coordination of insulation		acc. to DIN EN 50178		
Electrical isolation		acc. to DIN EN 50178		
Electromagnetic compatibility		acc. to EN 50081-2 / EN 50082-2, NAMUR NE 21		
Climatic conditions		acc. to DIN IEC 721		
Directive conformity				
Electromagnetic compatibility		standards		
Directive 89/336/EG		on request		
Ambient conditions				
Ambient temperature		-20 ... 60 °C (253 ... 333 K)		
Mechanical specifications				
Protection degree		IP20		
Mass		approx. 150 g		
Data for application in conjunction with hazardous areas				
EC-Type Examination Certificate		BAS 98 ATEX 7152 ; for additional certificates see www.pepperl-fuchs.com		
Group, category, type of protection		⟨Ex⟩ II (1) G [EEx ia] IIC (Ta = -20 °C up to 60 °C)		
Voltage	U_0	10,5 V		
Current	I_0	27 mA		
Power	P_0	70 mW		
Supply				
Safety maximum voltage	U_m	40 V DC		
Type of protection [EEx ia]				
Explosion group		IIA	IIB	IIC
External capacitance		75 µF	16,8 µF	2,4 µF

External inductance	290 mH 142 mH 37 mH
Electrical isolation	
Input/Output	safe electrical isolation acc. to EN 50020, voltage peak value 375 V
Input/Power supply	safe electrical isolation acc. to EN 50020, voltage peak value 375 V
Directive conformity	standards
Directive 94/9 EU	on request

Accessories

PR-03 Power Rail
UPR-03 Power Rail
KFD2-EB2 power feed module
The devices are supplied with 24 V DC through the KFD2-EB2 power feed module and the PR-03 or the UPR-03 Power Rail. Each power feed module monitors and provides protection for groups of as many as 100 individual devices. The PR-03 Power Rail is an insert component for the DIN rail. The UPR-03 Power Rail is a complete unit consisting of an electrical insert and an aluminium DIN rail measuring 35 mm x 15 mm x 2000 mm. The devices are simply snapped in place to make electrical contact.
If a Power Rail is not being used, power can be supplied to the devices directly through the device terminals.

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