

Features

- 1-channel isolated barrier
- 24 V DC supply (Power Rail)
- Dry contact or NAMUR inputs
- Relay contact and transistor output
- Adjustable output timer functions from 10 ms ... 60 min
- Input frequency up to 80 Hz; pulse divider up to 1 kHz
- Reset function
- Configurable by keypad
- Line fault detection (LFD)

Function

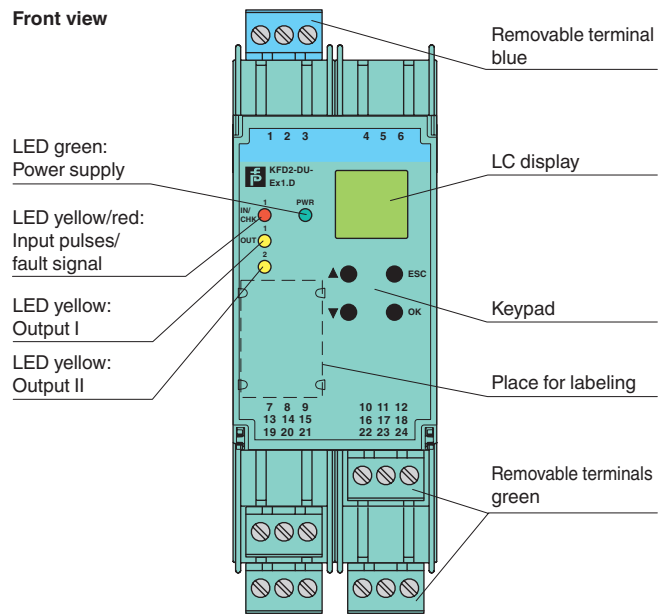
This isolated barrier is used for intrinsic safety applications. It is a highly configurable timer that accepts a digital signal (NAMUR sensor/mechanical contact) from a hazardous area and is commonly used in applications requiring on-delay, off-delay, one-shot, or pulse lengthening.

The output relay switch duration is easily adjusted, and a pulse divider function allows step-down ratios from 1:1 to 9999:1. A reset can be activated via dry contact switch and used to terminate a particular time function.

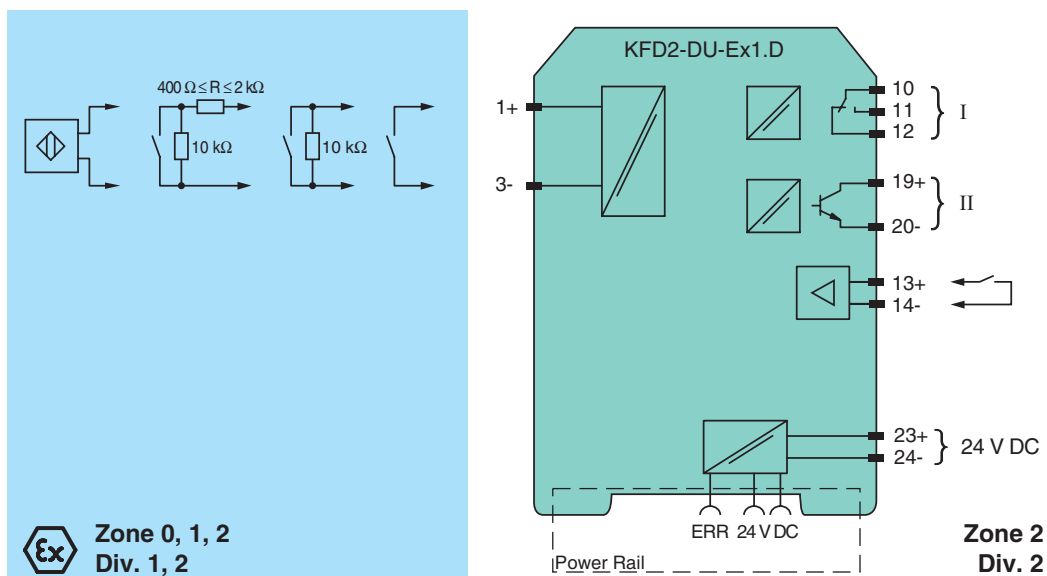
The unit is easily programmed by the use of a keypad located on the front of the unit. Line fault detection of the field circuit is indicated by a red LED and through the collective error output via Power Rail.

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

Assembly



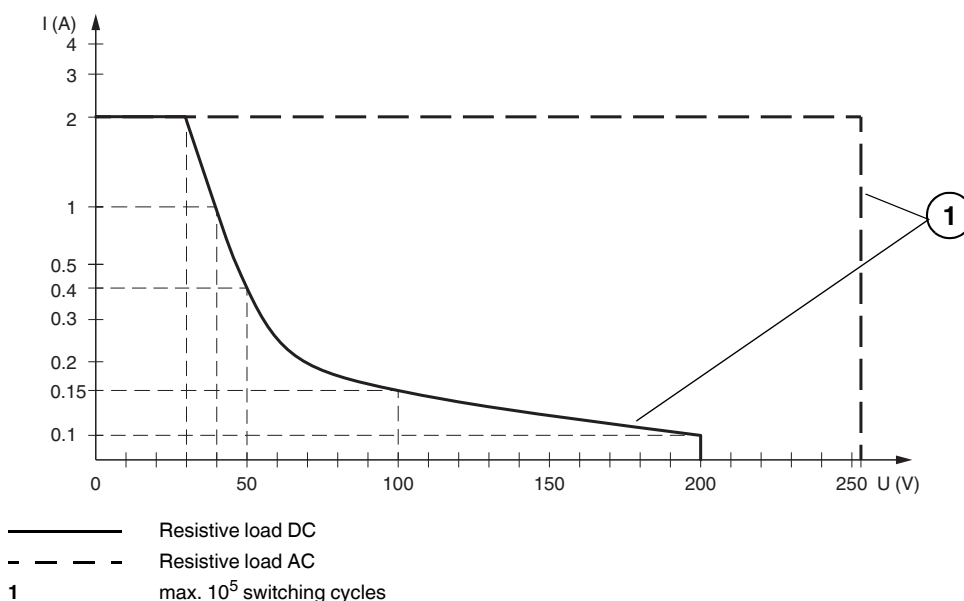
Connection



General specifications	
Signal type	Digital Input
Supply	
Connection	Power Rail or terminals 23+, 24-
Rated voltage U_r	20 ... 30 V DC
Rated current I_r	approx. 100 mA
Power consumption	1.8 W
Input	
Connection side	field side
Connection	Input I: terminals 1+, 3- ; input II: terminals 13+, 14-
Input I	acc. to EN 60947-5-6 (NAMUR), see system description for electrical data
Open circuit voltage/short-circuit current	8.2 V / 10 mA
Switching point/switching hysteresis	1.2 ... 2.1 mA / approx. 0.2 mA
Pulse duration	$\geq 75 \mu\text{s}$ / 1 ms see instruction manuals; the maximum input frequency has to be observed.
Input frequency	0 ... 80 Hz , pulse divider 0 ... 1 kHz
Line fault detection	breakage $I \leq 0.15 \text{ mA}$; short-circuit $I > 6.5 \text{ mA}$
Input II	reset
Active/Passive	$I > 4 \text{ mA}$ / $I < 1.5 \text{ mA}$
Open circuit voltage/short-circuit current	18 V / 5 mA
Pulse duration	$\geq 10 \text{ ms}$
Output	
Connection side	control side
Connection	output I: terminals 10, 11, 12 ; output II: terminals 19+, 20-
Output I	signal , Relay output
Contact loading	253 V AC/ 2 A / $\cos \phi \geq 0.7$; 40 V DC/ 2 A
Mechanical life	5×10^7 switching cycles
Energized/De-energized delay	approx. 20 ms / approx. 20 ms
Output II	signal , electronic unit, isolated
Contact loading	40 V / 50 mA
Energized/De-energized delay	after rising input flank 3 ms ; after falling input flank 2 ms
Signal level	1-signal: (L+) -2.5 V (50 mA, short-circuit/overload proof) 0-signal: blocked output (off-state current $\leq 10 \mu\text{A}$)
Transfer characteristics	
Input I	
Resolution	$< 0.1 \%$ of the set value, min. 10 ms
Accuracy	2 ms
Influence of ambient temperature	0.003 %/K (50 ppm)
Galvanic isolation	
Input I/other circuits	reinforced insulation according to IEC/EN 61010-1, rated insulation voltage 300 V _{eff}
Output I/power supply and reset	reinforced insulation according to IEC/EN 61010-1, rated insulation voltage 300 V _{eff}
Output I, II against each other	reinforced insulation according to IEC/EN 61010-1, rated insulation voltage 300 V _{eff}
Output II/power supply and collective error	basic insulation according to IEC/EN 61010-1, rated insulation voltage 50 V _{eff}
Output II/reset	basic insulation according to IEC/EN 61010-1, rated insulation voltage 50 V _{eff}
Reset/power supply and collective error	functional insulation acc. to IEC 62103, rated insulation voltage 50 V _{eff}
Indicators/settings	
Display elements	LEDs , display
Control elements	Control panel
Configuration	via operating buttons
Labeling	space for labeling at the front
Directive conformity	
Electromagnetic compatibility	
Directive 2014/30/EU	EN 61326-1:2013 (industrial locations)
Low voltage	
Directive 2014/35/EU	EN 61010-1:2010
Conformity	
Electromagnetic compatibility	NE 21:2006
Degree of protection	IEC 60529:2001
Ambient conditions	
Ambient temperature	-20 ... 60 °C (-4 ... 140 °F)
Mechanical specifications	
Degree of protection	IP20
Connection	screw terminals

Mass		approx. 300 g
Dimensions		40 x 119 x 115 mm (1.6 x 4.7 x 4.5 inch) , housing type C3
Mounting		on 35 mm DIN mounting rail acc. to EN 60715:2001
Data for application in connection with hazardous areas		
EU-Type Examination Certificate		TÜV 99 ATEX 1408
Marking		<div> <div>Ex</div> <div>II (1)G [Ex ia Ga] IIC</div> </div> <div> <div>Ex</div> <div>II (1)D [Ex ia Da] IIIC</div> </div> <div> <div>Ex</div> <div>I (M1) [Ex ia Ma] I</div> </div>
Supply		
Maximum safe voltage	U_m	40 V DC (Attention! The rated voltage can be lower.)
Input I		terminals 1+, 3-: Ex ia
Voltage	U_o	10.1 V
Current	I_o	13.5 mA
Power	P_o	34 mW (linear characteristic)
Input II		terminals 13+, 14- non-intrinsically safe
Maximum safe voltage	U_m	40 V (Attention! The rated voltage can be lower.)
Output I		terminals 10, 11, 12 non-intrinsically safe
Contact loading		253 V AC/2 A/cos $\phi > 0.7$; 40 V DC/2 A resistive load (TÜV 99 ATEX 1408) 50 V AC/2 A/cos $\phi > 0.7$; 40 V DC/2 A resistive load (TÜV 02 ATEX 1885 X)
Maximum safe voltage	U_m	253 V (Attention! The rated voltage can be lower.)
Output II		terminals 19+, 20- non-intrinsically safe
Maximum safe voltage	U_m	40 V (Attention! The rated voltage can be lower.)
Certificate		TÜV 02 ATEX 1885 X
Marking		<div> <div>Ex</div> <div>II 3G Ex nA nC IIC T4 Gc</div> </div>
Output I		
Contact loading		50 V AC/2 A/cos $\phi > 0.7$; 40 V DC/1 A resistive load
Galvanic isolation		
Input I/other circuits		safe electrical isolation acc. to IEC/EN 60079-11, 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		
FM approval		
Control drawing		116-0305
UL approval		E223772
IECEX approval		IECEX TUN 03.0000
Approved for		[Ex ia Ga] IIC, [Ex ia Da] IIIC, [Ex ia Ma] I
General information		
Supplementary information		Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable. For information see www.pepperl-fuchs.com .

Maximum Switching Power of Output Contacts



Release date 2018-05-08 08:06 Date of issue 2018-05-08 231212_eng.xml

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

 Pepperl+Fuchs Group
www.pepperl-fuchs.com

 USA: +1 330 486 0002
pa-info@us.pepperl-fuchs.com

 Germany: +49 621 776 2222
pa-info@de.pepperl-fuchs.com

 Singapore: +65 6779 9091
pa-info@sg.pepperl-fuchs.com

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 150 individual devices depending on the power consumption of the devices. Collective error messages received from the Power Rail activate a galvanically-isolated mechanical contact.

Power Rail UPR-03

The Power Rail UPR-03 is a complete unit consisting of the electrical insert 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.



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