

Features

- 1-channel isolated barrier
- 24 V DC supply (Power Rail)
- Dry contact or NAMUR inputs
- Relay 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

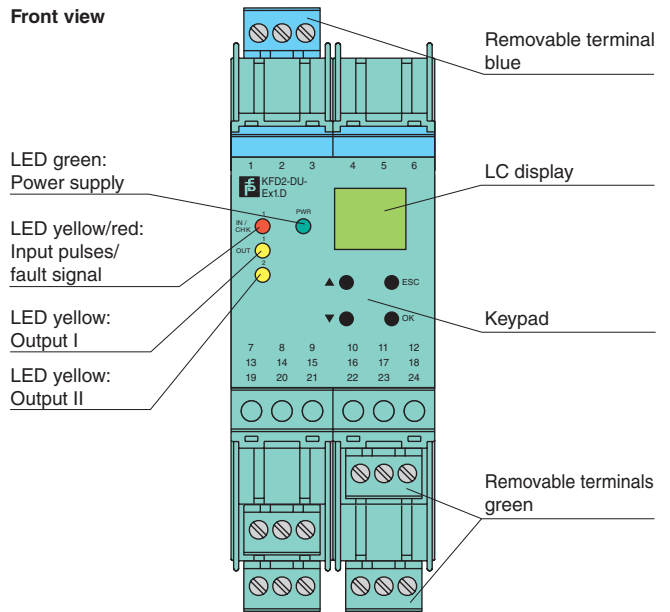
This isolated barrier is used for intrinsic safety applications. It is a highly configurable timer that accepts a digital signal (NAMUR sensor/mechanical contact) from a hazardous area and is commonly used in applications requiring on-delay, off-delay, one-shot, or pulse lengthening.

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.

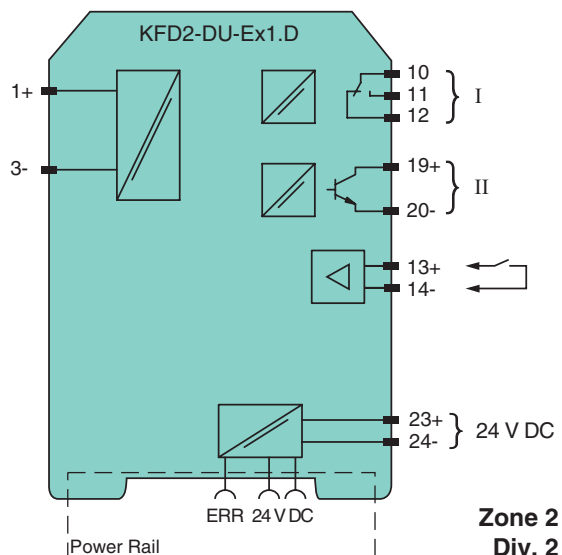
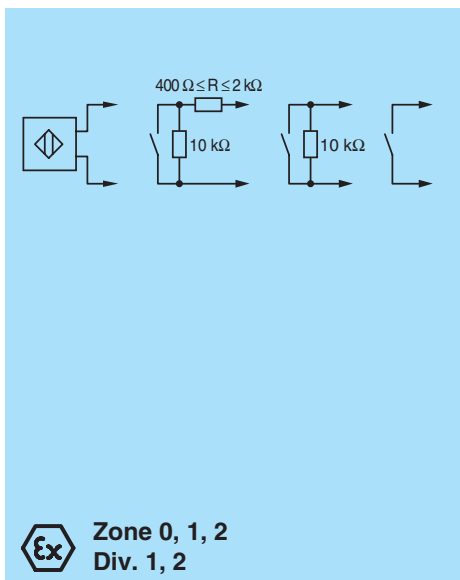
The unit is easily programmed by the use of a keypad located on the front of the unit. Line fault detection of the field circuit is indicated by a red LED and through the collective error output via Power Rail.

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

Assembly



Connection



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General specifications	
Signal type	Digital Input
Supply	
Connection	Power Rail or terminals 23+, 24-
Rated voltage	20 ... 30 V DC
Rated current	approx. 100 mA
Power consumption	1.8 W
Input	
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	≥ 75 μs / 1 ms see instruction manuals; the maximum input frequency has to be observed.
Input frequency	0 ... 80 Hz , pulse divider 0 ... 1 kHz
Lead monitoring	breakage I ≤ 0.15 mA; short-circuit I > 6.5 mA
Input II	reset
Active/Passive	I > 4 mA/I < 1.5 mA
Open circuit voltage/short-circuit current	18 V / 5 mA
Pulse duration	≥ 10 ms
Output	
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 φ ≥ 0.7 ; 40 V DC/ 2 A
Mechanical life	5 x 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 ≤ 10 μA)
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)
Electrical 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}
Directive conformity	
Electromagnetic compatibility	
Directive 2004/108/EC	EN 61326-1:2006
Low voltage	
Directive 2006/95/EC	EN 61010-1:2010
Conformity	
Electromagnetic compatibility	NE 21:2006
Protection degree	IEC 60529:2001
Ambient conditions	
Ambient temperature	-20 ... 60 °C (-4 ... 140 °F)
Mechanical specifications	
Protection degree	IP20
Mass	approx. 300 g
Dimensions	40 x 119 x 115 mm (1.6 x 4.7 x 4.5 in) , housing type C3
Mounting	on 35 mm DIN mounting rail acc. to EN 60715:2001
Data for application in connection with Ex-areas	
EC-Type Examination Certificate	TÜV 99 ATEX 1408 , for additional certificates see www.pepperl-fuchs.com
Group, category, type of protection	⊕ II (1)GD, I (M1) [Ex ia] IIC, [Ex iaD], [Ex ia] I (-20 °C ≤ T _{amb} ≤ 60 °C)
Supply	

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Maximum safe voltage	U_m	40 V DC (Attention! The rated voltage can be lower.)
Input I		terminals 1+, 3- Ex ia IIC, Ex iaD
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.)
Statement of conformity		TÜV 02 ATEX 1885 X
Group, category, type of protection, temperature class		Ⓔ II 3G Ex nA nC IIC T4
Output I		
Contact loading		50 V AC/2 A/cos $\phi > 0.7$; 40 V DC/1 A resistive load
Electrical isolation		
Input I/other circuits		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 60079-15:2005, EN 60079-26:2007, EN 61241-11:2006
International approvals		
FM approval		
Control drawing		16-538FM-12
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

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. 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.



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