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

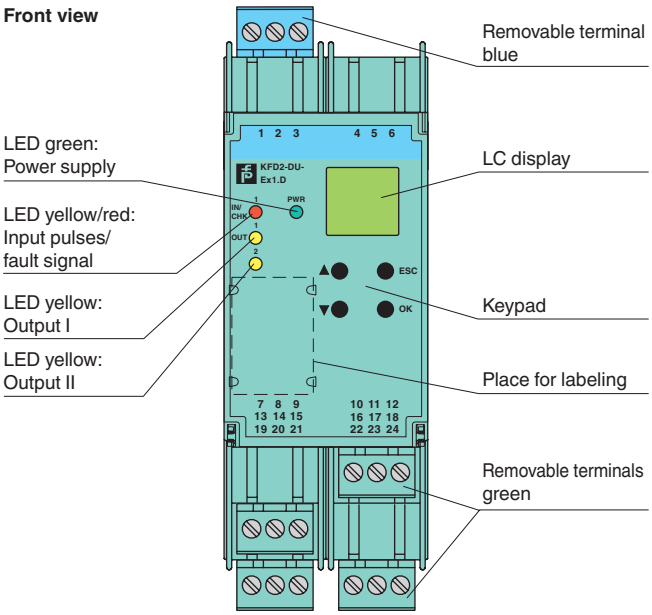
This isolated barrier is used for intrinsic safety applications. It is a highly configurable timer that accepts a digital signal (NAMUR sensor/mechanical contact) from a hazardous area and is commonly used in applications requiring on-delay, off-delay, one-shot, or pulse lengthening.

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.

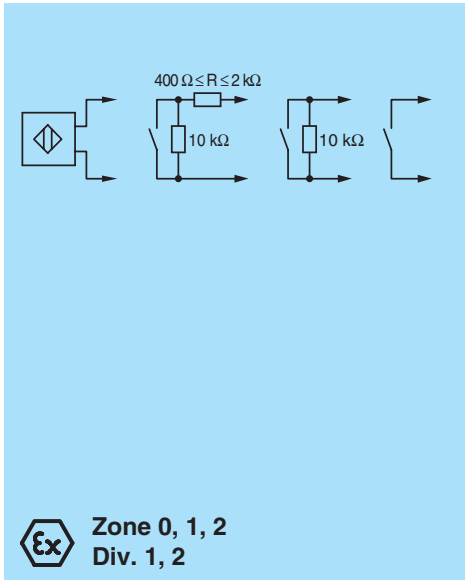
The unit is easily programmed by the use of a keypad located on the front of the unit. Line fault detection of the field circuit is indicated by a red LED and through the collective error output via Power Rail.

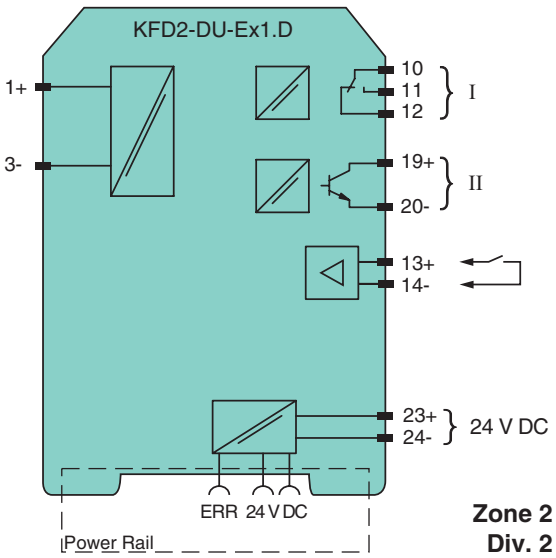
For additional information, refer to the manual and www.pepperl-fuchs.com.

Assembly



Connection





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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		≥ 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
Line fault detection		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 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 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)
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 eachother		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

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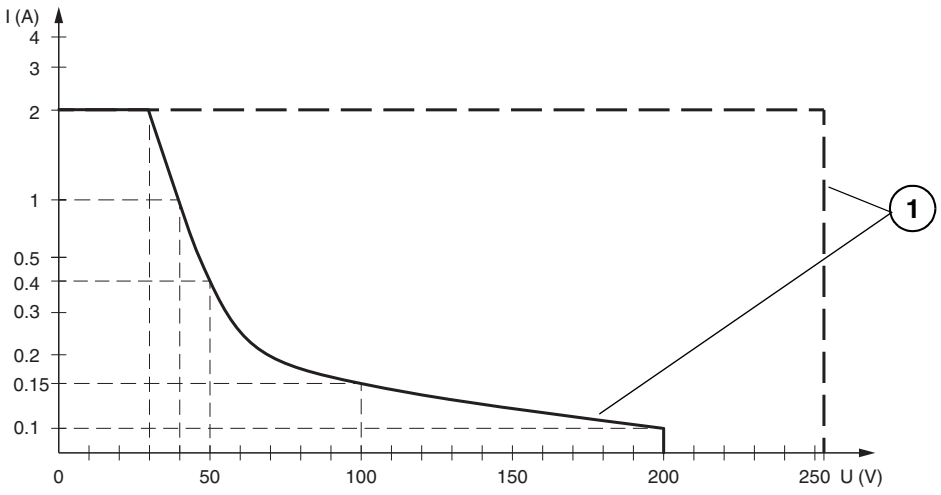
Mass		approx. 300 g
Dimensions		40 x 119 x 115 mm (1.6 x 4.7 x 4.5 inch) , housing type C3
Mounting		on 35 mm DIN mounting rail acc. to EN 60715:2001
Data for application in connection with hazardous areas		
EU-Type Examination Certificate		TÜV 99 ATEX 1408
Marking		⟨Ex⟩ II (1)G [Ex ia Ga] IIC ⟨Ex⟩ II (1)D [Ex ia Da] IIIC ⟨Ex⟩ I (M1) [Ex ia Ma] I
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 ϕ > 0.7; 40 V DC/2 A resistive load (TÜV 99 ATEX 1408) 50 V AC/2 A/cos ϕ > 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		⟨Ex⟩ II 3G Ex nA nC IIC T4 Gc
Output I		
Contact loading		50 V AC/2 A/cos ϕ > 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



Resistive load DC

Resistive load AC

1 max. 10^5 switching cycles

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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!

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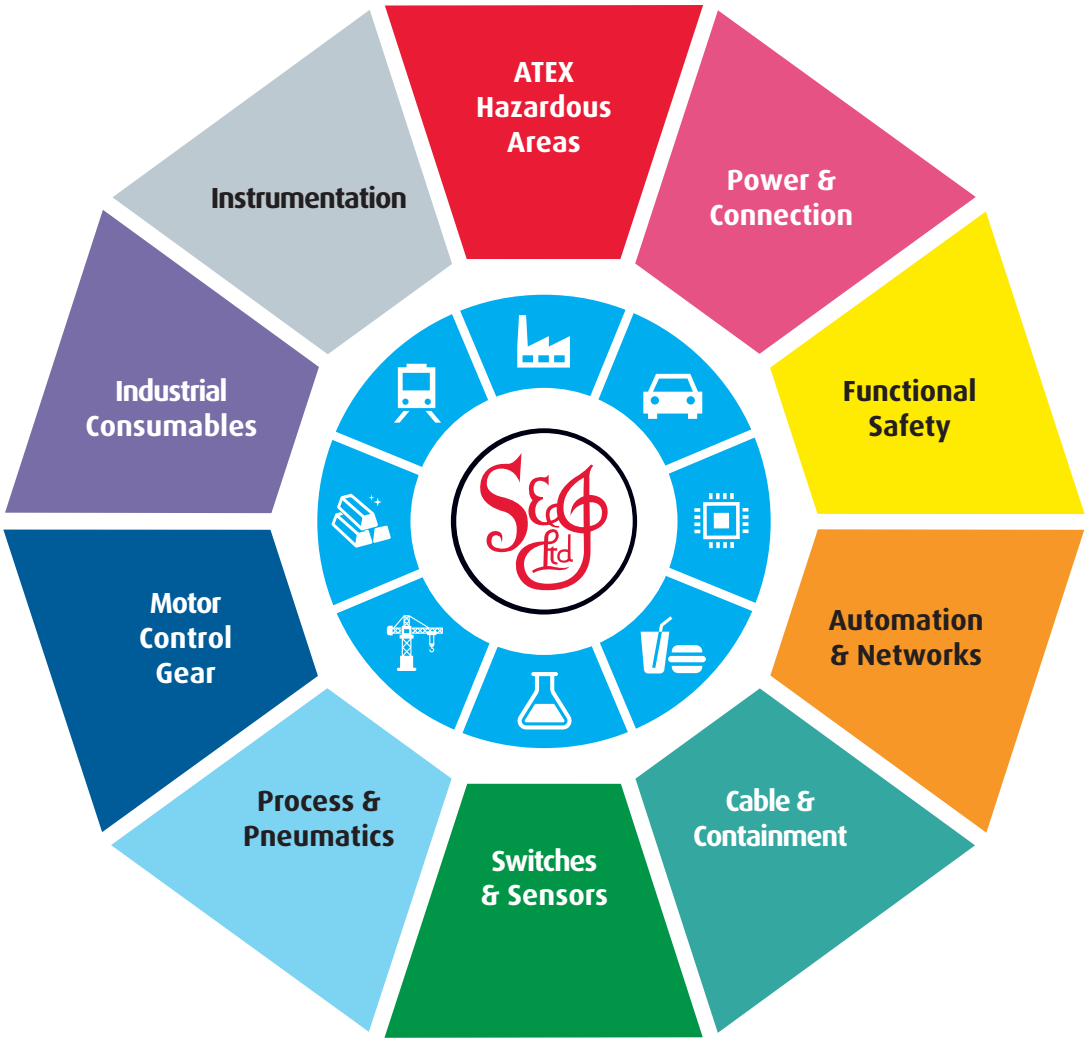

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