



## eloFlex 471EFR...

eloFlex 471 EFR... is a configurable safety relay with 4 independent safety inputs (2-channel) and up to 4 safety outputs as well as 4 control outputs.

The internal logic link is configured specifically for each customer.

### Product characteristics

- Up to 4 safety functions can be implemented in one device
- The number of safety outputs (relays) can be set according to the individual requirement, making this a cost-effective solution.
- Increased functionality using less space in the switch cabinet.
- The units are tamper-proof as are pre-configured during ordering.
- Cost-effective and reliable by unique identification of configuration for maintenance, commissioning and service
- Can be perfectly adapted to your application through various configuration options, offering maximum flexibility
- Additional sensors can be connected via elobau interfaces for input expansion

### The following logic and safety functions are available:

Logic link:	Safety functions:
AND	$t_{ON} / t_{OFF}$
OR	Safetyfunction
XOR	2-hand
NAND	Safetygate
NOR	E-stop
XNOR	N.O./N.O.
NOT	or N.O./N.C.

Technical drawing

IMAGE 1/4

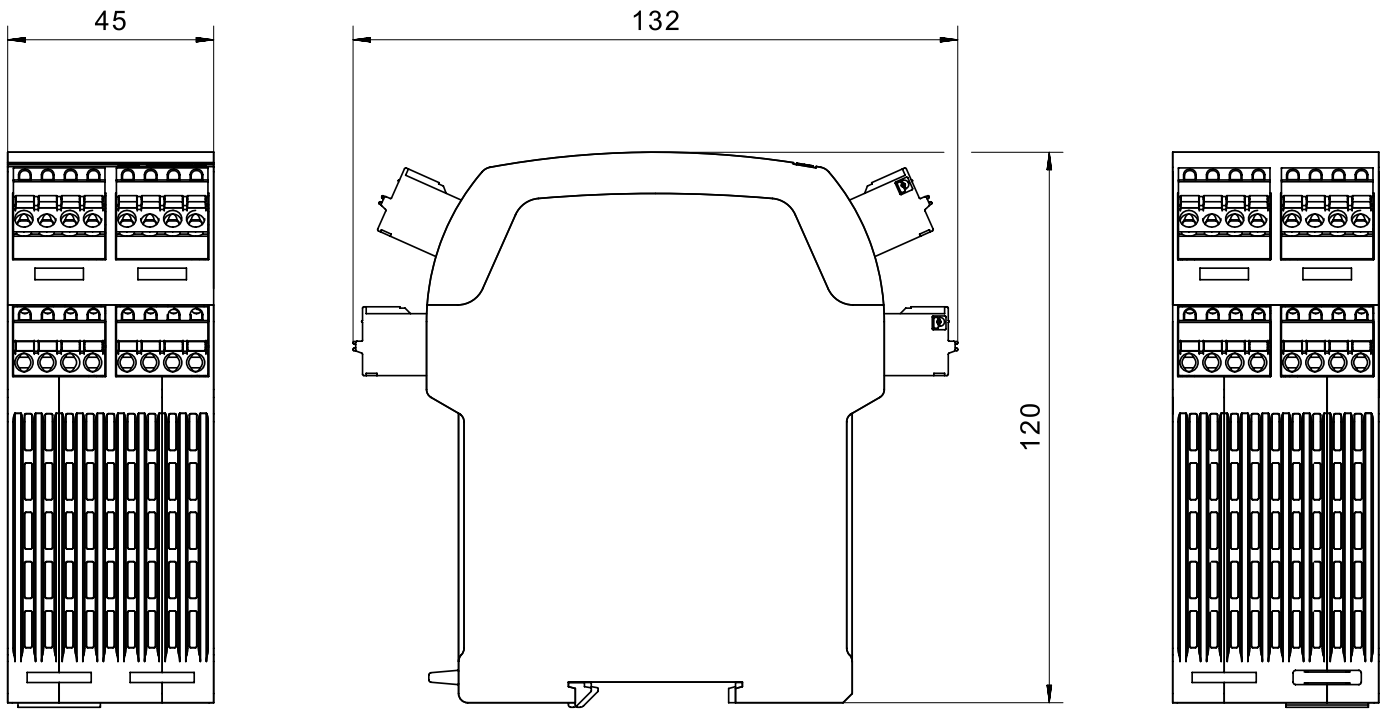


IMAGE 2/4

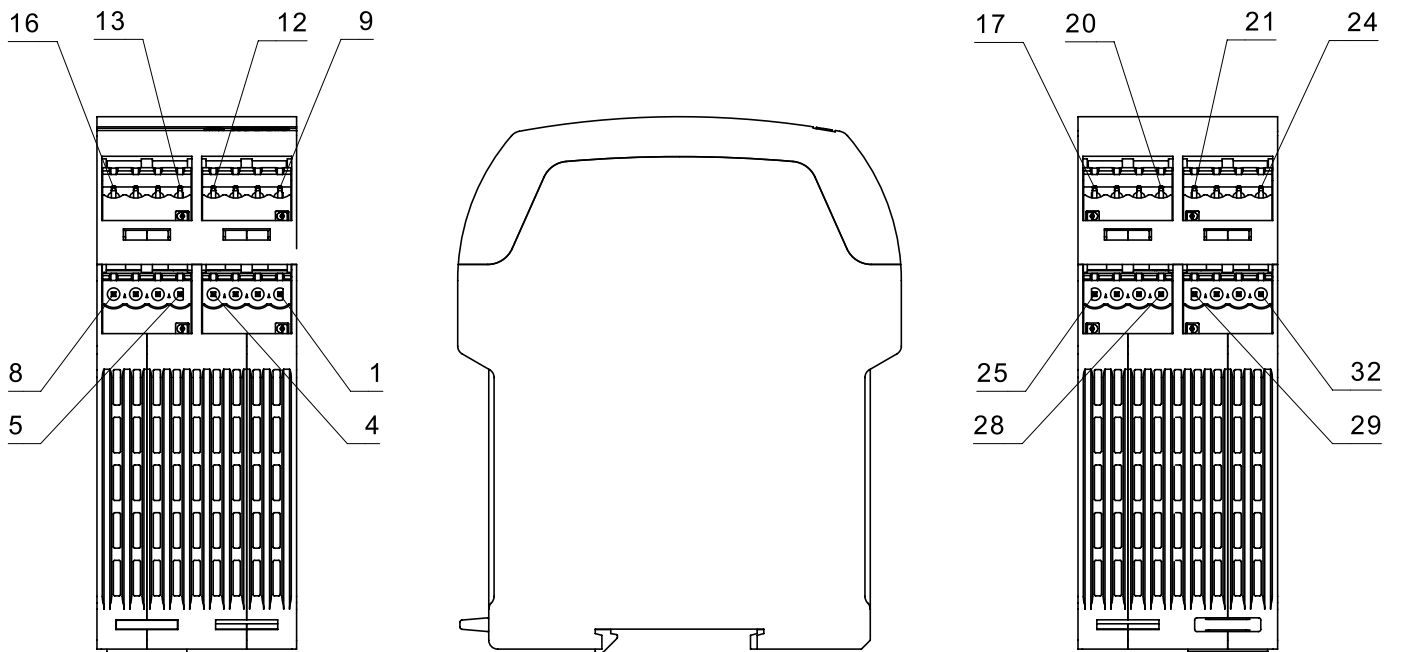


IMAGE 3/4

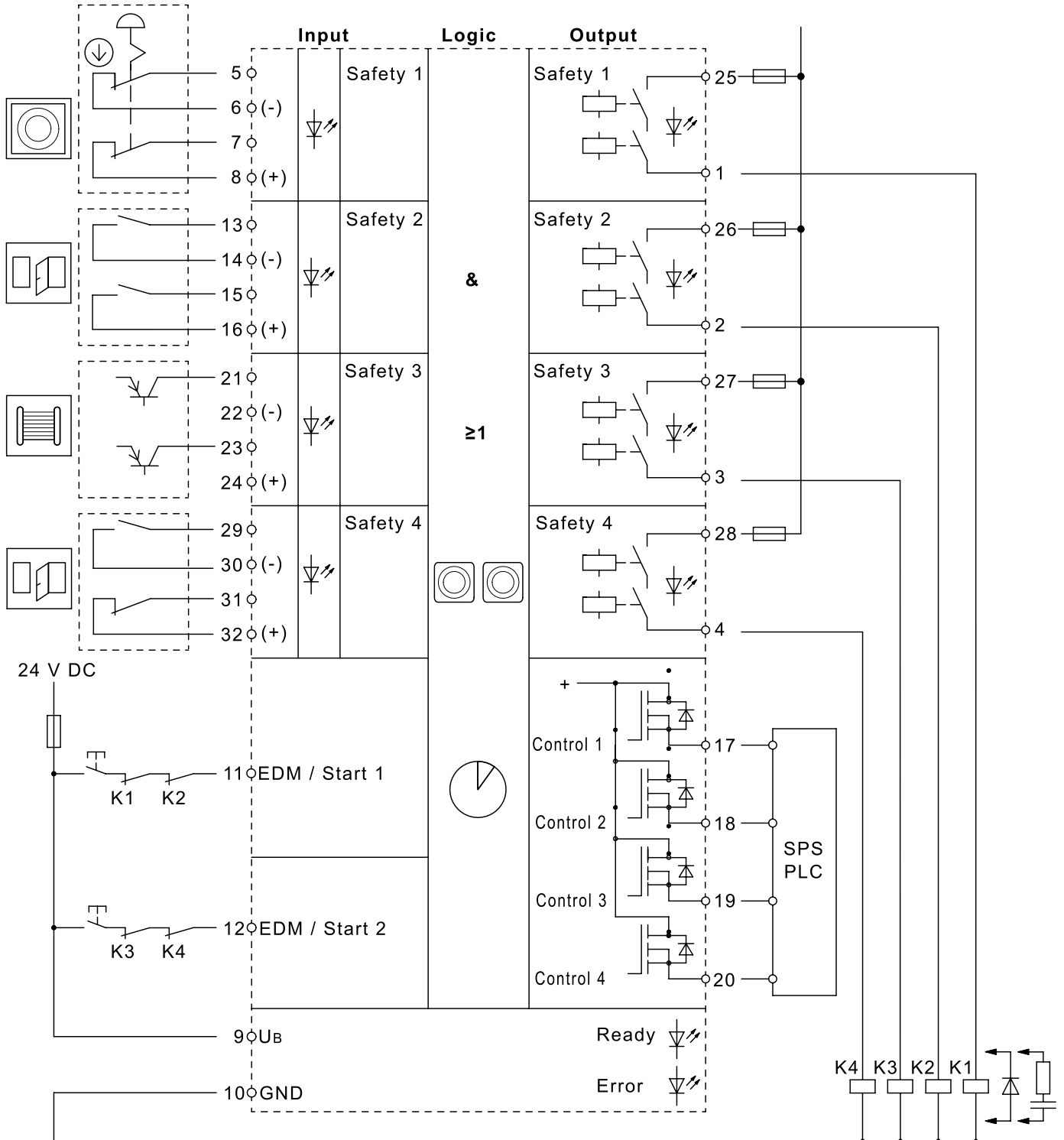
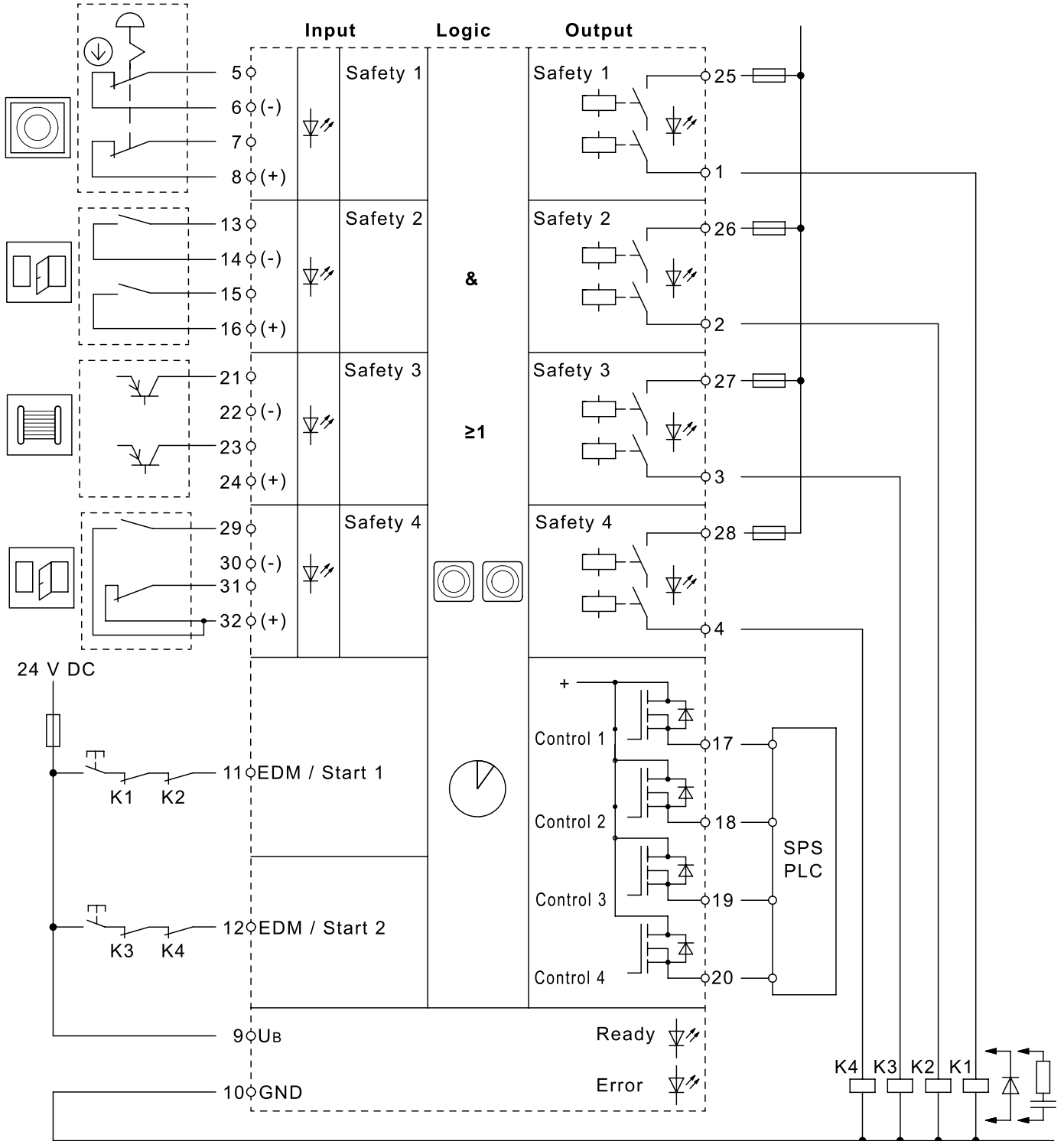


IMAGE 4/4

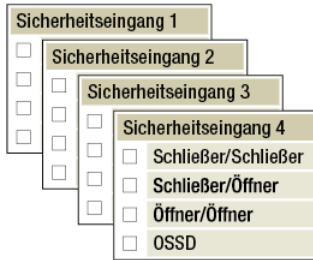
471EFR Verdrahtungsbeispiel PL e



**Product options**

IMAGE 1/1

**1. Define safety function and contact form of inputs**

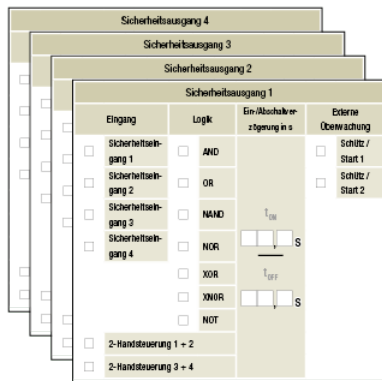


- Max. 4 different safety functions are possible
- Already defined: performance level d or e

For example

Guard door = N.O./N.O. or N.O./N.C.  
Emergency stop = N.C./N.C.  
Light barrier with PNP output = OSSD

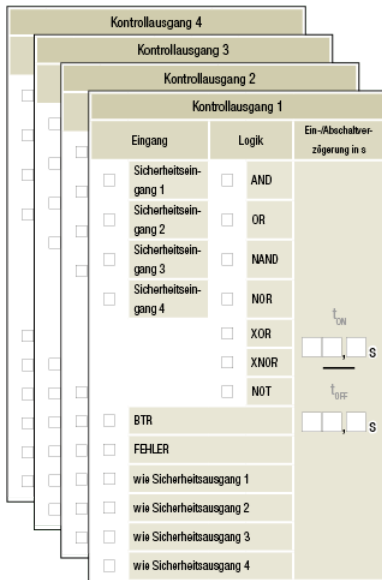
**2. Define and allocate logic safety inputs (1-4) for safety outputs (1-4)**



- AND
- OR
- NAND
- NOR
- XOR
- XNOR
- NOT
- 2-hand control
- Definition of switch-on and switch-off delay 0...99.9s - resolution 0.1s

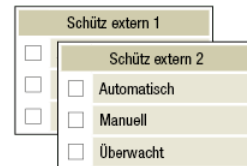
**Note: Only one logic possible per control and safety output**

**3. Logic of control outputs (1-4)**



- AND
- OR
- NAND
- NOR
- XOR
- XNOR
- NOT
- Control output like safety output 1-4
- Further functions
- BTR
- Error
- Definition of switch-on and switch-off delay 0...99.9s - resolution 0.1s
- Note: Only one logic possible per control and safety output**

**4. Safety outputs 1-4**



Assignment of external contactors to safety outputs  
Manual  
Automatic  
Monitored  
For definition of switch-on and switch-off delay, see step 2 and 3

## Article characteristics

Attribute	471EFR2D14K...	471EFR3E11K...	471EFR3E12K...	471EFR3E13K...	471EFR3E14K...	471EFR3E11K_ ▶
Max. switching voltage at safety output	30 V DC					
Max. switching voltage at control output	26.4 V DC					
Max. switching voltage at safety output	250 V AC					
Max. switching current at safety output	3 A					
Max. switching current at control output	0.1 A					
Max. switching power at control output	2.64 W					
Max. switching power at safety output	750 VA					
Number of configurable relay safety outputs	4	1	2	3	4	1
Number of electronic control outputs	4					
Number of redundant safety inputs	4					
Stop category 0 (STO) nach IEC 61800-5-2	yes					
Stop category 1 (SS1) nach IEC 61800-5-2	yes					
EDM/start input	yes					
Start function	Depending on the configuration					
Utilization category	AC-15 / DC-13					
Operating voltage min.	21.6 V DC					
Operating voltage max.	26.4 V DC					
Current consumption	800 mA					
Power consumption	21.12 W					
Cross-short detection	yes					
LED display	two-coloured					
Operating time	3000 ms					
Fuse operating voltage	1A fast					
Overvoltage category	III					
Fuse safety output	3A slow blow					

Attribute	471EFR2D14K...	471EFR3E11K...	471EFR3E12K...	471EFR3E13K...	471EFR3E14K...	471EFR3E11K_ ▶
Min. switching voltage at control output	21.6 V DC					
Max. switching power at safety output	90 W					
Max no operating cycles at 0.5A switching current (ohmic load)	1000000					3000000
Max no operating cycles at 3A switching current (ohmic load)	190000					280000
Contact form	Abhängig von der Konfiguration					
PL acc. to EN ISO 13849-1	d					e
SIL acc. to IEC 61508	2					3
SIL CL acc. to IEC 62061	2					3
PFHD according to IEC 61508	1,26x10 <sup>-8</sup> 1/h					3,28x10 <sup>-9</sup> 1/h
Operating life	20 Tm					
Category acc. to EN ISO 13849-1	3					4
Hardware fault tolerance (HFT) according to IEC 61508	1					
Max. switching frequency safety output with load	360 1/h					
Max. switching frequency safety output with load	72000 1/h					18000 1/h
Dimensions	130 x 45 x 120 mm (H/B/T)					
Housing material	PA, PC					
Housing colour	schwarz					
Protection class	IP30 IEC60529					
Operating temperature min.	-15 °C					
Max. operating temperature	55 °C					
Min. storage temperature	-40 °C					-25 °C
Max. storage temperature	70 °C					
Relative humidity	5 - 85 %					
Protection class, installation space	IP54 DIN EN 60529					
Shock resistance (Norm)	30 g / 11 ms					
Continuous shock resistance (Norm)	10 g / 16 ms					

Attribute	471EFR2D14K...	471EFR3E11K...	471EFR3E12K...	471EFR3E13K...	471EFR3E14K...	471EFR3E11K_ ▶
Vibration resistance (Norm)	10 ... 55 Hz					
Air pressure	860 - 1060 hPa					
Delta tmax	0.5 °C/min					
Mounting type	Mounting rail					
Weight	400 g					
Torque for connection terminals	0.5 N m					
Spring-type terminals	yes					
Screw terminals	Optional					
Double terminals	Optional					
Pluggable connection terminals	yes					
Min. connection cross section	0.2 mm <sup>2</sup>					
Max. connection cross section	2.5 mm <sup>2</sup>					
Certified in accordance with	EN ISO 13849-1 IEC 61508 IEC 62061 UL 508 / CSA 22.2					
CE label	yes					

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Fuse safety output	3A slow blow		
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Max. switching power at safety output	90 W		
Max no operating cycles at 0.5A switching current (ohmic load)	3000000		
Max no operating cycles at 3A switching current (ohmic load)	280000		
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SIL acc. to IEC 61508	3		
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PFHD according to IEC 61508	3,28x10 <sup>-9</sup> 1/h		
Operating life	20 Tm		
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