



Safety sensor eloProtect E 165ESK

The RFID technology used in the eloProtectE sensors offers the user individual coding options. As a result, the tampering protection can be selected according to the application and increases the safety of the application.

The use of RFID technology simplifies the mounting conditions and offers larger offset values. These RFID switches enable the installation of series connections with up to 30 sensors on a radial connection. Due to the high switching capacity of the safe outputs (400mA), a safety relay is not always necessary.

Technical specifications

- Available connection types: cable outlet, M12 pigtail
- Contact form: OSSD
- Optional LED display (3-colour)
- Safety outputs: 2
- Diagnostic output: 1
- Safety inputs: 2
- Protection class IP6K9K (ISO 20653)
- Stand-Alone device (EDM input)
- Smallest special design on market
- Series connection with up to 30 sensors
- Fastest response time

Technical drawing

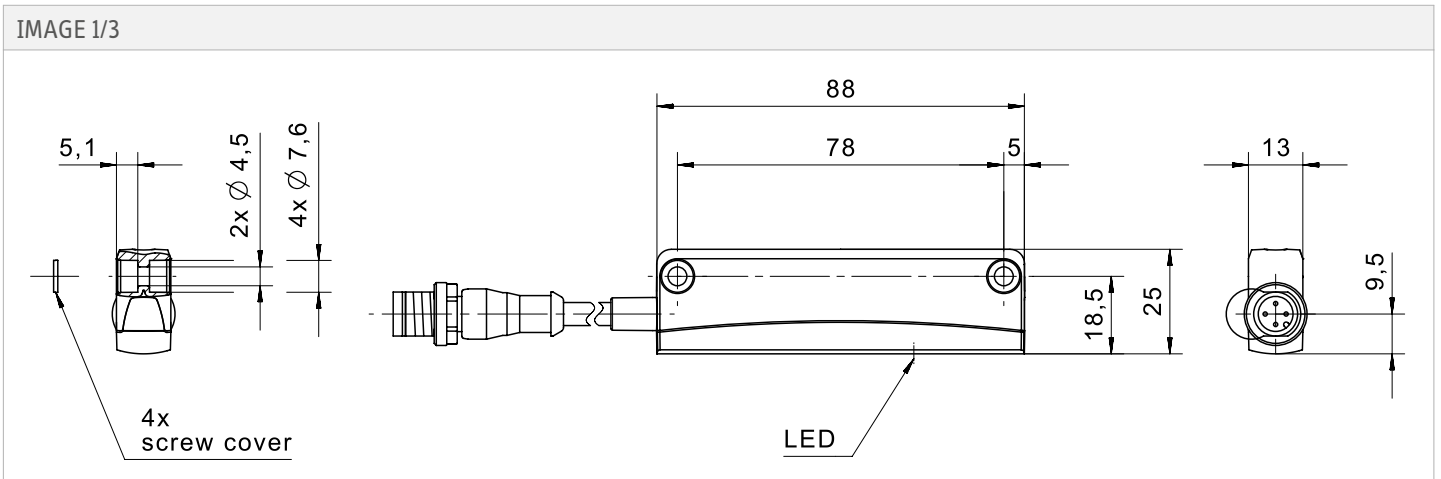
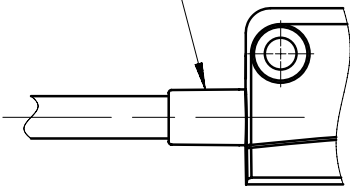


IMAGE 2/3

grommet



male M12

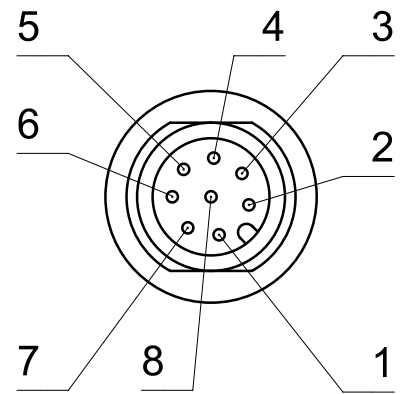
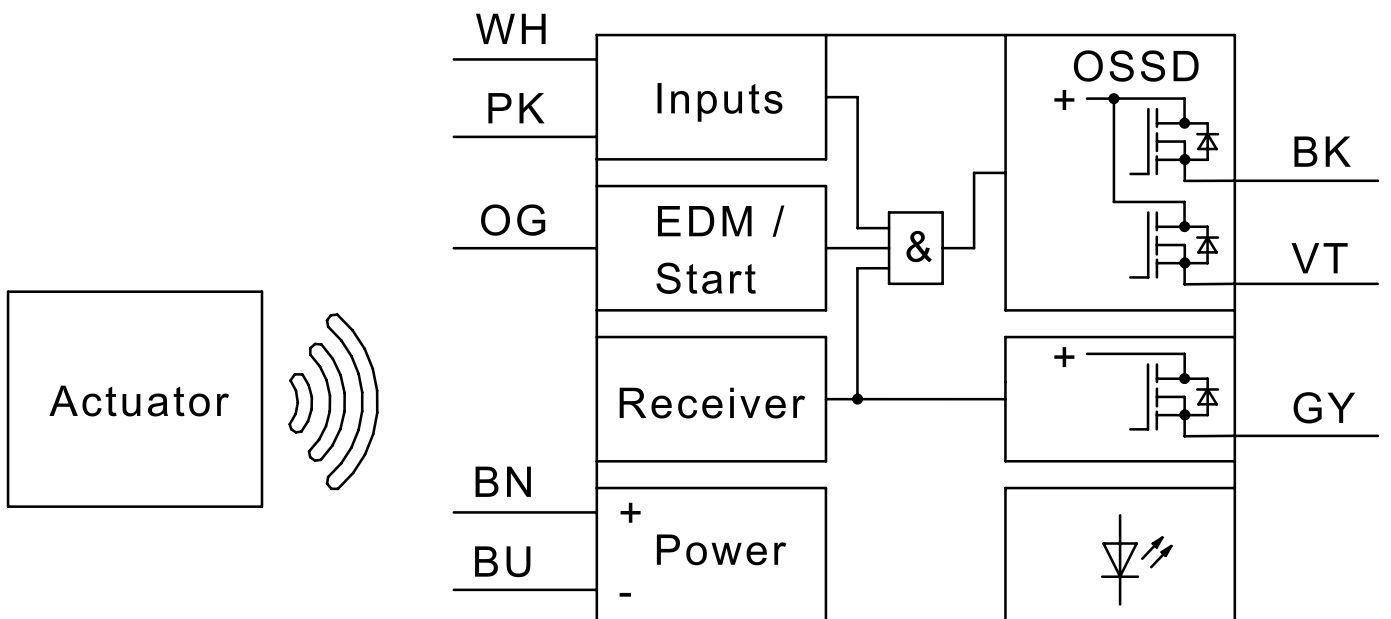
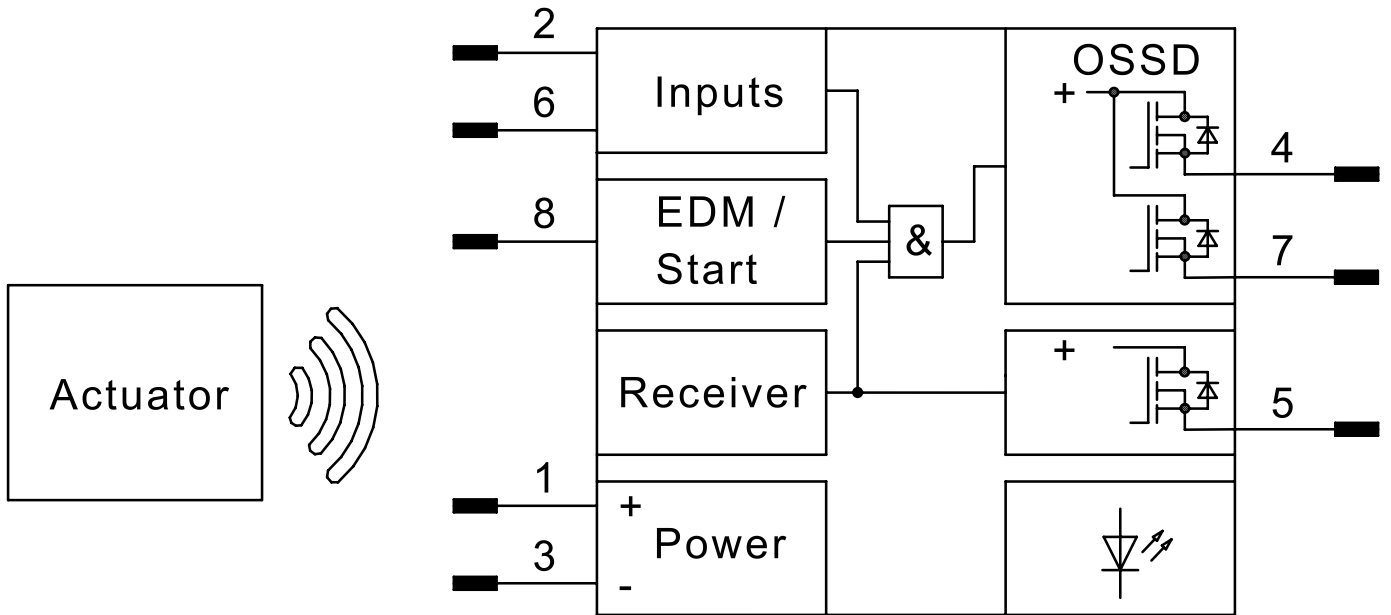
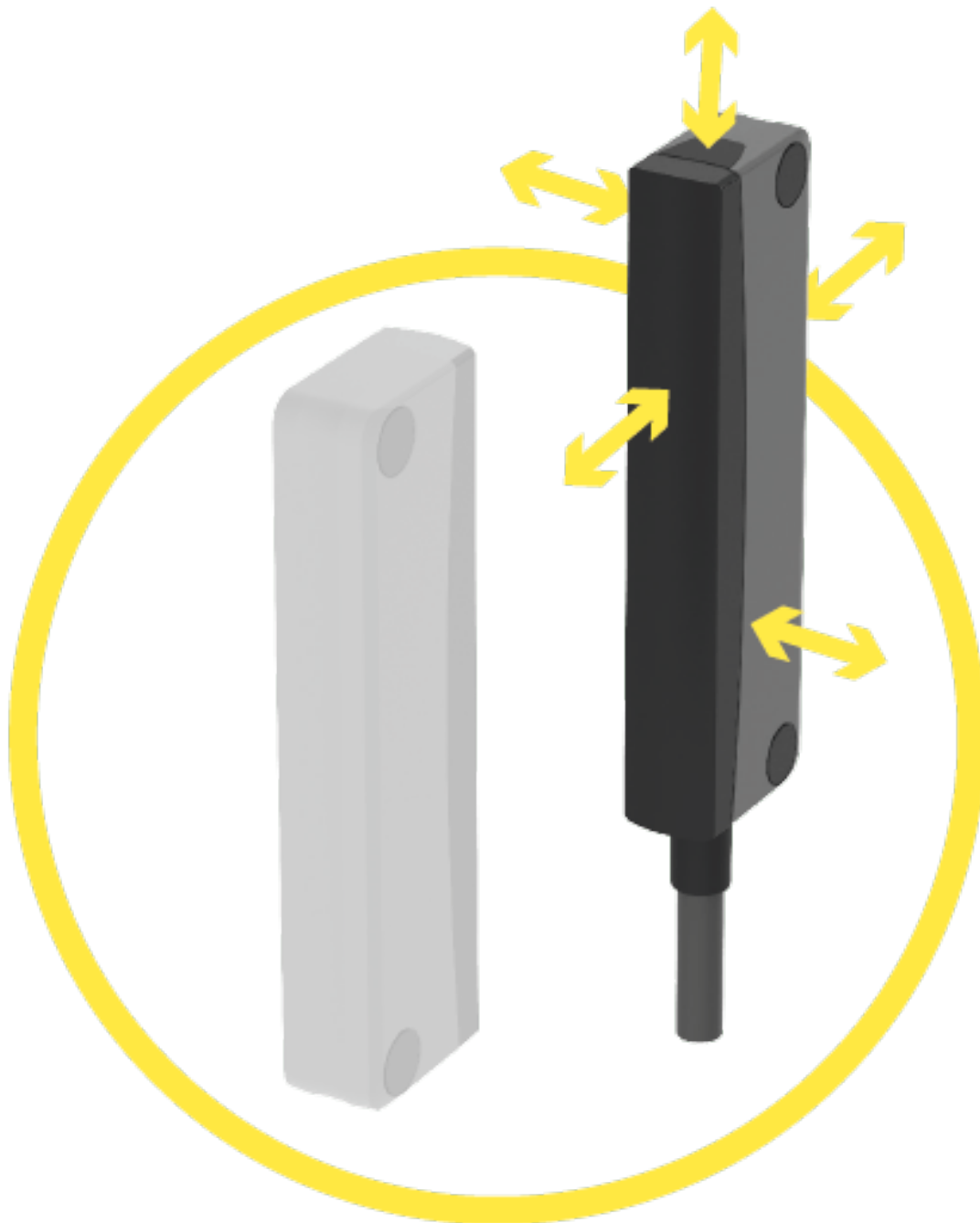


IMAGE 3/3



Product options

IMAGE 1/2



Suitable for actuation from any direction. Operating distance (Sao) 8 mm. Assured switch-off distance (Sar) 18 mm.

IMAGE 2/2

ORDERING KEY

165ESK	00					Safety sensor, electronic, RFID
		K				Connection cable – PVC - 1m
		J				Connection pigtail – PVC – M12, 8-pin
			1			Standard-coded
			2			Unique (actuator included with sensor)
			3			Programmable
				1		EDM input automatic
				2		EDM input manual (start push button)
						Other available cable lengths (only with "K" at 9th position)
					-3	3 m
					-5	5 m
					-10	10 m
						Other cable materials, cable lengths and connector types on request

Article characteristics

Attribute	165ESK00J11	165ESK00J12	165ESK00J21	165ESK00J22	165ESK00J31	165ESK00J32 ▶
Max. switching current at safety output	0.4 A					
Max. switching current at control output	0.05 A					
Contact form	OSSD					
Switching frequency	3 Hz					
Assured switching distance (Sao)	8 mm					
Assured switch-off distance (Sar)	18 mm					
Minimum switching distance (S0 min)	0.5 mm					
Polarity reversal protection	yes					
Number of electronic safety outputs	2					
Number of electronic control outputs	1					
Number of safety inputs	2					
EDM/start input	yes					
Start function	automatic	monitored			automatic	monitored
Utilization category	AC-12 / DC-13					
No-load current I0	30 mA					
Rated operating voltage (Ue)	24 V					
Rated insulation voltage (Ui)	50 V					
Rated impulse withstand voltage (Uimp)	1000 V					
Current consumption per input	2.75 mA					
Power consumption	24 W					
LED display	three-coloured					
Actuation	arbitrary					
Switching principle	electronic					
Hysteresis	2 mm					
wurde angepasst (Number)	30					
Technology	RFID					
Coding variant	coded		unikat		individually coded	

Attribute	165ESK00J11	165ESK00J12	165ESK00J21	165ESK00J22	165ESK00J31	165ESK00J32 ▶
Pollution degree	2					
Rated switching distance (Sn)	12 mm					
Overvoltage category	II					
Active surface (Number)	1					
Turn-on delay (ton)	75 ms					
Readiness delay (tv)	1000 ms					
Voltage drop (Ud)	0.75 V					
Stabilised PELV/SELV power supply	required					
Fuse operating voltage	1A fast					
Internal electronic fuse	yes					
Short-circuit detection	yes					
Cross-short detection	yes					
PL acc. to EN ISO 13849-1	e					
SIL acc. to IEC 61508	3					
SIL CL acc. to IEC 62061	3					
PFHD according to IEC 61508	2,24x10 ⁻⁹ 1/h					
Category acc. to EN ISO 13849-1	4					
Coding acc. to EN ISO 14119	Low			High		
Type acc. to EN ISO 14119	4					
Mission time in years	20 a					
Structure acc. to EN ISO 13849-1	Two-channel					
Hardware fault tolerance (HFT) according to IEC 61508	1					
Housing design	rectangular					
Dimensions	25 x 88 x 13 mm					
Free zone	50 mm					
Actuation frequency	180 1/h					
Minimum installation distance (between two sensors)	150 mm					
cannot be mounted flush	yes					
Housing material	PBT, PC					

Attribute	165ESK00J11	165ESK00J12	165ESK00J21	165ESK00J22	165ESK00J31	165ESK00J32 ▶
Cable material	PVC					
Housing colour	grau, schwarz					
Protection class, connector	IP67 / IP69K DIN EN 60529					
Operating temperature min.	-25 °C					
Max. operating temperature	70 °C					
Min. cable temperature range, moving	-5 °C					
Max. cable temperature range, moving	80 °C					
Min. cable temperature range, fixed installation	-30 °C					
Max. cable temperature range, fixed installation	80 °C					
Shock resistance (Norm)	30 g / 11 ms					
Vibration resistance (Norm)	10 ... 55 Hz					
Protection class, housing	IP67 DIN EN 60529 - IP6K9K ISO 20653					
Min. storage temperature	-25 °C					
Max. storage temperature	70 °C					
Continuous shock resistance (Norm)	10 g / 16 ms					
Relative humidity	5 - 85 %					
Air pressure	860 - 1060 hPa					
Delta tmax	0.5 °C/min					
Mounting type	screwed					
Weight	70 g					
Torque for fastening screws	0.7 N m					
Connector type	M12x1 - 8 polig					
Cable type	LiYY					
Cable length	0.15 m					
Number of strands	8					
Wire cross section	0.25 mm ²					
Cable colour	grau					
Certified in accordance with	EN ISO 13849-1 IEC 61508 IEC 62061 EN 60947- 5-3 UL 508 / CSA 22.17	EN ISO 13849-1 IEC 61508 IEC 62061 EN 60947- 5-3 UL 508 / CSA 22.19	EN ISO 13849-1 IEC 61508 IEC 62061 EN 60947- 5-3 UL 508 / CSA 22.21	EN ISO 13849-1 IEC 61508 IEC 62061 EN 60947- 5-3 UL 508 / CSA 22.23	EN ISO 13849-1 IEC 61508 IEC 62061 EN 60947- 5-3 UL 508 / CSA 22.25	EN ISO 13849-1 IEC 61508 IEC 62061 EN 60947- 5-3 UL 508 / CSA 22.27

Attribute	165ESK00J11	165ESK00J12	165ESK00J21	165ESK00J22	165ESK00J31	165ESK00J32 ▶
CE label	yes					
Possible actuators	165EBK001					

Attribute	165ESK00K11	165ESK00K12	165ESK00K21	165ESK00K22	165ESK00K31	165ESK00K32
Max. switching current at safety output	0.4 A					
Max. switching current at control output	0.05 A					
Contact form	OSSD					
Switching frequency	3 Hz					
Assured switching distance (Sao)	8 mm					
Assured switch-off distance (Sar)	18 mm					
Minimum switching distance (S0 min)	0.5 mm					
Polarity reversal protection	yes					
Number of electronic safety outputs	2					
Number of electronic control outputs	1					
Number of safety inputs	2					
EDM/start input	yes					
Start function	automatic	monitored	automatic	monitored	automatic	monitored
Utilization category	AC-12 / DC-13					
No-load current I0	30 mA					
Rated operating voltage (Ue)	24 V					
Rated insulation voltage (Ui)	50 V					
Rated impulse withstand voltage (Uimp)	1000 V					
Current consumption per input	2.75 mA					
Power consumption	24 W					
LED display	three-coloured					
Actuation	arbitrary					
Switching principle	electronic					
Hysteresis	2 mm					
wurde angepasst (Number)	30					
Technology	RFID					
Coding variant	coded		unikat		individually coded	
Pollution degree	2					
Rated switching distance (Sn)	12 mm					

Attribute	165ESK00K11	165ESK00K12	165ESK00K21	165ESK00K22	165ESK00K31	165ESK00K32
Overvoltage category	II					
Active surface (Number)	1					
Turn-on delay (ton)	75 ms					
Readiness delay (tv)	1000 ms					
Voltage drop (Ud)	0.75 V					
Stabilised PELV/SELV power supply	required					
Fuse operating voltage	1A fast					
Internal electronic fuse	yes					
Short-circuit detection	yes					
Cross-short detection	yes					
PL acc. to EN ISO 13849-1	e					
SIL acc. to IEC 61508	3					
SIL CL acc. to IEC 62061	3					
PFHD according to IEC 61508	2,24x10 ⁻⁹ 1/h					
Category acc. to EN ISO 13849-1	4					
Coding acc. to EN ISO 14119	Low			High		
Type acc. to EN ISO 14119	4					
Mission time in years	20 a					
Structure acc. to EN ISO 13849-1	Two-channel					
Hardware fault tolerance (HFT) according to IEC 61508	1					
Housing design	rectangular					
Dimensions	25 x 88 x 13 mm					
Free zone	50 mm					
Actuation frequency	180 1/h					
Minimum installation distance (between two sensors)	150 mm					
cannot be mounted flush	yes					
Housing material	PBT, PC					
Cable material	PVC					
Housing colour	grau, schwarz					
Protection class, connector	-					
Operating temperature min.	-25 °C					

Attribute	165ESK00K11	165ESK00K12	165ESK00K21	165ESK00K22	165ESK00K31	165ESK00K32
Max. operating temperature	70 °C					
Min. cable temperature range, moving	-5 °C					
Max. cable temperature range, moving	80 °C					
Min. cable temperature range, fixed installation	-30 °C					
Max. cable temperature range, fixed installation	80 °C					
Shock resistance (Norm)	30 g / 11 ms					
Vibration resistance (Norm)	10 ... 55 Hz					
Protection class, housing	IP67 DIN EN 60529 - IP6K9K ISO 20653					
Min. storage temperature	-25 °C					
Max. storage temperature	70 °C					
Continuous shock resistance (Norm)	10 g / 16 ms					
Relative humidity	5 - 85 %					
Air pressure	860 - 1060 hPa					
Delta tmax	0.5 °C/min					
Mounting type	screwed					
Weight	100 g					
Torque for fastening screws	0.7 N m					
Connector type	-					
Cable type	LiYY					
Cable length	1 m					
Number of strands	8					
Wire cross section	0.25 mm ²					
Cable colour	grau					
Certified in accordance with	EN ISO 13849-1 IEC 61508 IEC 62061 EN 60947- 5-3 UL 508 / CSA 22.16	EN ISO 13849-1 IEC 61508 IEC 62061 EN 60947- 5-3 UL 508 / CSA 22.18	EN ISO 13849-1 IEC 61508 IEC 62061 EN 60947- 5-3 UL 508 / CSA 22.20	EN ISO 13849-1 IEC 61508 IEC 62061 EN 60947- 5-3 UL 508 / CSA 22.22	EN ISO 13849-1 IEC 61508 IEC 62061 EN 60947- 5-3 UL 508 / CSA 22.24	EN ISO 13849-1 IEC 61508 IEC 62061 EN 60947- 5-3 UL 508 / CSA 22.26
CE label	yes					
Possible actuators	165EBK001					