



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

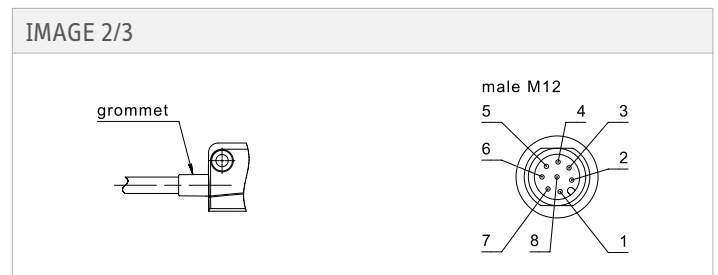
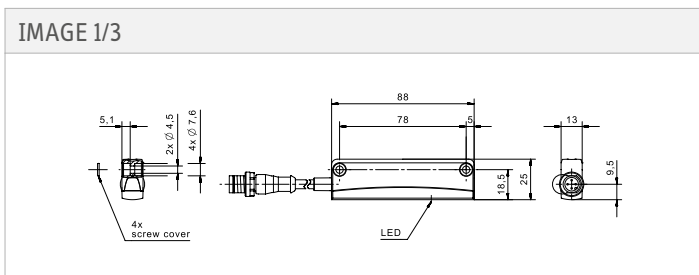
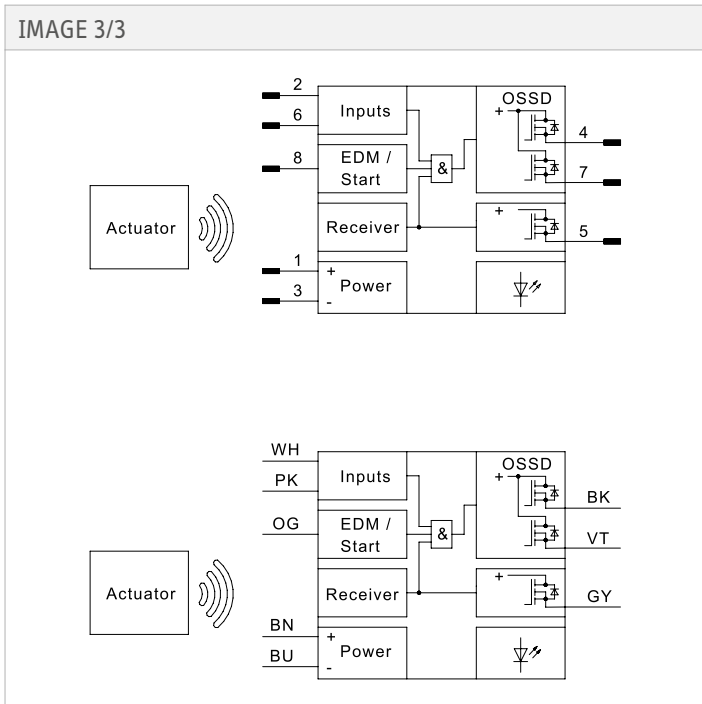
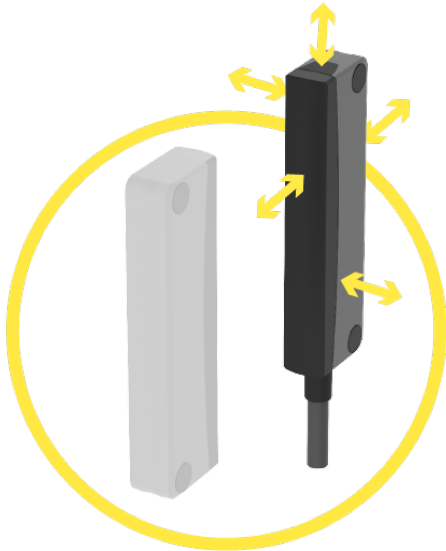


IMAGE 3/3



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

185E8K	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

Electrical data

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 (SO 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 I ₀	30 mA					
Rated operating voltage (U _e)	24 V					
Rated insulation voltage (U _i)	50 V					
Rated impulse withstand voltage (U _{imp})	1000 V					
Current consumption per input	2.75 mA					
Power consumption	24 W					
LED display	three-coloured					
Actuation	arbitrary					

Electrical data

Attribute	165ESK00J11	165ESK00J12	165ESK00J21	165ESK00J22	165ESK00J31	165ESK00J32 ▶
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					
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					

Electrical data

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Safety-related characteristics

Attribute	165ESK00J11	165ESK00J12	165ESK00J21	165ESK00J22	165ESK00J31	165ESK00J32 ▶
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					

Safety-related characteristics

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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					

Mechanical data

Attribute	165ESK00J11	165ESK00J12	165ESK00J21	165ESK00J22	165ESK00J31	165ESK00J32 ▶
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					

Mechanical data

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Housing design	rectangular					
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cannot be mounted flush	yes					

Material information

Attribute	165ESK00J11	165ESK00J12	165ESK00J21	165ESK00J22	165ESK00J31	165ESK00J32 ▶
Housing material	PBT, PC					
Cable material	PVC					
Housing colour	grau, schwarz					

Material information

Attribute	165ESK00K11	165ESK00K12	165ESK00K21	165ESK00K22	165ESK00K31	165ESK00K32
Housing material	PBT, PC					
Cable material	PVC					
Housing colour	grau, schwarz					

Environmental conditions

Attribute	165ESK00J11	165ESK00J12	165ESK00J21	165ESK00J22	165ESK00J31	165ESK00J32 ▶
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					

Environmental conditions

Attribute	165ESK00K11	165ESK00K12	165ESK00K21	165ESK00K22	165ESK00K31	165ESK00K32
Protection class, connector	-					
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					

Installation

Attribute	165ESK00J11	165ESK00J12	165ESK00J21	165ESK00J22	165ESK00J31	165ESK00J32 ▶
Mounting type	screwed					
Weight	70 g					
Torque for fastening screws	0.7 N m					

Installation

Attribute	165ESK00K11	165ESK00K12	165ESK00K21	165ESK00K22	165ESK00K31	165ESK00K32
Mounting type	screwed					
Weight	100 g					
Torque for fastening screws	0.7 N m					

Connection

Attribute	165ESK00J11	165ESK00J12	165ESK00J21	165ESK00J22	165ESK00J31	165ESK00J32 ▶
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					

Connection

Attribute	165ESK00K11	165ESK00K12	165ESK00K21	165ESK00K22	165ESK00K31	165ESK00K32
Connector type	-					
Cable type	LiYY					
Cable length	1 m					
Number of strands	8					
Wire cross section	0.25 mm ²					
Cable colour	grau					

Approvals

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

Approvals

Attribute	165ESK00K11	165ESK00K12	165ESK00K21	165ESK00K22	165ESK00K31	165ESK00K32
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					

Operating data

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

Operating data

Attribute	165ESK00K11	165ESK00K12	165ESK00K21	165ESK00K22	165ESK00K31	165ESK00K32
Possible actuators	165EBK001					