



Safety sensor eloProtect M 165MSK

Safety sensor eloProtectM completely redefines the standard for magnetic safety sensors. The magnetic safety switch offers increased operating distances and offset values for increased flexibility during installation and a high function stability. The new housing is robust and resistant to mechanical influences and aggressive media.

The safety sensor demonstrates strong resistance to cleaning agents (ECOLAB). The high IP6K9K protection class and the high temperature resistance of up to +80 °C make this ideal for use in the food and packaging industries as well as in the chemical and pharmaceutical industries.

Technical specifications

Dual mounting options enables the door hinge to be mounted on the right or left (no extra variant necessary)

Available connection types: cable outlet and M12 pigtail

Simple diagnosis through optional LED and control contact

Screw covers prevent easy removal and the accumulation of dirt

Protection class IP6K9K (ISO 20653)

Technical drawing

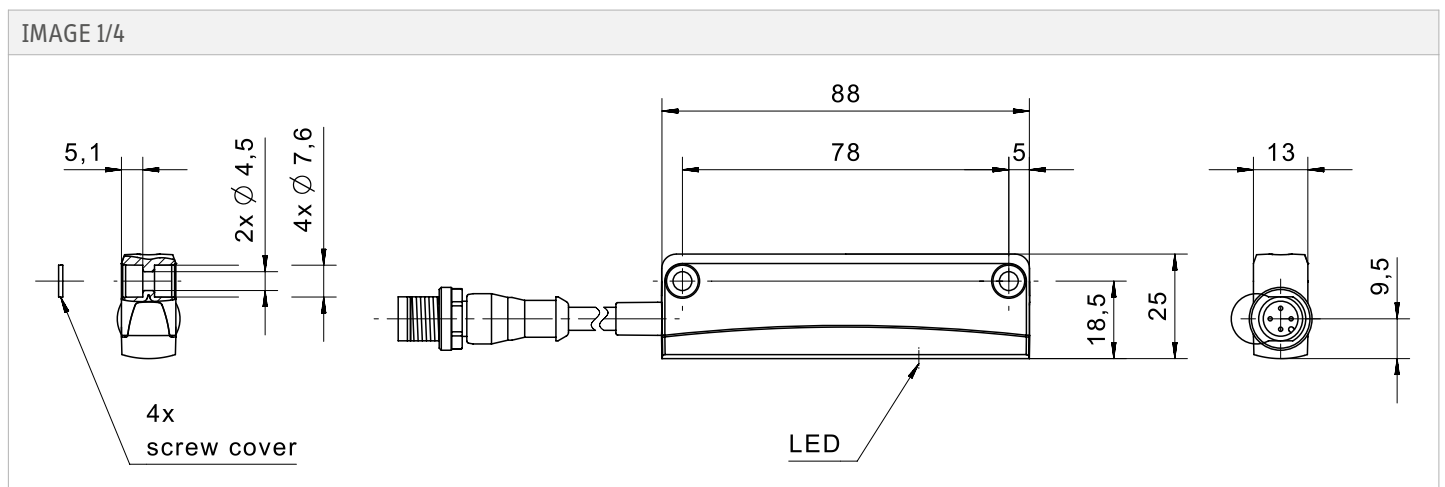
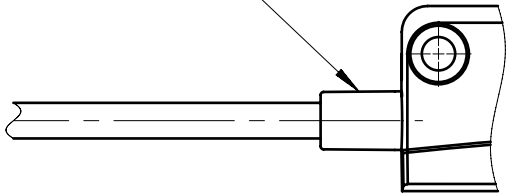
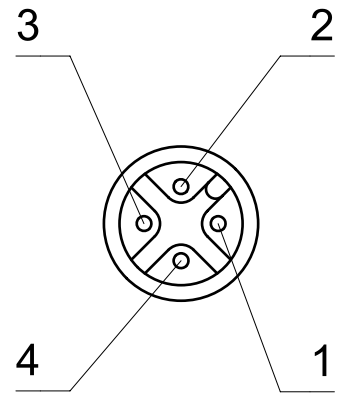


IMAGE 2/4

grommet



male M12



male M12

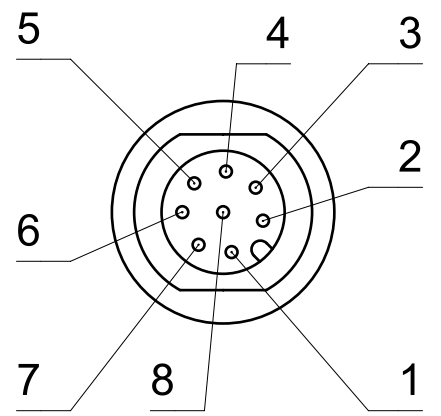
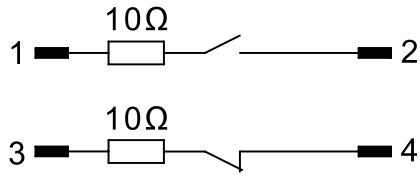
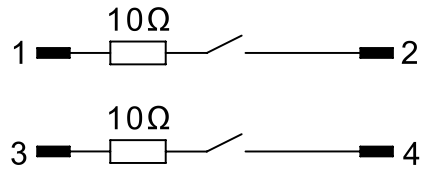


IMAGE 3/4

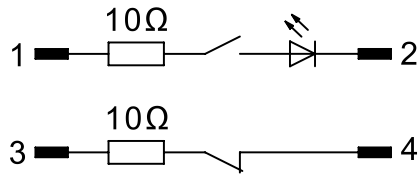
165MSK.0H1G, 165MSK.0H1K



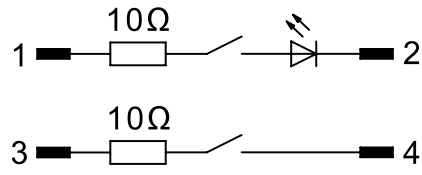
165MSK.0H1A, 165MSK.0H1E



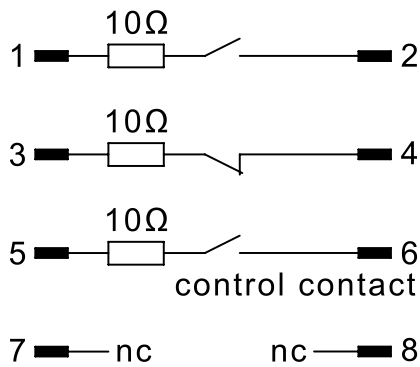
165MSK.0H1H



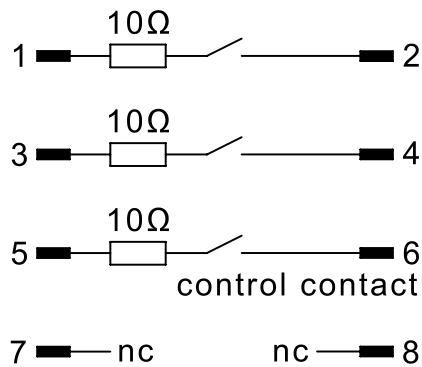
165MSK.0H1B



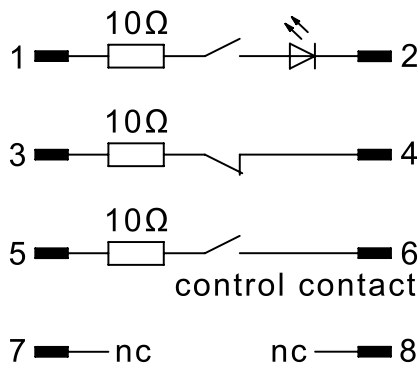
165MSK.0J1I



165MSK.0J1C



165MSK.0J1J



165MSK.0J1D

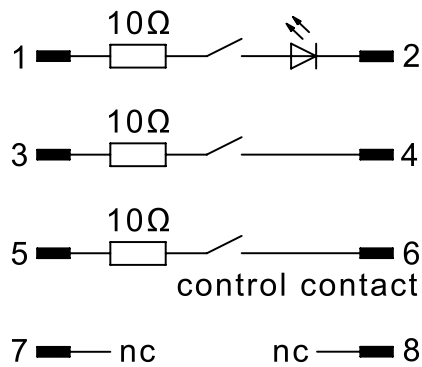
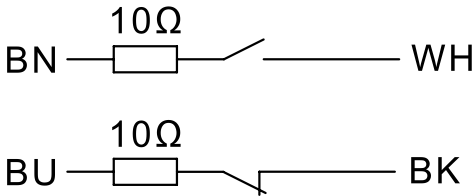
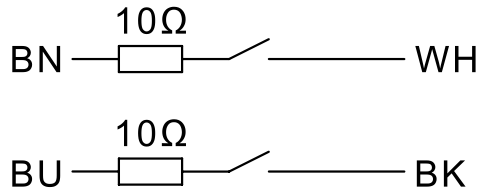


IMAGE 4/4

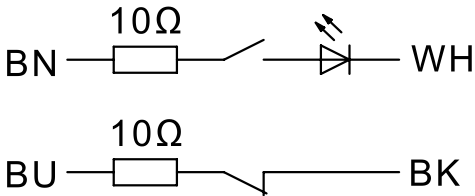
165MSK.0K1G, 165MSK.0K1K



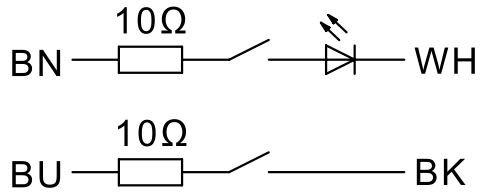
165MSK.0K1A, 165MSK.0K1E



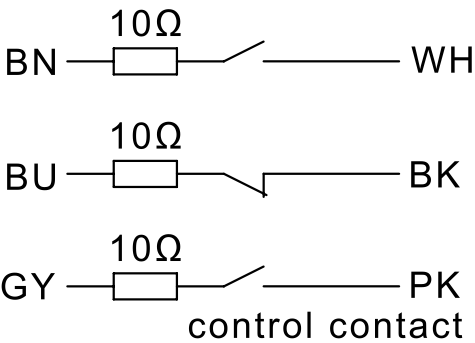
165MSK.0K1H



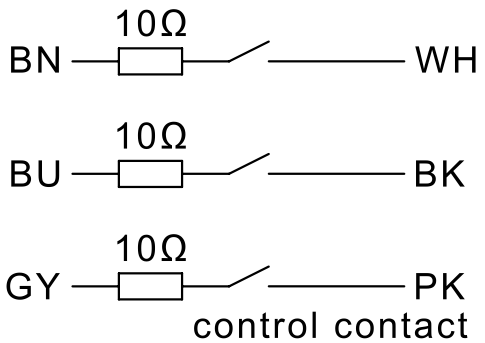
165MSK.0K1B



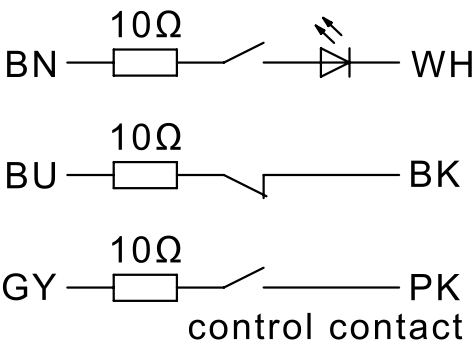
165MSK.0K1I



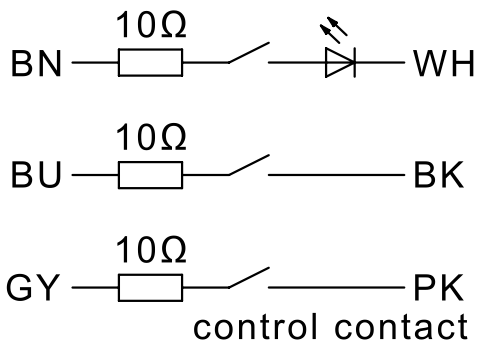
165MSK.0K1C



165MSK.0K1J

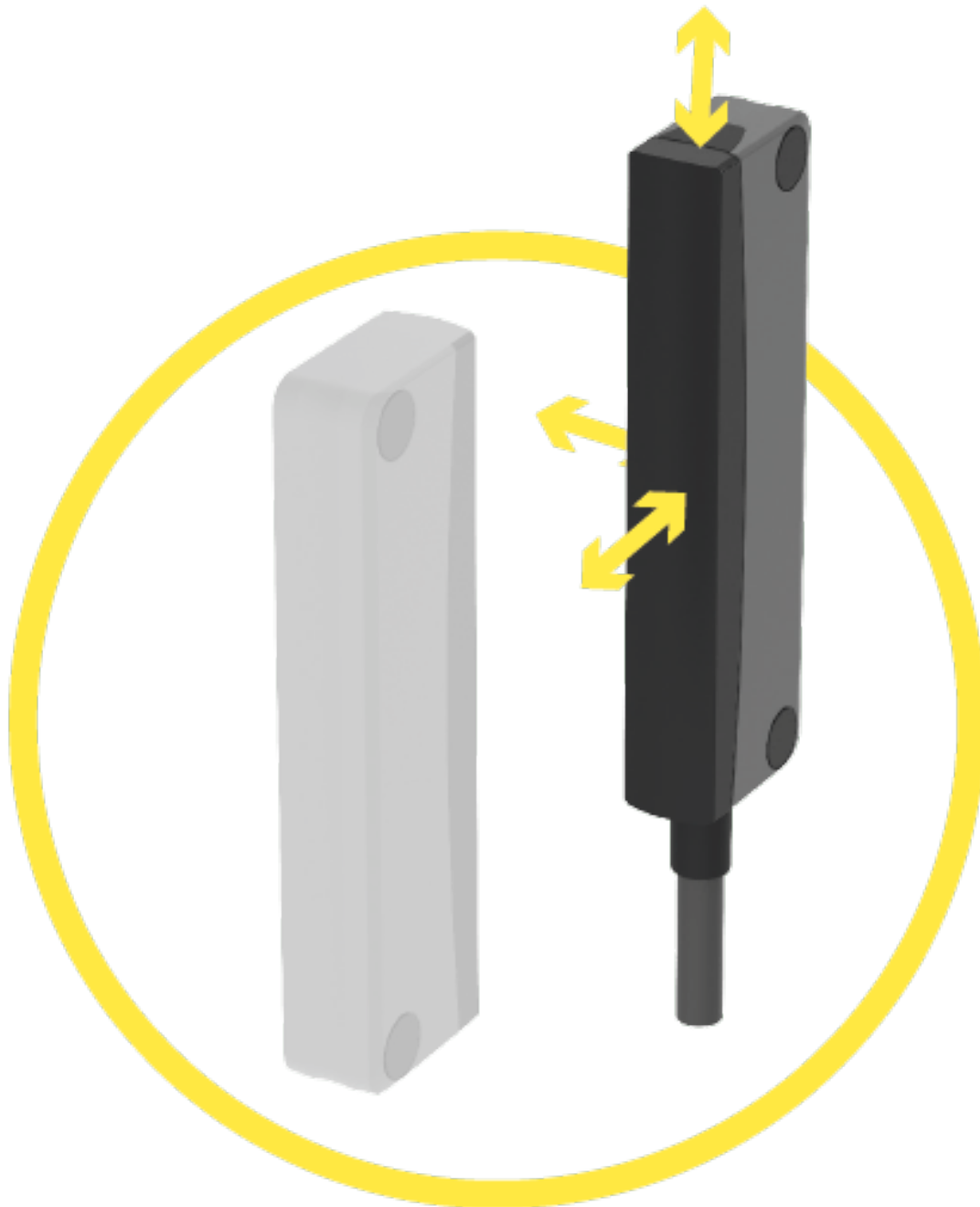


165MSK.0K1D



Product options

IMAGE 1/3



Suitable for front, side and 90° actuation. Operating distance (Sao) from 5 to 14 mm. Assured switch-off distance (Sar) from 8 to 18 mm.

IMAGE 2/3

ORDERING KEY

| 165MSK | 00 | | | | Safety sensor, rectangular, plastic |
|--------|----|----|---|-----|--|
| | | K1 | | | Connection cable – PVC - 1m |
| | | H1 | | | Connection pigtail – PVC – M12, 4-pin |
| | | J1 | | | Connection pigtail – PVC – M12, 8-pin |
| | | | A | | N.O./N.O. – front actuation |
| | | | B | | N.O./N.O. – LED – front actuation |
| | | | C | | N.O./N.O./control contact – front actuation |
| | | | D | | N.O./N.O./control contact – LED – front actuation |
| | | | E | | N.O./N.O. – side actuation |
| | | | F | | N.O./N.O. – LED – side actuation |
| | | | G | | N.O./N.C. – front actuation |
| | | | H | | N.O./N.C. – LED – front actuation |
| | | | I | | N.O./N.C./control contact – front actuation |
| | | | J | | N.O./N.C./control contact – LED – front actuation |
| | | | K | | N.O./N.C. – side actuation |
| | | | L | | N.O./N.C. – LED – side actuation |
| | | | | | 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 |

IMAGE 3/3

MATCHING ACTUATORS

| Actuators | Actuation direction | 165MSK00.1A 165MSK00.1G | | | 165MSK00.1E 165MSK00.1K | | | 165MSK00.1B 165MSK00.1H | | |
|--------------------|---------------------|----------------------------|----------|----------|----------------------------|----------|----------|----------------------------|----------|----------|
| | | $S_{0_{min}}$ | S_{ao} | S_{ar} | $S_{0_{min}}$ | S_{ao} | S_{ar} | $S_{0_{min}}$ | S_{ao} | S_{ar} |
| 165 MBK 001 | Front | 0.5 | 5 | 14 | - | - | - | 0.5 | 5 | 14 |
| 165 MBK 101 | | 0.5 | 8 | 18 | - | - | - | 0.5 | 8 | 18 |
| 165 MBK 201 | | Front 90° | 0.5 | 5 | 14 | - | - | - | 0.5 | 5 |
| 165 MBK 301 | 0.5 | | 8 | 18 | - | - | - | 0.5 | 8 | 18 |
| 165 MBK 001 | Side | - | - | - | 0.5 | 5 | 14 | - | - | - |
| 165 MBK 101 | | - | - | - | - | 8 | 18 | - | - | - |
| 165 MBK 201 | Side 90° | - | - | - | 0.5 | 5 | 14 | - | - | - |
| 165 MBK 301 | | - | - | - | - | 8 | 18 | - | - | - |

| Actuators | Actuation direction | 165MSK00.1F 165MSK00.1L | | | 165MSK00.1C 165MSK00.1I | | | 165MSK00.1D 165MSK00.1J | | |
|--------------------|---------------------|----------------------------|----------|----------|----------------------------|----------|----------|----------------------------|----------|----------|
| | | $S_{0_{min}}$ | S_{ao} | S_{ar} | $S_{0_{min}}$ | S_{ao} | S_{ar} | $S_{0_{min}}$ | S_{ao} | S_{ar} |
| 165 MBK 001 | Front | - | - | - | 0.5 | 5 | 14 | 0.5 | 5 | 14 |
| 165 MBK 101 | | - | - | - | 0.5 | 8 | 18 | 0.5 | 8 | 18 |
| 165 MBK 201 | Front 90° | - | - | - | 0.5 | 5 | 14 | 0.5 | 5 | 14 |
| 165 MBK 301 | | - | - | - | 0.5 | 8 | 18 | 0.5 | 8 | 18 |
| 165 MBK 001 | Side | 0.5 | 5 | 14 | - | - | - | - | - | - |
| 165 MBK 101 | | - | 8 | 18 | - | - | - | - | - | - |
| 165 MBK 201 | Side 90° | 0.5 | 5 | 14 | - | - | - | - | - | - |
| 165 MBK 301 | | - | 8 | 18 | - | - | - | - | - | - |

$S_{0_{min}}$ = minimum switching distance (mm), S_{ao} = operating distance (mm), S_{ar} = assured switch-off distance (mm)

Article characteristics

| Attribute | 165MSK00H1A | 165MSK00H1B | 165MSK00H1F | 165MSK00H1G | 165MSK00H1H | 165MSK00H1K ▶ |
|-------------------------------------|--------------------------------------|-----------------|-------------|-------------|-----------------|---------------|
| Min. switching voltage | 19.2 V DC | | | | | |
| Max. switching voltage | 28.8 V DC | | | | | |
| Max. switching current | 0.2 A | | | | | |
| Max. switching current with LED | - | 0.01 A | | - | 0.01 A | - |
| Max. switching power | 3 W | | | | | |
| Switching frequency | 5 Hz | | | | | |
| Assured switching distance (Sao) | 5 mm | | | | | |
| Assured switch-off distance (Sar) | 14 mm | | | | | |
| Minimum switching distance (S0 min) | 0.5 mm | | | | | |
| LED display | No | single-coloured | | No | single-coloured | No |
| Actuation | front | | side | front | | side |
| Switching principle | magnetic | | | | | |
| Series resistor | 10 Ohm | | | | | |
| Technology | Reed | | | | | |
| Contact form | NO/NO | | | NO/NC | | |
| Coding acc. to EN ISO 14119 | Low | | | | | |
| B10d acc. to EN ISO 13849-1 | 20000000 | | | | | |
| Type acc. to EN ISO 14119 | 4 | | | | | |
| Mission time in years | 20 a | | | | | |
| Structure acc. to EN ISO 13849-1 | Two-channel | | | | | |
| Housing colour | grau, schwarz | | | | | |
| Housing design | rectangular | | | | | |
| Dimensions | 25 x 88 x 13 mm | | | | | |
| cannot be mounted flush | yes | | | | | |
| Housing material | PBT, PC | | | | | |
| Cable material | PVC | | | | | |
| Pollution degree | 3 | | | | | |
| Protection class | III | | | | | |
| Protection class | IP67 DIN EN 60529 - IP6K9K ISO 20653 | | | | | |

| Attribute | 165MSK00H1A | 165MSK00H1B | 165MSK00H1F | 165MSK00H1G | 165MSK00H1H | 165MSK00H1K ▶ |
|--|----------------------|-------------|-------------|-------------|-------------|---------------|
| Protection class, connector | IP67 DIN EN 60529 | | | | | |
| Operating temperature min. | -25 °C | | | | | |
| Max. operating temperature | 80 °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) | 30g / 11ms | | | | | |
| Vibration resistance (Norm) | 10 - 55Hz | | | | | |
| Min. storage temperature | -25 °C | | | | | |
| Max. storage temperature | 80 °C | | | | | |
| Mounting type | screwed | | | | | |
| Detent present | no | | | | | |
| Connector type | M12x1 - 4 polig | | | | | |
| Cable length | 0.15 m | | | | | |
| Number of strands | 4 | | | | | |
| Wire cross section | 0.25 mm ² | | | | | |
| Certified in accordance with | - | UL | | | | |
| CE label | yes | | | | | |
| Possible actuators | 165MBK001 | | | | | |

| Attribute | 165MSK00H1L | 165MSK00J1C | 165MSK00J1D | 165MSK00J1I | 165MSK00J1J | 165MSK00K1A ▶ |
|-------------------------------------|--------------------------------------|----------------------------|-----------------|-------------|-----------------|---------------|
| Min. switching voltage | 19.2 V DC | | | | | |
| Max. switching voltage | 28.8 V DC | | | | | |
| Max. switching current | 0.2 A | | | | | |
| Max. switching current with LED | 0.01 A | - | 0.01 A | - | 0.01 A | - |
| Max. switching power | 3 W | | | | | |
| Switching frequency | 5 Hz | | | | | |
| Assured switching distance (Sao) | 5 mm | | | | | |
| Assured switch-off distance (Sar) | 14 mm | | | | | |
| Minimum switching distance (SO min) | 0.5 mm | | | | | |
| LED display | single-coloured | No | single-coloured | No | single-coloured | No |
| Actuation | side | front | | | | |
| Switching principle | magnetic | | | | | |
| Series resistor | 10 Ohm | | | | | |
| Technology | Reed | | | | | |
| Contact form | NO/NC | NO/NO/NO (Kontrollkontakt) | | NO/NC/NO | | NO/NO |
| Coding acc. to EN ISO 14119 | Low | | | | | |
| B10d acc. to EN ISO 13849-1 | 20000000 | | | | | |
| Type acc. to EN ISO 14119 | 4 | | | | | |
| Mission time in years | 20 a | | | | | |
| Structure acc. to EN ISO 13849-1 | Two-channel | | | | | |
| Housing colour | grau, schwarz | | | | | |
| Housing design | rectangular | | | | | |
| Dimensions | 25 x 88 x 13 mm | | | | | |
| cannot be mounted flush | yes | | | | | |
| Housing material | PBT, PC | | | | | |
| Cable material | PVC | | | | | |
| Pollution degree | 3 | | | | | |
| Protection class | III | | | | | |
| Protection class | IP67 DIN EN 60529 - IP6K9K ISO 20653 | | | | | |
| Protection class, connector | IP67 DIN EN 60529 | | | | | - |

| Attribute | 165MSK00H1L | 165MSK00J1C | 165MSK00J1D | 165MSK00J1I | 165MSK00J1J | 165MSK00K1A ▶ |
|--|----------------------|-----------------|-------------|-------------|-------------|---------------|
| Operating temperature min. | -25 °C | | | | | |
| Max. operating temperature | 80 °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) | 30g / 11ms | | | | | |
| Vibration resistance (Norm) | 10 - 55Hz | | | | | |
| Min. storage temperature | -25 °C | | | | | |
| Max. storage temperature | 80 °C | | | | | |
| Mounting type | screwed | | | | | |
| Detent present | no | | | | | |
| Connector type | M12x1 - 4 polig | M12x1 - 8 polig | | | | - |
| Cable length | 0.15 m | | | | | 1 m |
| Number of strands | 4 | 8 | | | | 4 |
| Wire cross section | 0.25 mm ² | | | | | |
| Certified in accordance with | UL | | | | | |
| CE label | yes | | | | | |
| Possible actuators | 165MBK001 | | | | | |

| Attribute | 165MSK00K1B | 165MSK00K1C | 165MSK00K1D | 165MSK00K1F | 165MSK00K1G | 165MSK00K1H ▶ |
|-------------------------------------|--------------------------------------|----------------------------|-----------------|-------------|-----------------|-----------------|
| Min. switching voltage | 19.2 V DC | | | | | |
| Max. switching voltage | 28.8 V DC | | | | | |
| Max. switching current | 0.2 A | | | | | |
| Max. switching current with LED | 0.01 A | - | 0.01 A | - | 0.01 A | 0.01 A |
| Max. switching power | 3 W | | | | | |
| Switching frequency | 5 Hz | | | | | |
| Assured switching distance (Sao) | 5 mm | | | | | |
| Assured switch-off distance (Sar) | 14 mm | | | | | |
| Minimum switching distance (SO min) | 0.5 mm | | | | | |
| LED display | single-coloured | No | single-coloured | No | single-coloured | single-coloured |
| Actuation | front | | | side | front | |
| Switching principle | magnetic | | | | | |
| Series resistor | 10 Ohm | | | | | |
| Technology | Reed | | | | | |
| Contact form | NO/NO | NO/NO/NO (Kontrollkontakt) | | NO/NO | NO/NC | |
| Coding acc. to EN ISO 14119 | Low | | | | | |
| B10d acc. to EN ISO 13849-1 | 20000000 | | | | | |
| Type acc. to EN ISO 14119 | 4 | | | | | |
| Mission time in years | 20 a | | | | | |
| Structure acc. to EN ISO 13849-1 | Two-channel | | | | | |
| Housing colour | grau, schwarz | | | | | |
| Housing design | rectangular | | | | | |
| Dimensions | 25 x 88 x 13 mm | | | | | |
| cannot be mounted flush | yes | | | | | |
| Housing material | PBT, PC | | | | | |
| Cable material | PVC | | | | | |
| Pollution degree | 3 | | | | | |
| Protection class | III | | | | | |
| Protection class | IP67 DIN EN 60529 - IP6K9K ISO 20653 | | | | | |
| Protection class, connector | - | | | | | |

| Attribute | 165MSK00K1B | 165MSK00K1C | 165MSK00K1D | 165MSK00K1F | 165MSK00K1G | 165MSK00K1H ▶ |
|--|----------------------|-------------|-------------|-------------|-------------|---------------|
| Operating temperature min. | -25 °C | | | | | |
| Max. operating temperature | 80 °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) | 30g / 11ms | | | | | |
| Vibration resistance (Norm) | 10 - 55Hz | | | | | |
| Min. storage temperature | -25 °C | | | | | |
| Max. storage temperature | 80 °C | | | | | |
| Mounting type | screwed | | | | | |
| Detent present | no | | | | | |
| Connector type | - | | | | | |
| Cable length | 1 m | | | | | |
| Number of strands | 4 | 6 | | | 4 | |
| Wire cross section | 0.25 mm ² | | | | | |
| Certified in accordance with | UL | | | | | |
| CE label | yes | | | | | |
| Possible actuators | 165MBK001 | | | | | |

| Attribute | 165MSK00K1I | 165MSK00K1J | 165MSK00K1K | 165MSK00K1L | 165MSK00K1H31 | 165MSK00H1A31 |
|-------------------------------------|--------------------------------------|-----------------|-------------|-----------------|---------------|---------------|
| Min. switching voltage | 19.2 V DC | | | | | |
| Max. switching voltage | 28.8 V DC | | | | | |
| Max. switching current | 0.2 A | | | | | |
| Max. switching current with LED | - | 0.01 A | - | 0.01 A | - | |
| Max. switching power | 3 W | | | | | |
| Switching frequency | 5 Hz | | | | | |
| Assured switching distance (Sao) | 5 mm | | | | | |
| Assured switch-off distance (Sar) | 14 mm | | | | | |
| Minimum switching distance (S0 min) | 0.5 mm | | | | | |
| LED display | No | single-coloured | No | single-coloured | No | |
| Actuation | front | | side | | front | |
| Switching principle | magnetic | | | | | |
| Series resistor | 10 Ohm | | | | | |
| Technology | Reed | | | | | |
| Contact form | NO/NC/NO | | NO/NC | | NO/NO | |
| Coding acc. to EN ISO 14119 | Low | | | | | |
| B10d acc. to EN ISO 13849-1 | 20000000 | | | | | |
| Type acc. to EN ISO 14119 | 4 | | | | | |
| Mission time in years | 20 a | | - | | 20 a | |
| Structure acc. to EN ISO 13849-1 | Two-channel | | | | | |
| Housing colour | grau, schwarz | | | | | |
| Housing design | rectangular | | | | | |
| Dimensions | 25 x 88 x 13 mm | | | | | |
| cannot be mounted flush | yes | | | | | |
| Housing material | PBT, PC | | | | | |
| Cable material | PVC | | | | | |
| Pollution degree | 3 | | | | | |
| Protection class | III | | | | | |
| Protection class | IP67 DIN EN 60529 - IP6K9K ISO 20653 | | | | | |

| Attribute | 165MSK00K1I | 165MSK00K1J | 165MSK00K1K | 165MSK00K1L | 165MSK00K1H31 | 165MSK00H1A31 ▶ |
|--|----------------------|-------------|-------------|-------------|---------------|--------------------|
| Protection class, connector | - | | | | | IP67 DIN EN 60529 |
| Operating temperature min. | -25 °C | | | | | |
| Max. operating temperature | 80 °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) | 30g / 11ms | | | | | |
| Vibration resistance (Norm) | 10 - 55Hz | | | | | |
| Min. storage temperature | -25 °C | | | | | |
| Max. storage temperature | 80 °C | | | | | |
| Mounting type | screwed | | | | | |
| Detent present | no | | | | | |
| Connector type | - | | | | | M12x1 - 4 polig |
| Cable length | 1 m | | | | | 0.15 m |
| Number of strands | 6 | | 4 | | | |
| Wire cross section | 0.25 mm ² | | | | | |
| Certified in accordance with | UL | | | | | - |
| CE label | yes | | | | | |
| Possible actuators | 165MBK001 | | | | | |

| Attribute | 165MSK00H1E | 165MSK00K1E |
|-------------------------------------|--------------------------------------|-------------|
| Min. switching voltage | 19.2 V DC | |
| Max. switching voltage | 28.8 V DC | |
| Max. switching current | 0.2 A | |
| Max. switching current with LED | - | |
| Max. switching power | 3 W | |
| Switching frequency | 5 Hz | |
| Assured switching distance (Sao) | 5 mm | |
| Assured switch-off distance (Sar) | 14 mm | |
| Minimum switching distance (SO min) | 0.5 mm | |
| LED display | No | |
| Actuation | front | side |
| Switching principle | magnetic | |
| Series resistor | 10 Ohm | |
| Technology | Reed | |
| Contact form | NO/NO | |
| Coding acc. to EN ISO 14119 | Low | |
| B10d acc. to EN ISO 13849-1 | 20000000 | |
| Type acc. to EN ISO 14119 | 4 | |
| Mission time in years | 20 a | |
| Structure acc. to EN ISO 13849-1 | Two-channel | |
| Housing colour | grau, schwarz | |
| Housing design | rectangular | |
| Dimensions | 25 x 88 x 13 mm | |
| cannot be mounted flush | yes | |
| Housing material | PBT, PC | |
| Cable material | PVC | |
| Pollution degree | 3 | |
| Protection class | III | |
| Protection class | IP67 DIN EN 60529 - IP6K9K ISO 20653 | |
| Protection class, connector | IP67 DIN EN 60529 | - |
| Operating temperature min. | -25 °C | |
| Max. operating temperature | 80 °C | |

| Attribute | 165MSK00H1E | 165MSK00K1E |
|--|----------------------|-------------|
| 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) | 30g / 11ms | |
| Vibration resistance (Norm) | 10 - 55Hz | |
| Min. storage temperature | -25 °C | |
| Max. storage temperature | 80 °C | |
| Mounting type | screwed | |
| Detent present | no | |
| Connector type | M12x1 - 4 polig | - |
| Cable length | 0.15 m | 1 m |
| Number of strands | 4 | |
| Wire cross section | 0.25 mm ² | |
| Certified in accordance with | - | UL |
| CE label | yes | |
| Possible actuators | 165MBK001 | |