



C40E-1602FY010

C4000 Fusion

SAFETY LIGHT CURTAINS

SICK
Sensor Intelligence.



Illustration may differ

Ordering information

| Type | part no. |
|----------------|----------|
| C40E-1602FY010 | 1043197 |

Other models and accessories → www.sick.com/C4000_Fusion



Detailed technical data

Features

| | |
|--------------------------------|-------------------------------|
| Application | Normal industrial environment |
| System part | Receiver |
| Resolution | 20 mm |
| Scanning range | 21 m |
| Protective field height | 1,650 mm |
| Synchronization | Optical synchronization |

Safety-related parameters

| | |
|---|--|
| Type | Type 4 (IEC 61496-1) |
| Safety integrity level | SIL 3 (IEC 61508) |
| Category | Category 4 (EN ISO 13849) |
| Performance level | PL e (EN ISO 13849) |
| PFH_D (mean probability of a dangerous failure per hour) | $15 * 10^{-9}$ (EN ISO 13849) |
| T_M (mission time) | 20 years (EN ISO 13849) |
| Safe state in the event of a fault | At least one OSSD is in the OFF state. |

Functions

| | Functions | Delivery status |
|---|-----------------|-----------------|
| Protective operation | ✓ | |
| Restart interlock | ✓ | Internal |
| External device monitoring (EDM) | ✓ | Deactivated |
| Beam coding | ✓ | Code 1 |
| Configurable scanning range | ✓ | |
| Reduced resolution | ✓ | Deactivated |
| Fixed blanking | ✓ ¹⁾ | |

¹⁾ Only in combination with a Flexi Soft safety controller via EFI.

| | | |
|--|---|---------------|
| Dynamic blanking for object pattern recognition | ✓ | |
| Self-teaching dynamic blanking for goods detection | ✓ | |
| Self-teaching dynamic blanking for pallet detection | ✓ | |
| Multiple sampling | ✓ | 2x evaluation |
| Direction monitoring | ✓ | |
| Sensor gap monitoring | ✓ | |
| Sequence monitoring | ✓ | |
| Object entry monitoring | ✓ | |
| Detection of geometrically even objects | ✓ | |
| Safe SICK device communication via EFI | ✓ | |

¹⁾ Only in combination with a Flexi Soft safety controller via EFI.

Interfaces

| | |
|---------------------------------|---|
| System connection | |
| Conductor cross section | 0.75 mm ² |
| Permitted cable length | 50 m |
| Configuration connection | Female connector M8, 4-pin |
| Configuration method | PC with CDS (Configuration and Diagnostic Software) |
| Display elements | 7-segment display |

Electronics

| | |
|--|--|
| Protection class | III (IEC 61140) |
| Supply voltage V_S | 24 V DC (19.2 V ... 28.8 V) ¹⁾ |
| Residual ripple | ≤ 10 % ²⁾ |
| Output signal switching devices (OSSDs) | |
| Type of output | 2 PNP semiconductors, short-circuit protected, cross-circuit monitored |
| ON state, switching voltage HIGH | 24 V DC ($V_S - 2.25$ V DC ... V_S) |
| OFF state, switching voltage LOW | 2 V DC |
| Current-carrying capacity per OSSD | ≤ 500 mA |

¹⁾ The external voltage supply must be capable of buffering brief mains voltage failures of 20 ms as specified in EN 60204-1. Suitable power supplies are available as accessories from SICK.

²⁾ Within the limits of V_S .

Mechanics

| | |
|------------------------------|---------------------------|
| Dimensions | See dimensional drawing |
| Housing cross-section | 48 mm x 40 mm |
| Housing material | Aluminum extruded profile |
| Weight | 3,420 g |

Ambient data

| | |
|--------------------------------------|-------------------|
| Enclosure rating | IP65 (EN 60529) |
| Ambient operating temperature | 0 °C ... +55 °C |
| Storage temperature | -25 °C ... +70 °C |

| | |
|-----------------------------|-------------------------------------|
| Air humidity | 15 % ... 95 %, Non-condensing |
| Vibration resistance | 5 g, 10 Hz ... 55 Hz (EN 60068-2-6) |
| Shock resistance | 10 g, 16 ms (EN 60068-2-27) |

Other information

| | |
|--------------------|--------|
| Wave length | 850 nm |
|--------------------|--------|

Certificates

| | |
|--|---|
| EU declaration of conformity | ✓ |
| UK declaration of conformity | ✓ |
| ACMA declaration of conformity | ✓ |
| Moroccan declaration of conformity | ✓ |
| China RoHS | ✓ |
| ULus approval | ✓ |
| cUL approval | ✓ |
| EC-Type-Examination approval | ✓ |
| China GB certificate | ✓ |
| Information according to Art. 3 of Data Act (Regulation EU 2023/2854) | ✓ |

Classifications

| | |
|-----------------------|----------|
| ECLASS 5.0 | 27272704 |
| ECLASS 5.1.4 | 27272704 |
| ECLASS 6.0 | 27272704 |
| ECLASS 6.2 | 27272704 |
| ECLASS 7.0 | 27272704 |
| ECLASS 8.0 | 27272704 |
| ECLASS 8.1 | 27272704 |
| ECLASS 9.0 | 27272704 |
| ECLASS 10.0 | 27272704 |
| ECLASS 11.0 | 27272704 |
| ECLASS 12.0 | 27272704 |
| ETIM 5.0 | EC002549 |
| ETIM 6.0 | EC002549 |
| ETIM 7.0 | EC002549 |
| ETIM 8.0 | EC002549 |
| UNSPSC 16.0901 | 46171620 |

Dimensional drawing



Dimensions in mm (inch)

illustration sender (receiver mirror image)

| | L1 | L2 | A |
|-------|-------|-------|-------|
| 300 | 381 | 427 | 224 |
| 450 | 532 | 578 | 374 |
| 600 | 682 | 728 | 524 |
| 750 | 833 | 879 | 674 |
| 900 | 984 | 1.030 | 824 |
| 1.050 | 1.134 | 1.180 | 974 |
| 1.200 | 1.283 | 1.329 | 1.124 |
| 1.350 | 1.435 | 1.481 | 1.274 |
| 1.500 | 1.586 | 1.632 | 1.424 |
| 1.650 | 1.736 | 1.782 | 1.574 |
| 1.800 | 1.887 | 1.933 | 1.724 |

Connection diagram C4000 safety light curtain to UE10-30S safety relay



Task

Connection of a C4000 Standard/Advanced/Palletizer/Fusion safety light curtain to UE10-30S. Operating mode with restart interlock and external device monitoring.

Function

When the light path is clear and the UE10-30S is de-energized and functioning correctly, the yellow LED on the receiver and the H3 lamp flash. The system is ready to be switched on. The system is enabled by pressing S1 (button is pressed and released). The OSSD1 and OSSD2 outputs are live, and the UE10-30S is switched on. Upon the interruption of one of the light beams, the UE10-30S is deactivated by the OSSD1 and OSSD2 outputs.

Possible faults

Cross-circuits and short-circuits of the OSSDs are detected and lead to the inhibited state (lock-out). The incorrect functioning of the UE10-30S will be detected, but will not result in the loss of the shutdown function. Jamming of the S1 button prevents the output circuit from enabling. H2 lamp is illuminated if there is contamination (adjustable parameter).

Comments









¹⁾ Output circuits: These contacts are to be connected to the controller such that, with the output circuit open, the dangerous state is disabled. For categories 4 and 3, this integration must be dual-channel (x/y paths). Single-channel integration in the control (z path) is only possible with a single-channel control and taking the risk analysis into account.





²⁾ PELV as required in EN 60204-1 / 6.4

The related operating instructions for the integrated devices must be observed.




Recommended accessories

Other models and accessories → www.sick.com/C4000_Fusion

| | Brief description | Type | part no. |
|---|---|---------------|----------|
| device protection and care | | | |
|  | <ul style="list-style-type: none"> Product family: Cleaning agents Description: Cloth for cleaning optical surfaces | Lens cloth | 4003353 |
| Mounting systems | | | |
|  | <ul style="list-style-type: none"> Description: Floor stands for the horizontal mounting of the safety light curtains C4000 Fusion, Entry/Exit, Palletizer, as well as the multi-beam safety light curtain M4000 Area, for mounting heights of between 70 mm and 780 mm. Packing unit: 2 pieces Items supplied: Includes mounting bracket | BEF-3HHOCAST2 | 2041661 |
|  | <ul style="list-style-type: none"> Description: Reinforced stainless steel bracket, rotatable Material: Stainless steel Details: Stainless steel 1.4350, stainless steel 1.4301 Packing unit: 4 pieces | BEF-2SMMVAES4 | 2026850 |
|  | <ul style="list-style-type: none"> Description: Omega bracket, rotatable, fixable with only one screw, for mounting on the swivel mount Packing unit: 4 pieces Suitable for: All protective field heights in large housing | BEF-2SMMEAAL4 | 2044847 |
|  | <ul style="list-style-type: none"> Description: Mounting kit 6, side bracket, rotatable Material: Zinc diecast Details: Zinc diecast Packing unit: 4 pieces Suitable for: All protective field heights | BEF-1SHABAZN4 | 2019506 |
|  | <ul style="list-style-type: none"> Description: Mounting kit 2, rotatable, swivel mount Material: Plastic Details: Polyamide PA6 Packing unit: 4 pieces Suitable for: All protective field heights | BEF-2SMMEAKU4 | 2019659 |
|  | <ul style="list-style-type: none"> Description: Mounting kit 1, mounting bracket, rigid, L-shaped, including fixing screws and washers Packing unit: 4 pieces Suitable for: All protective field heights | BEF-3WNGBAST4 | 7021352 |
|  | <ul style="list-style-type: none"> Description: Reinforced stainless steel bracket, rotatable Material: Stainless steel Details: Stainless steel 1.4350, stainless steel 1.4301 Packing unit: 2 pieces | BEF-2SMMVAES2 | 2048373 |

| | Brief description | Type | part no. |
|---|--|---------------------------|----------|
| Commissioning aids and test equipment | | | |
|  | <ul style="list-style-type: none"> Product: Alignment aids Dimensions (W x H x L): 19 mm 67.3 mm 66.9 mm Description: Laser alignment aid for various sensors, laser class 2 (IEC 60825). Do not look into the beam! | AR60 | 1015741 |
|  | <ul style="list-style-type: none"> Product: Alignment aids Description: Adapter AR60 for housing cross-section 48 mm x 40 mm | AR60 adapter, 48x40 | 4032461 |
|  | <ul style="list-style-type: none"> Product: Alignment aids Description: Adapter AR60 for housing cross-section 48 mm x 40 mm in PU3H device column | AR60 adapter, 48x40, PU3H | 4056731 |
|  | <ul style="list-style-type: none"> Product: Test equipment Description: 20 mm diameter, 250 mm length | Test rod 20 mm | 2022600 |

| | Brief description | Type | part no. |
|---|--|--------------------|----------|
| connectors and cables | | | |
|  | <ul style="list-style-type: none"> Description: Unshielded Connection type head A: Male connector, M26, 12-pin, angled, A-coded Connection systems: Crimp contacts Permitted cross-section: 0.5 mm² ... 1.5 mm² Note: 12 crimping contacts enclosed | STE-0612W000GA3KMC | 6021192 |
|  | <ul style="list-style-type: none"> Description: Unshielded Connection type head A: Male connector, M26, 12-pin, straight, A-coded Connection systems: Crimp contacts Permitted cross-section: 0.5 mm² ... 1.5 mm² Note: 12 crimping contacts enclosed | STE-0612G000GA3KMC | 6021191 |
|  | <ul style="list-style-type: none"> Description: Sensor/actuator cable, unshielded Connection type head A: Female connector, M26, 12-pin, straight Connection type head B: Flying leads Signal type: Sensor/actuator cable Cable: 5 m, 12-wire, PVC Connection systems: Flying leads Application: Uncontaminated zones, Zones with chemicals | DOL-0612G05M075KMC | 2022545 |
|  | <ul style="list-style-type: none"> Description: Sensor/actuator cable, unshielded Connection type head A: Female connector, M26, 12-pin, straight Connection type head B: Flying leads Signal type: Sensor/actuator cable Cable: 10 m, 12-wire, PVC Connection systems: Flying leads Application: Uncontaminated zones, Zones with chemicals | DOL-0612G10M075KMC | 2022547 |
|  | <ul style="list-style-type: none"> Description: Sensor/actuator cable, unshielded Connection type head A: Female connector, M26, 12-pin, straight Connection type head B: Flying leads Signal type: Sensor/actuator cable Cable: 15 m, 12-wire, PVC Connection systems: Flying leads Application: Uncontaminated zones, Zones with chemicals | DOL-0612G15M075KMC | 2022548 |
|  | <ul style="list-style-type: none"> Description: Sensor/actuator cable, unshielded Connection type head A: Female connector, M26, 12-pin, straight Connection type head B: Flying leads Signal type: Sensor/actuator cable Cable: 20 m, 12-wire, PVC Connection systems: Flying leads Application: Uncontaminated zones, Zones with chemicals | DOL-0612G20M075KMC | 2022549 |
|  | <ul style="list-style-type: none"> Description: Unshielded Connection type head A: Male connector, M8, 4-pin, straight Connection type head B: Male connector, USB-A, straight Cable: 10 m, 4-wire, PVC | DSL-8U04G10M025KMC | 6034575 |
|  | <ul style="list-style-type: none"> Description: Unshielded Connection type head A: Female connector, M26, 12-pin, straight, A-coded Connection systems: Crimp contacts Permitted cross-section: 0.5 mm² ... 1.5 mm² Note: 12 crimping contacts enclosed | DOS-0612G000GA3KMC | 6020757 |
|  | <ul style="list-style-type: none"> Description: Unshielded Connection type head A: Female connector, M26, 12-pin, angled, A-coded Connection systems: Crimp contacts Permitted cross-section: 0.5 mm² ... 1.5 mm² Note: 12 crimping contacts enclosed | DOS-0612W000GA3KMC | 6020758 |
|  | <ul style="list-style-type: none"> Description: Sensor/actuator cable, unshielded Connection type head A: Female connector, M26, 12-pin, straight Connection type head B: Flying leads Signal type: Sensor/actuator cable Cable: 50 m, PVC Connection systems: Flying leads Application: Uncontaminated zones, Zones with chemicals | DOL-0612G50M075KMC | 2033548 |
|  | <ul style="list-style-type: none"> Description: Unshielded Connection type head A: Male connector, M8, 4-pin, straight Connection type head B: Male connector, USB-A, straight | DSL-8U04G02M025KMC | 6034574 |

| | Brief description | Type | part no. |
|---|--|--------------------|----------|
|  | <ul style="list-style-type: none"> • Cable: 2 m, 4-wire, PVC • Description: Unshielded • Connection type head A: Female connector, M26, 12-pin, straight • Connection type head B: Flying leads • Cable: 5 m, PVC • Connection systems: Flying leads • Note: Without EFI: Pin 9 and 10 not connected • Application: Uncontaminated zones, Zones with chemicals | DOL-0610G05M075KM: | 2046888 |
|  | <ul style="list-style-type: none"> • Description: Unshielded • Connection type head A: Female connector, M26, 12-pin, straight • Connection type head B: Flying leads • Cable: 10 m, PVC • Connection systems: Flying leads • Note: Without EFI: Pin 9 and 10 not connected • Application: Uncontaminated zones, Zones with chemicals | DOL-0610G10M075KM: | 2046889 |
| system plugs and extension modules | | | |
|  | <ul style="list-style-type: none"> • Applications: Functionality upgrade • Compatible sensor types: C4000 safety light curtains | UE402 | 1023577 |

SICK AT A GLANCE

SICK is one of the leading manufacturers of intelligent sensors and sensor solutions for industrial applications. A unique range of products and services creates the perfect basis for controlling processes securely and efficiently, protecting individuals from accidents and preventing damage to the environment.

We have extensive experience in a wide range of industries and understand their processes and requirements. With intelligent sensors, we can deliver exactly what our customers need. In application centers in Europe, Asia and North America, system solutions are tested and optimized in accordance with customer specifications. All this makes us a reliable supplier and development partner.

Comprehensive services complete our offering: SICK LifeTime Services provide support throughout the machine life cycle and ensure safety and productivity.

For us, that is “Sensor Intelligence.”

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