

SICK Sensor Intelligence.

**SAFETY LIGHT CURTAINS** 

SAFETY LIGHT CURTAINS



## Ordering information

Resolution	Scanning range	Protective field height	System part	Туре	Part no.
20 mm	21 m	1,800 mm	Receiver	C40E- 1802FY010	1043199

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	1,800 mm
Synchronization	Optical synchronization
Safety-related parameters	
Туре	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)
$\ensuremath{PFH}_{\ensuremath{D}}$ (mean probability of a dangerous failure per hour)	15 * 10 <sup>-9</sup> (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	1	
Restart interlock	1	Internal
External device monitoring (EDM)	1	Deactivated
Beam coding	1	Code 1
Configurable scanning range	1	
Reduced resolution	J	Deactivated
Fixed blanking	✓ <sup>1)</sup>	
Dynamic blanking for object pattern recog- nition	1	

 $^{1)}$  Only in combination with a Flexi Soft safety controller via EFI.

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	Functions	Delivery status
Self-teaching dynamic blanking for goods detection	1	
Self-teaching dynamic blanking for pallet detection	1	
Multiple sampling	1	2x evaluation
Direction monitoring	✓	
Sensor gap monitoring	J	
Sequence monitoring	1	
Object entry monitoring	1	
Detection of geometrically even objects	1	
Safe SICK device communication via EFI	✓	

 $^{\mbox{\ 1)}}$  Only in combination with a Flexi Soft safety controller via EFI.

## Interfaces

System connection	Hirschmann male connector M26, 12-pin
Conductor cross section	0.75 mm <sup>2</sup>
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
Electrical data	
Protection class	III (IEC 61140)
Supply voltage V <sub>S</sub>	24 V DC (19.2 V 28.8 V) <sup>1)</sup>
Residual ripple	$\leq 10 \%^{2}$
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 <sub>S</sub> – 2.25 V DC V <sub>S</sub> )
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 Vs.

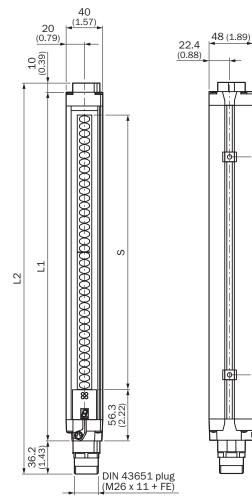
## Mechanical data

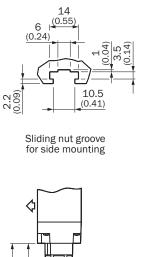
Dimensions	See dimensional drawing
Housing cross-section	48 mm x 40 mm
Housing material	Aluminum extruded profile
Weight	3,710 g
Ambient data	
Enclosure rating	IP65 (EN 60529)
Ambient operating temperature	0 °C +55 °C
Storage temperature	-25 °C +70 °C

# C40E-1802FY010 | C4000 Fusion SAFETY LIGHT CURTAINS

Vibration resistance5 g, 10 Hz 55 Hz (EN 60068-2-6)Shock resistance10 g, 16 ms (EN 60068-2-27)Other information850 nm		
Shock resistanceD g, 16 ms (EN 60068-2:27)Other informationWave length850 nmClassificationsECLASS 5.0272704ECLASS 5.1.4272704ECLASS 6.0272704ECLASS 6.1272704ECLASS 7.0272704ECLASS 8.1272704ECLASS 8.1272704ECLASS 9.0272704ECLASS 9.0272704ETIM 5.0E002549ETIM 7.0E002549	Air humidity	15 % 95 %, Non-condensing
Ava length     So nm     So nm     Classifications     EcLASS 5.0     EcLASS 5.1.4     Classification     EcLASS 6.2     Class 6.2     Class 7.0     Class 7.0     Class 8.1     Class 8.1     Class 9.0     Class 9.0     Class 1.0     C	Vibration resistance	5 g, 10 Hz 55 Hz (EN 60068-2-6)
Wave length850 nmClassificationsEcLass 5.0272704EcLass 5.1.4272704EcLass 6.0272704EcLass 6.2272704EcLass 7.0272704EcLass 8.0272704EcLass 8.1272704EcLass 9.0272704EcLass 1.0272704EcLass 1.0<	Shock resistance	10 g, 16 ms (EN 60068-2-27)
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	ETIM 8.0	EC002549
<b>UNSPSC 16.0901</b> 46171620	UNSPSC 16.0901	46171620

## Dimensional drawing (Dimensions in mm (inch))





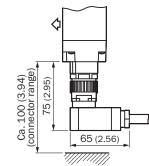
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74 (2.91)

Ca. 140 (5.51) (connector range) 100 (3.94)



Cable sockets M26 x 11 + FE with crimp contacts

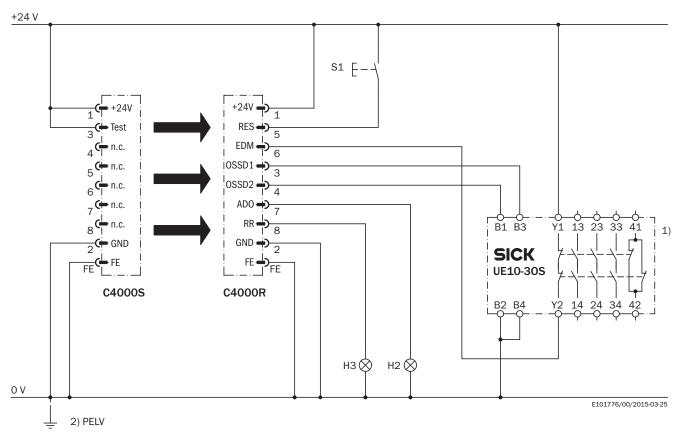
Illustration sender (receiver mirror image)

	L1	L2	Α
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

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### **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

<sup>1)</sup> 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.

## $^{\rm 2)}$ PELV as required in EN 60204-1 / 6.4

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

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## **Recommended accessories**

Other models and accessories → www.sick.com/C4000\_Fusion

	Brief description	Туре	Part no.		
Alignment aids					
Ŵ	Laser alignment aid for various sensors, laser class 2 (IEC 60825). Do not look into the beam!, 19 mm x 67.3 mm x 66.9 mm	AR60	1015741		
	Adapter AR60 for housing cross-section 48 mm x 40 mm	AR60 adapter, 48x40	4032461		
	Adapter AR60 for housing cross-section 48 mm x 40 mm in PU3H device column	AR60 adapter, 48x40, PU3H	4056731		
Optics cloths					
SICK	Cloth for cleaning optical surfaces	Lens cloth	4003353		
Test and mon	itoring tools				
	20 mm diameter, 250 mm length	Test rod 20 mm	2022600		
Mounting brac	ckets and plates				
	4 pieces, Mounting kit 1, mounting bracket, rigid, L-shaped, including fixing screws and washers	BEF-3WNGBAST4	7021352		
Other mountin	ng accessories				
	2 pieces, Floor stands for the horizontal mounting of the safety light curtains C4000 Fu- sion, Entry/Exit, Palletizer, as well as the multi-beam safety light curtain M4000 Area, for mounting heights of between 70 mm and 780 mm., Includes mounting bracket	BEF-3HHOCAST2	2041661		
Terminal and	alignment brackets				
	4 pieces, Mounting kit 6, side bracket, rotatable, zinc diecast	BEF-1SHABAZN4	2019506		
Q	4 pieces, Omega bracket, rotatable, fixable with only one screw, for mounting on the swivel mount	BEF-2SMMEAAL4	2044847		
	4 pieces, Mounting kit 2, rotatable, swivel mount, Polyamide PA6	BEF-2SMMEAKU4	2019659		
et an	2 pieces, Reinforced stainless steel bracket, rotatable, stainless steel 1.4350, stainless steel 1.4301	BEF-2SMMVAES2	2048373		
Ø	4 pieces, Reinforced stainless steel bracket, rotatable, stainless steel 1.4350, stainless steel 1.4301	BEF-2SMMVAES4	2026850		
Others					
	<ul> <li>Connection type head A: Male connector, M26, 12-pin, angled, A-coded</li> <li>Description: Unshielded</li> <li>Connection systems: Crimp contacts</li> <li>Permitted cross-section: 0.5 mm<sup>2</sup> 1.5 mm<sup>2</sup></li> <li>Note: 12 crimping contacts enclosed</li> </ul>	STE- 0612W000GA3KM0	6021192		

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Brief description	Туре	Part no.
<ul> <li>Connection type head A: Male connector, M26, 12-pin, straight, A-coded</li> <li>Description: Unshielded</li> <li>Connection systems: Crimp contacts</li> <li>Permitted cross-section: 0.5 mm<sup>2</sup> 1.5 mm<sup>2</sup></li> <li>Note: 12 crimping contacts enclosed</li> </ul>	STE- 0612G000GA3KM0	6021191
<ul> <li>Connection type head A: Female connector, M26, 12-pin, straight</li> <li>Connection type head B: Flying leads</li> <li>Signal type: Sensor/actuator cable</li> <li>Cable: 5 m, 12-wire, PVC</li> <li>Description: Sensor/actuator cable, unshielded</li> <li>Connection systems: Flying leads</li> </ul>	DOL- 0612G05M075KM0	2022545
<ul> <li>Connection type head A: Female connector, M26, 12-pin, straight</li> <li>Connection type head B: Flying leads</li> <li>Signal type: Sensor/actuator cable</li> <li>Cable: 10 m, 12-wire, PVC</li> <li>Description: Sensor/actuator cable, unshielded</li> <li>Connection systems: Flying leads</li> </ul>	DOL- 0612G10M075KM0	2022547
<ul> <li>Connection type head A: Female connector, M26, 12-pin, straight</li> <li>Connection type head B: Flying leads</li> <li>Signal type: Sensor/actuator cable</li> <li>Cable: 15 m, 12-wire, PVC</li> <li>Description: Sensor/actuator cable, unshielded</li> <li>Connection systems: Flying leads</li> </ul>	DOL- 0612G15M075KM0	2022548
<ul> <li>Connection type head A: Female connector, M26, 12-pin, straight</li> <li>Connection type head B: Flying leads</li> <li>Signal type: Sensor/actuator cable</li> <li>Cable: 20 m, 12-wire, PVC</li> <li>Description: Sensor/actuator cable, unshielded</li> <li>Connection systems: Flying leads</li> </ul>	DOL- 0612G20M075KM0	2022549
<ul> <li>Connection type head A: Male connector, M8, 4-pin, straight</li> <li>Connection type head B: Male connector, USB-A, straight</li> <li>Cable: 10 m, 4-wire, PVC</li> <li>Description: Unshielded, Configuration cable with integrated RS-232 transducer on USB for connecting a sensor configuration connection (M8, 4-pin) to the USB interface of a PC</li> </ul>	DSL- 8U04G10M025KM1	6034575
<ul> <li>Connection type head A: Female connector, M26, 12-pin, straight, A-coded</li> <li>Description: Unshielded</li> <li>Connection systems: Crimp contacts</li> <li>Permitted cross-section: 0.5 mm<sup>2</sup> 1.5 mm<sup>2</sup></li> <li>Note: 12 crimping contacts enclosed</li> </ul>	DOS- 0612G000GA3KM0	6020757
<ul> <li>Connection type head A: Female connector, M26, 12-pin, angled, A-coded</li> <li>Description: Unshielded</li> <li>Connection systems: Crimp contacts</li> <li>Permitted cross-section: 0.5 mm<sup>2</sup> 1.5 mm<sup>2</sup></li> <li>Note: 12 crimping contacts enclosed</li> </ul>	DOS- 0612W000GA3KM0	6020758
<ul> <li>Connection type head A: Female connector, M26, 12-pin, straight</li> <li>Connection type head B: Flying leads</li> <li>Signal type: Sensor/actuator cable</li> <li>Cable: 50 m, PVC</li> <li>Description: Sensor/actuator cable, unshielded</li> <li>Connection systems: Flying leads</li> </ul>	DOL- 0612G50M075KM0	2033548
<ul> <li>Connection type head A: Male connector, M8, 4-pin, straight</li> <li>Connection type head B: Male connector, USB-A, straight</li> <li>Cable: 2 m, 4-wire, PVC</li> <li>Description: Unshielded, Configuration cable with integrated RS-232 transducer on USB for connecting a sensor configuration connection (M8, 4-pin) to the USB interface of a PC</li> </ul>	DSL- 8U04G02M025KM1	6034574

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	Brief description	Туре	Part no.
	<ul> <li>Connection type head A: Female connector, M26, 12-pin, straight</li> <li>Connection type head B: Flying leads</li> <li>Cable: 5 m, PVC</li> <li>Description: Unshielded</li> <li>Connection systems: Flying leads</li> <li>Note: Without EFI: Pin 9 and 10 not connected</li> </ul>	DOL- 0610G05M075KM1	2046888
	<ul> <li>Connection type head A: Female connector, M26, 12-pin, straight</li> <li>Connection type head B: Flying leads</li> <li>Cable: 10 m, PVC</li> <li>Description: Unshielded</li> <li>Connection systems: Flying leads</li> <li>Note: Without EFI: Pin 9 and 10 not connected</li> </ul>	DOL- 0610G10M075KM1	2046889
Switching am	plifiers		
	<ul> <li>Applications: Functionality upgrade</li> <li>Compatible sensor types: C4000 safety light curtains</li> <li>Description: Upgrades the C4000 Standard, Advanced, Palletizer, Entry/Exit, and Fusion to include the functions defined in the technical specifications, e.g., bypass, operating mode switching, and PSDI in the case of C4000 Standard, Advanced.</li> </ul>	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."

# WORLDWIDE PRESENCE:

Contacts and other locations -www.sick.com



Online data sheet

