

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	1,650 mm	Receiver	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 synchronisation
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)
$\ensuremath{PFH}\xspace_{\ensuremath{D}\xspace}$ (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	1	
Restart interlock	1	Internal
External device monitoring (EDM)	✓	Deactivated
Beam coding	✓	Code 1
Configurable scanning range	✓	
Reduced resolution	✓	Deactivated
Fixed blanking	✓ ¹⁾	
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 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
Electrical data	
Protection class	III (IEC 61140)
Supply voltage V _S	24 V DC (19.2 V 28.8 V) ¹⁾
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 _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 Vs.

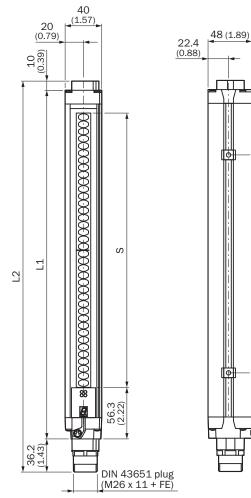
Mechanical data

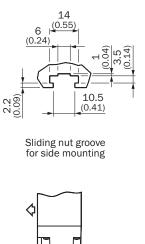
Dimensions	See dimensional drawing
Housing cross-section	48 mm x 40 mm
Housing material	Aluminum extruded profile
Weight	3,420 g
Ambient data	
Enclosure rating	IP65 (EN 60529)
Ambient operating temperature	0 °C +55 °C
Storage temperature	-25 °C +70 °C

C40E-1602FY010 | 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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Dimensional drawing (Dimensions in mm (inch))





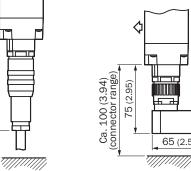
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74 (2.91)

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



Cable sockets M26 x 11 + FE with crimp contacts

65 (2.56)

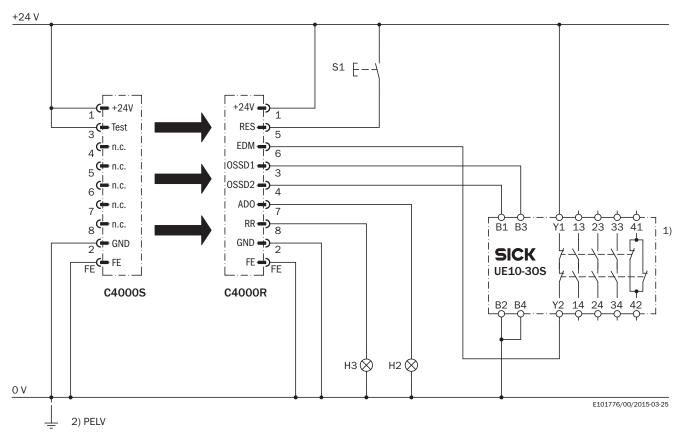
Illustration sender (receiver mirror image)

	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).

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.

$^{\rm 2)}$ 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 aid	ls		
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 bra	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		
ſ	2 pieces, 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., Includes mounting bracket	BEF-3HHOCAST2	2041661
Plug connecto	ors and cables		
	 Connection type head A: Female connector, M26, 12-pin, straight Description: Unshielded Connection systems: Crimp contacts Permitted cross-section: 0.5 mm² 1.5 mm² Note: 12 crimping contacts enclosed 	DOS-0612G000GA3KM0	6020757
	 Connection type head A: Female connector, M26, 12-pin, angled Description: Unshielded Connection systems: Crimp contacts Permitted cross-section: 0.5 mm² 1.5 mm² Note: 12 crimping contacts enclosed 	DOS-0612W000GA3KM0	6020758
	 Connection type head A: Male connector, M26, 12-pin, straight Description: Unshielded Connection systems: Crimp contacts Permitted cross-section: 0.5 mm² 1.5 mm² Note: 12 crimping contacts enclosed 	STE-0612G000GA3KM0	6021191
	 Connection type head A: Male connector, M26, 12-pin, angled Description: Unshielded Connection systems: Crimp contacts Permitted cross-section: 0.5 mm² 1.5 mm² Note: 12 crimping contacts enclosed 	STE-0612W000GA3KM0	6021192

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	Brief description	Туре	Part no.
Terminal and	l 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
e	4 pieces, Reinforced stainless steel bracket, rotatable, stainless steel 1.4350, stainless steel 1.4301	BEF-2SMMVAES4	2026850
Others			
	 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 Description: Sensor/actuator cable, unshielded Connection systems: Flying leads 	DOL-0612G05M075KM0	2022545
	 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 Description: Sensor/actuator cable, unshielded Connection systems: Flying leads 	DOL-0612G10M075KM0	2022547
	 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 Description: Sensor/actuator cable, unshielded Connection systems: Flying leads 	DOL-0612G15M075KM0	2022548
	 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 Description: Sensor/actuator cable, unshielded Connection systems: Flying leads 	DOL-0612G20M075KM0	2022549
	 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 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 	DSL-8U04G10M025KM1	6034575
16	 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 Description: Sensor/actuator cable, unshielded Connection systems: Flying leads 	DOL-0612G50M075KM0	2033548
and to	 Connection type head A: Male connector, M8, 4-pin, straight Connection type head B: Male connector, USB-A, straight Cable: 2 m, 4-wire, PVC 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 	DSL-8U04G02M025KM1	6034574

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	Brief description	Туре	Part no.		
	 Connection type head A: Female connector, M26, 12-pin, straight Connection type head B: Flying leads Cable: 5 m, PVC Description: Unshielded Connection systems: Flying leads Note: Without EFI: Pin 9 and 10 not connected 	DOL-0610G05M075KM1	2046888		
	 Connection type head A: Female connector, M26, 12-pin, straight Connection type head B: Flying leads Cable: 10 m, PVC Description: Unshielded Connection systems: Flying leads Note: Without EFI: Pin 9 and 10 not connected 	DOL-0610G10M075KM1	2046889		
Switching am	Switching amplifiers				
	 Applications: Functionality upgrade Compatible sensor types: C4000 safety light curtains 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. 	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

