Product data sheet

M2C-EB04300A10

deTem

MULTIPLE LIGHT BEAM SAFETY DEVICES

SICK
Sensor Intelligence.

Ordering information

Low scanning range

Number of beams	Beam separation	Scanning range	System part	Type	Part no.
4	300 mm	15.5 m	Receiver	M2C-EB04300A10	1089989

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

Detailed technical data

Features

Application	Areas with high pressure cleaning (hygiene, food)
Functional principle	Sender/receiver system
System part	Receiver
Scanning range category	Low scanning range
Scanning range	15.5 m
Dimension of the light path	
Minimum	0.5 m ... 12.5 m
Typical	0.5 m ... 15.5 m
Number of beams	4
Beam separation	300 mm
Response time	20 ms
Synchronization	Optical synchronisation
Items supplied	Receiver in IP69K protective housing with connecting cable, 15 m Safety instruction Mounting instructions Operating instructions for download

Safety-related parameters

Type	Type 2 (IEC 61496-1)
Safety integrity level	SIL1 (IEC 61508) SILCL1 (IEC 62061)
Category	Category 2 (ISO 13849-1)
Performance level	PL c (ISO 13849-1)
PFH_D (mean probability of a dangerous failure per hour)	3×10^{-9}
T_M (mission time)	20 years (ISO 13849-1)

Safe state in the event of a fault	At least one OSSD is in the OFF state.

Interfaces

System connection	Connecting cable, 15 m, flying lead, 5-wire
Flexi Loop compatible M12 male connector	✓
Length of cable	15 m
Display elements	LEDs
Fieldbus, industrial network	
Integration via Flexi Soft safety controller	CANopen [1] DeviceNet™ EtherCAT® EtherNet/IP™ Modbus TCP PROFIBUS DP PROFINET

[1] For additional information on Flexi Soft -> www.sick.com/Flexi_Soft.

Electrical data

Protection class	III (IEC 61140) [1]
Supply voltage V_S	24 V DC (19.2 V DC ... 28.8 V DC) [2]
Residual ripple	≤ 10 % [3]
Power consumption	≤ 150 mA
Power consumption	≤ 4.32 W (DC)
Output signal switching devices (OSSDs)	2 PNP semiconductors, short-circuit protected, cross-circuit monitored [4]
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	≤ 300 mA

[1] SELV/PELV safety/protective extra-low voltage.

[2] 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.

[3] Within the limits of V_S.

[4] Applies to the voltage range between –30 V and +30 V.

Mechanical data

Dimensions	See dimensional drawing
Housing diameter	50 mm
Material	
Housing	Acrylic glass (PMMA)
End caps	Stainless steel 1.4404
Compensating element (membrane)	PA 6
Cable glands	Stainless steel 1.4404 including silicone seal
Weight	2,300 g (± 50 g)

Ambient data

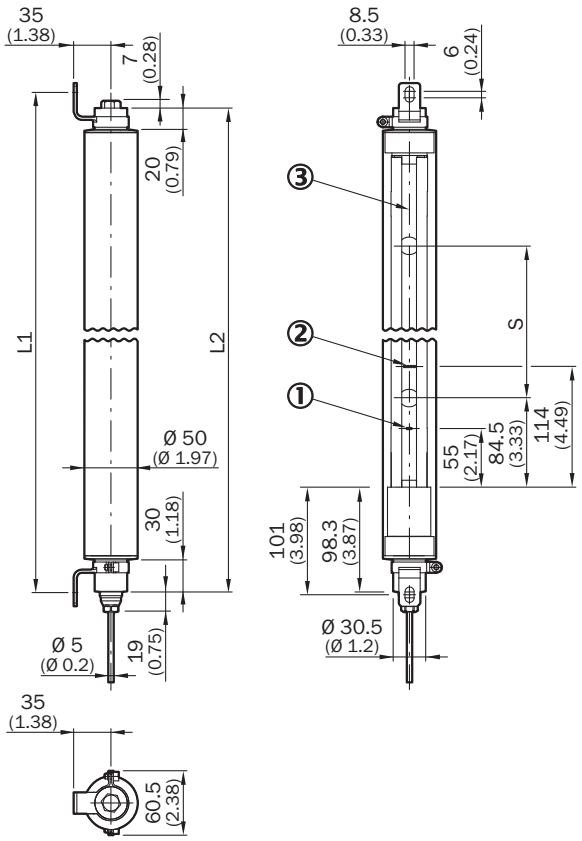
Enclosure rating	IP65 (IEC 60529) IP66 (IEC 60529) IP67 (IEC 60529) IP69K (ISO 20653)
Ambient operating temperature	–30 °C ... +55 °C

Storage temperature	–30 °C ... +70 °C
Air humidity	15 % ... 95 %, Non-condensing
Vibration resistance	5 g, 10 Hz ... 55 Hz (IEC 60068-2-6)
Shock resistance	10 g, 16 ms (IEC 60068-2-27)

Classifications

ECl@ss 5.0	27272703
ECl@ss 5.1.4	27272703
ECl@ss 6.0	27272703
ECl@ss 6.2	27272703
ECl@ss 7.0	27272703
ECl@ss 8.0	27272703
ECl@ss 8.1	27272703
ECl@ss 9.0	27272703
ECl@ss 10.0	27272703
ECl@ss 11.0	27272703
ETIM 5.0	EC001832
ETIM 6.0	EC001832
ETIM 7.0	EC001832
UNSPSC 16.0901	46171620

Dimensional drawing (Dimensions in mm (inch))

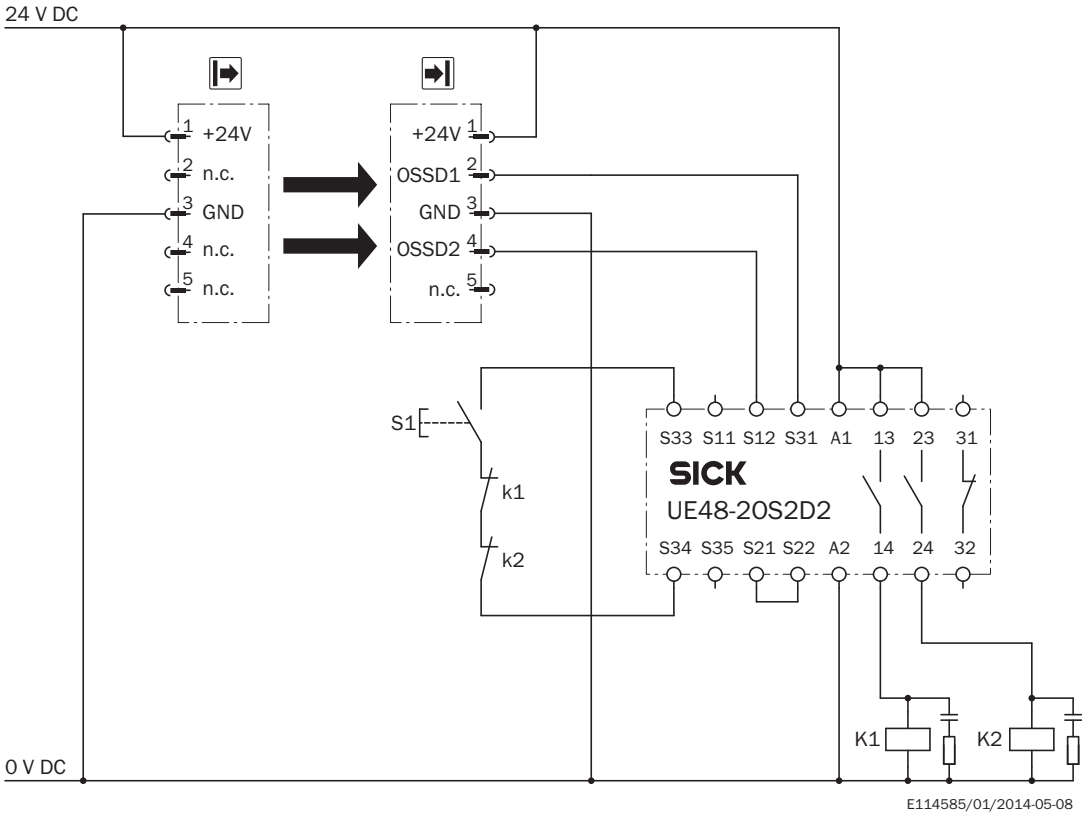


① Operating indicator
② Alignment indicator
③ Optical axis

Number of beams	Beam separation S	L1	L2
2	500	828 (32.60)	813 (32.01)
3	400	1,128 (44.10)	1,113 (43.82)
4	300	1,228 (48.35)	1,213 (47.76)

Connection diagram

deTem2 Core IP69K multiple light beam safety device to UE48-2OS safety relay



Task
Connection of a deTem4 Core IP69K or deTem2 Core IP69K multiple light beam safety device to UE48-2OS.
Operating mode: with restart interlock and external device monitoring.

Function
When the light path is clear, the OSSD1 and OSSD2 outputs are live. The system is ready to switch on if K1 and K2 are de-energized. By pressing S1 (button is pressed and released), the UE48-2OS is energized and its 13 - 14 and 23 - 24 contacts activate K1 and K2. On interruption of one of the light beams, the UE48-2OS is de-energized by the OSSD1 and OSSD2 outputs and K1 and K2 are deactivated.

Fault analysis
OSSD cross-circuits and short-circuits are detected and lead to the inhibited state (lock-out). The incorrect functioning of one of the K1 or K2 contactors will be detected and does not result in the loss of the shutdown function. Jamming of the S1 button will prevent the UE48-2OS from enabling.

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, the 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 by taking the risk analysis into account.

Connection	Color-coded connecting cable	Sender	Receiver
1	Brown	+24 V DC	+24 V DC
2	White	Reserved	OSSD 1
3	Blue	0 V DC	0 V DC
4	Black	Reserved	OSSD 2
5	Gray	-	-

Recommended accessories

Other models and accessories ➜ www.sick.com/deTem

	Brief description	Type	Part no.
Terminal and alignment brackets			
	2 pieces, Stainless steel support bracket, stainless steel 1.4350	BEF-2AAAADES2	2026849
	4 pieces, Stainless steel bracket, rotatable, stainless steel 1.4350, stainless steel 1.4301	BEF-2SMMEAES4	2023708
	4 pieces, Reinforced stainless steel bracket, rotatable, stainless steel 1.4350, stainless steel 1.4301	BEF-2SMMVAES4	2026850

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