



EXS-12D6803B020, EXE-12D6803B020

deTec4 Core Ex

SAFETY LIGHT CURTAINS

SICK
Sensor Intelligence.



Ordering information

System part	Type	Part no.
Sender	EXS-12D6803B020	1068416
Receiver	EXE-12D6803B020	1068415

Included with delivery with every device: 1 system connecting cable with flying leads 30 m in length.

Other models and accessories → www.sick.com/deTec4_Core_Ex



Detailed technical data

Features

System part	Sender/receiver pair in explosion-proof enclosure
Resolution	30 mm
Protective field height	1,500 mm
Scanning range	0 m ... 8 m
Response time	13 ms
Synchronization	Optical synchronisation

Safety-related parameters

Type	Type 4 (IEC 61496)
Safety integrity level	SIL3 (IEC 61508) SILCL3 (EN 62061)
Category	Category 4 (EN ISO 13849)
Performance level	PL e (EN ISO 13849)
PFH_D (mean probability of a dangerous failure per hour)	$3,7 \times 10^{-9}$ (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.

Interfaces

System connection	
Connection type	Male connector M12, 5-pin
Permitted cable length	≤ 50 m
Status display	LEDs
Fieldbus, industrial network	
Integration via Flexi Soft safety controller	CANopen, DeviceNet, EtherCAT, EtherNet/IP, Modbus TCP, PROFIBUS DP, PROFINET ¹⁾

¹⁾ For further information on Flexi Soft, please see sens:Control – safe control solutions product catalog or → www.sick.com/FlexiSoft.

Electrical data

Protection class	III (EN 50178)
Supply voltage V_S	24 V DC (19.2 V DC ... 28.8 V DC)
Ripple	$\leq 10\%$ ¹⁾
Power consumption typical	2.4 W (DC) / 1.2 W (DC) (depending on type)
Safety outputs (OSSD)	
Type of output	2 PNP semiconductors, short-circuit protected, cross-circuit monitored ²⁾
Switching voltage HIGH	24 V DC ($V_S - 2.25$ V DC ... V_S)
Switching voltage LOW	≤ 2 V DC
Switching current	≤ 300 mA

¹⁾ Within the limits of V_S .

²⁾ Applies to the voltage range between -30 V and +30 V.

Mechanical data

Housing cross-section (incl. system connection)	161.8 mm x 142.1 mm
Weight	44.025 kg (± 50 g) 44.015 kg (± 50 g) (depending on type)

Ambient data

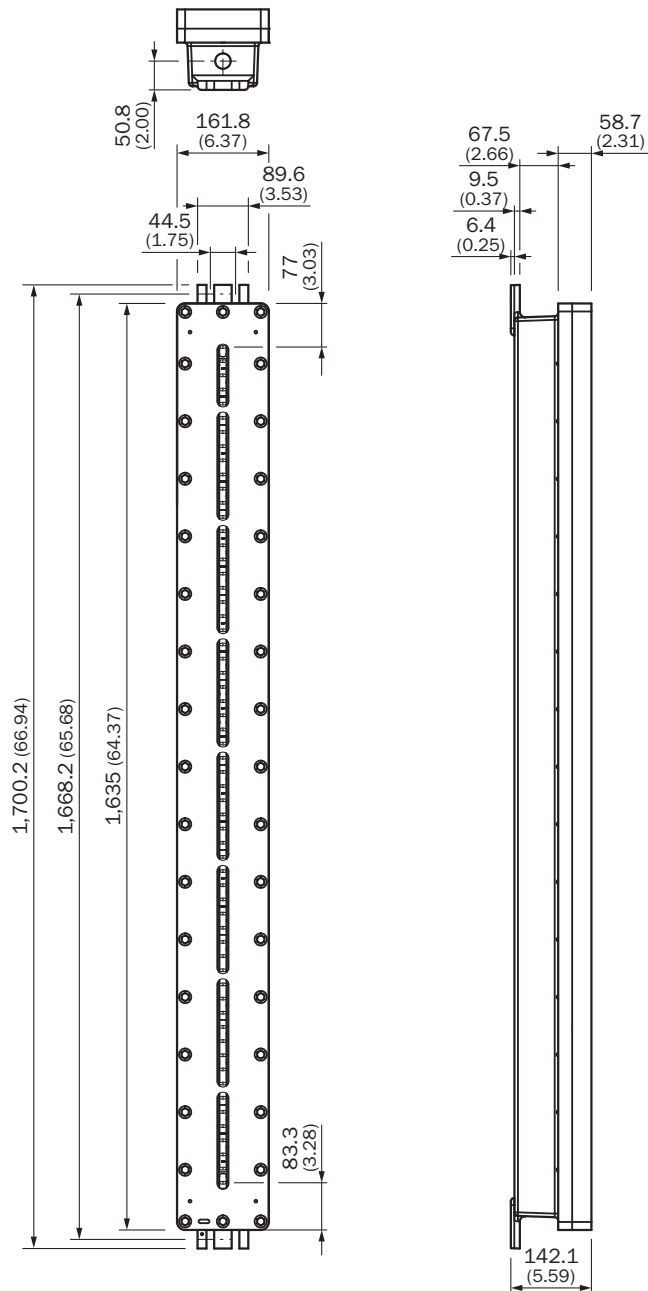
Enclosure rating	IP 66 (EN 60529)
Ambient operating temperature	-20 °C ... +55 °C
Storage temperature	-30 °C ... +70 °C
Air humidity	15 % ... 95 %, Non-condensing
Vibration resistance	5 g, 10 Hz ... 55 Hz (EN 60068-2-6)
Shock resistance	10 g, 16 ms (EN 60068-2-29)

Other information

Wave length	850 nm
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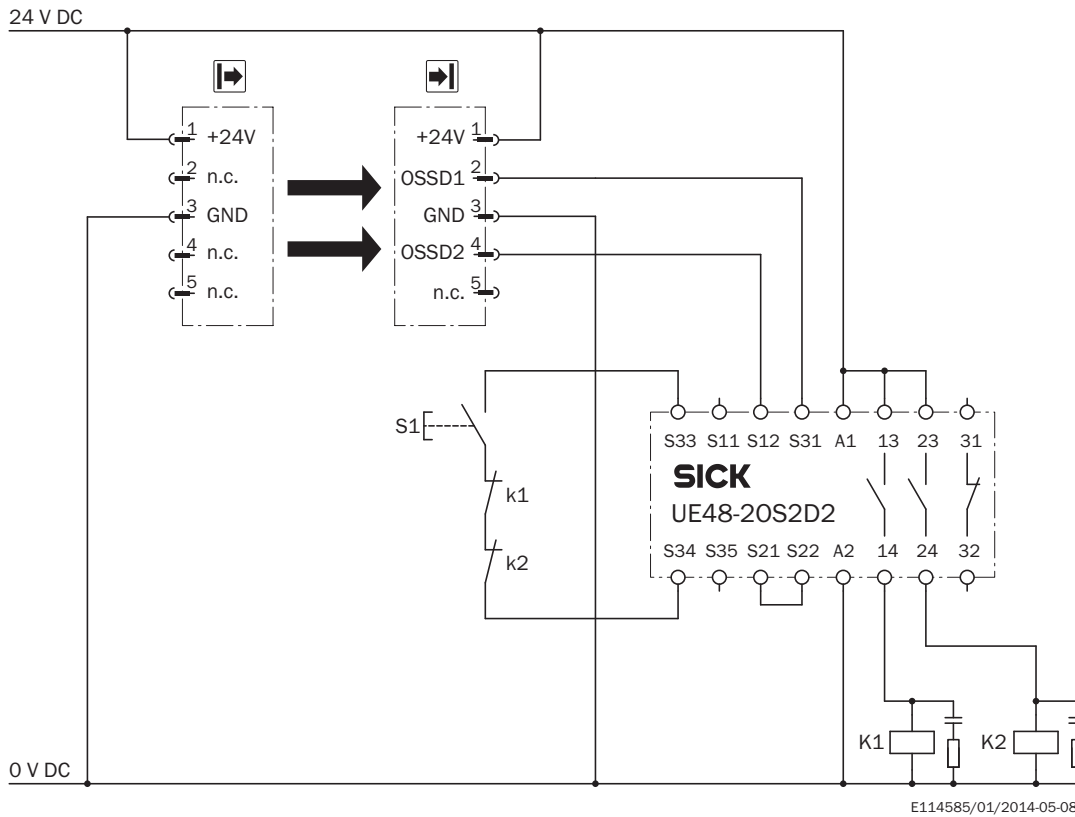
Dimensional drawing (Dimensions in mm (inch))

deTec4 Core Ex, 1,500 mm



Connection diagram

deTec4 Core safety light curtain connected to UE48-20S safety relay



E114585/01/2014-05-08

Task

Connection of a deTec4 Core safety light curtain to UE48-20S.
 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 UE48-20S is energized and its 13 - 14 and 23 - 24 contacts activate K1 and K2. On interruption of one of the light beams, the UE48-20S 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 UE48-20S 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.

Recommended accessories

Other models and accessories → www.sick.com/deTec4_Core_Ex

	Brief description	Type	Part no.
	Terminal and alignment brackets		

	Brief description	Type	Part no.
	2 pieces, alignment bracket for explosion-proof enclosure	BEF-1SHABRST2	2072525
Plug connectors and cables			
	Cable gland for the European market	Cable gland	5329001
Alignment aids			
	Laser alignment aid for various sensors, laser class 2 (IEC 60825). Do not look into the beam!	AR60	1015741
	Adapter AR60 for explosion-proof enclosure	AR60 adapter, Ex	2074849
Test and monitoring tools			
	30 mm diameter	Test rod 30 mm	2022602

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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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