



# M20E-04130A122

M2000 Standard

**MULTIPLE LIGHT BEAM SAFETY DEVICES**

**SICK**  
Sensor Intelligence.



### Ordering information

Type	Part no.
M20E-04130A122	1018191

1.) Concerns installation as a replacement part for previous type 2 device in machine: Regarding Machinery Directive 2006/42/EC, Article 1, Paragraph (2a) this type 2 device may only be used as a replacement part for identical PL d / SIL2 devices within the EU if the machine was put into circulation before 2015-05-10. Keep this note with your machine documentation. If the machine is sold on, this note and the information it contains must be passed on to every subsequent buyer. 2.) Concerns installation on new machines: Due to the amendment to the EN/IEC 61496-1 standard, this type 2 device may only be installed on new machines up to PL c / SIL1 as of 2015-05-10.

Other models and accessories → [www.sick.com/M2000\\_Standard](http://www.sick.com/M2000_Standard)



### Detailed technical data

#### Features

<b>Scanning range</b>	0 m ... 25 m, configurable
<b>Low scanning range</b>	0 m ... 6 m
<b>Great scanning range</b>	2 m ... 25 m
<b>Number of beams</b>	4
<b>Beam separation or resolution</b>	300 mm
<b>Response time</b>	8 ms
<b>Synchronization</b>	Optical synchronisation

#### Safety-related parameters

<b>Type</b>	Type 2 (IEC 61496-1)
<b>Safety integrity level</b>	SIL1 (IEC 61508) SILCL1 (EN 62061)
<b>Category</b>	Category 2 (EN ISO 13849)
<b>Test rate (internal test)</b>	13 /s (EN ISO 13849) <sup>1)</sup>
<b>Maximum demand rate</b>	≤ 8 min <sup>-1</sup> (EN ISO 13849) <sup>2)</sup>
<b>Performance level</b>	PL c (EN ISO 13849)
<b>PFH<sub>D</sub> (mean probability of a dangerous failure per hour)</b>	6.6 x 10 <sup>-9</sup> (EN ISO 13849)
<b>T<sub>M</sub> (mission time)</b>	20 years (EN ISO 13849)
<b>Safe state in the event of a fault</b>	At least one OSSD is in the OFF state.

<sup>1)</sup> Internal test. The test rate may not be exceeded if an external test is performed.

<sup>2)</sup> Between two requirements on a safety-related response of the device, at least 100 internal or external tests must be carried out.

#### Functions

	Functions	Delivery status
<b>External device monitoring (EDM)</b>	✓	
<b>Beam coding</b>	✓	Uncoded
<b>Configurable scanning range</b>	✓	

## Interfaces

<b>System connection</b>	
Connection type	Male connector M12, 8-pin
Permitted cable length	≤ 15 m <sup>1)</sup>
Permitted cross-section	≥ 0.25 mm <sup>2</sup>
<b>Configuration method</b>	Hard wired
<b>Display elements</b>	LEDs 7-segment display
<b>Fieldbus, industrial network</b>	
Integration via Flexi Soft safety controller	CANopen, DeviceNet™, EtherCAT®, EtherNet/IP™, Modbus TCP, PROFIBUS DP, PROFINET <sup>2)</sup>

<sup>1)</sup> Depending on load, power supply and wire cross-section. The technical specifications must be observed.

<sup>2)</sup> For additional information on Flexi Soft -> [www.sick.com/Flexi\\_Soft](http://www.sick.com/Flexi_Soft).

## Electrical data

<b>Protection class</b>	III (IEC 61140)
<b>Supply voltage V<sub>S</sub></b>	24 V DC (19.2 V DC ... 28.8 V DC) <sup>1)</sup>
<b>Power consumption</b>	≤ 5 W (DC)
<b>Output signal switching devices (OSSDs)</b>	
Type of output	2 PNP semiconductors, short-circuit protected, cross-circuit monitored <sup>2)</sup>
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	≤ 1 V DC
Current-carrying capacity per OSSD	≤ 500 mA

<sup>1)</sup> 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.

<sup>2)</sup> Applies to the voltage range between -30 V and +30 V.

## Mechanical data

<b>Housing cross-section</b>	48 mm x 40 mm
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## Ambient data

<b>Enclosure rating</b>	IP65 (EN 60529)
<b>Ambient operating temperature</b>	0 °C ... +55 °C
<b>Storage temperature</b>	-25 °C ... +70 °C
<b>Air humidity</b>	15 % ... 95 %, Non-condensing
<b>Vibration resistance</b>	5 g, 10 Hz ... 55 Hz (IEC 60068-2-6)
<b>Shock resistance</b>	10 g, 16 ms (IEC 60068-2-29)

## Classifications

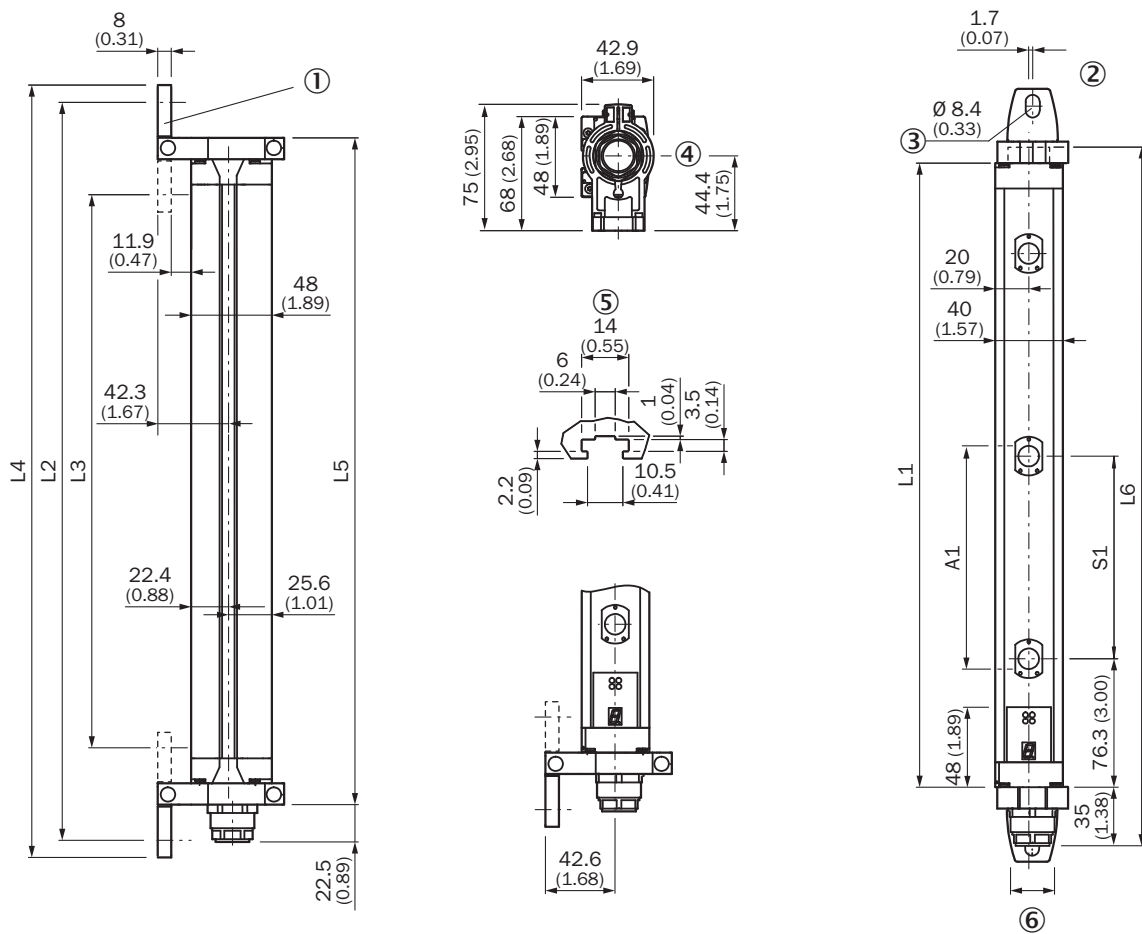
<b>ECl@ss 5.0</b>	27272703
<b>ECl@ss 5.1.4</b>	27272703
<b>ECl@ss 6.0</b>	27272703
<b>ECl@ss 6.2</b>	27272703
<b>ECl@ss 7.0</b>	27272703
<b>ECl@ss 8.0</b>	27272703
<b>ECl@ss 8.1</b>	27272703

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<b>ECl@ss 9.0</b>	27272703
<b>ETIM 5.0</b>	EC001832
<b>ETIM 6.0</b>	EC001832
<b>UNSPSC 16.0901</b>	46171620

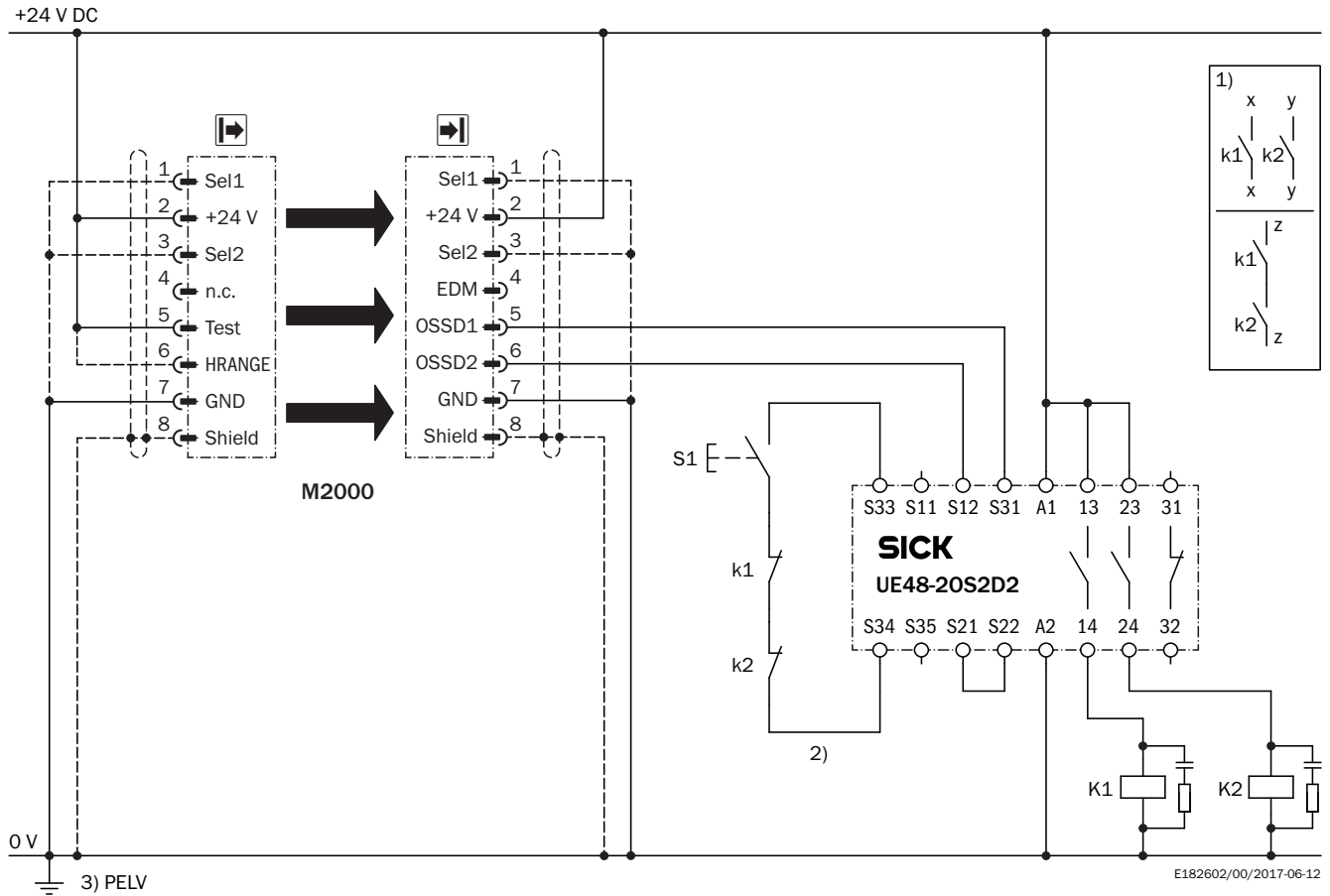
Dimensional drawing (Dimensions in mm (inch))



			L1	L2	L3	L4	L5	L6
2	500	-	630	697	588	718	655	675
3	400	-	931	998	888	1,019	956	976
4	300	-	1,031	1,098	989	1,119	1,056	1,076
6	-	170	916	983	874	1,004	941	960
7	-	170	1,073	1,140	1,031	1,161	1,098	1,118
8	-	116	851	919	809	939	877	896
8	-	170	1,231	1,298	1,189	1,319	1,256	1,275
9	-	170	1,388	1,455	1,346	1,476	1,413	1,433




Connection diagram





M2000 Standard with 8-pin system connection for UE48-20S with restart interlock and external device monitoring



Recommended accessories

Other models and accessories → [www.sick.com/M2000\\_Standard](http://www.sick.com/M2000_Standard)

	Brief description	Type	Part no.
<b>Mounting brackets and plates</b>			
	4 pieces, Mounting kit 1, mounting bracket, rigid, L-shaped, including fixing screws and washers	BEF-3WNGBAST4	7021352
<b>Terminal and alignment brackets</b>			
	4 pieces, Mounting kit 6, side bracket, rotatable, Zinc diecast	BEF-1SHABAZN4	2019506
	4 pieces, Omega bracket, rotatable, fixable with only one screw, for mounting on the swivel mount	BEF-2SMMEAL4	2044847

	Brief description	Type	Part no.
	4 pieces, Mounting kit 2, rotatable, swivel mount, Polyamide PA6	BEF-2SMMEAKU4	2019659
Alignment aids			
	Laser alignment aid for various sensors, laser class 2 (IEC 60825). Do not look into the beam!	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

## 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](http://www.sick.com)