Online data sheet



L41S-21KA1A, L41E-21KA1A

L41

SINGLE-BEAM PHOTOELECTRIC SAFETY SWITCHES

SICK
Sensor Intelligence.



Ordering information

System part	Type	Part no.
Sender	L41S-21KA1A	6034864
Receiver	L41E-21KA1A	6034865

Other models and accessories ➜ www.sick.com/L41

Detailed technical data

Features

Scanning range	0 m ... 10 m
Number of beams	1
Optical axis	Axial

Safety-related parameters

Type	Type 4 (IEC 61496) [1]
Safety integrity level	SIL3 (IEC 61508) [1] SILCL3 (EN 62061) [1]
Category	Category 4 (EN ISO 13849) [1]
Performance level	PL e (EN ISO 13849) [1]
PFH_D (mean probability of a dangerous failure per hour)	8.1×10^{-10} (EN ISO 13849) [1]
T_M (mission time)	20 years (EN ISO 13849)

[1] Only in combination with an appropriate test device, e.g., Flexi Classic or Flexi Soft.

Interfaces

Connection type	Male connector M12, 4-pin, straight
Diagnostic display	LED

Electrical data

Operating data

Protection class	III
Power consumption	≤ 30 mA / ≤ 20 mA (depending on type)

Switching output

Switching current	≤ 70 mA

Mechanical data

Design	Cylindrical
Dimensions (diameter x length)	M18 x 97.7 mm

Housing material	Plastic
Lens material	Glass
Weight	30 g

Ambient data

Enclosure rating	IP67 (EN 60529)
Ambient operating temperature	–40 °C ... +55 °C
Storage temperature	–40 °C ... +75 °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 60068-2-29)

Other information

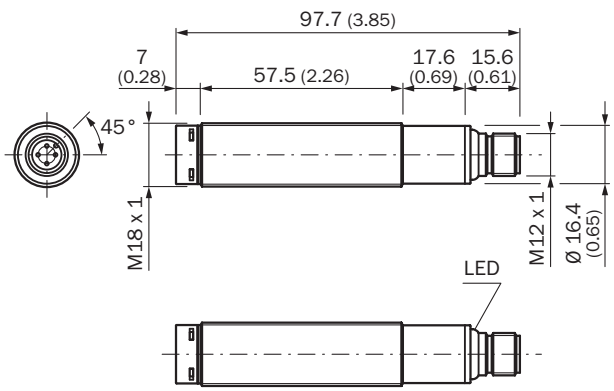
Light source	LED
Type of light	Visible red light
Wave length	660 nm
Aperture angle/receiving angle	± 2.5° / ± 2.5°

Classifications

ECl@ss 5.0	27272701
ECl@ss 5.1.4	27272701
ECl@ss 6.0	27272701
ECl@ss 6.2	27272701
ECl@ss 7.0	27272701
ECl@ss 8.0	27272701
ECl@ss 8.1	27272701
ECl@ss 9.0	27272701
ETIM 5.0	EC001831
ETIM 6.0	EC001831
UNSPSC 16.0901	46171620

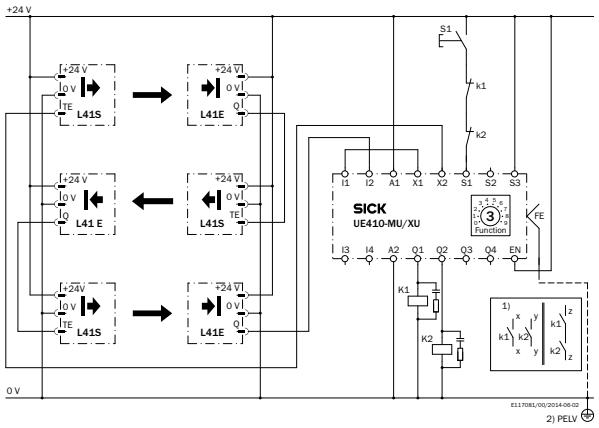
Dimensional drawing (Dimensions in mm (inch))

M18 axial



Connection diagram

3 x L41 (cascaded) on Flexi Classic main unit and extension unit



Task

Integration of three cascaded L4000 (L41) family single-beam photoelectric safety switches with a UE410-MU/XU safety controller into a relay controller/contactor controller.

Operating mode: with restart interlock and with external device monitoring.

Function

When the input conditions are valid, the system is ready for switch-on and waits for an input signal/switch-on signal. The system is enabled by pressing and releasing the S1 button. The related output on the UE410-MU/XU carries power. If the input conditions are no longer met, the related outputs on the UE410-MU/XU shut down.

Possible faults

The incorrect function of the K1 and K2 contactors will be detected. The shutdown function is retained.

On manipulation (e.g., jamming) of the S1 button, the system does not enable the output current circuits.

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.

[2] PELV as required in EN 60204-1 / 6.4

Optical short-circuits must be avoided. Take note of the operating instructions for the integrated devices. The safety-related parameters (safety integrity level and response time) are dependent on the types used.

Recommended accessories

Other models and accessories ➜ www.sick.com/L41

	Brief description	Type	Part no.
Mounting brackets and plates			
	Mounting bracket for M18 sensors, steel, zinc coated, without mounting hardware	BEF-WN-M18	5308446
Plug connectors and cables			
	Head A: female connector, M12, 4-pin, straight Head B: cable Cable: PVC, unshielded, 5 m	DOL-1204-G05M	6009866
	Head A: female connector, M12, 4-pin, angled Head B: cable Cable: PVC, unshielded, 5 m	DOL-1204-W05M	6009867

	Brief description	Type	Part no.
	Head A: female connector, M12, 4-pin, straight Head B: - Cable: unshielded	DOS-1204-G	6007302
	Head A: female connector, M12, 4-pin, angled Head B: - Cable: unshielded	DOS-1204-W	6007303
Alignment aids			
	Laser alignment aid for various sensors, laser class 2 (IEC 60825). Do not look into the beam!	AR60	1015741
	Adapter AR60 for M18 sensors (L41 and L21)	AR60 adapter, M18 sensors	5313533
Deflector mirrors			
	Horizontal deflection, 75 mm x 80 mm reflector surface, Glass, Incl. mounting kit (2 x swivel mount)	PNS75-008	1026647
	Horizontal deflection, 96 mm x 124 mm reflector surface, Glass	PSK1	1005229
	Deflector mirror for 90° deflection, mirror surface 97 mm x 80 mm, not suitable for column mounting, Glass, mounting hardware included	PSK45	5306053

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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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