

**Technical data sheet** Safety sensor set Part no.: 68602096

MLC520-S-24-960



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eng • 2021-02-02

# **Technical data**

### **Basic data**

Series	MLC 520S
Device type	Set (transmitter and receiver)
Contains	4x BT-MLC-S-O mounting brackets
	6x BT-MLC-S-C mounting brackets
Application	Hand protection
Functions	
Functions	Automatic start/restart

Contactor monitoring (EDM) Start/restart interlock (RES)

Functions

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Туре	4, IEC/EN 61496
SIL	3, IEC 61508
SILCL	3, IEC/EN 62061
Performance Level (PL)	e, EN ISO 13849-1
PFH <sub>D</sub>	2,64E-09 per hour
Mission time T <sub>M</sub>	20 years, EN ISO 13849-1
Category	4, EN ISO 13849

24 mm 960 mm 0.2 ... 6 m

### **Protective field data**

Resolution	
Protective field height	
Operating range	

### **Optical data**

Number of beams	51 Piece(s)
Synchronization	Optical between transmitter and receiver
Light source	LED, Infrared
LED light wavelength	850 nm
Transmitted-signal shape	Pulsed
LED risk group	Exempt group (in acc. with EN 62471:2008)

### **Electrical data**

Protective circuit Overvoltage protection Short circuit protected

Performance data Supply voltage U<sub>B</sub>

24 V, DC, -20 ... 20 %

#### Outputs

Number of safety-related switching 2 Piece(s) outputs (OSSDs)

Safety-related	switching	outpu	ts	
_	_		_	

Туре	Safety-related switching output OSSD
Switching voltage high, min.	18 V
Switching voltage low, max.	2.5 V
Switching voltage, typ.	22.5 V
Voltage type	DC
Load inductivity	2,000 µH
Load capacity	1 µF
Residual current, max.	200 mA
Residual current, typ.	2 mA

## Safety-related switching output 1

Assignment Switching element Receiver device connection, pin 2 Transistor, PNP

Safety-related switching of	utput 2
Assignment	Receiver device connection, pin 4
Switching element	Transistor, PNP
Timing	
Response time	11 ms
Connection	
Number of connections	2 Piece(s)
	211000(0)
Connection 1	
Function	Transmitter device connection
Type of connection	Cable with connector
Cable length	160 mm PUR
Sheathing material Thread size	M12
Material	Plastic
No. of pins	5 -pin
No. or pillo	o bui
Connection 2	
Function	Receiver device connection
Type of connection	Cable with connector
Cable length	160 mm
	PUR
Sheathing material	
Sheathing material Thread size	M12
-	M12 Plastic
Thread size	
Thread size Material	Plastic
Thread size Material No. of pins Mechanical data	Plastic
Thread size Material No. of pins Mechanical data Dimension (W x H x L)	Plastic 5 -pin
Thread size Material No. of pins Mechanical data Dimension (W x H x L) Housing material	Plastic 5 -pin 15.4 mm x 960 mm x 32.6 mm
Thread size Material No. of pins Mechanical data Dimension (W x H x L) Housing material Metal housing	Plastic 5 -pin 15.4 mm x 960 mm x 32.6 mm Metal
Thread size Material No. of pins Mechanical data Dimension (W x H x L) Housing material Metal housing Lens cover material	Plastic 5 -pin 15.4 mm x 960 mm x 32.6 mm Metal Aluminum
Thread size Material No. of pins Mechanical data Dimension (W x H x L) Housing material Metal housing Lens cover material Material of end caps	Plastic 5 -pin 15.4 mm x 960 mm x 32.6 mm Metal Aluminum Plastic / PMMA
Thread size Material No. of pins Mechanical data Dimension (W x H x L) Housing material Metal housing Lens cover material Material of end caps Net weight	Plastic 5 -pin 15.4 mm x 960 mm x 32.6 mm Metal Aluminum Plastic / PMMA Plastic
Thread size Material No. of pins Mechanical data Dimension (W x H x L) Housing material Metal housing Lens cover material Material of end caps Net weight Housing color	Plastic 5 -pin 15.4 mm x 960 mm x 32.6 mm Metal Aluminum Plastic / PMMA Plastic 4,850 g
Thread size Material No. of pins Mechanical data Dimension (W x H x L) Housing material Metal housing Lens cover material Material of end caps Net weight Housing color	Plastic 5 -pin 15.4 mm x 960 mm x 32.6 mm Metal Aluminum Plastic / PMMA Plastic 4,850 g Yellow, RAL 1021
Thread size Material No. of pins Mechanical data Dimension (W x H x L) Housing material Metal housing Lens cover material Material of end caps Net weight Housing color	Plastic 5 -pin 15.4 mm x 960 mm x 32.6 mm Metal Aluminum Plastic / PMMA Plastic 4,850 g Yellow, RAL 1021 C-shaped mounting bracket
Thread size Material No. of pins Mechanical data Dimension (W x H x L) Housing material Metal housing Lens cover material Material of end caps Net weight Housing color Type of fastening	Plastic 5 -pin 15.4 mm x 960 mm x 32.6 mm Metal Aluminum Plastic / PMMA Plastic 4,850 g Yellow, RAL 1021 C-shaped mounting bracket L-shaped mounting bracket
Thread size Material No. of pins Mechanical data Dimension (W x H x L) Housing material Metal housing Lens cover material Material of end caps Net weight Housing color Type of fastening Environmental data	Plastic 5 -pin 15.4 mm x 960 mm x 32.6 mm Metal Aluminum Plastic / PMMA Plastic 4,850 g Yellow, RAL 1021 C-shaped mounting bracket L-shaped mounting bracket
Thread size Material No. of pins Mechanical data Dimension (W x H x L) Housing material Metal housing Lens cover material Material of end caps Net weight Housing color Type of fastening Environmental data Ambient temperature, operation	Plastic 5 -pin 15.4 mm x 960 mm x 32.6 mm Metal Aluminum Plastic / PMMA Plastic 4,850 g Yellow, RAL 1021 C-shaped mounting bracket L-shaped mounting bracket O-shaped mounting bracket
Thread size Material No. of pins Mechanical data Dimension (W x H x L) Housing material Metal housing Lens cover material Material of end caps Net weight Housing color Type of fastening Environmental data Ambient temperature, operation Ambient temperature, storage	Plastic 5 -pin 15.4 mm x 960 mm x 32.6 mm Metal Aluminum Plastic / PMMA Plastic 4,850 g Yellow, RAL 1021 C-shaped mounting bracket L-shaped mounting bracket -shaped mounting bracket
Thread size Material No. of pins Mechanical data Dimension (W x H x L) Housing material Metal housing Lens cover material Material of end caps Net weight Housing color Type of fastening Environmental data Ambient temperature, operation Ambient temperature, storage Relative humidity (non-condensing)	Plastic 5 -pin 15.4 mm x 960 mm x 32.6 mm Metal Aluminum Plastic / PMMA Plastic 4,850 g Yellow, RAL 1021 C-shaped mounting bracket L-shaped mounting bracket O-shaped mounting bracket
Thread size Material No. of pins Mechanical data Dimension (W x H x L) Housing material Metal housing Lens cover material Material of end caps Net weight Housing color Type of fastening Environmental data Ambient temperature, operation Ambient temperature, storage Relative humidity (non-condensing) Certifications	Plastic 5 -pin 15.4 mm x 960 mm x 32.6 mm Metal Aluminum Plastic / PMMA Plastic 4,850 g Yellow, RAL 1021 C-shaped mounting bracket L-shaped mounting bracket -shaped mounting bracket O-shaped mounting bracket
Thread size Material No. of pins Mechanical data Dimension (W x H x L) Housing material Metal housing Lens cover material Material of end caps Net weight Housing color Type of fastening Environmental data Ambient temperature, operation Ambient temperature, storage Relative humidity (non-condensing) Certifications Degree of protection	Plastic 5 -pin 15.4 mm x 960 mm x 32.6 mm Metal Aluminum Plastic / PMMA Plastic 4,850 g Yellow, RAL 1021 C-shaped mounting bracket L-shaped mounting bracket C-shaped mounting bracket -10 55 °C -30 70 °C 15 95 %
Thread size Material No. of pins Mechanical data Dimension (W x H x L) Housing material Metal housing Lens cover material Material of end caps Net weight Housing color Type of fastening Environmental data Ambient temperature, operation Ambient temperature, storage Relative humidity (non-condensing) Certifications Degree of protection Protection class	Plastic 5 -pin 15.4 mm x 960 mm x 32.6 mm Metal Aluminum Plastic / PMMA Plastic 4,850 g Yellow, RAL 1021 C-shaped mounting bracket L-shaped mounting bracket C-shaped mounting bracket -10 55 °C -30 70 °C 15 95 %
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Thread size         Material         No. of pins         Mechanical data         Dimension (W x H x L)         Housing material         Metal housing         Lens cover material         Material of end caps         Net weight         Housing color         Type of fastening         Environmental data         Ambient temperature, operation         Ambient temperature, storage         Relative humidity (non-condensing)         Certifications         Degree of protection         Protection class         Certifications         Vibration resistance	Plastic         5 -pin         15.4 mm x 960 mm x 32.6 mm         Metal         Aluminum         Plastic / PMMA         Plastic / So g         4,850 g         Yellow, RAL 1021         C-shaped mounting bracket         L-shaped mounting bracket         O-shaped mounting bracket         -10 55 °C         -30 70 °C         15 95 %         III         TÜV Süd         50 m/s²
Thread size         Material         No. of pins         Mechanical data         Dimension (W x H x L)         Housing material         Metal housing         Lens cover material         Material of end caps         Net weight         Housing color         Type of fastening         Environmental data         Ambient temperature, operation         Ambient temperature, storage         Relative humidity (non-condensing)         Certifications         Degree of protection         Protection class         Certifications	Plastic 5 -pin 15.4 mm x 960 mm x 32.6 mm Metal Aluminum Plastic / PMMA Plastic 4,850 g Yellow, RAL 1021 C-shaped mounting bracket L-shaped mounting bracket C-shaped mounting bracket -10 55 °C -30 70 °C 15 95 %

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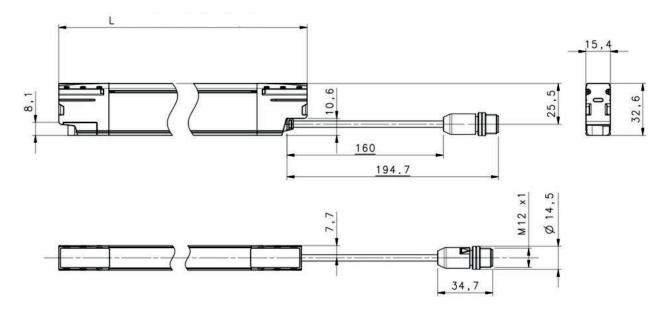
# **Technical data**

Customs tariff number	85365019
eCl@ss 5.1.4	27272704
eCl@ss 8.0	27272704
eCl@ss 9.0	27272704
eCl@ss 10.0	27272704
eCl@ss 11.0	27272704
ETIM 5.0	EC002549
ETIM 6.0	EC002549
ETIM 7.0	EC002549

# **Dimensioned drawings**

All dimensions in millimeters

Dimensions of transmitter and receiver



L Length/protective field height

# **Electrical connection**

FunctionTransmitter device connectionType of connectionCable with connectorCable length160 mmSheathing materialPURCable colorBlackThread sizeM12TypeMaleMaterialPlasticNo. of pins5 -pinEncodingA-codedConnector housingFE/SHIELD	Connection 1	Transmitter
Cable length160 mmSheathing materialPURCable colorBlackThread sizeM12TypeMaleMaterialPlasticNo. of pins5 -pinEncodingA-coded	Function	Transmitter device connection
Sheathing materialPURCable colorBlackThread sizeM12TypeMaleMaterialPlasticNo. of pins5 -pinEncodingA-coded	Type of connection	Cable with connector
Cable colorBlackThread sizeM12TypeMaleMaterialPlasticNo. of pins5 -pinEncodingA-coded	Cable length	160 mm
Thread size     M12       Type     Male       Material     Plastic       No. of pins     5 - pin       Encoding     A-coded	Sheathing material	PUR
Type     Male       Material     Plastic       No. of pins     5 - pin       Encoding     A-coded	Cable color	Black
Material     Plastic       No. of pins     5 - pin       Encoding     A-coded	Thread size	M12
No. of pins     5 - pin       Encoding     A-coded	Туре	Male
Encoding A-coded	Material	Plastic
-	No. of pins	5 -pin
Connector housing FE/SHIELD	Encoding	A-coded
	Connector housing	FE/SHIELD

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## **Electrical connection**

RESTART SELECTION

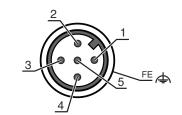
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# Pin Pin assignment 1 +24 V DC 2 RESTART SELECTION

0 V

n.c.

Conductor color



## **Connection 2**

3

4

5

Receiver

Brown

White

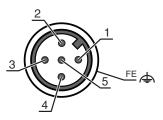
Blue

Black

Gray

Function	Receiver device connection
Type of connection	Cable with connector
Cable length	160 mm
Sheathing material	PUR
Cable color	Black
Thread size	M12
Туре	Male
Material	Plastic
No. of pins	5 -pin
Encoding	A-coded
Connector housing	FE/SHIELD

Pin	Pin assignment	Conductor color
1	EDM	Brown
2	OSSD1	White
3	0 V	Blue
4	OSSD2	Black
5	EDM FBK/SELECTION	Gray



## Part number code

Part designation: MLCxxx-ooo-aa-hhhh

xxx     Series 520: MLC 520S       aa     Resolution 14: 14 mm 24: 24 mm       hhh     Protective field height 150 1200: from 150 mm to 1200 mm       ooo     Option S: Slimline version	MLC	Safety light curtain				
14: 14 mm 24: 24 mm           hhhh         Protective field height 150 1200: from 150 mm to 1200 mm           ooo         Option	ххх					
150 1200: from 150 mm to 1200 mm           ooo         Option	aa	14: 14 mm				
	hhhh					
	000					



## Accessories

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# Connection technology - Connection cables

 Part no.	Designation	Article	Description
50133841	KD U-M12-5A-P1- 050	Connection cable	Connection 1: Connector, M12, Axial, Female, A-coded, 5 -pin Connection 2: Open end Shielded: No Cable length: 5,000 mm Sheathing material: PUR

## Services

 Part no.	Designation	Article	Description
S981050	CS40-I-140	Safety inspection "Safety light barriers"	Details: Checking of a safety light barrier application in accordance with current standards and guidelines. Inclusion of the device and machine data in a database, production of a test log per application. Conditions: It must be possible to stop the machine, support provided by customer's employees and access to the machine for Leuze employees must be ensured. Restrictions: Travel costs and accommodation expenses charged separately and according to expenditure.
S981046	CS40-S-140	Start-up support	Details: For safety devices including stopping time measurement and initial inspection. Conditions: Devices and connection cables are already mounted, price not including travel costs and, if applicable, accommodation expenses. Restrictions: Max. 2 h., no mechanical (mounting) and electrical (wiring) work performed, no changes (attachments, wiring, programming) to third-party components in the nearby environment.

	Note
8	<sup>t</sup> A list with all available accessories can be found on the Leuze website in the Download tab of the article detailed page.