SMART SENSOR BUSINESS

Leuze electronic

the sensor people



Part no.: 68016415 MLC500T40-1500H/A Safety light curtain transmitter





Contents

- Technical data
- Dimensioned drawings
- · Electrical connection
- · Operation and display
- Suitable receivers
- · Part number code
- Notes
- Accessories

Part no.: 68016415 – MLC500T40-1500H/A – Safety light curtain transmitter

Technical data

Device type Transmitter Cascading Host Contains 2 x BT-NC silding block Application Application Application Characteristic parameters Type 4, IEC/EN 61496 StL 3, IEC 61508 StL 3, IEC 61508 StL 3, IEC 61508 StL 3, IEC 61508 StL 4, IEC/EN 61496 StL 5, IEC/EN 62061 Mission time TM 20 years EN ISO 13849-1 Protective field data Resolution 40 mm Protective field data Protective field data Start 5, 00 mm Contains 0 percents Contains 0 Protective field data Contains 0 Protective field height 0	Basic data			
Cascading Host Contains 2 × BT-NC sliding block Application Access guarding Danger zone guarding Hand protection Characteristic parameters Type 4, IEC/EN 61498 SIL 3, IEC 61508 SILC 3, IEC 6150 SILC 3, IEC 6150 SILC 3, IEC 61508 SILC 3, IEC 6150 SILC 3, IEC 6150 SILC 5, III AND SILC 5,	Series	MLC 500		
Cascading Host Contains 2x BT-NC sliding block Application Access guarding Danger zone guarding Hand protection Characteristic parameters Type 4, IEC/EN 61498 SiL 3, IEC 61508 SiLC 3, IEC 6150 SiLC 61 SiLC 5, IEC 6150 SiLC 61 SiLC 615	Device type	Transmitter		
Contains 2x BT-NC sliding block Application Access guarding Danger zone guarding Hand protection Characteristic parameters Type Type 4, IEC/EN 61496 SiL 3, IEC 61508 SiLC 3, IEC 61508 SiLCL 3, IEC 61608 Mission time Tw 20 years, EN ISO 13849-1 Protective field data Protective field height Resolution 40 mm Protective field height 1,500 mm Operating range 0,20 m Optical data Synchronization Qptical between transmitter and receiver LED, Infrared LED light wavelength 940 nm Transmitted-signal shape Pulsed EED group Exempt group in acc. with EN 62471:2008 Electrical data Protected Number of digital switching inputs 1 Piece(s) Supply voltage Us 26.531.6 V Current consumption from AS-I circuit 50 mA Ippet Digital switching input Switching voltage Us 1 Piece(s) Switching voltage Iug, min. 18 V Switching voltage Iug, max.	Cascading	Host		
Danger zone guarding Hand protection Characteristic parameters Type 4, IEC/EN 61496 SIL 3, IEC 61508 SILCL 3, IEC/EN 62061 Mission time T _M 20 years, EN ISO 13849-1 Protective field data Resolution Protective field height Optical data Protective field height Optical data Digit wavelength Synchronization Optical data Colspan="2">Overvoltage protection Colspan="2">Synchronization Overvoltage protection Synchronization Overvoltage protection Synchronization <td colspa<="" td=""><td>Contains</td><td>2x BT-NC sliding block</td></td>	<td>Contains</td> <td>2x BT-NC sliding block</td>	Contains	2x BT-NC sliding block	
Type 4 , IEC/EN 61496 SIL 3 , IEC 61508 SILCL 3 , IEC 61508 Mission time T _M 20 years , EN ISO 13849-1 Protective field data Resolution 40 mm Protective field height 0.00 mm Operating range 0 20 m Optical data 60 Piece(s) Number of beams 60 Piece(s) Synchronization Optical between transmitter and receiver Light source LED , Infrared LED group Exempt group in acc. with EN 62471:2008 Electrical data Protective circuit Overvoitage protection Short circuit protected Electrical data Protective circuit Overvoitage protection Short circuit protected Protective circuit Overvoitage protection Short circuit protected Protective circuit So mA Imput Syntching input Switching inputs 1 Piece(s) Switching voitage logh, min. 18 V Switching voitage logh, min. 18 V <td colspa<="" td=""><td>Application</td><td>Danger zone guarding</td></td>	<td>Application</td> <td>Danger zone guarding</td>	Application	Danger zone guarding	
SIL 3, IEC 61508 SILCL 3, IEC/EN 82061 Mission time T _M 20 years, EN ISO 13849-1 Protective field data Resolution 40 mm Protective field height 1,500 mm Operating range 0 20 m Optical data Mumber of beams 60 Piece(s) Synchronization Optical between transmitter and receiver Light source LED , Infrared LED light wavelength 940 nm Transmitted-signal shape Pulsed LED group Exempt group in acc. with EN 62471:2008 Electrical data Protective circuit Overvoltage protection Short circuit protected Supply voltage UB 26.5 31.6 V Current consumption from AS-1 circuit 50 mA Inputs 1 Piece(s) Switching inputs 1 Piece(s) Switching inputs 1 Piece(s) Switching voltage ligh, min. 18 V Switching voltage high, min. 18 V Switching voltage high, min. 18 V Switching voltage high, min. 10 C Switching voltage high, min. 10 C Switching voltage high, min. 10 C Switching voltage, typ. 22.5	Characteristic parameters			
SILCL 3, IEC/EN 62061 Mission time T _M 20 years , EN ISO 13849-1 Protective field data Resolution 40 mm Protective field height 1.500 mm Operating range 0 20 m Optical data Number of beams 60 Piece(s) Synchronization Optical between transmitter and receiver Light source LED , Infrared LED light wavelength 940 nm Transmitted-signal shape Pulsed Electrical data Protective field tata Supply to trage Ug 26.5 31.6 V Current consumption from AS-i circuit 50 mA Iputs Number of digital switching inputs Number of digital switching inputs 1 Piece(s) Switching inputs 1 Piece(s) Switching inputs 18 V Switching voltage log, constance, 2.5 V Switching input Switching voltage log, constance, 2.5 V Voltage type Output solution of the piece log. Switching voltage log, constance, 2.5 V	Туре	4 , IEC/EN 61496		
Mission time T _M 20 years , EN ISO 13849-1 Protective field data Resolution 40 mm Protective field height 1,500 mm Operating range 0 20 m Optical data Number of beams 60 Plece(s) Synchronization Optical between transmitter and receiver LED infrared LED infrared LED infrared LED infrared LED group Exempt group in acc. with EN 62471:2008 Electrical data Protective circuit Overvoltage protection Short circuit protected Protective diata Supply voltage Us 26.5 31.6 V Current consumption from AS-i circuit 50 mA Inputs Number of digital switching inputs 1 Piece(s) Switching inputs Type Digital switching inputs 1 Piece(s) Switching voltage high, min. 18 V Switching voltage high, min. 18 V Switching voltage high, min. 18 V Switching voltage high, min. 22.5 V Voltage type DC	SIL	3 , IEC 61508		
Protective field data Resolution 40 mm Protective field height 1,500 mm Operating range 0 20 m Optical data 0 20 m Synchronization Optical between transmitter and receiver Light source LED , Infrared LED light wavelength 940 nm Transmitted-signal shape Pulsed LED group Exempt group in acc. with EN 62471:2008 Electrical data Protective circuit Protective circuit Overvoltage protection Short circuit protected Performance data Supply voltage UB Supply voltage UB 26.531.6 V Current consumption from AS-i circuit 50 mA Inputs 1 Piece(s) Switching inputs 1 Piece(s) Switching voltage low, max. 2.5 V Switching voltage low, max. 2.5 V Switching voltage low, max. 2.5 V Switching vo	SILCL	3 , IEC/EN 62061		
Resolution 40 mm Protective field height 1,500 mm Operating range 0 20 m Optical data Number of beams 60 Piece(s) Synchronization Optical between transmitter and receiver Light source LED , Infrared LED light wavelength 940 nm Transmitted-signal shape Pulsed LED group Exempt group in acc. with EN 62471:2008 Electrical data Protective circuit Supply voltage Ug 26.5 31.6 V Current consumption from AS-i circuit Number of digital switching inputs Number of digital switching inputs 1 Piece(s) Switching voltage ligh, min. 18 V Switching voltage ligh, min. 18 V Switching voltage low, max. 2.5 V Switching voltage low, P. 22.5 V	Mission time T _M	20 years , EN ISO 13849-1		
Protective field height 1,500 mm Operating range 020 m Optical data Number of beams 60 Piece(s) Synchronization Optical between transmitter and receiver Light source LED , Infrared LED light wavelength 940 nm Transmitted-signal shape Pulsed LED group Exempt group in acc. with EN 62471:2008 Electrical data Protective circuit Overvoltage protection Short circuit protected Supply voltage UB 26.5 31.6 V Current consumption from AS-i circuit 50 mA Inputs Number of digital switching inputs Type Digital switching inputs Type Digital switching input Switching voltage low, max. 2.5 V Switching voltage, typ. 22.5 V Voltage type DC	Protective field data			
Operating range 0 20 m Optical data Number of beams Number of beams 60 Piece(s) Synchronization Optical between transmitter and receiver Light source LED , Infrared LED light wavelength 940 nm Transmitted-signal shape Pulsed LED group Exempt group in acc. with EN 62471:2008 Electrical data Protective circuit Overvoltage protection Short circuit protected Performance data Supply voltage Us 26.5 31.6 V Current consumption from AS-i circuit 50 mA Inputs 1 Piece(s) Switching inputs 1 Piece(s) Switching voltage high, min. 18 V Switching voltage low, max. 2.5 V Switching voltage, typ. 2.5 V Voltage type DC	Resolution	40 mm		
Optical data Number of beams 60 Piece(s) Synchronization Optical between transmitter and receiver Light source LED , Infrared LED light wavelength 940 nm Transmitted-signal shape Pulsed LED group Exempt group in acc. with EN 62471:2008 Electrical data Protective circuit Overvoltage protection Short circuit protected Performance data	Protective field height	1,500 mm		
Number of beams 60 Piece(s) Synchronization Optical between transmitter and receiver Light source LED , Infrared LED light wavelength 940 nm Transmitted-signal shape Pulsed LED group Exempt group in acc. with EN 62471:2008 Feterrical data Protective circuit Overvoltage protection Short circuit protected Performance data Supply voltage UB Current consumption from AS-i circuit Interface Number of digital switching inputs 1 Piece(s) Switching inputs Type Digital switching input Switching voltage low, max. 2.5 V Switching voltage, typ. 22.5 V Voltage type DC	Operating range	0 20 m		
Synchronization Optical between transmitter and receiver Light source LED , Infrared LED light wavelength 940 nm Transmitted-signal shape Pulsed LED group Exempt group in acc. with EN 62471:2008 Electrical data Protective circuit Overvoltage protection Short circuit protected Performance data Supply voltage UB Current consumption from AS-i circuit Digital switching inputs I Piece(s) Switching voltage high, min. Switching voltage high, min. Is V Voltage type Digital switching input Switching voltage high, min. Switching voltage, typ. Quit	Optical data			
LED , Infrared LED light wavelength 940 nm Transmitted-signal shape Pulsed LED group Exempt group in acc. with EN 62471:2008 Electrical data Protective circuit Overvoltage protection Short circuit protected Performance data Supply voltage UB 26.5 31.6 V Current consumption from AS-i circuit 50 mA Inputs 1 Piece(s) Switching inputs 1 Piece(s) Switching voltage high, min. 18 V Switching voltage low, max. 2.5 V Switching voltage, typ. 22.5 V Voltage type DC	Number of beams	60 Piece(s)		
LED light wavelength 940 nm Transmitted-signal shape Pulsed LED group Exempt group in acc. with EN 62471:2008 Electrical data Protective circuit Overvoltage protection Short circuit protected Performance data Supply voltage UB 26.5 31.6 V Current consumption from AS-i circuit 50 mA Inputs 1 Piece(s) Switching inputs 1 Piece(s) Switching voltage low, max. 2.5 V Switching voltage low, max. 2.5 V Switching voltage, typ. 22.5 V Voltage type DC	Synchronization	Optical between transmitter and receiver		
Transmitted-signal shape Pulsed LED group Exempt group in acc. with EN 62471:2008 Electrical data Overvoltage protection Short circuit protected Protective circuit Overvoltage protection Short circuit protected Supply voltage UB 26.5 31.6 V Current consumption from AS-i circuit 50 mA Inputs Veree(s) Switching inputs 1 Piece(s) Switching voltage high, min. 18 V Switching voltage low, max. 2.5 V Switching voltage high, min. 10 C Interface DC	Light source	LED , Infrared		
LED group Exempt group in acc. with EN 62471:2008 Electrical data Protective circuit Overvoltage protection Short circuit protected Performance data Supply voltage UB 26.5 31.6 V Current consumption from AS-i circuit 50 mA Inputs Inputs Number of digital switching inputs 1 Piece(s) Switching inputs 1 Switching input Type Digital switching input Switching voltage low, max. 2.5 V Switching voltage low, max. 2.5 V Switching voltage type DC	LED light wavelength	940 nm		
Electrical data Protective circuit Overvoltage protection Short circuit protected Performance data	Transmitted-signal shape	Pulsed		
Protective circuit Overvoltage protection Short circuit protected Performance data Supply voltage UB 26.5 31.6 V Current consumption from AS-i circuit 50 mA Inputs Number of digital switching inputs 1 Piece(s) Switching inputs 1 Piece(s) Switching voltage high, min. 18 V Switching voltage low, max. 2.5 V Switching voltage, typ. 22.5 V Voltage type DC	LED group	Exempt group in acc. with EN 62471:2008		
Short circuit protected Performance data Supply voltage UB 26.5 31.6 V Current consumption from AS-i circuit 50 mA Inputs 1 Piece(s) Switching inputs 1 Piece(s) Switching voltage high, min. 18 V Switching voltage low, max. 2.5 V Switching voltage, typ. 22.5 V Voltage type DC	Electrical data			
Supply voltage UB 26.5 31.6 V Current consumption from AS-i circuit 50 mA Inputs Inputs Number of digital switching inputs 1 Piece(s) Switching inputs 1 Piece(s) Type Digital switching input Switching voltage high, min. 18 V Switching voltage low, max. 2.5 V Switching voltage, typ. 22.5 V Voltage type DC	Protective circuit	Overvoltage protection Short circuit protected		
Current consumption from AS-i circuit 50 mA Inputs 1 Piece(s) Number of digital switching inputs 1 Piece(s) Switching inputs Digital switching input Type Digital switching input Switching voltage high, min. 18 V Switching voltage low, max. 2.5 V Switching voltage, typ. 22.5 V Voltage type DC	Performance data			
Inputs 1 Piece(s) Switching inputs Digital switching input Type Digital switching input Switching voltage high, min. 18 V Switching voltage low, max. 2.5 V Switching voltage, typ. 22.5 V Voltage type DC	Supply voltage U _B	26.5 31.6 V		
Number of digital switching inputs 1 Piece(s) Switching inputs Digital switching input Type Digital switching input Switching voltage high, min. 18 V Switching voltage low, max. 2.5 V Switching voltage, typ. 22.5 V Voltage type DC	Current consumption from AS-i circuit	50 mA		
Switching inputs Type Digital switching input Switching voltage high, min. 18 V Switching voltage low, max. 2.5 V Switching voltage, typ. 22.5 V Voltage type DC	Inputs			
Type Digital switching input Switching voltage high, min. 18 V Switching voltage low, max. 2.5 V Switching voltage, typ. 22.5 V Voltage type DC	Number of digital switching inputs	1 Piece(s)		
Switching voltage high, min. 18 V Switching voltage low, max. 2.5 V Switching voltage, typ. 22.5 V Voltage type DC	Switching inputs			
Switching voltage low, max. 2.5 V Switching voltage, typ. 22.5 V Voltage type DC	Туре	Digital switching input		
Switching voltage, typ. 22.5 V Voltage type DC	Switching voltage high, min.	18 V		
Voltage type DC Interface	Switching voltage low, max.	2.5 V		
Interface	Switching voltage, typ.	22.5 V		
	Voltage type	DC		
Type AS-Interface Safety at Work	Interface			
	Туре	AS-Interface Safety at Work		

Part no.: 68016415 – MLC500T40-1500H/A – Safety light curtain transmitter

AS-i	
Function	Process
AS-i profile	S-0.B.F
Slave address	131 programmable, default=0
Cycle time acc. to AS-i specifications	Max. 5 ms
Connection	
Number of connections	2 Piece(s)
Connection 1	
Type of connection	Connector
Function	Machine interface
Thread size	M12
Material	Metal
No. of pins	5 -pin
Connection 2	
Type of connection	Cable with connector
Function	Cascade, Guest Out
Cable longth	Cascade, Middle Guest Out
Cable length Sheathing material	330 mm PUR
Thread size	M12
Material	Plastic
No. of pins	8 -pin
Cable properties	0.25 mm ²
Permissible conductor cross section, typ.	
Length of connection cable, max.	100 m
Permissible cable resistance to load, max.	200 Ω
Mechanical data Dimension (W x H x L)	29 mm x 1,566 mm x 35.4 mm
	Metal , Aluminum
Housing material	Plastic / PMMA
	Diecast zinc
Material of end caps	
Net weight	1,725 g
Housing color	Yellow, RAL 1021
Type of fastening	Groove mounting Mounting bracket
	Swivel mount
Operation and display	
Type of display	LED
Number of LEDs	2 Piece(s)
Environmental data	
Ambient temperature, operation	0 55 °C
Ambient temperature, storage	-30 70 °C
Relative humidity (non-condensing)	0 95 %
telease initially (ner condending)	
Contifications	
Certifications	
Degree of protection	IP 65

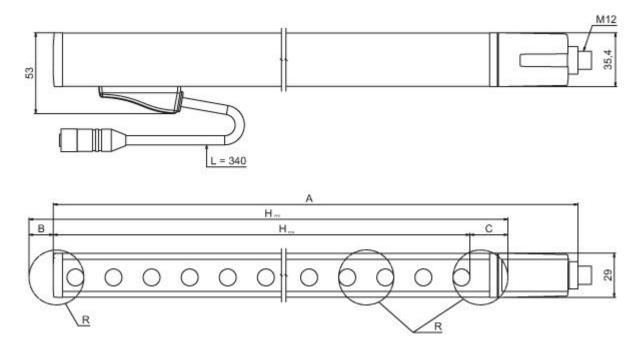
Part no.: 68016415 – MLC500T40-1500H/A – Safety light curtain transmitter

Protection class	III		
Certifications	c CSA US c TÜV NRTL US TÜV Süd		
Vibration resistance	50 m/s²		
Shock resistance	100 m/s²		
US patents	US 6,418,546 B		
Classification			
Customs tariff number	85365019		
eCl@ss 8.0	27272704		
eCl@ss 9.0	27272704		
ETIM 5.0	EC002549		
ETIM 6.0	EC002549		

Dimensioned drawings

All dimensions in millimeters

Calculation of the effective protective field height HPFE = HPFN + B + C



HPFE Effective protective field height = 1540 mm

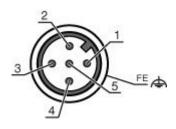
- HPFN Nominal protective field height = 1500 mm
- A Total height = 1566 mm
- B 25 mm
- C 15 mm
- R Effective protective field height H_{PFE} goes beyond the dimensions of the optics area to the outer borders of the circles labeled with R.

Part no.: 68016415 – MLC500T40-1500H/A – Safety light curtain transmitter

Electrical connection

Connection 1		
Type of connection	Connector	
Function	Machine interface	
Thread size	M12	
Туре	Male	
Material	Metal	
No. of pins	5 -pin	
Encoding	A-coded	

Pin	Pin assignment
1	AS-i+
2	n.c.
3	AS-i-
4	n.c.
5	n.c.



Connection 2		
Type of connection	Cable with connector	
Function	Cascade, Guest Out Cascade, Middle Guest Out	
Cable length	330 mm	
Sheathing material	PUR	
Cable color	Black	
Wire cross section	0.14 mm ²	
Type of stranding	Pair stranding (twisted pair)	
Thread size	M12	
Туре	Female	
Material	Plastic	
No. of pins	8 -pin	
Encoding	A-coded	

Operation and display

LEDs

LED	Display	Meaning
1	Off	Device switched off
	Red, continuous light	Device error
	Green, continuous light	Normal operation

Part no.: 68016415 – MLC500T40-1500H/A – Safety light curtain transmitter

Suitable receivers

Part no.	Designation	Article	Description
68017415	MLC510R40-1500H/ A	curtain receiver	Resolution: 40 mm Protective field height: 1,500 mm Response time: 14 ms Interface: AS-Interface Safety at Work Connection: Connector, M12, Metal, 5 -pin

Part number code

Part designation: MLCxyy-za-hhhhei-ooo

MLC	Safety light curtain
x	Series: 3: MLC 300 5: MLC 500
уу	Function classes: 00: Transmitter 01: transmitter (AIDA) 02: Transmitter with test input 10: Basic receiver - automatic restart 11: basic receiver - automatic restart (AIDA) 20: Standard receiver - EDM/RES selectable 30: Extended receiver - blanking/muting
Z	Device type: T: transmitter R: receiver
a	Resolution: 14: 14 mm 20: 20 mm 30: 30 mm 40: 40 mm 90: 90 mm
hhhh	Protective field height: 150 3000: from 150 mm to 3000 mm
е	Host/Guest (optional): H: Host MG: Middle Guest G: Guest
İ	Interface (optional): /A: AS-i
000	Option: /V: high Vibration-proof EX2: explosion protection (zones 2 + 22) SPG: Smart Process Gating

Note

A list with all available device types can be found on the Leuze electronic website at www.leuze.com.

Notes

Observe intended use!

- The product may only be put into operation by competent persons.
- Only use the product in accordance with its intended use.

Part no.: 68016415 – MLC500T40-1500H/A – Safety light curtain transmitter

Accessories

Connection technology - Interconnection cables

Part no.	Designation	Article	Description
429278	CB- M12-2000E-8TP	Interconnection cable	Connection 1: Connector, M12, Axial, Female, A-coded, 8 -pin Connection 2: Connector, M12, Axial, Male, A-coded, 8 -pin Shielded: Yes Cable length: 2,000 mm Sheathing material: PUR

Mounting technology - Swivel mounts

	Part no.	Designation	Article	Description
PPPPPPPPPPPPP	429393	BT-2HF	Mounting bracket set	Contains: 2x BT-HF swivel mount, 1 cylinder for mounting on the light curtain Fastening, at system: Through-hole mounting Mounting bracket, at device: Clampable Type of mounting device: Turning, 360° Material: Metal, Plastic

Alignment aids

Part no.	Designation	Article	Description
520101	AC-ALM-M	Alignment aid	Housing material: Plastic

Services

	Part no.	Designation	Article	Description
A A A A A A A A A A A A A A A A A A A	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.