### Leuze

### **Technical data sheet Optical data transmission**

Part no.: 50134418 DDLS 548i 120.4

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#### **Technical data**

# Leuze

Series     DDLS 500       Special version     Not influenced by reflective surfaces Operation of parallel light axes Remote diagnosis via web server       Optical data     Not influenced by reflective surfaces Operation of parallel light axes Remote diagnosis via web server       Optical data     100 120,000 mm       Light source     Laser       Transmission frequency     F4       Usable opening angle transmitter     1°       Electrical data     1°       Performance data     Supply voltage Ug       Supply voltage Ug     18 30 V, DC       Interface     PROFINET       Type     PROFINET       Transmission speed     100 Mbit/s       Connection 1     Connector       Type of connections     2 Piece(s)       Thread size     M12       Type     Male       No. of pins     5 -pin       Encoding     A-coded       Connection 2     Type of connection       Type of connection     Connector       Designation on device     BUS       Thread size     M12       Type     Female       No. of pins     4 -pin       Encoding     D-coded	Basic data					
Special version       Not influenced by reflective surfaces Operation of parallel light axes Remote diagnosis via web server         Optical data         Working range       100 120,000 mm         Light source       Laser         Transmission frequency       F4         Usable opening angle transmitter       1 °         Electrical data       Performance data Supply voltage UB         Performance data       18 30 V, DC         Interface       PROFINET         Type       PROFINET         Transmission speed       100 Mbit/s         Connection 1       Connector         Type of connections       2 Piece(s)         Connector 1       Connector         Type       Male         No. of pins       5 -pin         Encoding       A-coded         Connection 2       Connector         Type of connection BUS       Connector         Designation on device       BUS         Thread size       M12         Type       Female         No. of pins       5 -pin	Series	DDLS 500				
Operation of parallel light axes Remote diagnosis via web server         Optical data         Working range       100 120,000 mm         Light source       Laser         Transmission frequency       F4         Usable opening angle transmitter       1°         Electrical data	Special version					
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Optical data         Working range       100 120,000 mm         Light source       Laser         Transmission frequency       F4         Usable opening angle transmitter       1°         Electrical data       I*         Performance data         Supply voltage UB       18 30 V, DC         Interface         Type       PROFINET         Transmission speed       100 Mbit/s         Connection 1         Type of connections       2 Piece(s)         Connection 1       Connector         Type of connection       Connector         Designation on device       POWER         Thread size       M12         Type of connection       S -pin         Encoding       A-coded         Connection 2       Connector         Type of connection       S -pin         Encoding       Male         No. of pins       S -pin         Encoding       Connector         Designation on device       BUS         Thread size       M12         Type       Female         No. of pins       F -pin		Operation of parallel light axes				
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No. of pins 4 -pin	Thread size	M12				
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		4 -pin				
	· ·	1				

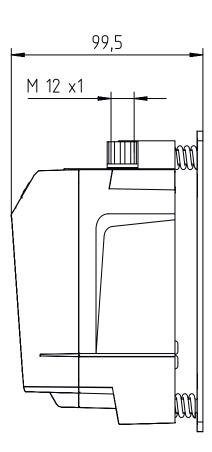
Dimension (W x H x L)	100 mm x 156 mm x 99.5 mm
Housing material	Metal
Net weight	1,255 g
Hot Holght	1,200 g
Operation and display	
Type of display	Bar graph
	LED
Type of configuration	GSDML file
	Software
	Via web browser
Environmental data	
Ambient temperature, operation	-5 50 °C
Ambient temperature, storage	-35 70 °C
And the temperature, storage	
Certifications	
Degree of protection	IP 65
Certifications	c UL US
Test procedure for EMC in accordance	EN 1000-6-4
with standard	EN 61000-6-2
Test procedure for noise in accordance with standard	∋ EN 60068-2-64
Test procedure for oscillation in accordance with standard	EN 60068-2-6
Test procedure for shock in accordance with standard	EN 60068-2-27
Classification	
Customs tariff number	85365019
ECLASS 5.1.4	19039001
ECLASS 8.0	19179090
EULASS 0.0	
ECLASS 9.0	19179090
	19179090 19179090
ECLASS 9.0	
ECLASS 9.0 ECLASS 10.0	19179090
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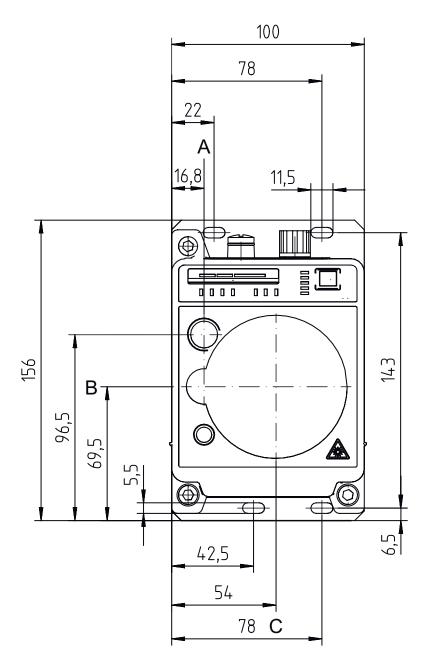
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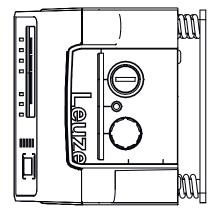
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#### **Dimensioned drawings**

All dimensions in millimeters







- A Middleaxis Transmitter
- B Center axis of transmitter and receiver
- C Center axis of receiver

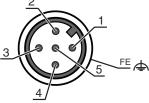
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#### **Electrical connection**

Connection 1	POWER	
Function	Signal IN	
	Signal OUT	
	Voltage supply	
Type of connection	Connector	
Thread size	M12	
Туре	Male	
Material	Metal	
No. of pins	5 -pin	
Encoding	A-coded	

#### Pin **Pin assignment**

1	VIN	
2	IO1	
3	GND	3
4	102	
5	FE/SHIELD	4



#### **Connection 2**

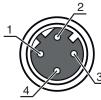
Connection 2	BUS	
Function	BUS IN	
Type of connection	Connector	
Thread size	M12	
Туре	Female	
Material	Metal	
No. of pins	4 -pin	
Encoding	D-coded	

Pin	Pin assignment
1	TD+
2	RD+
3	TD-
4	RD-

### **Operation and display**

LE	D	Display	Meaning
1	AUT	Off	Operating mode not active
		Green, continuous light	Operating mode "Automatic"
2	MAN	Off	Operating mode not active
		Green, continuous light	Operating mode "Manual"
;	ADJ	Off	Operating mode not active
		Green, continuous light	Operating mode "Adjust"
Ļ	LAS	Off	Operating mode not active
		Green, continuous light	Operating mode "Alignment-laser mounting support"
	LLC	Off	Operating mode not active
		Green, continuous light	LLC without interruption
		Red, continuous light	LLC interrupted at least once
	PWR	Off	No supply voltage
		Green, flashing	Device ok, initialization phase
		Green, continuous light	Data transmission active
		Red, flashing	Data transmission interrupted
		Red, continuous light	Device error
	TMP	Off	Operating temperature OK
		Orange, continuous light	Operating temperature critical





#### **Operation and display**

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LED	Display	Meaning
7 TMP	Red, continuous light	Operating temperature exceeded or not met
8 LSR	Off	With function reserve
	Orange, continuous light	Device OK, warning set
9 BUS	Off	No supply voltage
	Green, flashing	Device waiting for communication to be re-established, no data exchange
	Green, continuous light	Communication with IO-Controller established, data exchange active
	Orange, flashing	PROFINET wave function activated, the PWR and BUS LEDs flash in sync in orange
	Red, flashing	Parameterization or configuration failed, no data exchange
	Red, continuous light	Bus error, no communication established to the IO controller
10 OLK	Off	Fault
	Green, continuous light	No data transmission
	Orange, continuous light	Data transmission active
11 ERL	Off	Link OK
	Orange, continuous light	Missing link (Ethernet cable connection) on the second device
	Red, continuous light	No cable-connected link to the connected device
12 LINK	Off	No cable-connected link to the connected device
	Green, continuous light	Link OK
	Orange, continuous light	Data transmission active
13 SIGNAL QUALITY	2 red, 2 orange and 4 green	Received signal level

#### Suitable transmitters

 Part no.	Designation	Article	Description
50134417	DDLS 548i 120.3	Optical data transmission	Special version: Operation of parallel light axes, Ferndiagnose über Webserver, Not influenced by reflective surfaces Working range: 100 120.000 mm Transmission frequency: F3 Interface: PROFINET Connection: Connector, M12

#### Part number code

Part designation: DDLS 5XXX YYY.Z A B CC

DDLS	Optical transceiver for digital data transmission
5XXX	Series 508i: without integrated web server for remote diagnostics 508i: with integrated web server for remote diagnostics 538: without integrated web server for remote diagnostics (EtherCAT) 548i: with integrated web server for remote diagnostics
YYY	Range for data transmission in m
Z	Frequency of the transmitter 0: Frequency F0 1: Frequency F1 2: Frequency F2 3: Frequency F3 4: Frequency F4
A	<b>Option</b> L: integrated laser alignment aid (for transmitter/receiver) n/a: standard

#### Part number code



В	<b>Special equipment</b> H: With heating n/a: no special equipment
сс	<b>Special equipment</b> W: transmission optics with larger opening angle (on request) n/a: no special equipment
	Note
A	✤ A list with all available device types can be found on the Leuze website at www.leuze.com.

#### Notes

Observe intended use!
✤ This product is not a safety sensor and is not intended as personnel protection.
✤ The product may only be put into operation by competent persons.
♦ Only use the product in accordance with its intended use.

For UL applications:
the For UL applications, use is only permitted in Class 2 circuits in accordance with the NEC (National Electric Code).

ATTENTION! INVISIBLE LASER RADIATION - CLASS 1M LASER PRODUCT
Do not expose users of telescopic optics! The device satisfies the requirements of IEC 60825-1:2007 (EN 60825-1:2007) safety regulations for a product of laser class 1M as well as the U.S. 21 CFR 1040.10 regulations with deviations corresponding to Laser Notice No. 50 from June 24, 2007.
<ul> <li>b Do not expose users of telescopic optics!</li> <li>The device satisfies the requirements of IEC 60825-1:2007 (EN 60825-1:2007) safety regulations for a product of laser class 1M as well as the U.S. 21 CFR 1040.10 regulations with deviations corresponding to Laser Notice No. 50 from June 24, 2007.</li> </ul>
b Looking into the beam path for extended periods using telescope optics may damage the eye's retina. Never look using telescope optics into the laser beam or in the direction of reflecting beams.
<ul> <li>CAUTION! The use of operating and adjusting devices other than those specified here or the carrying out of differing procedures may lead to dangerous exposure to radiation!</li> <li>The use of optical instruments or devices (e.g., magnifying glasses, binoculars) in combination with the device increases the danger of eye damage.</li> </ul>
to Observe the applicable statutory and local laser protection regulations.
<ul> <li>The device must not be tampered with and must not be changed in any way.</li> <li>There are no user-serviceable parts inside the device.</li> <li>Repairs must only be performed by Leuze electronic GmbH + Co. KG.</li> </ul>

#### Accessories

### Leuze

### Connection technology - Connection cables

	Part no.	Designation	Article	Description
W D	50132079	KD U-M12-5A-V1- 050	Connection cable	Connection 1: Connector, M12, Axial, Female, A-coded, 5 -pin Connector, LED: No Connection 2: Open end Shielded: No Cable length: 5.000 mm Sheathing material: PVC
Ŵ	50135074	KS ET-M12-4A-P7- 050	Connection cable	Suitable for interface: Ethernet Connection 1: Connector, M12, Axial, Male, D-coded, 4 -pin Connector, LED: No Connection 2: Open end Shielded: Yes Cable length: 5.000 mm Sheathing material: PUR

#### Connection technology - Interconnection cables

	Part no.	Designation	Article	Description
	50137078	KSS ET-M12-4A- M12-4A-P7-050	Interconnection cable	Suitable for interface: Ethernet Connection 1: Connector, M12, Axial, Male, D-coded, 4 -pin Connection 2: Connector, M12, Axial, Male, D-coded, 4 -pin Shielded: Yes Cable length: 5,000 mm Sheathing material: PUR
	50135081	KSS ET-M12-4A- RJ45-A-P7-050	Interconnection cable	Suitable for interface: Ethernet Connection 1: Connector, M12, Axial, Male, D-coded, 4 -pin Connection 2: RJ45 Shielded: Yes Cable length: 5,000 mm Sheathing material: PUR

#### Connection technology - Connectors

	Part no.	Designation	Article	Description
-	50020501	KD 095-5A	Connector	Connection: Connector with screw terminals, M12, Axial, Female, A-coded, 5 -pin
	50112155	S-M12A-ET	Connector	Suitable for interface: Ethernet Connection: Connector, M12, Axial, Male, D-coded, 4 -pin

#### Accessories

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#### Services

	Part no.	Designation	Article	Description
ц. С	S981001	CS10-S-110	Start-up support	Details: Performed at location of customer's choosing, duration: max. 10 hours. Conditions: Devices and connection cables are already mounted, price not including travel costs and, if applicable, accommodation expenses. Restrictions: No mechanical (mounting) and electrical (wiring) work performed, no changes (attachments, wiring, programming) to third-party components in the nearby environment.
	S981005	CS10-T-110	Product training	Details: Location and content to be agreed upon, duration: max. 10 hours. Conditions: Price not including travel costs and, if applicable, accommodation expenses. Restrictions: Travel costs and accommodation expenses charged separately and according to expenditure.

	Note
6	♣ A list with all available accessories can be found on the Leuze website in the Download tab of the article detailed page.