

# **Technical data sheet Optical data transmission**

Part no.: 50134429

DDLS 548i 120.3 L



#### Contents

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







For Illustration purposes only

### **Technical data**



Basic data	
Series	DDLS 500
Special version	
Special version	Integrated laser alignment aid
	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	F3
Opening angle	1 °
Electrical data	
Performance data	
Supply voltage U <sub>R</sub>	18 30 V, DC
Interface	
Transmission protocol	PROFINET slave network device
	PROFINET/PROFIsafe
Туре	PROFINET, PROFIsafe over PROFINET
PROFINET	
Function	Process
Conformance class	В
Switch functionality	None
Transmission speed	100 Mbit/s
Connection	
	0 Picco(a)
Number of connections	2 Piece(s)
Connection 1	
Type of connection	Connector
Designation on device	POWER
Thread size	M12
Туре	Male
No. of pins	5 -pin
Encoding	A-coded
Connection 2	
Type of connection	Connector
Designation on device	BUS
Thread size	M12
Туре	Female
No. of pins	4 -pin

Dimension (W x H x L)	100 mm x 156 mm x 99.5 mm
lousing material	Metal
let weight	1,255 g
peration and display	
ype of display	Bar graph
	LED
Type of configuration	GSDML file
	Software
	Via web browser
nvironmental data	
mbient temperature, operation	-5 50 °C
mbient temperature, storage	-35 70 °C
Certifications	
Degree of protection	IP 65
Approvals	c UL US
est procedure for EMC in accordance	EN 1000-6-4
vith standard	EN 61000-6-2
est procedure for noise in accordance ith standard	EN 60068-2-64
est procedure for oscillation in ccordance with standard	EN 60068-2-6
est procedure for shock in accordance with standard	EN 60068-2-27
Classification	
Customs tariff number	84718000
CLASS 5.1.4	19039001
CLASS 8.0	19179090
CLASS 9.0	19179090
CLASS 10.0	19170506
CLASS 11.0	19170506
CLASS 12.0	19170506
CLASS 13.0	19170506
CLASS 14.0	19170506
CLASS 15.0	19170506
TIM 5.0	EC000515
ETIM 6.0	EC000515
TIM 7.0	EC000515
ETIM 8.0	EC000515
ETIM 9.0	EC000515
	E0000E4E
ETIM 10.0	EC000515

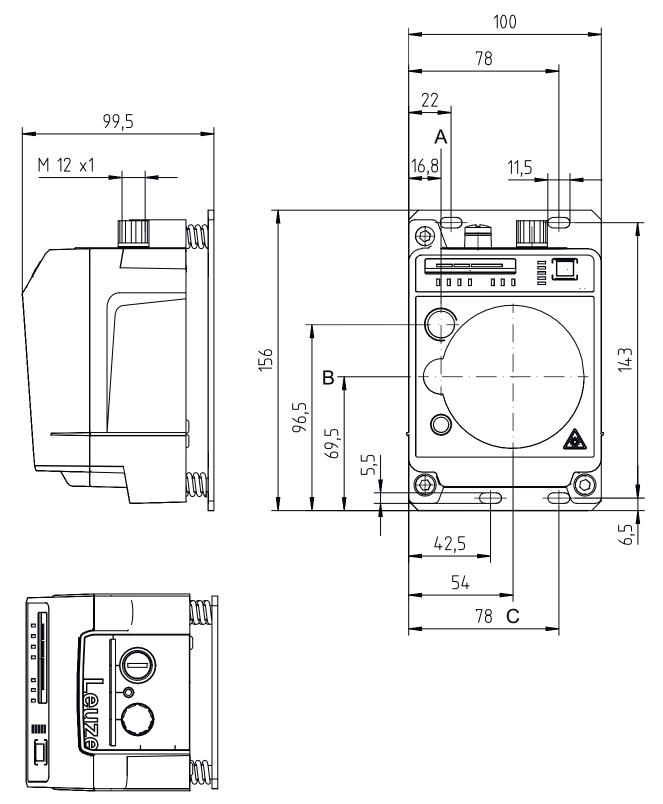
D-coded

Encoding

info@leuze.com • www.leuze.com

Leuze

All dimensions in millimeters



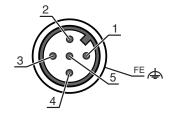
- Center axis of transmitter and alignment laser
- Center axis of transmitter and receiver
- Center axis of receiver

### **Electrical connection**



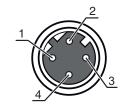
Connection 1	POWER
Function	Signal IN
	Signal OUT
	Voltage supply
Type of connection	Connector
Thread size	M12
Туре	Male
Material	Metal
No. of pins	5 -pin
Encoding	A-coded

Pin	Pin assignment
1	VIN
2	101
3	GND
4	102
5	FE/SHIELD



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**

LED		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"
3	ADJ	Off	Operating mode not active
		Green, continuous light	Operating mode "Adjust"
4	LAS	Off	Operating mode not active
		Green, continuous light	Operating mode "Alignment-laser mounting support"
5	LLC	Off	Operating mode not active
		Green, continuous light	LLC without interruption
		Red, continuous light	LLC interrupted at least once
6	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
7	TMP	Off	Operating temperature OK
		Orange, continuous light	Operating temperature critical





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 receivers

Part no.	Designation	Article	Description
50134430	DDLS 548i 120.4 L	Optical data transmission	Special version: Not influenced by reflective surfaces, Integrated laser alignment aid, Operation of parallel light axes, Remote diagnosis via web server Working range: 100 120.000 mm Transmission frequency: F4 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	Option L: integrated laser alignment aid (for transmitter/receiver) n/a: standard

#### Part number code



В Special equipment

H: with heating

n/a: no special equipment

Special equipment

W: transmission optics with larger opening angle (on request)

n/a: no special equipment

#### Note



CC

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:



♦ 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.

- 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.
- 🖔 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.
- 🔖 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!
  - The use of optical instruments or devices (e.g., magnifying glasses, binoculars) in combination with the device increases the danger of eye damage.
- because the applicable statutory and local laser protection regulations.
- The device must not be tampered with and must not be changed in any way. There are no user-serviceable parts inside the device. Repairs must only be performed by Leuze electronic GmbH + Co. KG.

We reserve the right to make technical changes

#### Notes





#### ATTENTION! LASER RADIATION – CLASS 1 LASER PRODUCT (alignment laser)



The device satisfies the requirements of IEC 60825-1:2007 (EN 60825-1:2007) safety regulations for a product of laser class 1 as well as the U.S. 21 CFR 1040.10 regulations with deviations corresponding to Laser Notice No. 50 from June 24, 2007.

- The device satisfies the requirements of IEC 60825-1:2007 (EN 60825-1:2007) safety regulations for a product of laser class 1 as well as the U.S. 21 CFR 1040.10 regulations with deviations corresponding to Laser Notice No. 50 from June 24, 2007.
- \$ Observe the applicable statutory and local laser protection regulations.
- \$ The device must not be tampered with and must not be changed in any way. There are no user-serviceable parts inside the device. Repairs must only be performed by Leuze electronic GmbH + Co. KG.

#### **Accessories**

### Connection technology - Connection cables

	Part no.	Designation	Article	Description
	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
V	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

### **Accessories**



## Connection technology - Connectors

	Part no.	Designation	Article	Description
1	50020501	KD 095-5A	Connector	Connection: Connector, 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

### Services

Part no.	Designation	Article	Description
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.
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.

#### Note



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