

Laser Distance Sensor LLB502

100m Natural Surface, 500m w/Optional Target Plate



Quick Delivery Stock Options [\(Click Article Number for Data Sheet\)](#)

Article Number	Output Type	Accuracy
LLB502-01111	Analog+SSI	1mm
LLB502-01213	Analog+SSI	3mm

Add an Optional Interface Module to the Base Device Above

These field installable Ethernet modules easily bolt into place - no special tools required
If its more convenient, we can install the module for you.

Article Number	Output Type
LLB502-20700	Ethernet/IP
LLB502-20800	Profinet
LLB502-20900	EtherCAT



EtherNet/IP

PROFINET

EtherCAT



Subject to change.

LLB 502 SSI+ Analog 100/500M $\pm 1,0$ mm

[Click Here](#) to go back to Stock Options

Order No.: LLB502-01111

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Stock photo

Advantages

- _ 1 mm accuracy, LLB502-01111
- _ Distance measur. up to 500m
- _ Extended temperature range
- _ Measures linear movements
- _ Measuring rate up to 1 kHz



Technical data for LLB502-01111

MEASURING RANGE	100M WITHOUT REFLECTOR
	500M WITH REFLECTOR
ACCURACY	+ / - 1,0 MM
INTERFACE	1 DIGITAL INPUT
	3 DIGITAL OUTPUTS
	4..20MA
	ANALOGUE CURRENT
	ASI RS232
	ASI RS422
	SSI
SUPPLY VOLTAGE	12-30V
TEMPERATURE RANGE	-40+60°C
PROTECTION Class	IP65
LASER PROTECTION CLASS	2
OPTIONS ENC	HEATER
REFLECTIVE-FOIL	NO

Subject to change.

LLB 502 SSI+ Analog 100/500M $\pm 1,0$ mm

Order-#: LLB502-01111

11.5.2020 / 010203040099999999

General data for K-LLB502-A-2

Supply	
- Supply voltage	12...30 VDC
Current consumption no load	≤ 500 mA
	≤ 600 mA based on Ethernet
- Measured at	24 VDC
Integrated heating	
- Equipment	Standard
Measuring range, typically	
- on natural surfaces	0.05...100 m
- on reflective target plate	0.5...500 m
Resolution	0.1 mm
Measuring accuracy, typically	
- ± 1.0 mm bei 2σ	LLB502-01111
- ± 3.0 mm bei 2σ	LLB502-01213
Measurement time, typically	
- Single measurement	0.05...4 s
- Tracking mode	0.004...4 s
Reproducibility	± 0.3 mm (2σ), LLB502-01111
	± 0.7 mm (2σ), LLB502-01213
Light source	
- Laser diode	Red light
- Wave length λ	620...690 nm
- Laser protection class	2
- International safety standard	IEC 60825-1
- American safety standard	FDA 21CFR 1040.10
- American safety standard	observe "Laser-Notice No. 50"
- Radiant power P	≤ 1 mW
- Beam divergence	0.16 x 0.6 mrad
- Pulse duration	0.2...0.8 x 10E-9 s
- Laser dot \varnothing at 10, 50, 100 m	7x3 mm, 28x13 mm, 55x30 mm
Measurand output/refresh rate	≤ 250 Hz
Tracking-Mode output rate	≤ 1 kHz
EtherCAT - Interface	
- Equipment	Optional interface
EtherNet/IP™ - Interface	
- Equipment	Optional interface
PROFINET IO - Interface	
- Equipment	Optional interface
SSI - Interface	
- Equipment	Standard interface

Subject to change.

LLB 502 SSI+ Analog 100/500M $\pm 1,0$ mm

Order-#: LLB502-01111

11.5.2020 / 010203040099999999

General data for K-LLB502-A-2 continuation

- SSI-Clock input	RS-422; 2-wire
- SSI-Data output	RS-422, 2-wire
- SSI-Clock frequency	83...1000 kHz
- SSI-Mono time, typically	25 μ s
- Output code	Binary, Gray
- Number of data bits	23, 24
Analog - Interface	
- Equipment	Standard interface
- Resolution	12 Bit D/A converter
- Current output	0...20 mA, 4...20 mA
- Load resistance (l)	\leq 500 Ohm
- Analog output	Position
- Accuracy	\pm 0.1 %
Configuration interfaces	
- RS232	Point to Point
- Number of devices	100
- For service purposes	USB 2.0 Type Mini-B socket
- RS422/RS485	Master/Slave
Transmission rate	
- Specific value	100 MBit/s
- Specific value	based on Ethernet
Parameter/Function, changeable	
	Output code
	Output format
	Number of data bits
	SSI-Parameter
	Interface parameter
Type of parametrization	programmable
Programming - Tool	TR-Soft: LLB-Utility
External inputs	
- Function input	external triggering
- Type of parametrization	programmable
- Logic level	"0" < +2V, "1" = Supply
- Number of inputs	1
External outputs	
- Status output	Device error
- Output level	\leq 30 VDC, \leq 150 mA
- Type of parametrization	programmable
- Number of outputs	3
- Output stages	Open Source

Subject to change.

LLB 502 SSI+ Analog 100/500M $\pm 1,0$ mm

Order-#: LLB502-01111
 11.5.2020 / 010203040099999999

General data for K-LLB502-A-2 continuation

- Output stages	Open Drain
- Output stages	Push Pull
- Function outputs	Level control
Mass, typically	0.35 kg

Device variants	
- Optional connection cover	LLB502-20700, Ethernet/IP
- Optional connection cover	LLB502-20800, PROFINET-IO
- Optional connection cover	LLB502-20900, EtherCAT
- Note	replaces the existing cover

Environmental data

Vibration	DIN EN 60068-2-6
- Specific value	$\leq 50 \text{ m/s}^2$
- Sine	60...150 Hz
Shock	DIN EN 60068-2-27
- Specific value	$\leq 500 \text{ m/s}^2$
- Half sine	11 ms
Immunity to disturbance	DIN EN 61000-6-2
Transient emissions	DIN EN 61000-6-3
Working temperature	
- Standard	-40...+50 °C based on Ethernet
- Standard	-40...+60 °C
Storage temperature, dry	-40...+70 °C
Relative humidity	60 %, non condensing
Protection class	DIN EN 60529
- Standard	IP65

Subject to change.

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LLB 502 SSI+ Analog 100/500M $\pm 3,0$ mm

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OrderNo.:LLB502-01213

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Stock photo

Advantages

- _ 1 mm accuracy, LLB502-01111
- _ 3 mm accuracy, LLB502-01213
- _ Distance measurement up to 500m
- _ Extended temperature range
- _ Measures linear movements
- _ Measuring rate up to 1 kHz



Technical data for LLB502-01213

MEASURING RANGE	100M WITHOUT REFLECTOR
	500M WITH REFLECTOR
ACCURACY	+ / - 3,0 MM
INTERFACE	1 DIGITAL INPUT
	3 DIGITAL OUTPUTS
	4..20MA
	ANALOGUE CURRENT
	ASI RS232
	ASI RS422
	SSI
SUPPLY VOLTAGE	12-30V
TEMPERATURE RANGE	-40+60°C
PROTECTION Class	IP65
LASER PROTECTION CLASS	2
OPTIONS ENC	HEATER
REFLECTIVE-FOIL	NO
DRAWING NO.	KAT-DRAW-00484

Subject to change.

LLB 502 SSI+ Analog $\pm 3,0$ mm

Measuring range \square 500 m, ± 3.0 mm accuracy

Order-#: LLB502-01213

12.5.2020 / 010203040099999999

General data for K-LLB502-A-2

Supply	
- Supply voltage	12...30 VDC
Current consumption no load	≤ 500 mA
	≤ 600 mA based on Ethernet
- Measured at	24 VDC
Integrated heating	
- Equipment	Standard
Measuring range, typically	
- on natural surfaces	0.05...100 m
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Resolution	0.1 mm
Measuring accuracy, typically	
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- Wave length λ	620...690 nm
- Laser protection class	2
- International safety standard	IEC 60825-1
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- Radiant power P	≤ 1 mW
- Beam divergence	0.16 x 0.6 mrad
- Pulse duration	0.2...0.8 x 10E-9 s
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PROFINET IO - Interface	
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SSI - Interface	
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LLB 502 SSI+ Analog $\pm 3,0$ mm

Measuring range $\square 500$ m, ± 3.0 mm accuracy

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Type of parametrization	programmable
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External inputs	
- Function input	external triggering
- Type of parametrization	programmable
- Logic level	"0" < +2V, "1" = Supply
- Number of inputs	1
External outputs	
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- Output level	≤ 30 VDC, ≤ 150 mA
- Type of parametrization	programmable
- Number of outputs	3
- Output stages	Open Source

Subject to change.

LLB 502 SSI+ Analog $\pm 3,0$ mm

Measuring range $\square 500$ m, ± 3.0 mm accuracy

Order-#: LLB502-01213
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General data for K-LLB502-A-2 continuation

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Device variants	
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- Optional connection cover	LLB502-20800, PROFINET-IO
- Optional connection cover	LLB502-20900, EtherCAT
- Note	replaces the existing cover

Environmental data

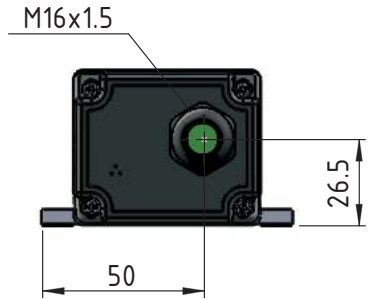
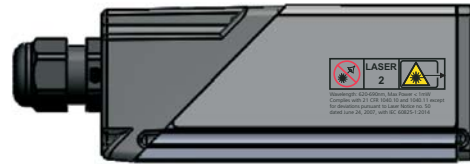
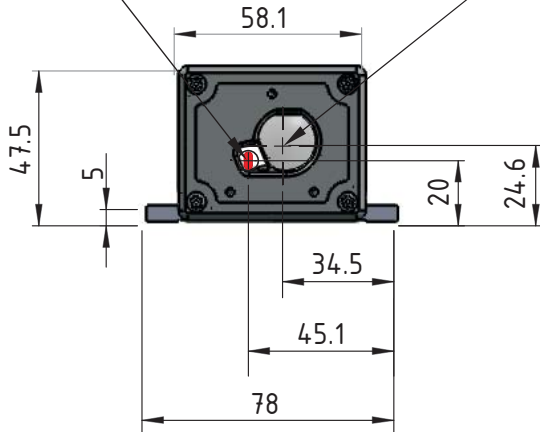
Vibration	DIN EN 60068-2-6
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- Sine	60...150 Hz
Shock	DIN EN 60068-2-27
- Specific value	≤ 500 m/s ²
- Half sine	11 ms
Immunity to disturbance	DIN EN 61000-6-2
Transient emissions	DIN EN 61000-6-3
Working temperature	
- Standard	-40...+50 °C based on Ethernet
- Standard	-40...+60 °C
Storage temperature, dry	-40...+70 °C
Relative humidity	60 %, non condensing
Protection class	DIN EN 60529
- Standard	IP65

Subject to change.

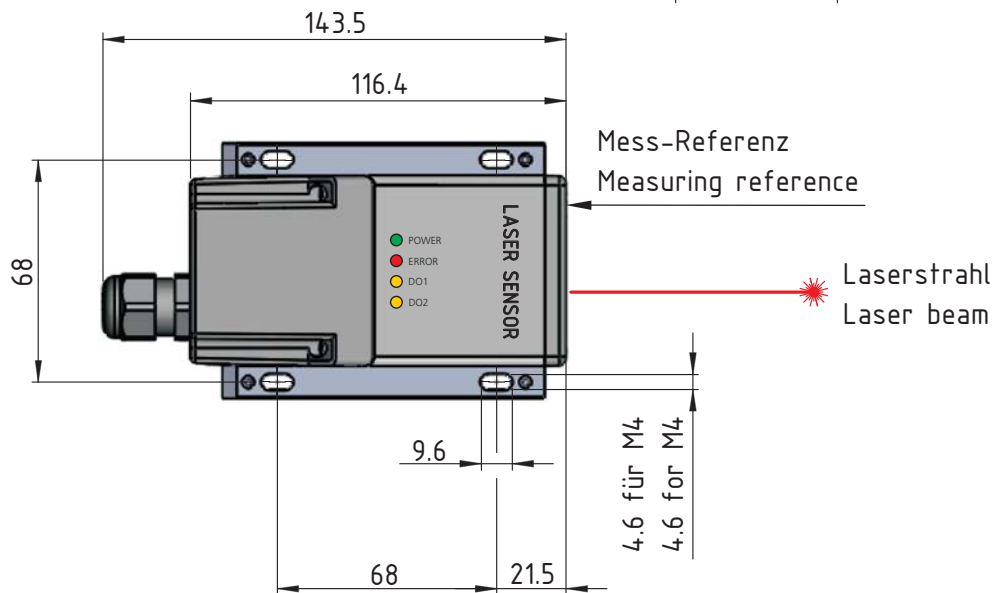
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Laser Ausgang
Laser output

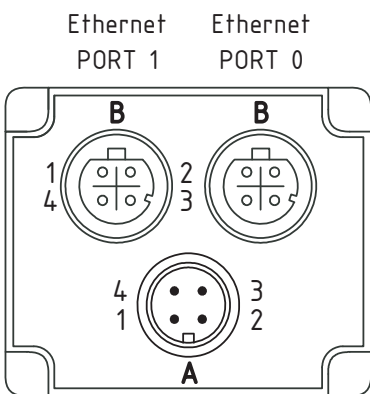
Empfänger-Linse
Receiver lens



- | | | |
|----|---|---------------------|
| 1 | ○ | +12...30 VDC |
| 2 | ○ | GND, 0 V |
| 3 | ○ | DIGITAL_OUT1/IN1 |
| 4 | ○ | DIGITAL_OUT2 |
| 5 | ○ | DIGITAL_OUT3_Error |
| 6 | ○ | ANALOG_OUT+ |
| 7 | ○ | RS232_Rx |
| 8 | ○ | RS232_Tx |
| 9 | ○ | SSI_DATA-_OUT / Tx- |
| 10 | ○ | SSI_DATA+_OUT / Tx+ |
| 11 | ○ | SSI_Clock-_IN / Rx- |
| 12 | ○ | SSI_Clock+_IN / Rx+ |



Optionale Ethernet-Anschlusskappen
Optional Ethernet connection caps



Power Supply

- 1: Tx+
2: Rx+
3: Tx-
4: Rx-

- 1: +12...30 VDC
2: GND, 0 V
3: N.C.
4: N.C.

- Ethernet/IP: LLB502-20700
PROFINET-IO: LLB502-20800
EtherCAT: LLB502-20900

Abmessungen / Dimensions:
68 mm x 58 mm x 47 mm

Gewicht / Weight:
0.090 kg



A: M12 A-coded, Stift/Male

B: M12 D-coded, Buchse/Female