

Laser Distance Sensor LLB502, 150m

Quick Delivery Stock Options (Click Article Number for Data Sheet)

Article Number	Output Type	Range	Accuracy
LLB502-00001	Analog+SSI	150 Meters	1mm
LLB502-00003	Analog+SSI	150 Meters	3mm



Add an Interface Module to the base device above

These field installable modules easily bolt into place - no special tools required

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



Subject to change.

Laser Distance Sensor LLB502 A+SSI, 150m



Ref.: K-LLB502-A-1

11.05.2020

010203040099999999

Advantages

- + LLB502-20700 = EtherNet/IP
- + LLB502-20800 = PROFINET-IC
- + LLB502-20900 = EtherCAT
- 1 mm accuracy, LLB502-00001
- 3 mm accuracy, LLB502-00003
- Distance measurem. up to 150 m
- Measures linear movements
- Measuring rate up to 50 Hz

General Data

Supply	
- Supply voltage	12...30 VDC
Current consumption no load	<= 150 mA
	<= 600 mA based on Ethernet
- Measured at	24 VDC
Measuring range, typically	
- on natural surfaces	0.05...100 m
- on reflective target plate	40...150 m
Resolution	0.1 mm
Measuring accuracy, typically	
- ± 1.0 mm bei 2 σ	LLB502-00001
- ± 3.0 mm bei 2 σ	LLB502-00003
Measurement time, typically	
- Single measurement	0.05...4 s
- Tracking mode	0.02...4 s
Reproducibility	± 0.3 mm (2 σ), LLB502-00001
	± 0.7 mm (2 σ), LLB502-00003
Light source	
- Laser diode	Red light
- Wave length λ	620...690 nm
- Laser protection class	2
- International safety standard	IEC 60825-1

Subject to change.

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Laser Distance Sensor LLB502 A+SSI, 150m

Ref.: K-LLB502-A-1
 11.05.2020
 010203040099999999

General Data continuation

- 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 Ø at 10, 50, 100 m	7x3 mm, 28x13 mm, 55x30 mm
Measurand output/refresh rate	≤ 50 Hz
Tracking-Mode output rate	≤ 50 Hz
EtherCAT - Interface	
- Equipment	Optional interface
EtherNet/IP™ - Interface	
- Equipment	Optional interface
PROFINET IO - Interface	
- Equipment	Optional interface
SSI - Interface	
- Equipment	Standard interface
- 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 µs
- 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 (I)	≤ 500 Ohm
- Analog output	Position
- Accuracy	± 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

Subject to change.

Laser Distance Sensor LLB502 A+SSI, 150m

Ref.: K-LLB502-A-1
 11.05.2020
 010203040099999999

General Data continuation

	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	<= 30 VDC, <= 150 mA
- Type of parametrization	programmable
- Number of outputs	3
- Output stages	Open Source
- 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 conditions

Vibration	DIN EN 60068-2-6
- Specific value	<= 50 m/s ²
- 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

Subject to change.

Laser Distance Sensor LLB502 A+SSI, 150m

Ref.: K-LLB502-A-1
11.05.2020
010203040099999999

Environmental conditions continuation

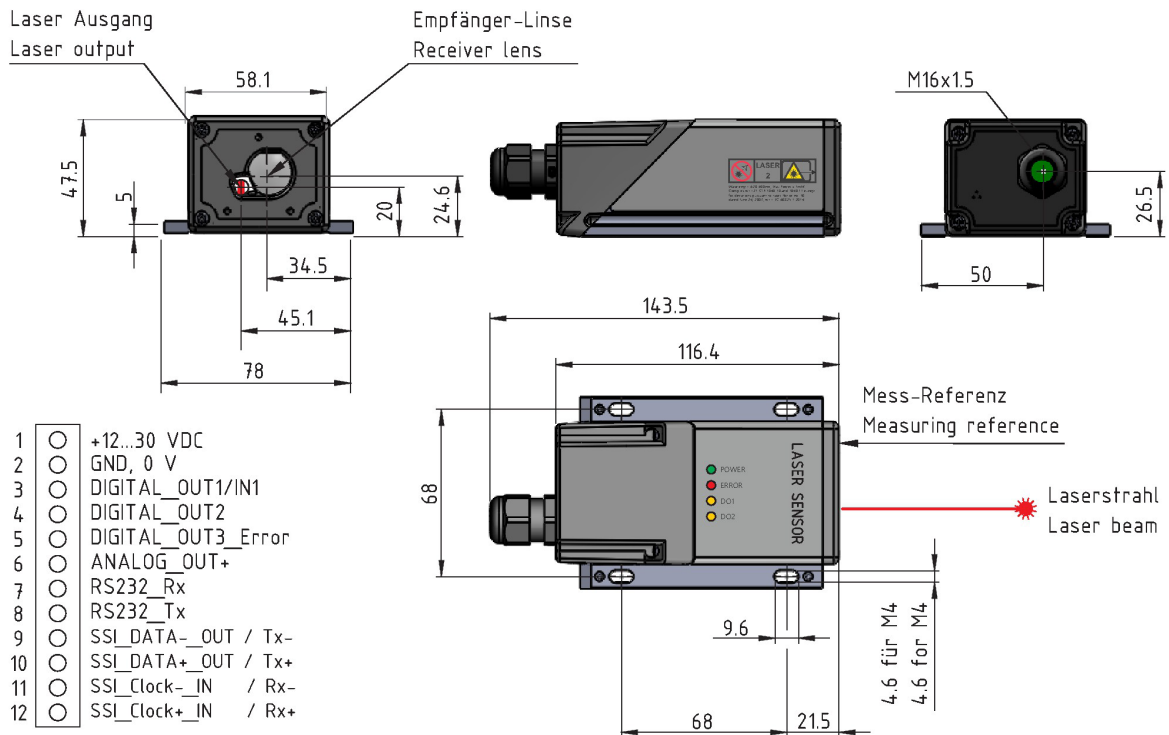
Working temperature	
- Standard	-10...+50 °C
Storage temperature, dry	-40...+70 °C
Relative humidity	60 %, non condensing
Protection class	DIN EN 60529
- Standard	IP65

Subject to change.

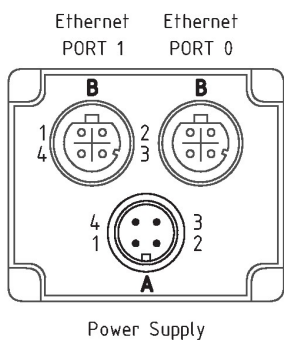
Laser Distance Sensor LLB502 A+SSI, 150m

Ref.: K-LLB502-A-1
 11.05.2020
 010203040099999999

Dimensional drawing



Optionale Ethernet-Anschlusskappen Optional Ethernet connection caps



- 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

Subject to change.

LLB 502 SSI+ Analog 100M ±1,0 mm

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

Order-#: LLB502-00001

12.5.2020 / 010203040099999999

Measuring range □150 m, ±1.0 mm accuracy



Stock photo

Advantages

- _ + LLB502-20700 = EtherNet/IP
- _ + LLB502-20800 = PROFINET-IC
- _ + LLB502-20900 = EtherCAT
- _ 1 mm accuracy, LLB502-00001
- _ 3mm accuracy, LLB502-00003
- _ Distance measur. up to 150 m
- _ Measures linear movements
- _ Measuring rate up to 50 Hz



Technical data for LLB502-00001

MEASURING RANGE	100M WITHOUT 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	-10+50°C
PROTECTION Class	IP65
LASER PROTECTION CLASS	2
REFLECTIVE-FOIL	NO
DRAWING NO.	KAT-DRAW-00484

General data for K-LLB502-A-1

Subject to change.

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

Measuring range $\square 150$ m, ± 1.0 mm accuracy

Order-#: LLB502-00001

12.5.2020 / 010203040099999999

General data for K-LLB502-A-1 continuation

Supply	
- Supply voltage	12...30 VDC
Current consumption no load	≤ 150 mA
	≤ 600 mA based on Ethernet
- Measured at	24 VDC
Measuring range, typically	
- on natural surfaces	0.05...100 m
- on reflective target plate	40...150 m
Resolution	0.1 mm
Measuring accuracy, typically	
- ± 1.0 mm bei 2σ	LLB502-00001
- ± 3.0 mm bei 2σ	LLB502-00003
Measurement time, typically	
- Single measurement	0.05...4 s
- Tracking mode	0.02...4 s
Reproducibility	± 0.3 mm (2σ), LLB502-00001
	± 0.7 mm (2σ), LLB502-00003
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	≤ 50 Hz
Tracking-Mode output rate	≤ 50 Hz
EtherCAT - Interface	
- Equipment	Optional interface
EtherNet/IP™ - Interface	
- Equipment	Optional interface
PROFINET IO - Interface	
- Equipment	Optional interface
SSI - Interface	
- Equipment	Standard interface
- SSI-Clock input	RS-422; 2-wire
- SSI-Data output	RS-422, 2-wire

Subject to change.

LLB 502 SSI+ Analog 100M ±1,0 mm

Measuring range □150 m, ±1.0 mm accuracy

Order-#: LLB502-00001

12.5.2020 / 010203040099999999

General data for K-LLB502-A-1 continuation

- SSI-Clock frequency	83...1000 kHz
- SSI-Mono time, typically	25 µs
- 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)	<= 500 Ohm
- Analog output	Position
- Accuracy	± 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	<= 30 VDC, <= 150 mA
- Type of parametrization	programmable
- Number of outputs	3
- Output stages	Open Source
- Output stages	Open Drain
- Output stages	Push Pull

Subject to change.

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

Measuring range $\square 150$ m, ± 1.0 mm accuracy

Order-#: LLB502-00001
12.5.2020 / 010203040099999999

General data for K-LLB502-A-1 continuation

- 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

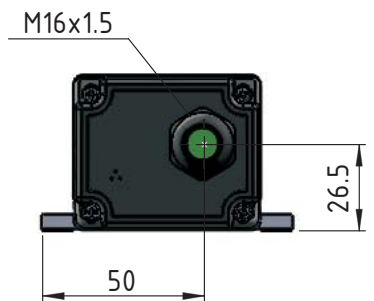
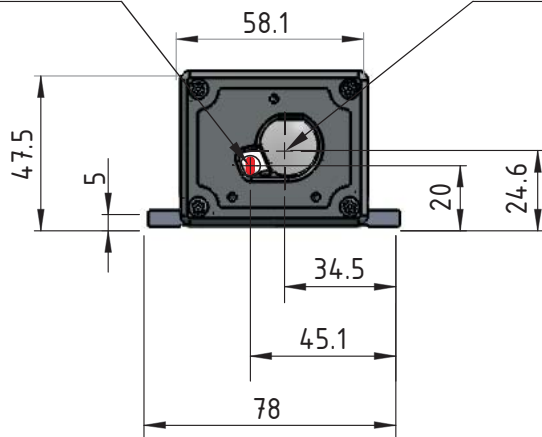
Vibration	DIN EN 60068-2-6
- Specific value	≤ 50 m/s ²
- Sine	60...150 Hz
Shock	DIN EN 60068-2-27
- Specific value	≤ 500 m/s ²
- Half sine	11 ms
Immunity to disturbance	DIN EN 61000-6-2
Transient emissions	DIN EN 61000-6-3
Working temperature	
- Standard	-10...+50 °C
Storage temperature, dry	-40...+70 °C
Relative humidity	60 %, non condensing
Protection class	DIN EN 60529
- Standard	IP65

Subject to change.

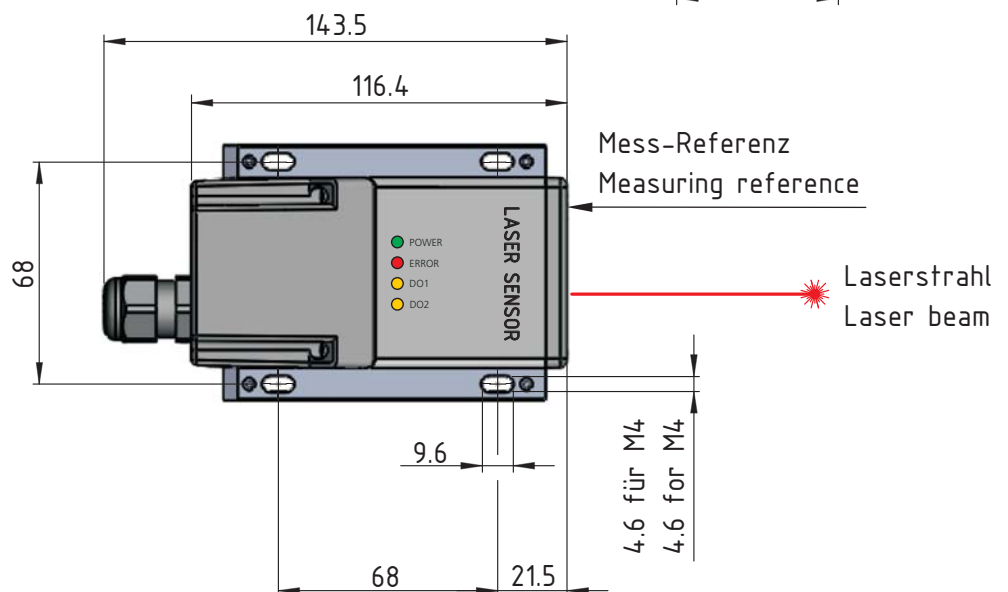
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Laser Ausgang
Laser output

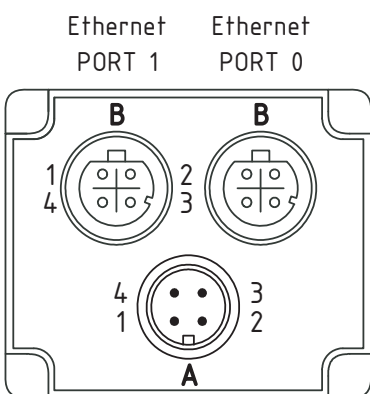
Empfänger-Linse
Receiver lens



- | | | |
|----|---|---------------------|
| 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

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

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

Order-#: LLB502-00003

12.5.2020 / 010203040099999999

Measuring range \square 150 m, ± 3.0 mm accuracy



Stock photo

Advantages

- +LLB502-20700=EtherNet/IP
- +LLB502-20800=PROFINET-IC
- +LLB502-20900=EtherCAT
- 1 mm accuracy, LLB502-00001
- 3mm accuracy, LLB502-00003
- Distance measur. up to 150
- Measures linear movements
- Measuring rate up to 50 Hz



Technical data for LLB502-00003

MEASURING RANGE	100M WITHOUT 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	-10+50°C
PROTECTION Class	IP65
LASER PROTECTION CLASS	2
REFLECTIVE-FOIL	NO
DRAWING NO.	KAT-DRAW-00484

General data for K-LLB502-A-1

Subject to change.

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

Measuring range $\square 150$ m, ± 3.0 mm accuracy

Order-#: LLB502-00003

12.5.2020 / 010203040099999999

General data for K-LLB502-A-1 continuation

Supply	
- Supply voltage	12...30 VDC
Current consumption no load	≤ 150 mA
	≤ 600 mA based on Ethernet
- Measured at	24 VDC
Measuring range, typically	
- on natural surfaces	0.05...100 m
- on reflective target plate	40...150 m
Resolution	0.1 mm
Measuring accuracy, typically	
- ± 1.0 mm bei 2σ	LLB502-00001
- ± 3.0 mm bei 2σ	LLB502-00003
Measurement time, typically	
- Single measurement	0.05...4 s
- Tracking mode	0.02...4 s
Reproducibility	± 0.3 mm (2σ), LLB502-00001
	± 0.7 mm (2σ), LLB502-00003
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	≤ 50 Hz
Tracking-Mode output rate	≤ 50 Hz
EtherCAT - Interface	
- Equipment	Optional interface
EtherNet/IP™ - Interface	
- Equipment	Optional interface
PROFINET IO - Interface	
- Equipment	Optional interface
SSI - Interface	
- Equipment	Standard interface
- SSI-Clock input	RS-422; 2-wire
- SSI-Data output	RS-422, 2-wire

Subject to change.

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

Measuring range $\square 150$ m, ± 3.0 mm accuracy

Order-#: LLB502-00003

12.5.2020 / 010203040099999999

General data for K-LLB502-A-1 continuation

- 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 (I)	≤ 500 Ohm
- Analog output	Position
- Accuracy	± 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	≤ 30 VDC, ≤ 150 mA
- Type of parametrization	programmable
- Number of outputs	3
- Output stages	Open Source
- Output stages	Open Drain
- Output stages	Push Pull

Subject to change.

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

Measuring range $\square 150$ m, ± 3.0 mm accuracy

Order-#: LLB502-00003
 12.5.2020 / 010203040099999999

General data for K-LLB502-A-1 continuation

- 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

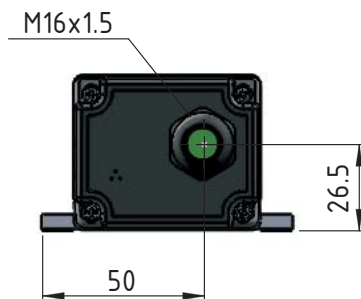
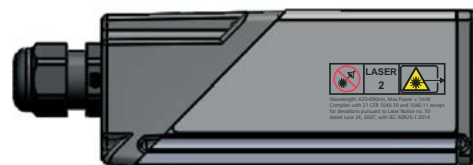
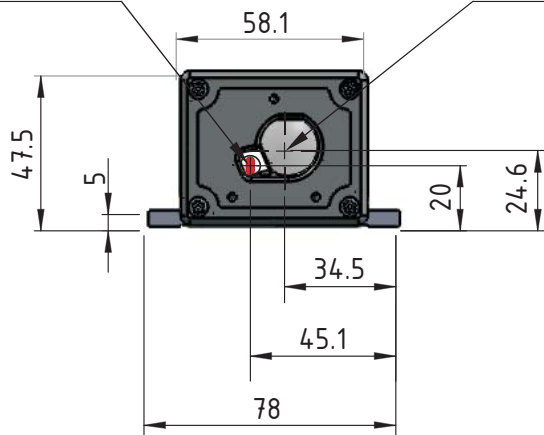
Vibration	DIN EN 60068-2-6
- Specific value	≤ 50 m/s ²
- Sine	60...150 Hz
Shock	DIN EN 60068-2-27
- Specific value	≤ 500 m/s ²
- Half sine	11 ms
Immunity to disturbance	DIN EN 61000-6-2
Transient emissions	DIN EN 61000-6-3
Working temperature	
- Standard	-10...+50 °C
Storage temperature, dry	-40...+70 °C
Relative humidity	60 %, non condensing
Protection class	DIN EN 60529
- Standard	IP65

Subject to change.

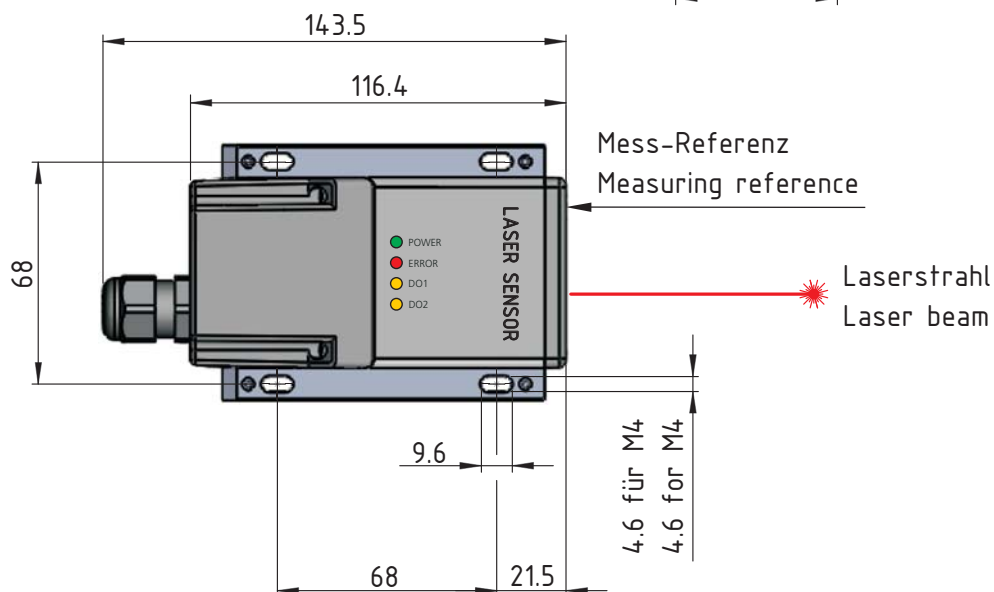
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Laser Ausgang
Laser output

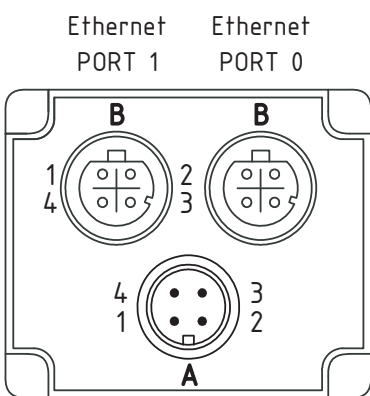
Empfänger-Linse
Receiver lens



- | | | |
|----|---|---------------------|
| 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:
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Gewicht / Weight:
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