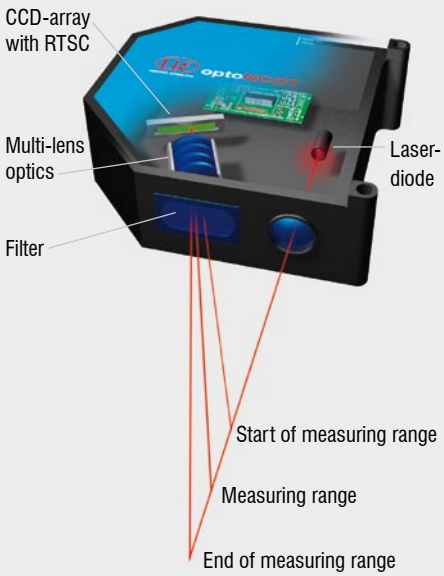
MICRO-EPSILON

optoNCDT Options



Leadership in laser displacement measurement

Micro-Epsilon has a long-standing success of developing laser displacement sensors. Already a pioneer in the field of CCD sensors, Micro-Epsilon has continually raised the bar in industrial laser displacement measurement.

Measurement principle: Laser triangulation

Laser triangulation sensors operate with a laser diode which projects a visible light spot onto the surface of the measurement target. The light reflected from the spot is imaged by an optical receiving system onto a position-sensitive element. If the light spot changes its position, this change is imaged on the receiving element and evaluated. With the 1607 Series an analogue PSD module is used as the position-sensitive measuring element, whereas with the remaining sensors CMOS elements and CCD elements are used.

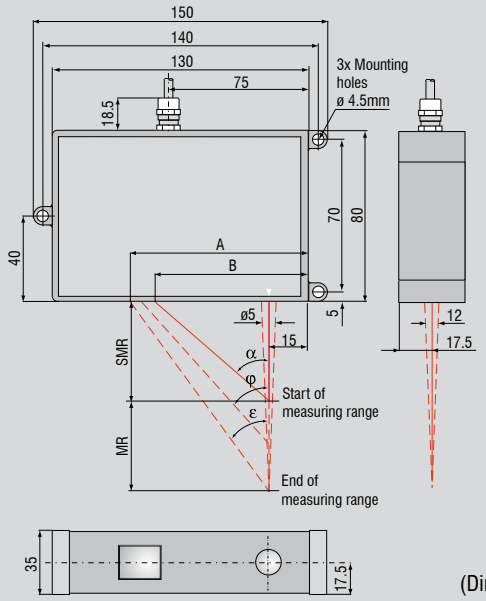
Custom Sensor Modifications

For applications where the above standard sensors do not meet your requirements, it may be possible to supply a sensor with modified specifications:

- Measuring range and stand off
- Custom housing or mounting geometry
- Measuring rate 2.5 / 5 / 10 / 20kHz
- Non standard signal interfaces
- Special cable length of electrical connector
- 90° beam deflection
- Vacuum suitability
- Reduced mass
- Increased shock and vibration resistance

optoNCDT sensors uses a semiconductor laser with a wavelength of 670nm (visible/red). The maximum optical output power is 1mW. The sensor is classified as laser class II. A warning sign is attached to the sensor housing.

Dimensions



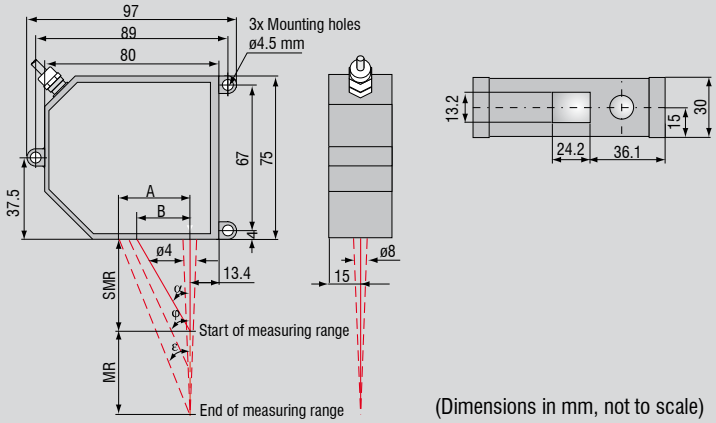
Model	MR	SMR	α	φ	ε	A	B
ILD1710-200(227)	200	250	15.6°	12.6°	10.8°	101	86
ILD1720-200(220)	200	130	28.3°	18.7°	14.6°		
ILD1700-300(227)	300	200	19.3°	12.6°	9.8°		

(Dimensions in mm, not to scale)

Model		ILD1710-200	ILD1720-200	ILD1700-300
Article no.		4120098	4120099	4120157
Measuring range		200mm	200mm	300mm
Start of measuring range (SMR)		250mm	130mm	200mm
Midrange (MMR)		350mm	230mm	350mm
End of measuring range (EMR)		450mm	330mm	500mm
Linearity (≤±0.08% FSO)		160µm	160µm	240µm
Spot diameter	SMR	1500µm	1500µm	1500µm
	MMR	1500µm	1500µm	1500µm
	EMR	1500µm	1500µm	1500µm
Resolution (at 2.5kHz without averaging)		12µm	12µm	18µm
Measuring rate (adjustable)		2.5kHz / 1.25kHz / 625Hz / 312.5Hz		
Light source		semiconductor laser <1mW, 670nm (red)		
Permissable ambient light (at 2.5kHz)		10,000lx		
Laser safety class		class 2 IEC 60825-1 : 2001-11		
Temperature stability*		0.01% FSO/°C		
Operation temperature		0°C ... +50°C		
Storage temperature		-20°C ... +70°C		
Measurement outputs (selectable)		4 ... 20mA / 0 ... 10V / RS 422 / USB (option with cable PC1700-3/USB)		
Switching outputs (programmable)		1 x error or 2 x limit		
Switch input (configurable)		Laser ON-OFF, Zero, Trigger/Sync		
Operation		via touch screen on sensor or via PC with ILD 1700 tool		
Power supply		24VDC (11 ... 30VDC), max. 150mA		
Electromagnetic compatibility (EMC)		EN 61000-6-3; EN 61000-6-2		
Sensor cable length (with connector)		standard 0.25m integrated		
Further functions (programmable)		Synchronisation possible for simultaneous or alternating measurements, Trigger possible		
Protection class		IP 65		
Vibration		2g / 20 ... 500Hz (IEC 68-2-6)		
Shock		15g / 6ms (IEC 68-2-29)		
Weight (with 25cm cable)		appr. 600 g		

FSO = Full scale output All specifications apply for a diffusely reflecting matt white ceramic target
*based to digital output
SMR = Start of measuring range; MMR = Midrange; EMR = End of measuring range

Dimensions



(Dimensions in mm, not to scale)

Model	ILD 1700-10(006) - Vacuum fit sensor
Measuring range	10mm (other measuring ranges on request)
Start of measuring range	30mm
Midrange	35mm
End of measuring range	40mm
Linearity ≤ ±0.08% FSO	8µm
Resolution (at 2.5kHz without averaging)	0.5µm
Measuring rate	2.5kHz / 1.25kHz / 625Hz / 312.5Hz (adjustable)
Light source	semiconductor laser <1mW, 670nm (red)
Permissable ambient light (at 2.5kHz)	10,000lx
Laser safety class	class 2 IEC 60825-1 : 2001-11
Spot diameter	SMR 110µm; MMR 50µm; EMR 110µm
Temperature stability*	0.01% FSO/°C
Operation temperature	0 ... +50°C
Storage temperature	-20 ... +70°C
Output measurements	selectable: 4 ... 20mA / 0 ... 10V / RS 422 / USB (option with cable PC1700-3/USB)
Output switching outputs	1 x error or 2 x limit (each pogrammable)
Switch input	Laser ON-OFF / Zero
Operation	via touch screen on sensor or via PC with ILD 1700 tool
Power supply	24VDC (11 ... 30VDC), max. 150mA
Electromagnetic compatibility (EMC)	EN 61000-6-3; EN 61000-6-2
Sensor cable length (with connector)	standard 0.25m integrated / optional: extension 3m or 10m
Synchronisation	possible for simultaneous or alternating measurements
Protection class	IP 40
Vibration	2g / 20 ... 500Hz
Shock	15g / 6ms
Weight (with 25cm cable)	appr. 550g

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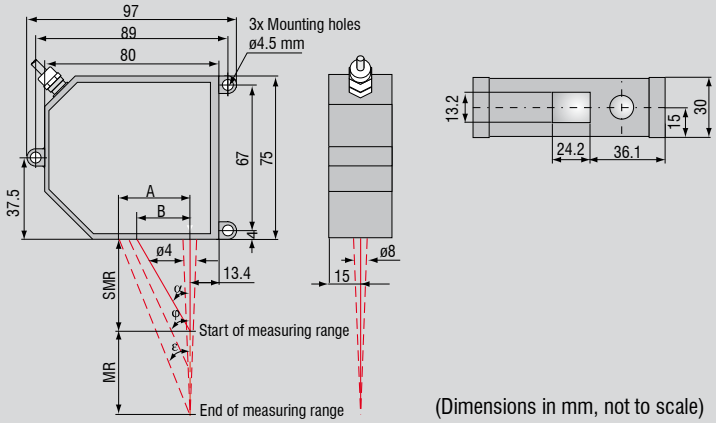
SMR = Start of measuring range MMR = Midrange EMR = End of measuring range

Dimensions



(Dimensions in mm, not to scale)

Model	ILD 1700-120
Measuring range	130mm
Start of measuring range	70mm
Midrange	135mm
End of measuring range	200mm
Linearity ≤ ±0.08% FSO	100µm
Resolution (at 2.5kHz without averaging)	6µm
Measuring rate	2.5kHz / 1.25kHz / 625Hz / 312.5Hz (adjustable)
Light source	semiconductor laser <1mW, 670nm (red)
Permissable ambient light (at 2.5kHz)	10,000lx
Laser safety class	class 2 IEC 60825-1 : 2001-11
Spot diameter	SMR 740µm; MMR 60µm; EMR 700µm
Temperature stability*	0.01% FSO/°C
Operation temperature	0°C ... +50°C
Storage temperature	-20°C ... +70°C
Output measurements	selectable: 4 ... 20mA / 0 ... 10V / RS 422 / USB (option with cable PC1700-3/USB)
Output switching outputs	1 x error or 2 x limit (each programmable)
Switch input	Laser ON-OFF / Zero
Operation	via touch screen on sensor or via PC with ILD 1700 tool
Power supply	24VDC (11 ... 30VDC), max. 150mA
Electromagnetic compatibility (EMC)	EN 61000-6-3; EN 61000-6-2
Sensor cable length (with connector)	standard 0.25m integrated / optional: extension 3m or 10m
Synchronisation	possible for simultaneous or alternating measurements
Protection class	IP 65
Vibration	2g / 20 ... 500Hz
Shock	15g / 6ms
Weight (with 25cm cable)	appr. 550g

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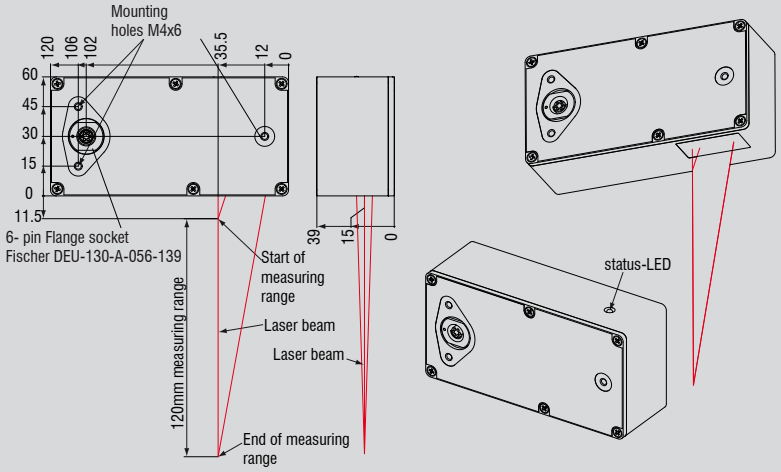
SMR = Start of measuring range MMR = Midrange EMR = End of measuring range

Dimensions

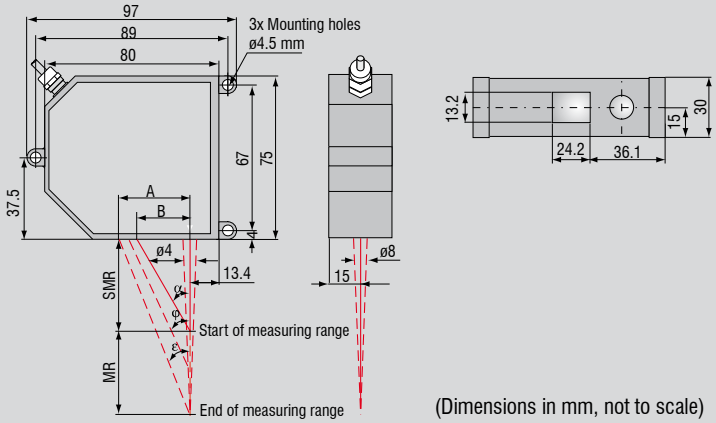


(Dimensions in mm, not to scale)

Model	ILD 1700-120/90
Measuring range	120mm
Start of measuring range	11.5mm
Midrange	71.5mm
End of measuring range	131.5mm
Linearity ≤ ±0.08% FSO	100µm
Resolution (at 2.5kHz without averaging)	6µm
Measuring rate	2.5kHz / 1.25kHz / 625Hz / 312.5Hz (adjustable)
Light source	semiconductor laser <1mW, 670nm (red)
Permissable ambient light (at 2.5kHz)	10,000lx
Laser safety class	class 2 IEC 60825-1 : 2001-11
Spot diameter	SMR 740µm; MMR 60µm; EMR 700µm
Temperature stability*	0.01% FSO/°C
Operation temperature	0°C ... +50°C
Storage temperature	-20°C ... +70°C
Output measurements	selectable: 4 ... 20mA / 0 ... 10V / RS 422 / USB (option with cable PC1700-3/USB)
Output switching outputs	1 x error or 2 x limit (each pogrammable)
Switch input	Laser ON-OFF / Zero
Operation	via touch screen on sensor or via PC with ILD 1700 tool
Power supply	24VDC (11 ... 30VDC), max. 150mA
Electromagnetic compatibility (EMC)	EN 61000-6-3; EN 61000-6-2
Sensor cable length (with connector)	standard 0.25m integrated / optional: extension 3m or 10m
Synchronisation	possible for simultaneous or alternating measurements
Protection class	IP 65
Vibration	2g / 20 ... 500Hz
Shock	15g / 6ms
Weight (with 25cm cable)	appr. 550g

FSO = Full scale output All specifications apply for a diffusely reflecting matt white ceramic target
*based to digital output ; SMR = Start of measuring range MMR = Midrange EMR = End of measuring range

Dimensions



(Dimensions in mm, not to scale)

Model		ILD1700-200(015)
Measuring range		205mm
Start of measuring range		100mm
Midrange		200mm
End of measuring range		300mm
Linearity	≤ ±0.08% FSO	160µm
Resolution (at 2.5kHz without averaging)		10µm
Measuring rate		2.5kHz / 1.25kHz / 625Hz / 312.5Hz (adjustable)
Light source		semiconductor laser < 1mW, 670nm (red)
Permissable ambient light (at 2.5kHz)		10,000lx
Laser safety class		class 2 IEC 60825-1 : 2001-11
Spot diameter		SMR 740µm; MMR 60µm; EMR 700µm
Temperature stability*		0.01% FSO/°C
Operation temperature		0 ... +50°C
Storage temperature		-20 ... +70°C
Output	measurements	selectable: 4 ... 20mA / 0 ... 10V / RS 422 / USB (option with cable PC1700-3/USB)
	switching outputs	1 x error or 2 x limit (each pogrammable)
Switch input		Laser ON-OFF / Zero
Operation		via touch screen on sensor or via PC with ILD 1700 tool
Power supply		24VDC (11 ... 30VDC), max. 150mA
Electromagnetic compatibility (EMC)		EN 61000-6-3; EN 61000-6-2
Sensor cable length (with connector)		standard 0.25m integrated / optional: extension 3m or 10m
Synchronisation		possible for simultaneous or alternating measurements
Protection class		IP 65
Vibration		2g / 20 ... 500Hz
Shock		15g / 6ms
Weight (with 25cm cable)		appr. 550g

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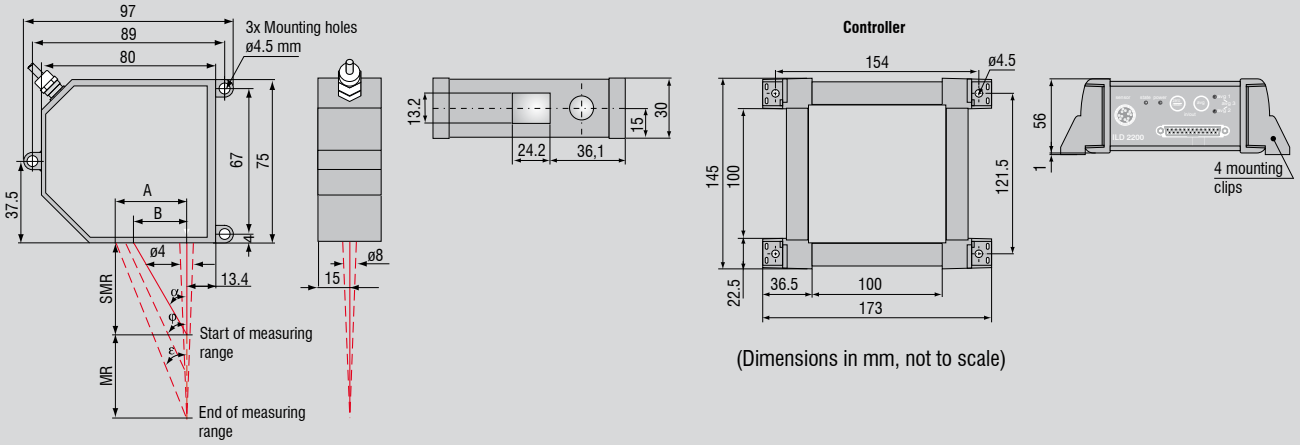
*based to digital output
SMR = Start of measuring range MMR = Midrange EMR = End of measuring range

Dimensions



(Dimensions in mm, not to scale)

Model		ILD 2200-20(235)
Measuring range		2mm (other measuring ranges on request)
Start of measuring range		24mm
Midrange		25mm
End of measuring range		26mm
Linearity	≤ ±0.08% FSO	1µm
Resolution (at 10kHz without averaging)	0.0015% FSO	0.03µm
Measuring rate		10kHz
Permissable ambient light		30,000lx
Spot diameter		SMR 80µm; MMR 35µm; EMR 80µm;
Light source		semiconductor laser <1mW, 670nm (red)
Laser safety class 2		DIN EN 60825-1/A1 12.99 / IEC 825-1/A1 12.99 / FDA
Protection class		sensor: IP 40 / controller: IP 50
Temperature stability		0.01% FSO/°C
Operation temperature		0 ... +50°C
Storage temperature		-20 ... +70°C
Output	analogue	±5V
	digital	RS 422 / 691.2kBaud
Power supply		24VDC (±15%), max. 500mA
Sensor cable		modified cable 3m with connector for vacuum feed through [1]
Controller		functions: auto zero / signal averaging
Electromagnetic compatibility (EMC)		EN 55011/12.1998 and EN 50082-2/ 02.1996
Vibration		2g / 20 ... 500Hz
Shock		15g / 6ms / 3 axis

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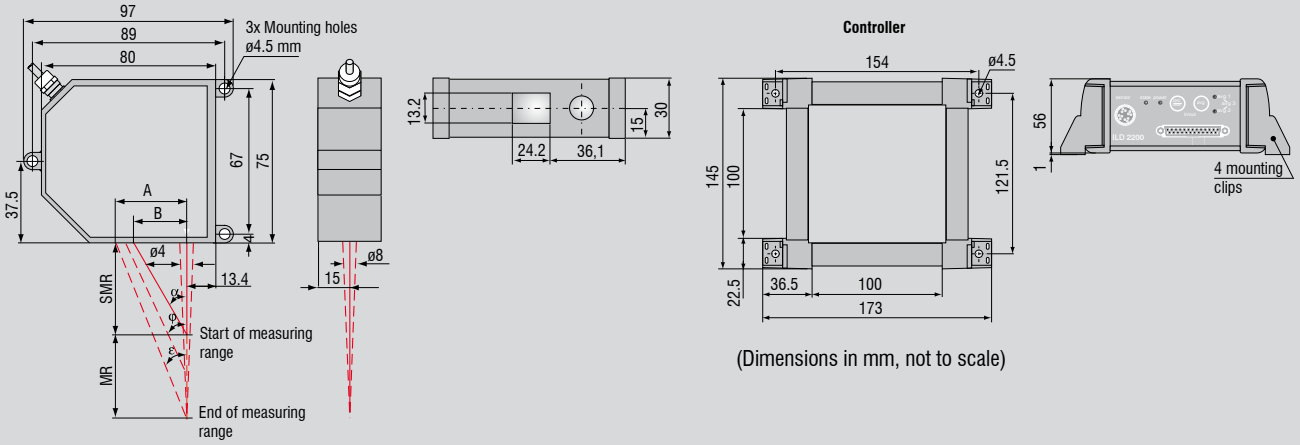
SMR = Start of measuring range MMR = Midrange EMR = End of measuring range
[1] Vacuum feed through and cable are included in delivery

Dimensions



(Dimensions in mm, not to scale)

Model		ILD 2200-20(223)
Measuring range		20mm
Start of measuring range		40mm
Midrange		50mm
End of measuring range		60mm
Linearity	≤ ±0.03% FSO	6µm
Resolution (at 10kHz without averaging)	0.0015% FSO	0.3µm
Measuring rate		10kHz
Permissable ambient light		30,000lx
Spot diameter		SMR 160µm; MMR 60µm; EMR 160µm;
Light source		semiconductor laser <1mW, 670nm (red)
Laser safety class 2		DIN EN 60825-1/A1 12.99 / IEC 825-1/A1 12.99 / FDA
Protection class		sensor: IP 65 / controller: IP 50
Temperature stability		0.01% FSO/°C
Operation temperature		0 ... +50°C
Storage temperature		-20 ... +70°C
Output	analogue	±5V
	digital	RS 422 / 691.2kBaud
Power supply		24VDC (±15%), max. 500mA
Sensor cable		standard: 2m - integrated ; option: 5m/10m
Controller		functions: auto zero / signal averaging
Electromagnetic compatibility (EMC)		EN 55011/12.1998 and EN 50082-2/ 02.1996
Vibration		2g / 20 ... 500Hz
Shock		15g / 6ms / 3 axis

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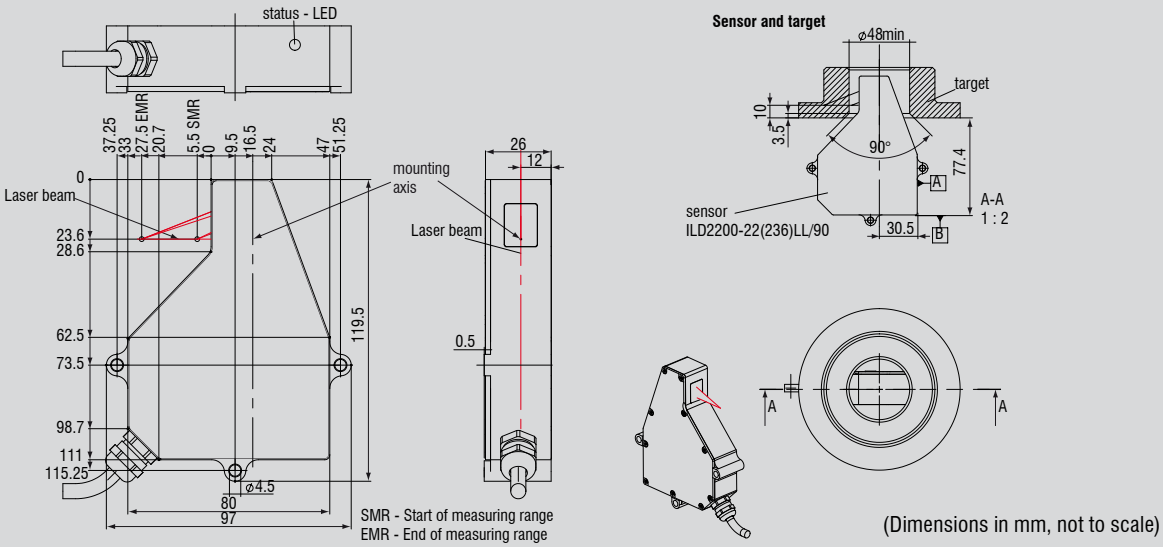
*based to digital output
SMR = Start of measuring range MMR = Midrange EMR = End of measuring range

Dimensions



(Dimensions in mm, not to scale)

Model	ILD 2200-22(236)LL90
Measuring range	22 mm
Start of measuring range	5.5mm
Midrange	16.5mm
End of measuring range	27.5mm
Linearity ≤ ±0.03%FSO	7µm
Resolution (at 10kHz without averaging) 0.0015% FSO	0.4µm
Measuring rate	2.5kHz
Permissable ambient light	10,000lx
Spot diameter	SMR 160µm; MMR 60µm; EMR 160µm;
Light source	semiconductor laser <1mW, 670nm (red)
Laser safety class 2	DIN EN 60825-1/A1 12.99 / IEC 825-1/A1 12.99 / FDA
Protection class	sensor: IP 65 / controller: IP 50
Temperature stability	0.01% FSO/°C
Operation temperature	0 ... +50°C
Storage temperature	-20 ... +70°C
Output digital	RS 485 / 115.2kBaud
Power supply	24VDC (±15%), max. 500mA
Sensor cable	standard: 0.3m (integrated) ; option: 5.3m/10.3m
Controller	functions: auto zero / signal averaging dimensions: 143mm x 145mm x 52mm
Electromagnetic compatibility (EMC)	EN 55011/12.1998 and EN 50082-2/ 02.1996
Vibration	2g / 20 ... 500Hz
Shock	15g / 6ms / 3 axis

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All specifications apply for a diffusely reflecting matt white ceramic target
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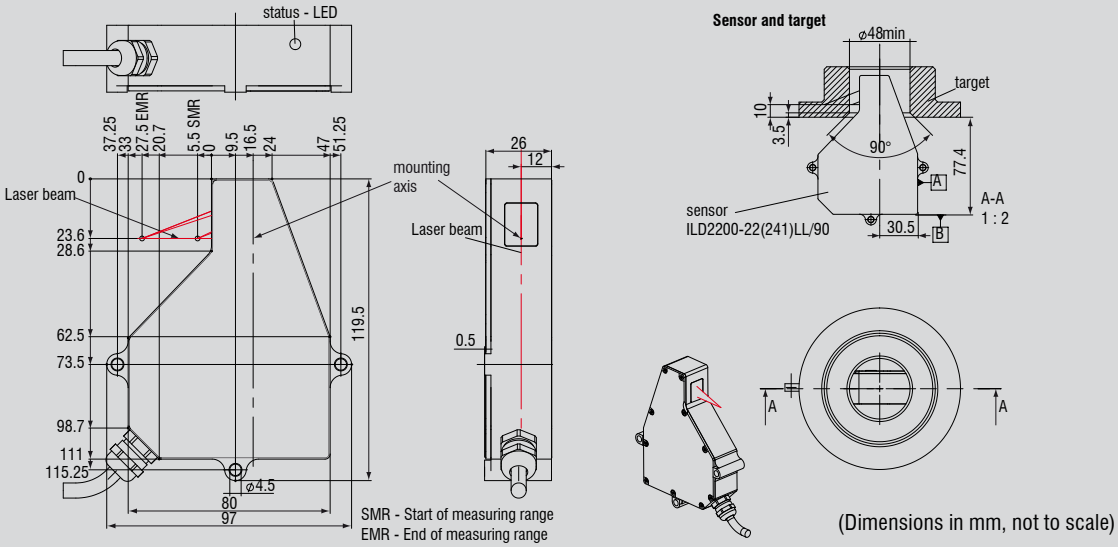
Dimensions



Model		ILD 2200-22(241)LL90
Measuring range		22mm
Start of measuring range		5.5mm
Midrange		16.5mm
End of measuring range		27.5mm
Linearity	≤ ±0.03%FSO	7µm
Resolution (at 10kHz without averaging)	0.0015% FSO	0.4µm
Measuring rate		10kHz
Permissable ambient light		10,000lx
Spot diameter		SMR 160µm; MMR 60µm; EMR 160µm;
Light source		semiconductor laser <1mW, 670nm (red)
Laser safety class 2		DIN EN 60825-1/A1 12.99 / IEC 825-1/A1 12.99 / FDA
Protection class		sensor: IP 65 / controller: IP 50
Temperature stability		0.01% FSO/°C
Operation temperature		0 ... +50°C
Storage temperature		-20 ... +70°C
Output	analogue	±5V
	digital	RS485 / 115.2kBaud
Power supply		24VDC (±15%), max. 500mA
Sensor cable		standard: 2m (integrated)
Controller		functions: auto zero / signal averaging; dimensions: 143mm x 145mm x 52mm
Electromagnetic compatibility (EMC)		EN 55011/12.1998 and EN 50082-2/ 02.1996
Vibration		2g / 20 ... 500 Hz
Shock		15g / 6ms / 3 axis

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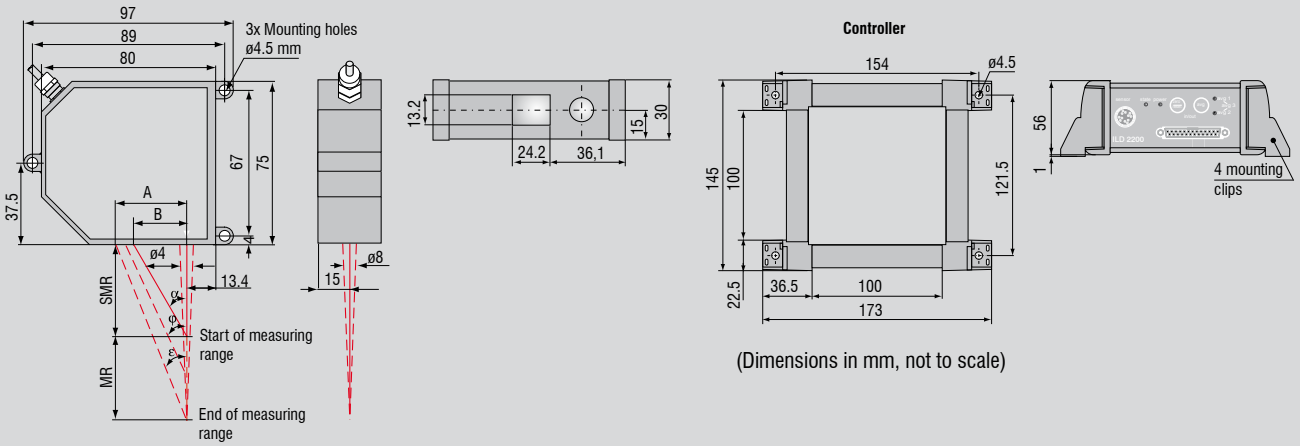
All specifications apply for a diffusely reflecting matt white ceramic target
SMR = Start of measuring range MMR = Midrange EMR = End of measuring range

Dimensions



(Dimensions in mm, not to scale)

Model		ILD 2200-30
Measuring range		30mm
Start of measuring range		30mm
Midrange		45mm
End of measuring range		60mm
Linearity	≤ ±0.03%FSO	9µm
Resolution (at 10kHz without averaging)	0.0015% FSO	0.4µm
Measuring rate		10kHz
Permissable ambient light		30,000lx
Spot diameter		SMR 160µm; MMR 60µm; EMR 160µm;
Light source		semiconductor laser <1mW, 670nm (red)
Laser safety class 2		DIN EN 60825-1/A1 12.99 / IEC 825-1/A1 12.99 / FDA
Protection class		sensor: IP 65 / controller: IP 50
Temperature stability		0.01% FSO/°C
Operation temperature		0°C ... +50°C
Storage temperature		-20°C ... +70°C
Output	analogue	±5V
	digital	RS 422 / 691.2kBaud
Power supply		24VDC (±15%), max. 500mA
Sensor cable		standard: 2m (integrated); option: 5m/10m
Controller		functions: auto zero / signal averaging
Electromagnetic compatibility (EMC)		EN 55011/12.1998 and EN 50082-2/ 02.1996
Vibration		2g / 20 ... 500Hz
Shock		15g / 6ms / 3 axis

FSO = Full scale output
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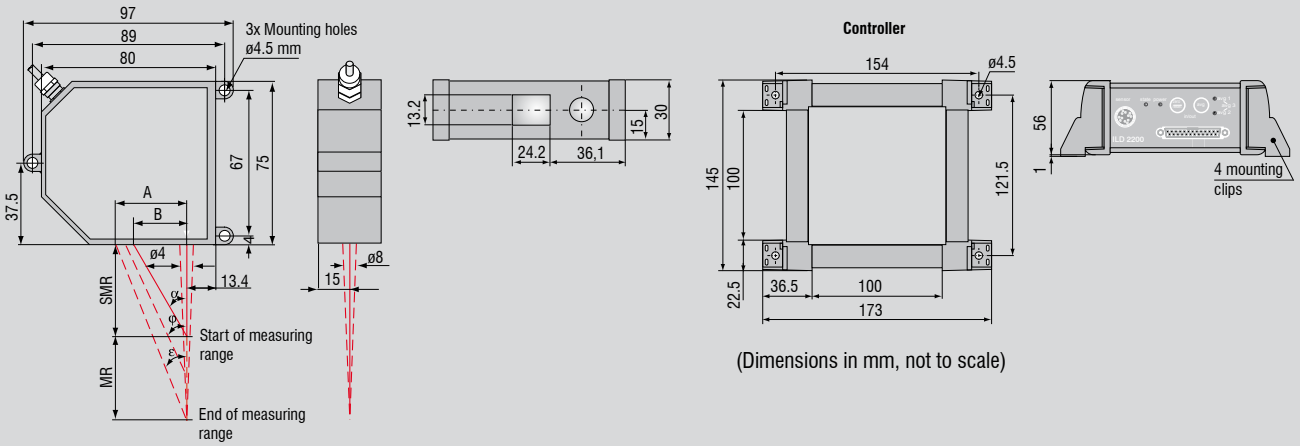
SMR = Start of measuring range MMR = Midrange EMR = End of measuring range

Dimensions



(Dimensions in mm, not to scale)

Model		ILD 2200-60
Measuring range		60mm
Start of measuring range		45mm
Midrange		75mm
End of measuring range		105mm
Linearity	≤±0.03%FSO	18µm
Resolution (at 10kHz without averaging)	0.0015% FSO	0.9µm
Measuring rate		10kHz
Permissable ambient light		30,000lx
Spot diameter		SMR 160µm; MMR 60µm; EMR 160µm;
Light source		semiconductor laser <1mW, 670nm (red)
Laser safety class 2		DIN EN 60825-1/A1 12.99 / IEC 825-1/A1 12.99 / FDA
Protection class		sensor: IP 65 / controller: IP 50
Temperature stability		0.01% FSO/°C
Operation temperature		0 ... +50°C
Storage temperature		-20 ... +70°C
Output	analogue	±5V
	digital	RS 422 / 691.2kBaud
Power supply		24VDC (±15%), max. 500mA
Sensor cable		standard: 2m (integrated); option: 5m/10m
Controller		functions: auto zero / signal averaging
Electromagnetic compatibility (EMC)		EN 55011/12.1998 and EN 50082-2/ 02.1996
Vibration		2g / 20 ... 500Hz
Shock		15g / 6ms / 3 axis

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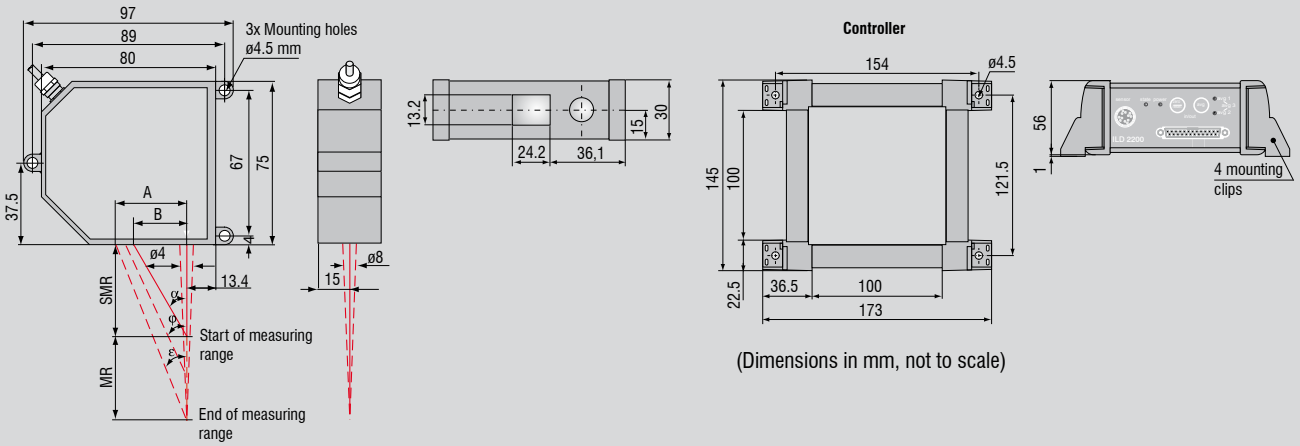
All specifications apply for a diffusely reflecting matt white ceramic target
SMR = Start of measuring range MMR = Midrange EMR = End of measuring rang

Dimensions

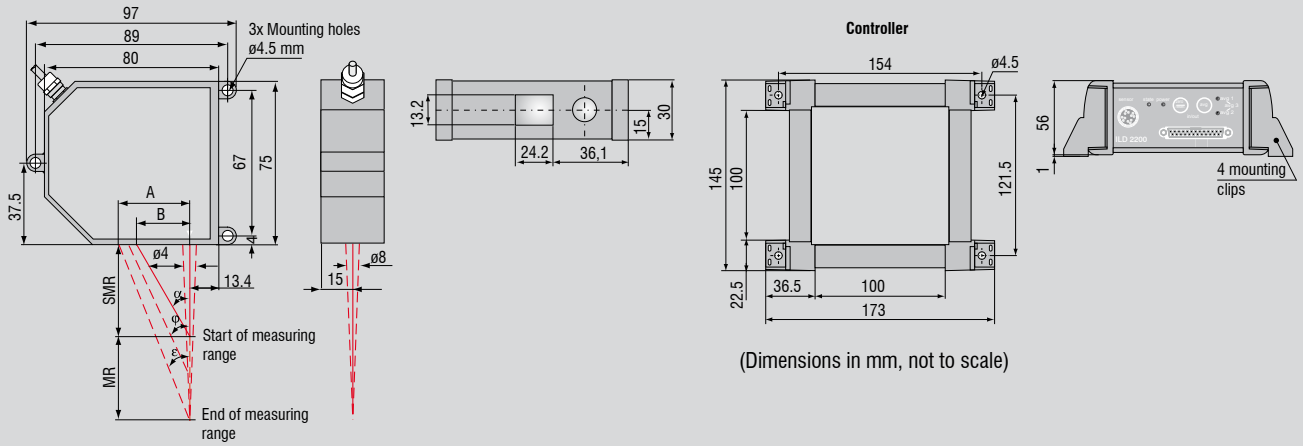


(Dimensions in mm, not to scale)

Model		ILD 2200-100(210)
Measuring range		100mm
Start of measuring range		70mm
Midrange		120mm
End of measuring range		170mm
Linearity	≤±0.03%FSO	30µm
Resolution (at 10kHz without averaging)	0.0015% FSO	1.5µm
Measuring rate		2.5kHz
Permissable ambient light		10,000lx
Spot diameter		SMR 350µm; MMR 130µm; EMR 350µm;
Light source		semiconductor laser <1mW, 670nm (red)
Laser safety class 2		DIN EN 60825-1/A1 12.99 / IEC 825-1/A1 12.99 / FDA
Protection class		sensor: IP 65 / controller: IP 50
Temperature stability		0.01% FSO/°C
Operation temperature		0°C ... +50°C
Storage temperature		-20°C ... +70°C
Output	analogue	±5V
Power supply		24VDC (±15%), max. 500mA
Sensor cable		standard: 2m (integrated); option: 5m/10m
Controller		functions: auto zero / signal averaging
Electromagnetic compatibility (EMC)		EN 55011/12.1998 and EN 50082-2/ 02.1996
Vibration		2g / 20 ... 500Hz
Shock		15g / 6ms / 3 axis

FSO = Full scale output
All specifications apply for a diffusely reflecting matt white ceramic target
SMR = Start of measuring range MMR = Midrange EMR = End of measuring rang

Dimensions

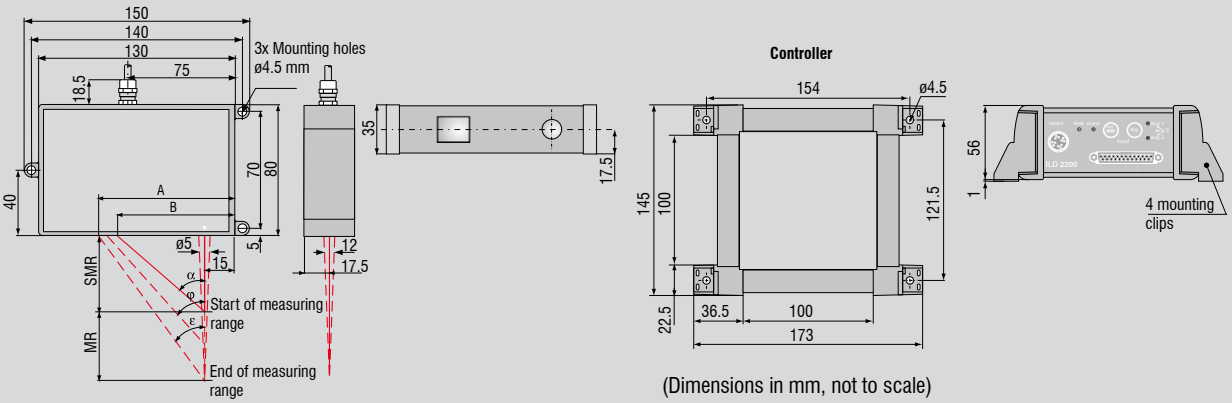


(Dimensions in mm, not to scale)

Model		ILD 2200-100(237)
Measuring range		100mm
Start of measuring range		70mm
Midrange		120mm
End of measuring range		170mm
Linearity	≤ ±0.03%FSO	30µm
Resolution (at 10kHz without averaging)	0.0015% FSO	1.5µm
Measuring rate		2.5 kHz
Permissable ambient light		10,000lx
Spot diameter		SMR 350µm; MMR 130µm; EMR 350µm;
Light source		semiconductor laser <1mW, 670nm (red)
Laser safety class 2		DIN EN 60825-1/A1 12.99 / IEC 825-1/A1 12.99 / FDA
Protection class		sensor: IP 65 / controller: IP 50
Temperature stability		0.01% FSO/°C
Operation temperature		0°C ... +50°C
Storage temperature		-20°C ... +70°C
Output	analogue	±5V
	digital	RS 422 / 691.2kBaud
Power supply		24VDC (±15%), max. 500mA
Sensor cable		standard: 2m (integrated); option: 5m/10m
Controller		functions: auto zero / signal averaging
Electromagnetic compatibility (EMC)		EN 55011/12.1998 and EN 50082-2/ 02.1996
Vibration		2g / 20 ... 500Hz
Shock		15g / 6ms / 3 axis

FSO = Full scale output
All specifications apply for a diffusely reflecting matt white ceramic target
SMR = Start of measuring range MMR = Midrange EMR = End of measuring rang

Dimensions

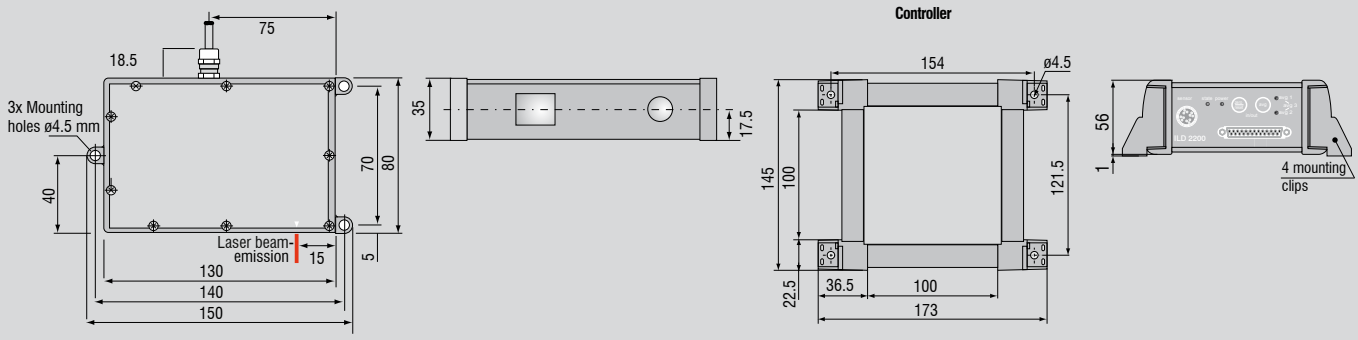


(Dimensions in mm, not to scale)

Model		ILD 2200-200(230)
Measuring range		200mm
Start of measuring range		250mm
Midrange		350mm
End of measuring range		450mm
Linearity	≤ ±0.03%FSO	60µm
Resolution (at 10kHz without averaging)	0.0015% FSO	3µm
Measuring rate		10kHz
Permissable ambient light		30,000lx
Spot diameter		SMR 1300µm; MMR 1300µm; EMR 1300µm
Light source		semiconductor laser <1mW, 670nm (red)
Laser safety class 2		DIN EN 60825-1/A1 12.99 / IEC 825-1/A1 12.99 / FDA
Protection class		sensor: IP 65 / controller: IP 50
Temperature stability		0.01% FSO/°C
Operation temperature		0 ... +50°C
Storage temperature		-20 ... +70°C
Output	analogue	±5V
	digital	RS 422 / 691.2kBaud
Power supply		24VDC (±15%), max. 500mA
Sensor cable		standard: 0.3m (integrated)
Controller		functions: auto zero / signal averaging
Electromagnetic compatibility (EMC)		EN 55011/12.1998 and EN 50082-2/ 02.1996
Vibration		2g / 20 ... 500Hz
Shock		15g / 6ms / 3 axis

FSO = Full scale output
All specifications apply for a diffusely reflecting matt white ceramic target
SMR = Start of measuring range MMR = Midrange EMR = End of measuring rang

Dimensions

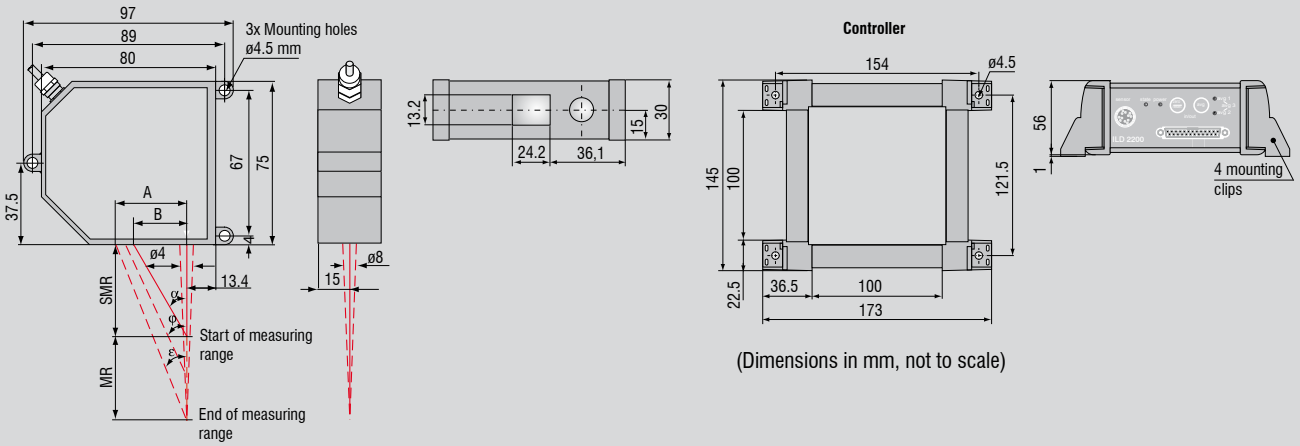


(Dimensions in mm, not to scale)

Model		ILD 2200-500
Measuring range		500mm
Start of measuring range		200mm
Midrange		450mm
End of measuring range		700mm
Linearity	≤ ±0.08 % FSO	±400µm
Resolution	0.01 % FSO	50 µm (at 2.5kHz without averaging)
Measuring rate		10kHz
Permissable ambient light		10,000 lx
Spot diameter		1500µm (option with smaller spot diameter)
Light source		semiconductor laser <1mW, 670nm (red)
Laser safety class 2		class 2 acc. DIN EN 60825-1 03.97 / IEC 825-1 11.93 / FDA
Protection class		sensor: IP 65 / controller: IP 50
Operation temperature		0 ... +50°C
Storage temperature		-20 ... +70°C
Output		standard: ±5 V / option: RS 232 or RS 485
Power supply		24 VDC (±15 %), max. 500mA
Sensor cable		standard: 2m (integrated); option: 5m/10m
Controller	functions	auto zero / signal averaging
	dimensions	143 x 145 x 52mm - without mounting clips
Weight		sensor 0.6kg / controller: 1.1kg
Electromagnetic compatibility (EMC)		EN 50081-1 and EN 50082-2
Vibration		2 g / 20 ... 500Hz
Shock		15 g / 6ms

FSO = Full scale output

Dimensions

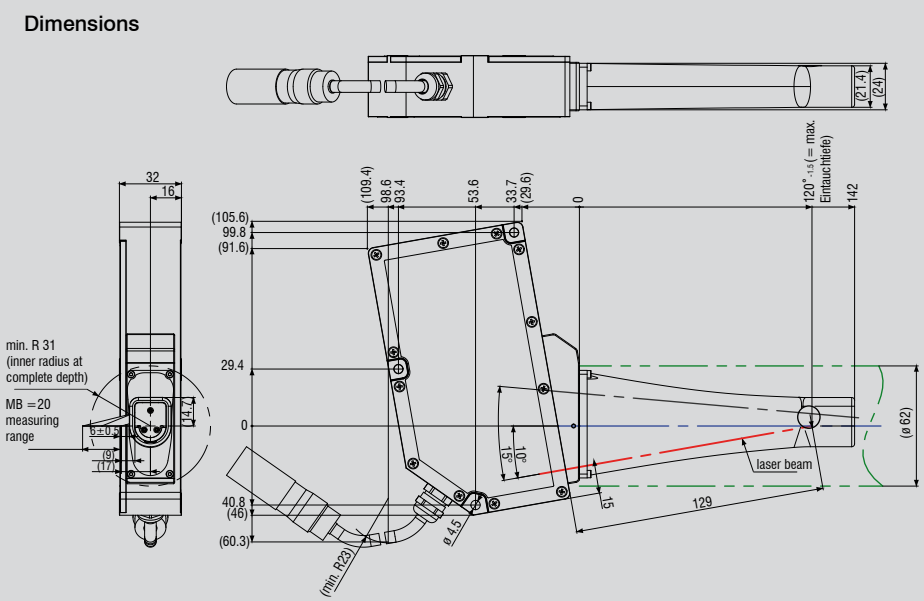


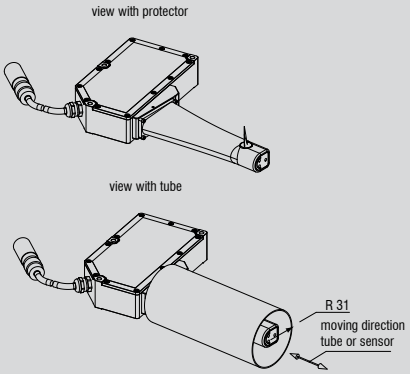
(Dimensions in mm, not to scale)

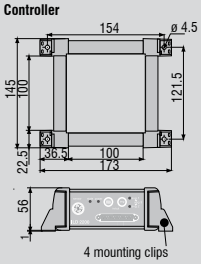
Model		ILD 2200-20(204)
Measuring range		20mm (other measuring ranges on request)
Start of measuring range		40mm
Midrange		50mm
End of measuring range		60mm
Linearity	≤ ±0.03%FSO	6µm
Resolution (at 10kHz without averaging)	0.0015% FSO	0.3µm
Measuring rate		10kHz
Permissable ambient light		30,000lx
Spot diameter		SMR 160µm; MMR 60µm; EMR 160µm;
Light source		semiconductor laser <1mW, 670nm (red)
Laser safety class 2		DIN EN 60825-1/A1 12.99 / IEC 825-1/A1 12.99 / FDA
Protection class		sensor: IP 65 / sontroller: IP 50
Temperature stability		0.01% FSO/°C
Operation temperature		0°C ... +50°C
Storage temperature		-20°C ... +70°C
Output	analogue	±5V
	digital	RS 422 / 1.5MBaud, intensity
Power supply		24VDC (±15%), max. 500mA
Sensor cable		standard: 2m (integrated); option: 5m/10m
Controller		functions: auto zero / signal averaging
Electromagnetic compatibility (EMC)		EN 55011/12.1998 and EN 50082-2/ 02.1996
Vibration		2g / 20 ... 500Hz
Shock		15g / 6ms / 3 axis

FSO = Full scale output
All specifications apply for a diffusely reflecting matt white ceramic target
SMR = Start of measuring range MMR = Midrange EMR = End of measuring rang

Dimensions





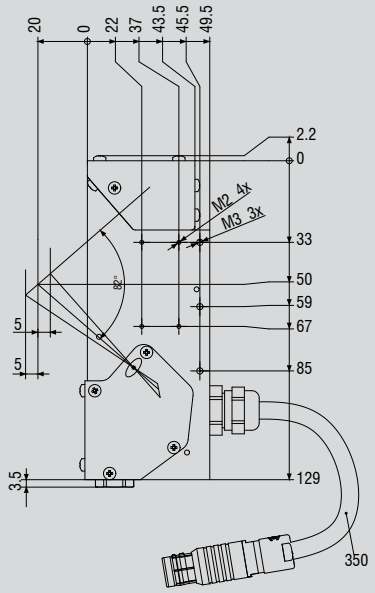


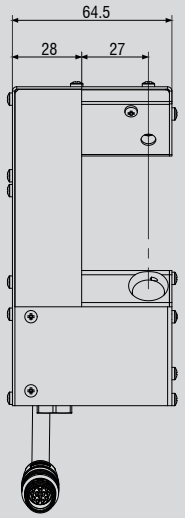
(Dimensions in mm, not to scale)

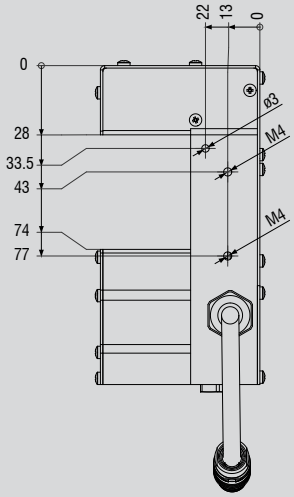
Model		ILD 2210-20(242)/90
Measuring range		20mm
Start of measuring range	SMR	4mm to laser output
Linearity		±10µm ≤ ±0.05% FSO
Measuring rate		10kHz
Permissable ambient light		30,000lx
Spot diameter	SMR	130µm
	MMR	60µm
	EMR	130µm
Light source		semiconductor laser < 1mW, 670nm (red)
Laser safety class 2		class 2 acc. DIN EN 60825-1 : 2001-11 / Class 2 (IEC 60825-1) Class II (FDA)
Protection class		sensor: IP 65 / controller: IP 50
Temperature stability		0.01% FSO/°C
Operation temperature		0 ... 50°C
Storage temperature		-20 ... 70°C
Output	digital	RS 485 / 687.5kBaud
Power supply		24VDC (±15%), max. 500mA
Sensor cable		standard: 2m (integrated)
Controller (separate)		controller with aluminium housing IP50 functions: auto zero / signal averaging dimensions (mm): 143 x 145 x 52 - without mounting clips

FSO = Full scale output
All specifications apply for a diffusely reflecting matt white ceramic target
SMR = Start of measuring range MMR = Midrange EMR = End of measuring range

Dimensions





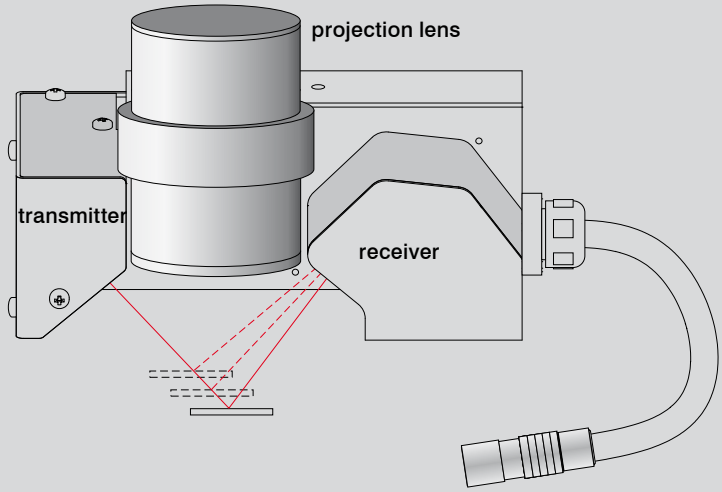


(Dimensions in mm, not to scale)

Mounting holes M4 (15mm deep); aligning pin ø 3mm (2mm high)

Model	ILD1700Z-10
Measuring range (diffuse reflexion)	10mm
Measuring range (mirror reflexion)	5mm
Start of measuring range	15mm [1]
Midrange	20mm [1]
End of measuring range	25mm [1]
Linearity	±0.1% FSO
Resolution (at 2.5kHz without averaging)	0.5µm
Measuring rate	2.5kHz, 1.25kHz/ 625Hz/ 312.5Hz (adjustable)
Averaging	median, recursive, gliding (switchable)
Light source	semiconductor laser <1mW, 670nm (red)
Laser safety class	class 2 IEC 60825-1 : 2001-11
Spot diameter	SMR: 200µm; MMR: 50µm; EMR: 200µm
Permissable ambient light	10,000lx
Connector	35cm integrated cable wih 14-pin. circular connector
Housing dimensions (mm)	129 x 64.5 x 50.5mm
Temperature stability (zero point)	0.01% FSO/°C
Operation temperature	0°C…+50°C, dry
Storage temperature	-20°C...70°C, dry
Protection class	IP20
Vibration (IEC 60068-2-6)	2g/ 20…500Hz
Shock (IEC 60068-2-29)	15g/ 6ms
Output measurements	selectable: 4 ... 20mA / 0 ... 10V / RS 422 / USB
Output switching outputs	1 x error or 2 x limit (configurable)
Power supply	11…30VDC, 150mA
Weight	500g (with connector cable and connector)

[1] Related to the bottom edge of the sensor housing

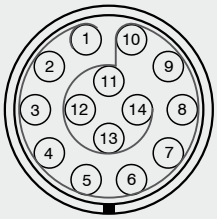


The sensor ILD1700Z-10 is designed for displacement measurement in direct reflection (mirror reflection). The sensor consists of a massive housing for the transmitter and the receiver including sheet covering. There is a free space for the projection lens between the transmitter (laser diode) and the receiver. The complete measurement range of 10mm can only be achieved in the case of diffuse reflection. In the case of reflective targets a reduced measurement range of 5mm (± 2.5mm related to the offset distance) applies.

Advantage

- High measuring rate for fast position detection
- High measuring accuracy and resolution
- Direct measurement against the relevant place of positioning
- Adjustable measuring rate
- Switchable filter functions

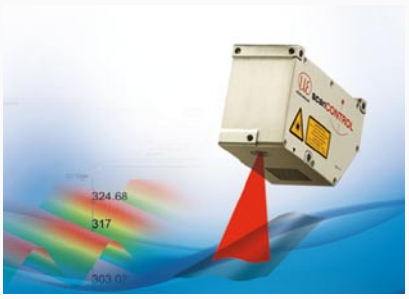
Pin	Description		colour
5	$+U_B$	supply voltage (11 ... 30VDC)	red
6	GND	system for power supply and switching signals (Laser on/off, Zero, Limits)	black
13	analog output	current 4 ... 20mA or voltage 0 ... 10V	coaxial inner conductor, white
14	AGND	reference potential for analog output	coaxial shield
9	Laser on/off	switching input Laser on/off	red-blue
10	Zero	switching input Zero	white-green
8	switching output 1	error exit or limit value output	grey-pink
7	switching output 2	limit value output	violett
3 4	Sync + [1] Sync - [1]	symmetrical synchronous-output (Master) or input (Slave)	blue pink
1 2	Tx + Tx -	RS422 - output (symmetric)	green brown
12 11	Rx + Rx -	RS422 - input (symmetric)	grey yellow



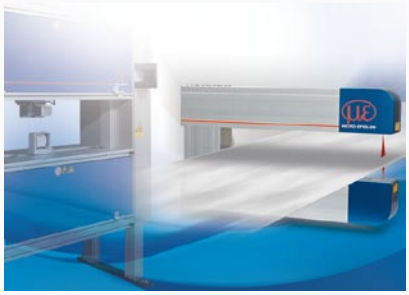
High performance sensors made by Micro-Epsilon

Sensors and systems for displacement and position

Sensors and measurement devices for non-contact temperature measurement



2D/3D profile sensors (laser scanner)



Measurement and inspection systems for quality assurance

Optical micrometers, fiber optic sensors and optical fibers

Color recognition sensors, LED analyzers and color online spectrometer

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