

MSE-LT150 Laser Distance Measurement Sensor



- Visible Red Class II Laser for precise distance measurement
- Measure off Natural Surfaces up to 30m (98ft), off a white target at 100m (328ft) and off a special reflector target at 150m (492)
- Measuring rate as low as 20ms off a white surface or off a special reflector target
- Provides +/- 2mm to +/- 5mm accuracy
- RS232 or optional RS422/RS485 Serial Interface
- Programmable 4-20 mA Analog Output
- Programmable Zero and Distance Offset
- Programmable Digital Output & Offset
- Programmable Digital Output and External Trigger Input
- Robust cast aluminum housing rated IP66 with air or water cooled facility and separate air purge. Optional unique combined air cooled and air purge facility.

General Description

The MSE-LT150 Laser Distance Measurement Sensor operates over a substantial range off static or passing product in difficult areas in harsh environments. It measures distances over a working range up to 30 meters off of natural surfaces, up to 100 meters off of white surfaces and up to 150 meters off of a special reflective target.

For operation with automated positioning control of material handling transport systems a white reflective target is used or the special reflective target is used. The MSE-LT150 can provide a measuring rate as low as 20 milliseconds when used with a white target or special reflective target.

Especially suited for precise detection and measurement of cold/hot product at temperatures up to 600°C (1112°F). A model MSE-LT150HT is available for target temperatures up to 900°C (1652°F) and a model MSE-LT150VHT is available for target temperatures up to 1200°C (2192°F). Straightforward alignment is easily accomplished via the visible red laser measuring beam.

Accuracy is +/- 2mm to +/- 5mm according to ambient temperature and surface reflectivity. Repeatability is +/- 0.5mm and the user scalable resolution is 0.1mm.

The zero offset and the span of the 4 - 20 mA analog output are both user programmable. The distance offset is also user programmable, this allows the user to define a zero point independent of the analog output zero offset.

Provided with a user programmable digital switching output which is triggered by exceeding in the positive or negative direction a user programmable distance threshold. The hysteresis of the digital switching output is also programmable.

Supplied as standard with either a RS232 or an optional RS422/RS485 serial interface operating at 2400 to 38,400 Baud Rate.

This Robust Laser Distance Meter with built-in air coolant chamber venting as air purge. Standard operating temperature without air cooling is 50°C and with air cooling is 60°C. Optional water cooling is available for an operating temperature up to 70°C with industrial water or 80°C with chilled water. An optional internal heater is available for low temperature applications down to -40°C.

The MSE-LT150 Laser Distance Measurement Sensor provides a highly accurate measurement reading. It is ideal for length and width determination, and checking position of product in and around furnace areas.

Optional Accessories are available including: Mounting Stand, Junction Box, AC to DC Power Supply, Field Bus connections for Profibus, Modbus, DeviceNet, Ethernet TCP/IP, & Ethernet IP; HMI for programming and display of distance measurement, length, width, thickness or position; White Targets and a Special Reflective Targets. Please contact your local MSE sales representative for additional information.

Typical Applications

Product Material	Measure length, width, level and position of product.
Material Handling	Automated Storage/Retrieval Systems and positioning of mobile equipment.
Metals Industry	Measure/Position slab, billet, bloom or bar. Diameter measurement of coils.
Crane Control	Positioning of cranes, crane trolleys & collision avoidance
Collision Avoidance	Distance alarm between vehicles using reflective target.

Housing Specifications

Housing: Aluminum AL6, Oven baked blue paint
Housing Rating: IEC IP66, DIN 89011
Weight w/o Cable: 1.9 Kg
Electrical Connector: IP65 Plug/Socket
Cable Length: 2m (standard) - Optional 5m, 10m, 15m, 20m

Air & Water Specifications

Air Pressure: 1 - 2 cu ft./min at 5 PSI for normal conditions, Non-instrument dry air and 10 - 15 PSI for severe conditions
Water Pressure⁶⁾: 1 - 2 bar
Water Volume⁶⁾: Regulate between 0.5 - 1 liter/min.
Water Temperature⁶⁾: For Ambient Temperature up to +70°C (158°F) with industrial quality water at 20°C (68°F) & up to +80°C (176°F) with 5°C (41°F) chilled water.
NOTE: Standard Housing is Air/Water Cooled & Air Purged.

Part Number Specifications

Example: MSE-LT150-2-A-H (with Options)
 (RS422/RS485 Serial Interface, Air Cooled/Purged, & with Heater)

Serial Interface

- 1 RS232 (Standard)
- 2 RS422/RS485 (Optional)

Cooling:

- A Air Cooled & Air Purged (Optional)
- D Air or Water Cooled & Air Purged (Standard)

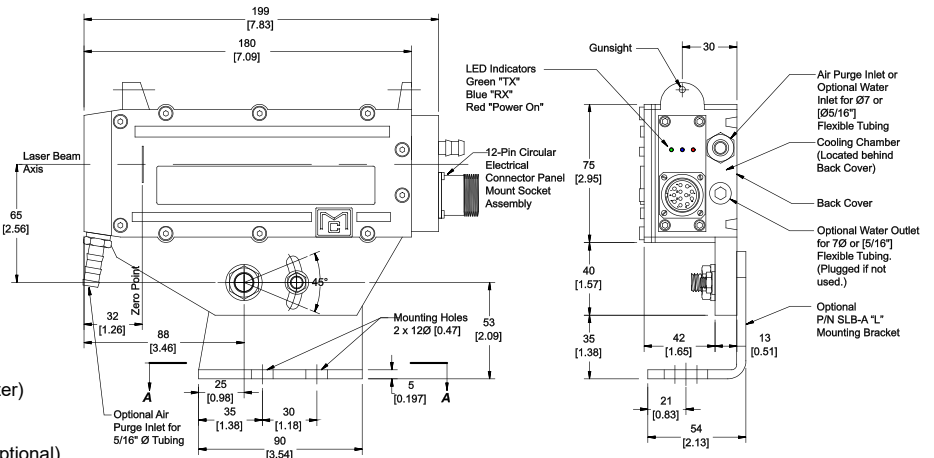
Heating: (Optional)

- H Internal 24VDC Heater for operation down to -40°C (-40°F)

No suffix is required when heater option is not supplied.

Standard Model Part Number: MSE-LT150-1-D.

Dimensions



General Specifications

Operating range ¹⁾ (Type of surface)	Natural Surface: 0.2m (7.8in) to 30m (98ft)	Supply Voltage	10 - 30 VDC
	White Surface: 0.2m (7.8in) to >100m (328ft)	Power Consumption	1.5 Watt Operating, 0.4 Watt in Standby
Accuracy (according to surface reflectivity)	± 2 mm (0.079in) for 15°C (59°F) to 30°C (86°F) ⁴⁾⁵⁾	Operating Temperature	-10°C (-14°F) to +50°C (122°F) no cooling
	± 5 mm (0.197in) over full operating temperature range		-10°C (-14°F) to +60°C (122°F) air cooling ⁶⁾
Resolution	0.1 mm user (programmable & scalable)		-40°C (-40°F) with optional internal heater
Repeatability	±0.5 mm (0.0197in)	Storage Temperature	-40°C (-40°F) to +70°C (158°F)
Measuring Time ²⁾ (According to surface reflectivity)	Natural Surface: 240ms to 6s. (typically 200 ms) ³⁾	Target Temp. Limit	Standard 600°C (1112°F)
	White Surface: 100ms (in DW Measuring Mode) ⁴⁾	Trigger Input	Adjustable with delay & hi/lo adjustment
	White Surface: 20ms (in DX Measuring Mode) ⁴⁾	Serial Interface	RS232, 2400 - 38,400 baud, ASCII, 8N1
Laser Wavelength	650nm, Visible Red	Optional Interface	RS422/RS485, 2400 - 38,400 baud, ASCII, 8N1
Laser Classification	Safety Class 2 (DIN EN 60825-1:2001-11), Class II	Programming	via Hyper-terminal and Supplied Software
Laser Power	≤ 1 mW	Auto Distance Tracking	Can be programmed to start at power on
Laser Divergence	0.6 mrad	Digital Output	High value output with adjustable threshold, logic & hysteresis. 0.5 A limit
Laser Spot Diameter	6mm(0.236in) at 10m (32.8ft), 60mm (2.36in) at 100m (328ft)	Analog Output	Programmable 4-20mA, 16 BIT (0.15%) with 500 ohm Load Resistance.
Laser Angle Tolerance	Better than ± 1° to the ground plane		Programmable Zero & Span.
MTTF	30,000 hrs, 24hr/7day, operation temp. +25°C (77°F)		Temperature drift of < 50ppm/°C.
Scale (programmable)	Output can be m, cm, mm, yard, feet, inch		

1). Ranges shown are for DT, DW & DM measuring mode.

2). Measuring Time can also be preset in intervals of 240 msec to 6 seconds in DT measuring mode.

3). In DT measuring mode

4). With white surface, or with white target.

5). ± 3 mm (0.118in) for 15°C (59°F) to 30°C (86°F) off Natural Surface

6) Water Cooling: To +70°C with 20°C water or to +80°C with 5°C chilled water.

Optional Accessories are available including: Internal 24 VDC Heater, Junction Box, AC to DC Power Supply, Field Bus connections for Profibus, ProfiNet, Modbus, DeviceNet, Ethernet TCP/IP, Ethernet/IP; Remote Digital Display, Remote HMI for programming and display of distance measurement, length, width, thickness or position. Please contact your local Moduloc sales representative for additional information.

This MSE sensor is manufactured by Moduloc System Engineering Ltd. Yantai Shandong, China P.R. which was established 2007.

The MSE-LT150 can be used as a direct replacement for the Model No. LT2000-ST and the LT2020-ST previously manufactured by Moduloc Control Systems Ltd of the United Kingdom.

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MSE

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We reserve the right to alter specifications without prior notice. Specifications without tolerances are typical values.

Your Local Sales Contact:

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