MODULOC SENSOR ENTERPRISES

MSE

# MSE-LT150HT Laser Distance Measurement Sensor

- Visible Red Class II Laser for precise distance measurement
- Measurement range of 20m (65.6ft) off material as hot as 900°C (1650°F)
- Provides ±1mm to ± 2mm 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 compact IP66 aluminum housing with unique combined air purge & cooling facility, or water cooling & air purge.

## General Description

The MSE-LT150HT 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 20 meters (65.6ft) off of hot natural surfaces.

The Model MSE-LT150HT especially suited for precise detection and measurement of hot product at temperatures up to 900°C (1650°F). A model MSE-LT150 is available for target temperatures up to 600°C (1110°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 ± 1 mm (0.039in) to ± 2 mm (0.079in) according to ambient temperature and surface reflectivity. Repeatability is ± 0.5 mm (0.0197in) 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 2,400 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 (122°F) . Optional water cooling is available for an operating temperature up to +70°C (158°F) or up to +80°C (176°F) using industrial quality water chilled at 20°C (68°F) minimum. An optional internal heater is available for low temperature applications down to -40°C (-40°F).

The MSE-LT150VT Laser Distance Measurement Sensor provides a highly accurate measurement reading. It is ideal for thickness, length, level and width determination, and for checking the position of product in and around furnace areas.

Options and Optional Accessories are available including: FieldBus Connection Options: for Ethernet TCP/IP, Profibus, and ProfiNet. Optional accessories including a Junction Box, AC to DC Power Supplies, External FieldBus Modules for ModBus, DeviceNet, & Ethernet/IP. A Controller with HMI is also available that can connect up to two (2) MSE-LT150HT Laser Distance Measurement Sensors for programming and displaying of distance measurement, length measurement, or position for (1) or (2) lasers, and with (2) lasers connected can be used calculate the width, length or thickness of hot or cold product. Please contact your local MSE sales representative for additional information.

## Typical Applications

| | |
|---|---|
| **Product Material** | Measure thickness, length, width, level and position of hot or cold product. |
| **Metals Industry** | Measure/Position of hot or cold slab, billet, bloom, rail or bar.<br>Diameter measurement of hot or cold coils. |

## 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

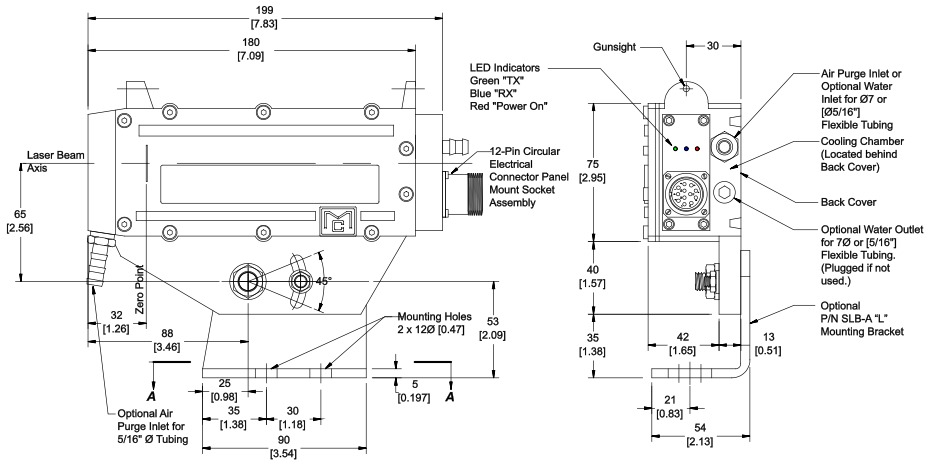
**Air Pressure:** 1 - 2 cu ft./min at 5 PSI for normal conditions, Non-instrument dry air and 10 - 15 PSI for severe conditions
**Water Pressure**[6]**:** 1 - 2 bar
**Water Volume**[6]**:** Regulate between 0.5 - 1 liter/min.
**Water Temperature**[6]**:** For Ambient Temperature up to +80°C (176°F) use industrial quality water chilled at 20°C (68°F) minimum

## Part Number Specifications

**Example: MSE-LT150HT-1-A-H**
(RS232 Serial Interface, Air Cooling, with Heater)

| | | |
|---|---|---|
| **Serial Interface** | **-1** | RS232 |
| | **-2** | RS422/RS485 |
| **Cooling:** | **-A** | Air Cooled & Air Purged |
| | **-D** | Water Cooled & Air Purged |
| **Heating:** | **-H** | Internal 24VDC Heater for operation down to -40°C (-40°F) |
| | | No suffix is required without heater option. |

## Dimensions




## General Specifications

| | | | |
|---|---|---|---|
| Operating range [1] (Type of surface) | Natural Surface: 0.2m (7.8in) to 20m (65.6ft) | Supply Voltage | 10 - 30 VDC |
| | | Power Consumption | 1.5 Watt Operating, 0.4 Watt in Standby |
| Accuracy (according to surface reflectivity) | ± 1 mm (0.039in) at 15°C (59°F) to 30°C (86°F) operating temp. | Operating Temperature | -20°C (-4°F) to +50°C (122°F) no cooling[5] |
| | ± 2 mm (0.079in) over full operating temperature range | | -20°C (-4°F) to +70°C (158°F) water 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) |
| Target Temp. Limit | 900°C (1650°F) | Trigger Input | Adjustable with delay & hi/lo adjustment |
| Measuring Time [2] (According to surface reflectivity) | Natural Surface: 240ms to 6s. (typically 240 ms) [3] | 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) | | |
| Laser Angle Tolerance | Better than ± 1° to the ground plane | Analog Output | Programmable 4-20mA, 16 BIT (0.15%) with 500 ohm Load Resistance.<br>Programmable Zero & Span.<br>Temperature drift of < 50ppm/°C. |
| MTTF | 30,000 hrs, 24hr/7day, operation temp. +25°C (77°F) | | |
| Scale (programmable) | Output can be m, cm, mm, yard, feet, inch | | |

1). Ranges shown are for DT 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, white target or with special reflective target.
5). -20°C (-4°F) to +60°C (140°F) with air cooling.
6). Up to +80°C (176°F) using industrial quality water chilled at 20°C minimum

Options and Optional Accessories are available including: FieldBus Connection Options: for Ethernet TCP/IP, Profibus, and ProfiNet. Optional accessories: Junction Boxes, AC to DC Power Supplies, External FieldBus Modules for ModBus, DeviceNet, & Ethernet/IP. A HMI/Controller that can connect up to two (2) MSE-LT150VHT Laser Distance Measurement Sensors for programming and displaying of distance measurement, length measurement, or position of (1) or (2) lasers, and with (2) lasers connected can be used to calculate and display the width, length or thickness of hot or cold product.
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-LT150HT can be used as a direct replacement for the Model Nos. LT2000-ST, LT2020-ST, LT2000-HT and LT2020-HT previously manufactured by Moduloc Control Systems Ltd of the United Kingdom. Some restrictions may apply according the Target Temperature Limit.
Please contact MSE for additional questions on other replacement model numbers .


**MODULOC SENSOR ENTERPRISES**
**MSE**

**MODULOC SENSOR ENTERPRISES LTD**
P.O. Box 103 Trafford, PA 15085 USA
www.moduloc-sensors.com


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

Your Local Sales Contact:




Data Sheet MSE-LT150HT-NA-25-09 September 2025