MODULOC SENSOR ENTERPRISES

MSE

MSE-D150 Laser Distance Measurement Sensor

- Visible Red Class II Laser for precise distance measurement
- Measure off Natural Surfaces up to 30m, off a white target at 100m and off a special reflector target at 150m
- Measuring rate as low as 20ms off a white surface or off a special reflector target
- Provides +/- 3mm to +/- 5mm accuracy
- RS232 or Optional RS422 Serial Interface
- Programmable 4-20 mA Analog Output
- Programmable Zero and Distance Offset
- Programmable Digital Output & Offset
- Programmable Digital Output and External Trigger Input
- Extruded aluminum housing rated IP65
- Secondary Environmental Enclosures are available for additional protection for indoor, outdoor, low and elevated temperature applications

General Description

The MSE-D150 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-D150 can provide a measuring rate as low as 20 milliseconds when used with a white target or special reflective target.

Accuracy is +/- 2mm to +/- 5mm according to ambient temperature and surface reflectivity. Repeatability is +/- 0.5mm and the user scalable resolution is 0.1mm. Straightforward alignment is easily accomplished via the visible red laser measuring beam.

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 serial interface operating at 2400 to 38,400 Baud Rate.

The MSE-D150 Laser Distance Meter provides a highly accurate measurement reading. It is ideal for length and width determination, and tracking position of product or mobile equipment, positioning of cranes, trolleys and collision avoidance.

The MSE-D150 is provided in an industrial duty extruded aluminum IP65 housing. An optional internal heater is available for low temperature applications down to -40°C. Secondary Environmental Enclosures are available for additional protection for indoor, outdoor, low and elevated temperature applications.

Optional Accessories are available including: Mounting Stand, Junction Box, AC to DC Power Supply, Field Bus connections for ProfiBus, ProfiNet, 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 Target. 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

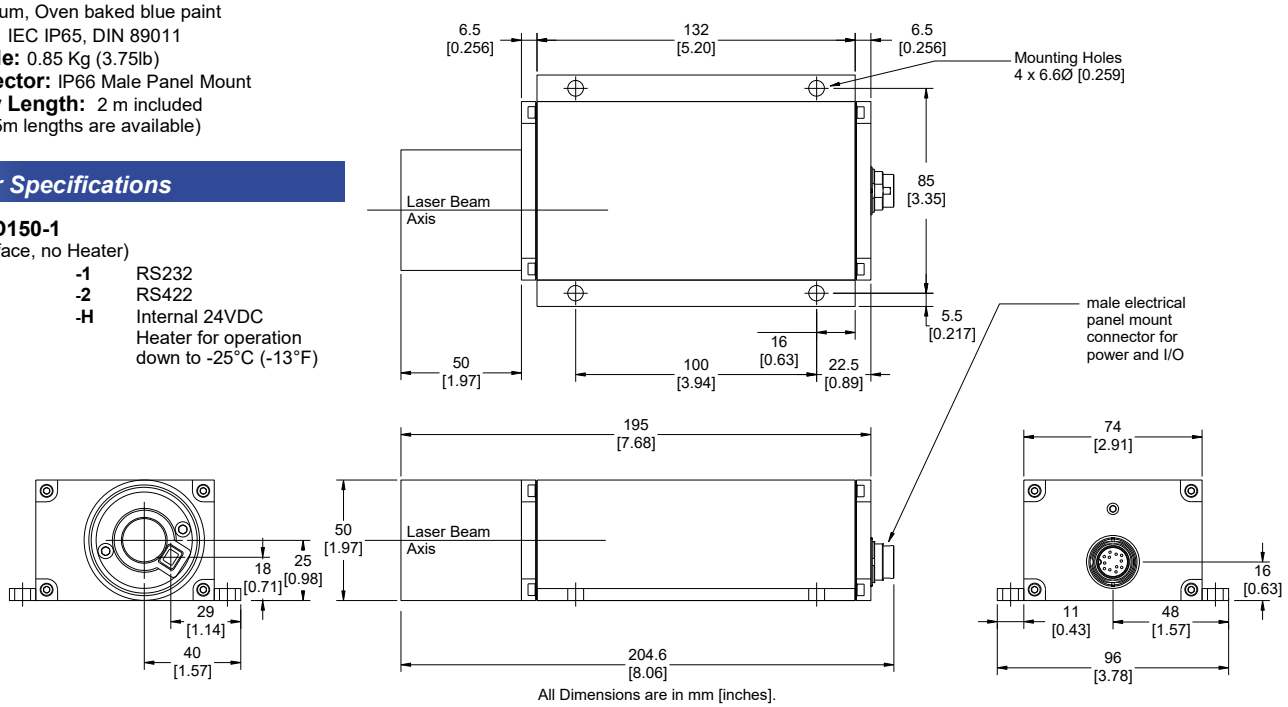
Housing: Aluminum, Oven baked blue paint
Housing Rating: IEC IP65, DIN 89011
Weight w/o Cable: 0.85 Kg (3.75lb)
Electrical Connector: IP66 Male Panel Mount
Cable Assembly Length: 2 m included
(Optional 5, 10 & 15m lengths are available)

Part Number Specifications

Example: MSE-D150-1
(RS232 Serial Interface, no Heater)

Serial Interface	**-1**	RS232
	-2	RS422
Heating:	**-H**	Internal 24VDC Heater for operation down to -25°C (-13°F)

Dimensions



All Dimensions are in mm [inches].

General Specifications

Operating range [1] (Type of surface)	Natural Surface: 0.2m (7.8in) to 30m (98ft) White Surface: 0.2m (7.8in) to >100m (328ft) Special Reflector: 2m (6.6ft) to > 150m (492ft)	**Supply Voltage**	10 - 30 VDC (Optional heater voltage is 24VDC)
		Power Consumption	1.5 Watt Operating, 0.4 Watt in Standby
Accuracy (according to surface reflectivity)	± 3 mm (0.118in) for 15°C (59°F) to 30°C (86°F)	Operating Temperature [5]	-20°C (-4°F) to +50°C (122°F)
	± 5 mm (0.197in) over full operating temperature range	Storage Temperature	-40°C (-40°F) to +70°C (158°F)
Resolution	0.1 mm user (programmable & scalable)	Operating Modes	Tracking DT, DW, DX, Single DM, Trigger DF
Repeatability	±0.5 mm (0.0197in)	Trigger Input	Adjustable with delay & hi/lo adjustment
Measuring Time [2] (According to surface reflectivity)	Any Surface: 160ms to 6s. (typically 200 ms) [3]	Serial Interface	RS232, 2400 - 38,400 baud, ASCII, 8N1
	White Surface: 100ms (in DW Measuring Mode) [4]	Optional Interface	RS422, 2400 - 38,400 baud, ASCII, 8N1
	White Surface: 20ms (in DX Measuring Mode) [4]	Communication Protocol	Half Duplex via ASCII codes.
Laser Wavelength	650nm, Visible Red	Programming	via Hyper-terminal and Supplied Software
Laser Classification	Safety Class 2 (DIN EN 60825-1:2001-11), Class II	Auto Distance Tracking	Can be programmed to start at power on
Laser Power	1 mW	Digital Output	High value output with adjustable threshold, logic & hysteresis. 0.5 A limit
Laser Divergence	0.6 mrad		
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. Programmable Zero & Span. Temperature drift of < 50ppm/°C.
MTTF	32,000 hrs		
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, white target or with special reflective target.
5). Optional Internal 24VDC Heater available for operation down to -40°C (-40°F).

Optional Accessories are available including: Mounting Stand, internal 24 VDC Heater, 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. Secondary Environmental Enclosures are also available for additional protection for indoor, outdoor, low and elevated temperature applications. Please contact your local Moduloc sales representative for additional information.

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