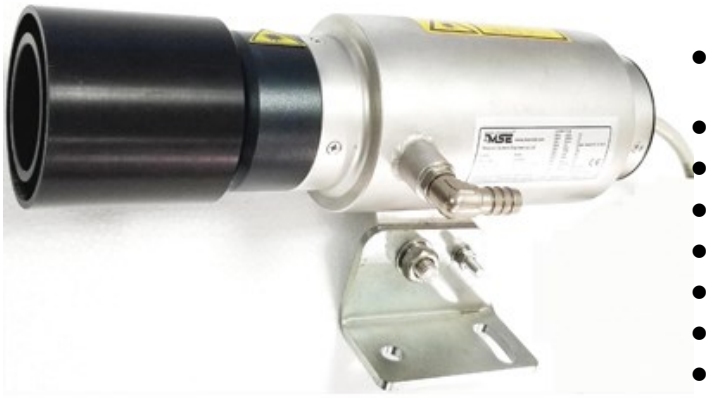
MODULOC SENSOR ENTERPRISES

MSE

MSE-GL100 Molten Glass Laser Level Sensor



- Visible Red Class II Laser for precise non-contact distance measurement
- Measure the level of molten glass as hot as 1450°C (2640°F) at a measuring range up to 10m (32.8ft)
- Able to maintain high measurement accuracy and reliability in harsh industrial environments
- Accuracy of <0.5mm (0.02in)
- Measuring rate 6Hz
- Programmable 4-20 mA Analog Output
- Programmable Zero and Distance Offset
- RS232 or optional RS422/RS485 Serial Interface
- Programmable Digital Output
- External Trigger Input
- Robust stainless steel housing rated IP65 with air or water cooled facility and separate air purge.

General Description

The MSE-GL100 Laser Level Sensor is used to measure the liquid level of molten glass and control the liquid level of glass in a closed loop control system. The MSE-GL100 operates over a measuring range of 0.1m to 10m (0.32ft to 32.8ft) off of molten glass as hot as 1450°C (2640°F) with an accuracy of < 0.5mm (0.02in).

The MSE-GL100 laser glass level meter uses the phase comparison principle for distance measurement. The laser sensor emits visible laser beams of different frequencies, receives the scattered laser return signal from the measured object, compares the received laser signal with the reference signal, and then uses a microprocessor to calculate the distance between objects corresponding to the corresponding offset. The measurement accuracy can reach mm level.

Straightforward alignment is easily accomplished via the visible red laser measuring beam.

Accuracy is <0.5mm (0.02in) with repeatability is 0.3mm (0.008in) and the user scalable resolution is 0.1mm (0.004in).

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 an RS232 serial interface or an optional RS422/RS485 serial interface both operating at 2400 to 38,400 Baud Rate.

The robust cast aluminum IP65 housing of this Laser Level Sensor comes with a built-in air or water cooling chamber and with a separate air purge facility for an operating temperature up to 60°C (140°F) using air cooling, up to 70°C (158°F) using industrial water cooling or up to 80°C (176°F) using chilled water cooling. Standard operating temperature without any cooling is 50°C (122°F). The separate air purge facility provides positive pressure in the laser lens area to help keep the lens clean and free of contaminants

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

Typical Applications

Product Material	Measure level or position of molten or hot glass.

Housing Specifications

Housing: Stainless Steel
Housing Rating: IEC IP65, DIN 89011
Weight w/o Cable: 3.0 Kg (6.6PBS)
Electrical Connector: IP65 Plug/Socket
Cable Length: 2m (6.56ft) - Optional 5m (16.4ft), 10m (32.8ft), 15m (49.2ft) , 20m (65.6ft)

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 1 - 2 bar
Water Volume: Regulate between 0.5 - 1 liter/min.
Water Temperature: 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.

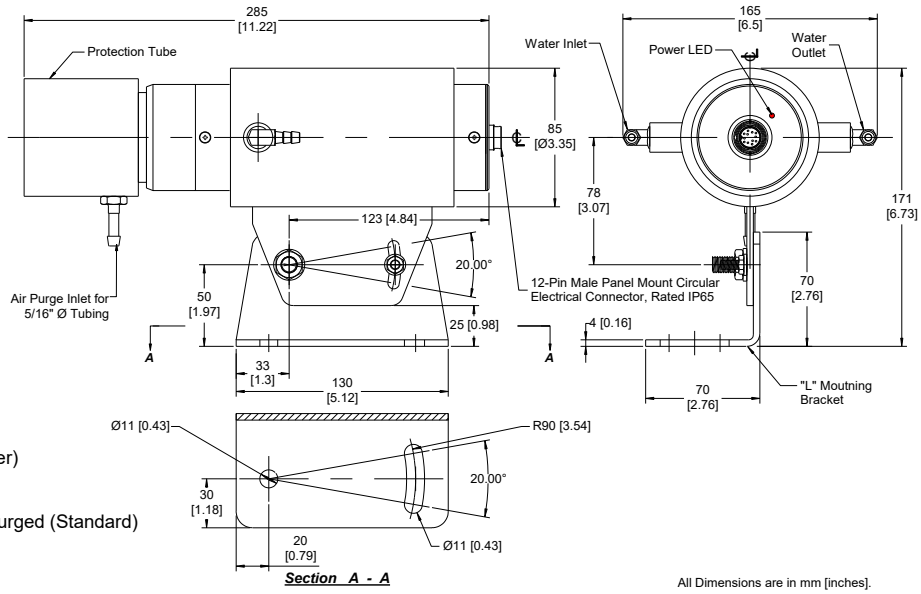
Part Number Specifications

Example: MSE-GL100-2-D (with Options)
(RS422/RS485 Serial Interface, Air Cooled/Purged, & with Heater)

Serial Interface	**-1**	RS232 (Standard)
	-2	RS422/RS485 (Optional)
Cooling:	**-D**	Air or Water Cooled & Air Purged (Standard)

Standard Model Part Number: MSE-GL100-1-D.

Dimensions



All Dimensions are in mm [inches].

General Specifications

Measuring range [1)]	0.2m (7.8in) to 10m (32.8ft)	Supply Voltage	10 - 30 VDC
Accuracy	<0.5 mm (0.0197in)	Power Consumption	1.5 Watt Operating, 0.4 Watt in Standby
Resolution	0.1 mm (0.0039in) user (programmable & scalable)	Operating Temperature	-10°C (-14°F) to +50°C (122°F) no cooling
Repeatability	0.3 mm (0.078in)		-10°C (-14°F) to +60°C (140°F) air cooling[6)]
Measuring Time	Hot/Molten Glass Surface, 100ms		to +70°C (158°F) with 20°C (68°F) industrial water[6]
Laser Wavelength	650nm, Visible Red		to +80°C (176°F) with 5°C (41°F) chilled water[6]
Laser Classification	Safety Class 3R (DIN EN 60825-1:2001-11), Class IIIR	Storage Temperature	-40°C (-40°F) to +70°C (158°F)
Laser Power	≤ 5 mW	Target Temp. Limit	1450°C (2642°F) off hot/molten glass
Laser Divergence	0.6 mrad	Trigger Input	Adjustable with delay & hi/lo adjustment
Laser Spot Diameter	6mm(0.236in)	Serial Interface	RS232, 2400 - 38,400 baud, ASCII, 8N1
MTTF	30,000 hrs, 24hr/7day, operation temp. +25°C (77°F)	Optional Interface	RS422/RS485[2)], 2400 - 38,400 baud, ASCII, 8N1
Scale (programmable)	Output can be m, cm, mm, yard, feet, inch	Programming	via Hyper-terminal and Supplied Software
Analog Output	Programmable 4-20mA, 16 BIT (0.15%) with 500 ohm Load Resistance. Programmable Zero & Span. Temperature drift of < 50ppm/°C.	Auto Distance Tracking	Can be programmed to start at power on
		Digital Output	High value output with adjustable threshold, logic & hysteresis. 0.5 A limit

1). Ranges shown are for DT measuring mode.
2). RS-485 allows up to 32 sensors to communicate at half-duplex on a single communication line in a multidrop configuration.

Optional Accessories are available including: Mounting Stand, Junction Box, AC to DC Power Supply, Cable Lengths, Vortex Inline Air Cooler, 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.

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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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