LLM-100™ Laser Level Meter

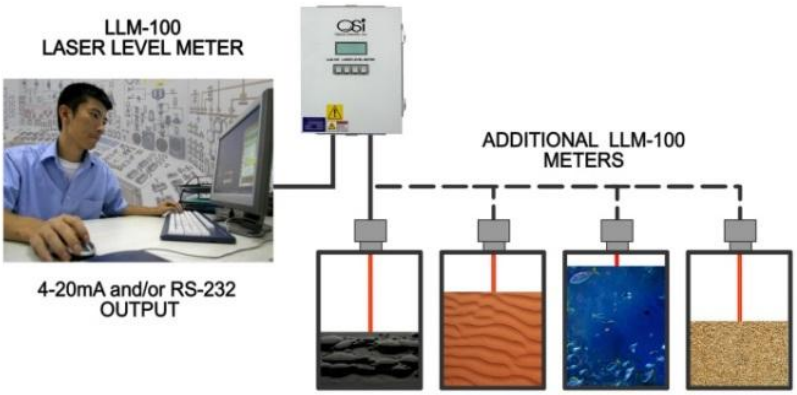
Laser Level Meter™ Advantages

- **Eye safe pulsed infrared laser**
- **Built in algorithms to handle dust flares**
- **Heated windows**
- **Easy installation and optical alignment.**
- **Works indoors and outdoors on sunny days**
- **Long-term reliability: no moving parts; operates unattended - 24 / 7 / 365.**
- **Ultra low maintenance design.**
- **Rugged; designed for harsh environments.**
- **Built in continuous self-test diagnostics.**

OSI's patented Laser Level Meter (LLM) is a compact industrial sensor that utilizes an infrared laser and advanced micro-processor to measure levels in in industrial storage tanks, large commercial process bins and agricultural silos. The LLM-100 uses an eye safe pulsed infrared laser and measures distance using time of flight of a very narrow laser pulse. The sensor uses a very sensitive Avalanche Photodiode, which is coated with a bandpass filter to block out all ambient light. This enables the LLM-100 to be used indoors and outdoors on sunny days. The sensor can be used as a stand-alone sensor requiring only 12.5-36 VDC and out puts RS232 and 4-20 ma outputs or with optional control box.

The optional remote control box can accept up to 4 LLM sensors and allows the user to quickly configure each of the sensors and provides the power, display, a keypad, fault relay output and current loop connections for each of the sensors.

As with all Optical Scientific sensors, the LLM-100 is easy to install, needs almost no maintenance, and is equipped with continuous self-diagnostics.



LLM-100 ™ Options:

- Order **Z-Purge Option** for Class I Div I/II applications.
- LLM-4-channel Control Box (P/N 2013-300)
- 4-20 ma output standard. Optional 4-20 ma output available (up to four 4-20 ma outputs)

LLM-100™ Accessories:

- **MZ-1179-00** Fiber Optic Modems(FOM) for distance to 1 mile(2 required)
- **MZ-0649-00** Limited Distance Modems (LDM) for distances 100 feet to 3 miles. (2 required)
- **1910-804** Laptop DB9 serial communications cable

The LLM-100 cage houses all electronics and modules for the LLM to function.

- ✓ Micro Processor Unit – Controls laser pulse and process Receiver signal.
- ✓ Transmitter Unit – fires 20 ns laser pulses 4000 times a second.
- ✓ Receiver unit – Receives return laser beam

OSI includes a visible Pilot laser collinear with the measuring laser to help with alignment. The pilot laser can be turned off to conserve power. The sensor also comes standard with a 4-line LCD display to aid checking the data and performance of the sensor, which can also be turned off to conserve power.

Performance	
Measurement Technique	Time-Of-Flight (TOF)
Range	1 to 100 Meters
Accuracy (absolute)	0.01 Meters or 1% whichever is greater
Resolution	0.01 Meters
Time Constants	4000 Samples/Sec updated @ 1 sec. interval
Diagnostics	Continuous Self Testing
Environmental	
Ambient Temperature	-40 C t0 60C
Humidity	0 to 100% RH Condensing
Enclosure	NEMA 4X
Physical Specifications	
Light Source	Infrared laser w/ visible pilot laser
Sensor Head	9 x 9 x 13 inches, 13 lbs. (15 x 15 x 14 cm ea 5kg ea)
Control Unit: NEMA4 Wall Mount	12 x 14 x 8 inches, 15 lbs. (30 x 40 x 25 cm. 7kg)
Electrical Specification	
User Interface	RS-232 serial I/O and up to four 4-20 mA isolated current loops. Two sets of relay contacts for fault and error indication.
Power for Sensor Head	12-5 to 36 VDC @0.4 AMP
Power for Control Unit	Universal 100-240 VAC, 50/60 Hz, 40 VA (fused & surge protection)
Cable between Control Unit & Sensor Head	25 foot fixed (shielded, 10 cond., 22 AWG)