

orbit LTH

A high precision non-contact laser for Gauging

Description

Solartron Metrology, the world leader in linear measurement, innovation has expanded its laser products. Orbit[®] LTH is a complete range of Laser Triangulation sensors for high precision measurements. With linearity of 0.02% FSO, and ranges from 2 mm to 200 mm, Solartron lasers offer the best solution for your measurement problem.

Its advantages include:

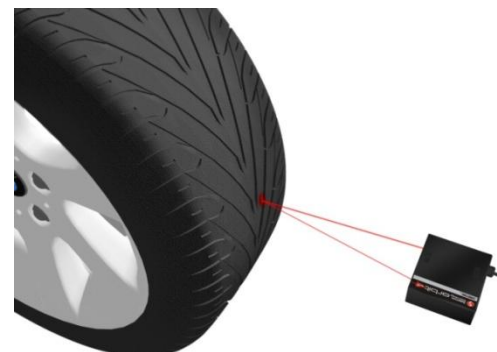
- **Auto Gain Circuitry:** The unit automatically adjusts the power to the laser based on feedback from the material, providing better readings on more difficult surfaces.
- **Gap Time:** If you are checking a surface with gaps or holes that could throw off data, the laser has a bridging function where you can program the laser to account for those drop offs. Your data is then less likely to be skewed.
- **Diffuse or Specular modes:** Instead of purchasing a separate unit for Diffuse or Specular applications, the laser can switch between the two different modes, depending on the material.

Features

- 2 mm to 200 mm measuring ranges (**New long range**)
- Up to +/- 0.02% F.S. Accuracy
- Up to 0.0076 μm resolution
- 40 kHz sampling speed and up to 4 kHz output
- Laser Beam Control – the beam can be switched off allowing multiple lasers to measure points very close together where beam interference could occur. In the beam off mode the laser head remains powered so that readings can quickly be taken after turning the beam on.
- Plugs into Orbit[®] 3; network up to 150 sensors with full control
- The laser functions via the Orbit[®] 3, interface using Ethernet, Modbus, USB or Serial (RS232). The LTH can also be used with the Orbit[®] ACS products (with integral display) where control is via the menu or via Orbit[®] ACS Modbus interface.



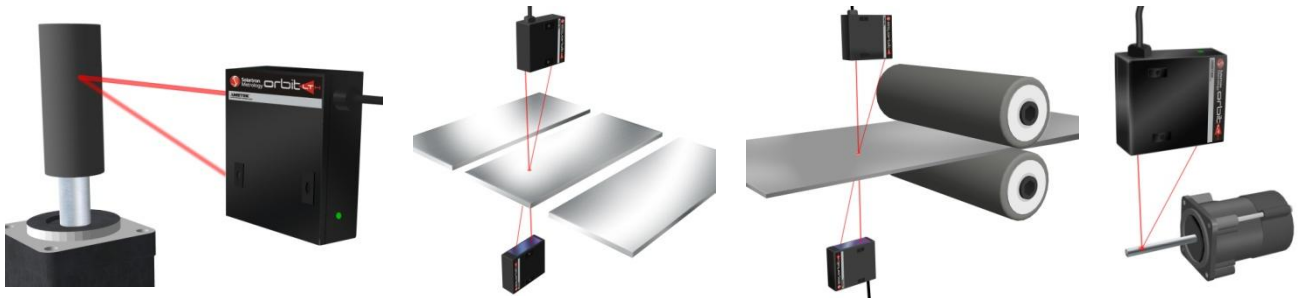
Product Applications



Precision. Quality. Reliability

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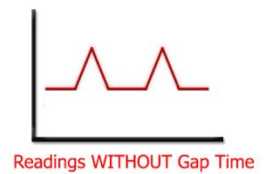
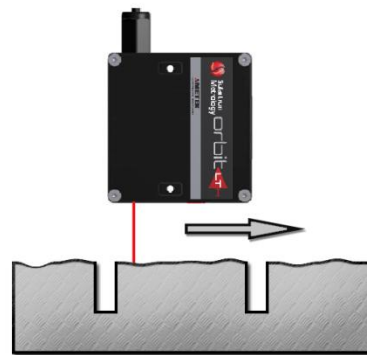
Product Applications



Indicator Light to show when in range



Gap Time Feature



Diffuse Mode



Specular Mode (for reflective surfaces)



The inclination angle is half the laser angle

Technical Specification

	LTHD/25/2/B	LTHD/50/10/B	LTHD/50/20/B	LTHD/120/20/B	LTHD/120/40/B	LTHD/200/100/B	LTHD/300/200/B
Range (mm)	2	10	20	20	40	100	200
Offset (mm) Note 1	25	50	50	120	120	200	300
Spot Size (Diameter μm)	30	36	36	100	100	100	130
Laser Angle (degrees)	45	30	30	20	20	12	8
Linearity ($\pm\%$ FSO) (Note 2)							
Best ($\pm\%$ FSO)	0.01	0.02	0.025	0.025	0.03	0.03	0.03
Typical ($\pm\%$ FSO)	0.02	0.04	0.045	0.06	0.05	0.04	0.04
Best ($\pm\mu\text{m}$)	0.2	2	5	5	12	30	60
Typical ($\pm\mu\text{m}$)	0.4	4	9	12	20	40	80
Repeatability (μm) (Note 3)							
Best	0.1	0.2	0.4	0.5	1.0	3.0	7.0
Typical	0.2	0.4	0.8	1.0	2.0	6.0	15.0
Resolution (μm)							
(Note 4)	0.0076	0.0381	0.0763	0.0763	0.1526	0.3815	0.7629
(Note 5)	0.02	0.05	0.23	0.23	0.80	2.00	4.00

Laser

Modes (Note 7)	Diffuse or Specular	Diffuse only
Weight Head only (g)	203	460
Power mW / Class (IEC 60825)	<5 / 3R	
Wavelength nm	670	

Performance

Max Sampling Frequency (kHz)	40.00
Orbit Data Rate (Readings/sec)	3906
Sampling Cycles	256/512 μS or 1/2/4/8/16/32/64 ms (Selectable)
Working Bandwidth Hz (Note 6)	1300, 650, 325, 163, 81, 40, 20, 10, 5
Operating Temperature $^{\circ}\text{C}$	0 to +40
Temperature Coefficient	$\pm 0.05\%$ of FSO/ $^{\circ}\text{C}$
Humidity	10 to 95% non condensing
Emissions/Immunity	EN61000-6-3 / EN61000-6-2
Power Orbit [®] 3	5 \pm 0.25 VDC @ 0.09A and 24 \pm 2.5 VDC @ 0.06A typical
Power Orbit ACS	18-24 VDC @ 0.13A typical

Interfaces

Orbit [®] 3	Interfaces to the Orbit [®] 3 network via the Orbit Support Pack for Windows (for Microsoft .Net Framework), USB, Ethernet and Serial Interface modules available
Orbit ACS	Integral Screen and Keypad, MODBUS or Serial Interfaces

Note 1: Distance from the laser face to the middle point of the measuring range (mm)

Note 2: Measured on white photographic paper with the laser sample rate set to 4kHz and averaging 4 ms.

Note 3: Measured on white photographic paper with the laser sample rate set to 4 kHz and averaging 16 ms, the laser beam is blocked between each measurement.

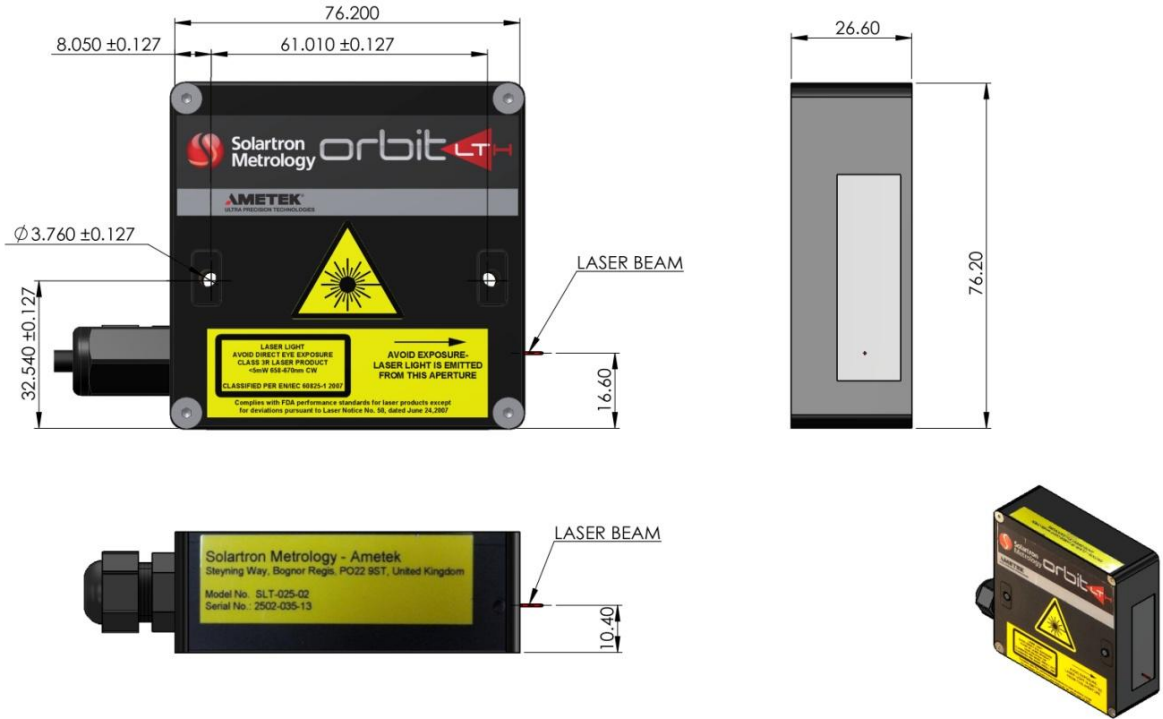
Note 4: Resolution 1 LSB of the Digital System

Note 5: Standard Deviation of 25 Measurements with the laser pointing at a fixed white photographic paper target with the laser sample rate set to 4 kHz and averaging 16mS

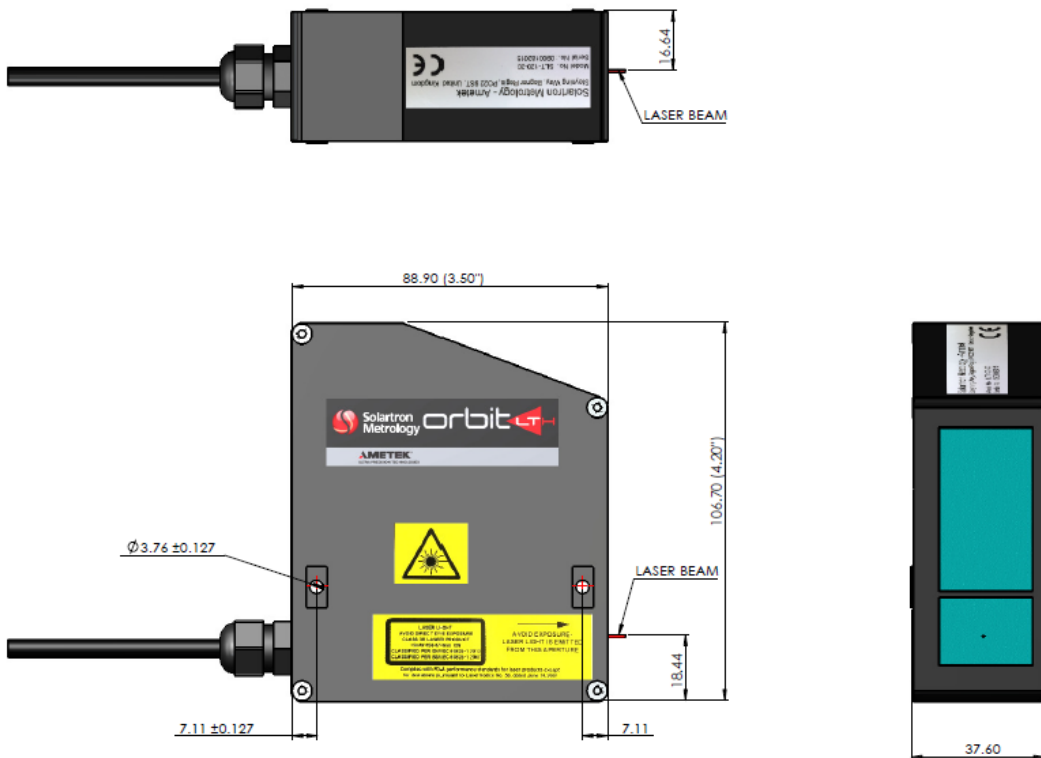
Note 6: Real measurement bandwidth based on ability to reconstruct sine wave at filter frequency

Note 7: Specular Mode is recommended for high reflective (shiny) surfaces. ND filter required specify when ordering.

Dimensional Drawing (25 and 50 mm standoff)



Dimensional Drawing (120, 200 and 300 mm Standoff)



For 3D drawings, please contact sales.solartronmetrology@ametek.co.uk

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