orbit LTH

A high precision non-contact laser for Gauging

Description

Solartron Metrology, the world leader in linear measurement innovation, has now added another high performance sensor to it's line-up. Orbit LTH is a Laser Triangulation unit for higher precision measurements, with 0.02% F.S. reading over 2 or 10mm measurement ranges. With the 2mm stroke, that means accuracy up to +/- 0.4 µm!

Its advantages include:

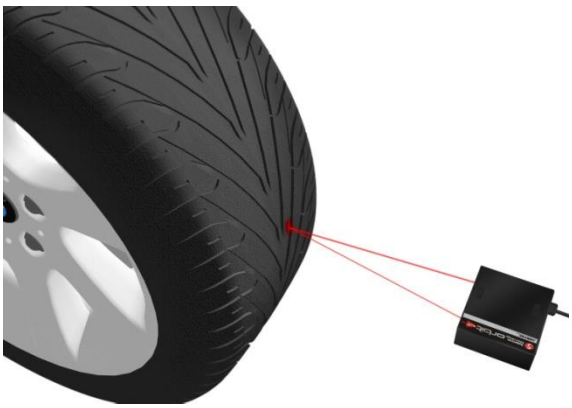
• Auto Gain Circuitry: The unit automatically adjusts the power to the laser based on feedback from the material, providing better readings on more difficult surfaces

• 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 dropoffs. 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. For Specular Mode, the laser must be tilted to 22.5 degrees from the perpendicular axis.

Like other Solartron sensors, Orbit LTH connects into Orbit®3, allowing you to network up to 150 different sensors! A simple Orbit software interface allows you to adjust the laser.

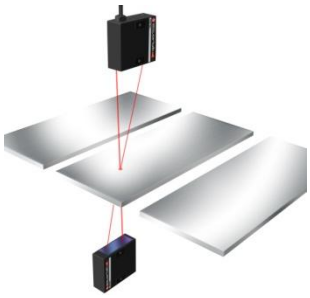
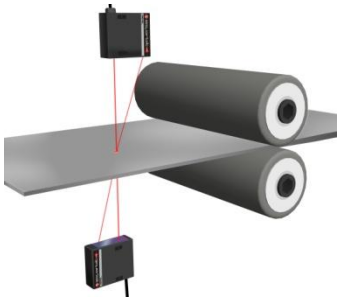
Product Applications



Features

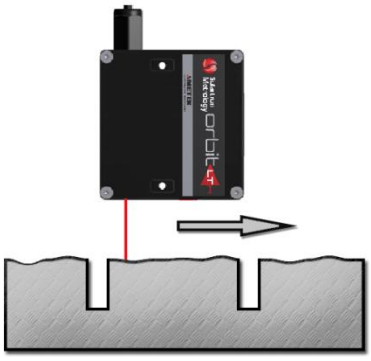
2 mm and 10mm ranges
Up to +/- 0.02% F.S. Accuracy
Up to 0.0076 µm resolution
40 khz sampling speed
Up to 4 khz output
Plugs into Orbit®3, network up to 150 sensors
Also, integrated with Orbit ACS for standalone systems
USB, Ethernet TCP, RS232, and Modbus outputs available

Product Applications


Indicator Light to show when in range

Gap Time Feature




Diffuse Mode

Specular Mode (for reflective surfaces)

Technical Specification

Measurement Range	2 mm		10 mm	
Offset Distance (from laser to start of measurement range)	24mm		45 mm	
Reference Distance (from laser to centre of measurement range)	25mm		50mm	
Spot size (diameter)	30µm		25µm	
	Best	Typical	Best	Typical
Linearity (1) (+%FSO)	0.01%	0.02%	0.03%	0.04%
Repeatability (2)	0.02µm	0.04µm	0.05µm	0.07µm
Repeatability in Dynamic Mode (3)	0.1µm	0.2µm	0.2µm	0.4µm
Resolution (4)	0.0076µm		0.0381µm	
Resolution (5)		0.02µm		0.05µm
Max Sampling Frequency	40khz			
Output frequency	Up to 4khz (via Orbit®3 network)			
Sampling cycles	256/512 us or 1/2/4/8/16/32/64 ms			
Working Bandwidth (6) (eight options)	1300, 650, 325, 163, 81, 40, 20, 10, 5 Hz			

(1) Measured on white photographic paper with the laser sample rate at 4khz and averaging 16 cycles
(2) Static repeatability measured on white photographic paper target set at the reference distance with the laser sample rate at 4 khz and averaging 64 cycles
(3) Dynamic repeatability measured on a white target with the laser sample rate at 4khz and averaging 64 cycles
(4) One LSB (1 bit of the Analogue to Digital conversion)
(5) Resolution based on one standard deviation from a sample of 25 measurements with a laser sample rate 4khz and averaging 64 cycles
(6) Real measurement bandwidth based on ability to reconstruct sine wave at the filter frequency

*Laser can be calibrated to surface you intend to measure. Please contact your local representative for details.

Technical Specification

Laser

Laser Power	<5mW
Laser Class (IEC 60825)	3R
Laser Wavelength	670nm
Laser Modes	Diffuse or Specular

Environmental

Sealing for Laser	IP67
Sealing for Laser Interface Electronics	IP43
Storage Temperature (ºC)	-20 to +70
Operating Temperature (ºC)	0 to 40
Humidity Range	10 to 95% Non condensing
Temperature Coefficient	±0.05% to F.S./°C
EMC	Emissions EN61000-6-3
	Immunity EN61000-6-2
Power	
Orbit®3 version	5±0.25 VDC @ 0.09A and 24±2.5 VDC @ 0.06A typical
Orbit ACS version	18 - 24 VDC @ 0.13A typical
Weight of Laser Head only (g)	203

Interface

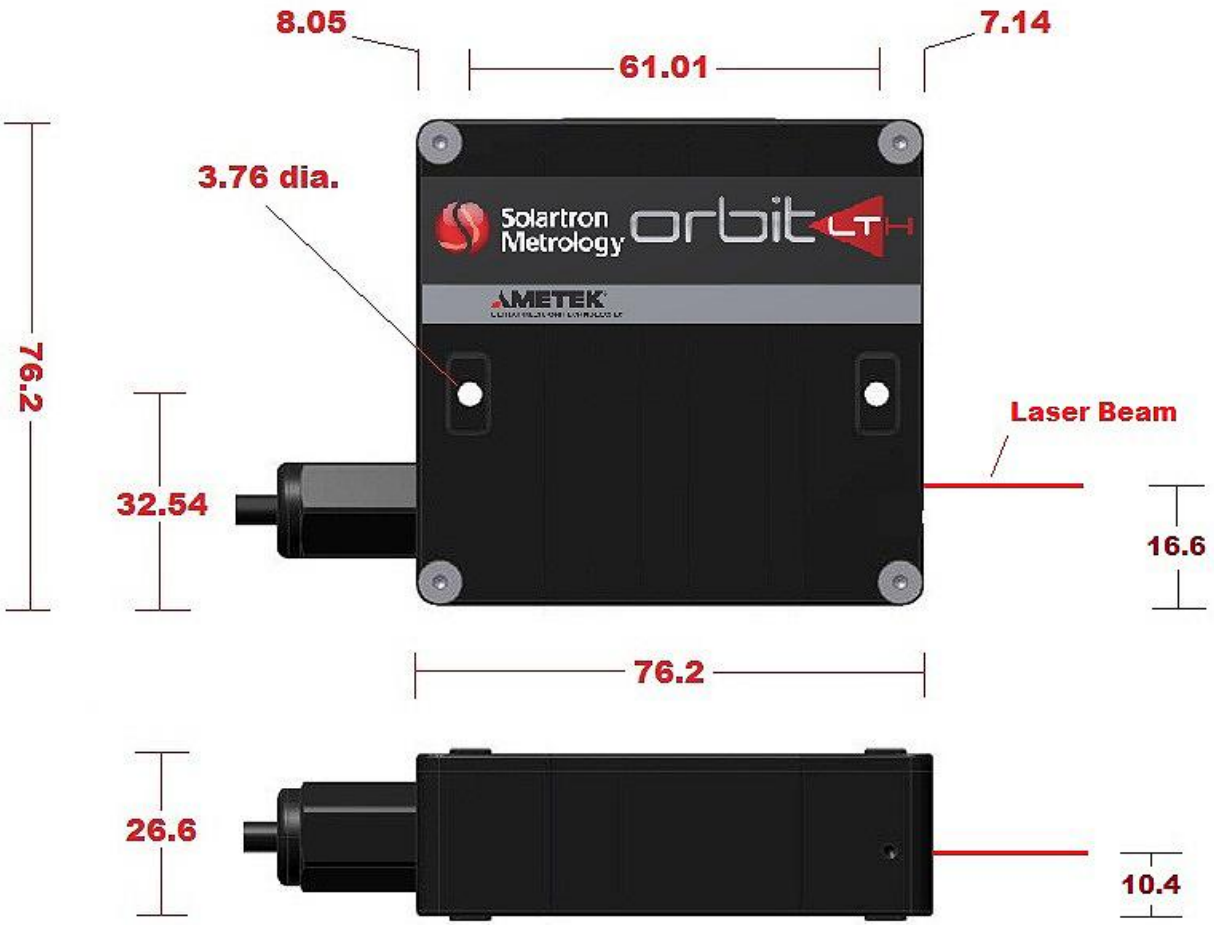
Orbit®3 version	Integrates with the Orbit® 3 network via the Orbit® 3 Support Pack for Windows (for Microsoft .NET Framework), version 1.3.1.4 or above. - Available to download, free of charge, at www.solartronmetrology.com
Method to configure laser	Via the Orbit® 3 Library, included as part of the pack
Orbit interfaces	USB, Ethernet, RS232
Orbit Power Supplies	Orbit LT Power Supply Module, AC and DC versions available

Orbit ACS version	Integrated into an Orbit ACS module
Method to configure laser	Via the integral display / keyboard or via the PC based configurator software. - Available to download, free of charge, at

See separate Orbit®3 manual & Orbit ACS datasheets for further product details

*Accuracy determined on white, non-porous surface, LTH filter set to 200Hz
**Depends on surface being measured, LTH filtering level set

Dimensional Drawing



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