



Solartron
Metrology

ORBIT® LT LASER SENSOR



orbit **LT**

AMETEK®
ULTRA PRECISION TECHNOLOGIES

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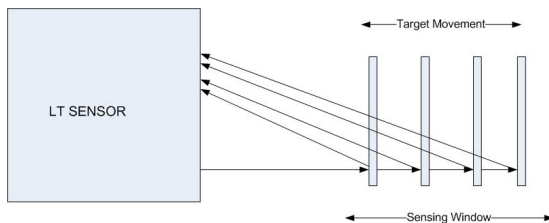
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1.0: Introduction

Solartron Metrology's Class 2 visible laser gauge sensor combined with Solartron's Orbit and Orbit ACS products offers a solid non contact metrology solution for many applications.

1.1 OPTICAL TRIANGULATION

The design of the LT sensor is based on optical triangulation. An emitter transmits a visible laser light beam towards a target. The light beam bounces off the target scattering light some of which reaches the LT sensor detector. The position of the light on the sensor is directly related to the position of the target. The LT sensor processes this data and provides a signal that is passed to the Orbit ACS or Orbit module.



2.0: Laser Warnings and Laser Class 2 Safety Notes

WARNING

LASER LIGHT



DO NOT look directly at the laser beam with the naked eye or any form of optical equipment.

DO NOT point the laser at a persons eye at close range

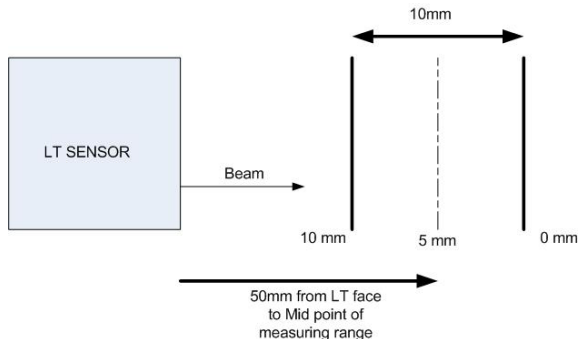
Beam Paths

The beam emitted by the laser sensor should be terminated at the end of its useful path. Open laser beams should be located above or below eye level.

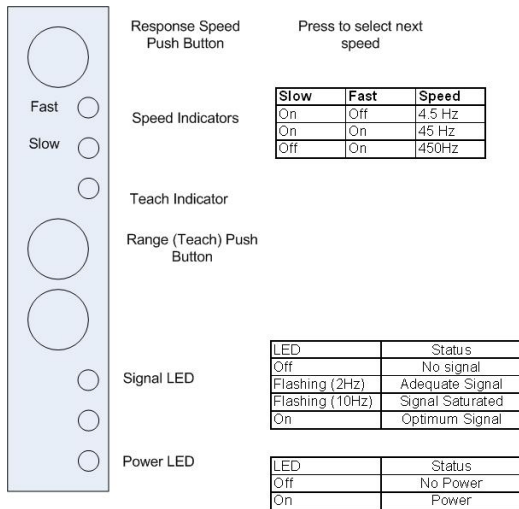
CAUTION This product contains **NO USER SERVICEABLE PARTS** do not attempt to repair

3.0: Setting the LT Optimum Measuring Position

The optimum measuring position for the LT sensor is a distance of 49 mm to 51 mm from the LT sensor face to the target. Best results are obtained after allowing a 20 minute warm up period. Unless requested otherwise the LT sensor will be shipped set up with a measuring range of 10 mm with the 5 mm position set at 50 mm from the target. This optimizes the measurement at 5 mm \pm 1 mm.



4.0: Control Buttons



The laser speed can be adjusted to 450 Hz, 45 Hz or 4.5 Hz. The lower the speed, the better the performance. The laser will be supplied set to 4.5 Hz. Pressing the speed button will change the speed, the FAST and SLOW indicator lights show the current speed

The Teach Button is used to set the LT range.

The Signal LED shows the quality of the received signal from the target.

5.0: Setting the LT Range

The LT Sensor range is set using the sensor keypad, this may be required to calibrate the laser against different surfaces. The range can be adjusted using the following sequence.

5.1 SET THE 0 MM POSITION (FURTHEST FROM THE SENSOR)

Set the target to the required 0 mm position ensure that this is no further than 60 mm from the LT sensor face. Press the red analogue programming button for 2 seconds. The red Teach led will turn on. Press the same button for a second time. The red Teach led will flash at 2 Hz, this indicates the 0 mm position has been set.

5.2 SET THE FULL RANGE MM POSITION (CLOSEST TO THE SENSOR)

Adjust the target to the full range position. Ensure that this is not closer than 45 mm from the LT sensor face. Press the red analogue programming button, the red led will go off indicating that the full range position has been set. The sensor will return to normal operation.

Note: Ensure that the Orbit ACS is set to the same range as the laser using the Scale Configuration Function in the Orbit ACS Configuration Menu.

Note: Ensure that any software using the Orbit library can accommodate the scale changes. As the output from the Orbit module will be 0 to MaxCount in all cases. (Max count = 16384 for 14 bit resolution, 65536 for 16 bit and 262144 for 18 bit).

6.0: Laser Beam Control

The laser beam can be switched off, allowing lasers to measure points very close together where the beams may interfere if both beams were on. In the Beam off mode the laser head is still powered which keeps the laser operating at full specification so that readings can be taken quickly following turning the beam on. Beam Control is via the Orbit3 interface, the Orbit ACS menu or Modbus commands.