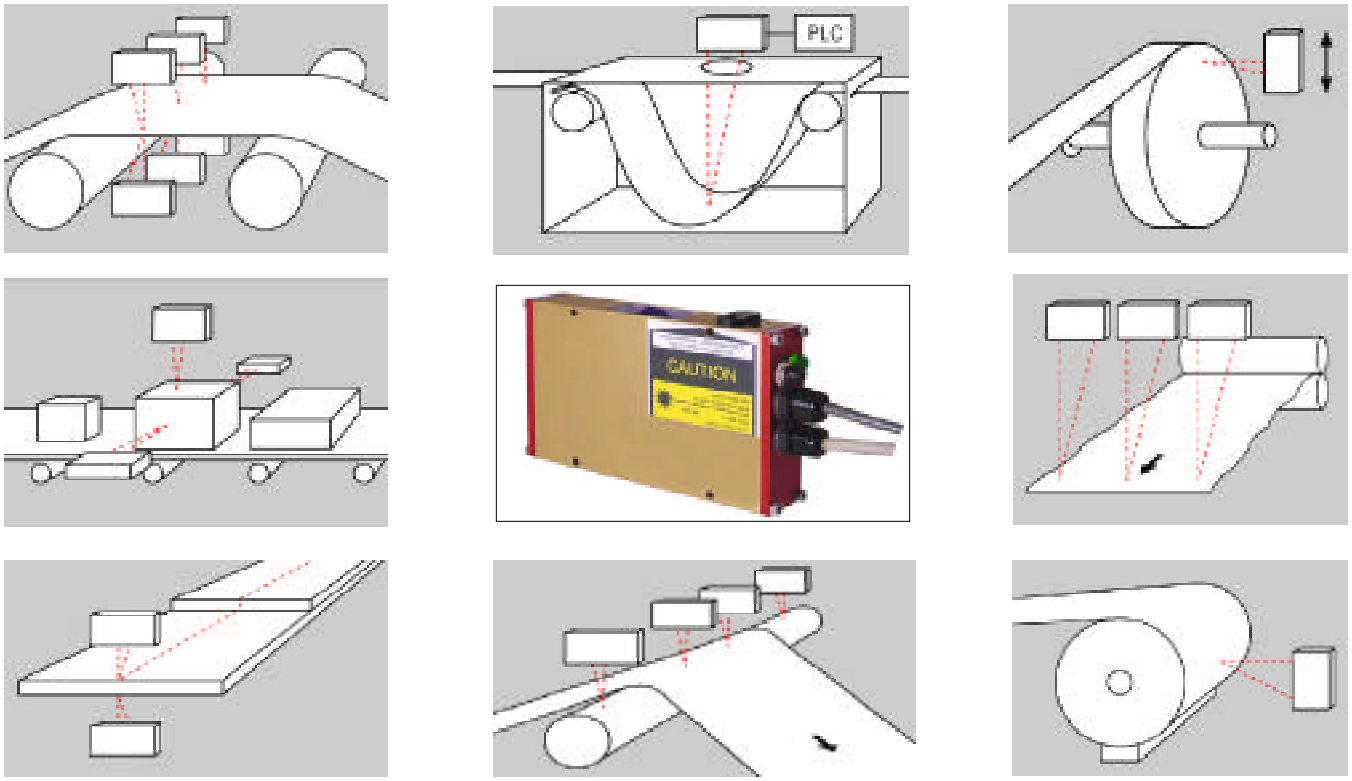
Mid Range Laser Distance Sensors

1600 DSP Series



Pictured above is a complete 1600 Series DSP laser distance sensor with a variety of applications surrounding it.

General Description

The 1600 series incorporate the latest in CCD Digital Signal Processing (DSP) technology which significantly reduces the laser speckle problem enabling them to easily measure materials with colors ranging from black rubber to white.

The 1600 DSP series delivers a complete non contact laser displacement measurement system in one simple yet elegant package. The series includes twelve (12) DSP sensors with measurment ranges from 3.175 to 1270mm The 1600 series is optimum for cost effective and accurate measurments.
For integration in control systems, the input is low voltage DC (12 to 30 VDC).

RS 232 output is standard on the 1600 series. Analog output is available as a factory installed option.

Output laser parameters can be set using a pushbutton on the sensor or serial through commands.

Features

- 3.175 to 1270mm (0.125 to 50”) measurement ranges
- 0.935µm resolution on the 3.175mm measurement range
- 1250Hz maximum measurement frequency
- Complete system in one housing
- Outputs include RS 232 and optional analog
- Class 2 laser for plant safety for sensors up to 152mm measuring range. All larger ranges are class 3A

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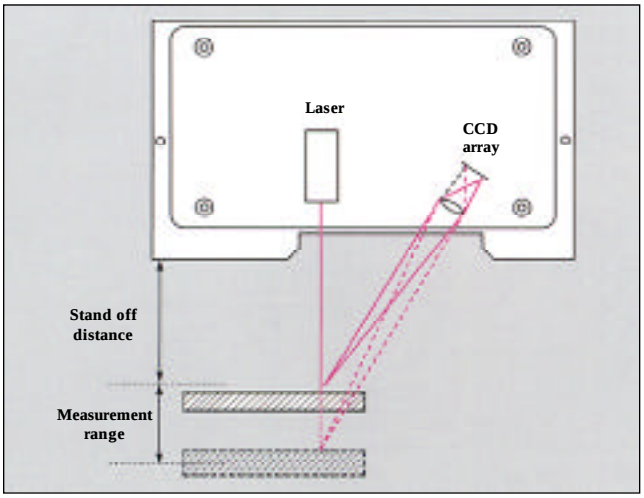
Measurement Principle

The measurement technique is based on optical triangulation. One side of a triangle can be calculated when two other parameters are known, such as an angle which is measured and one side which is constant.



Pictured above is the measurement principle used in the 1600 series. The stand off distance is how far away the object is to be measured. The measurement range is how much the object can move to or from the stand off distance and stay within the measurement range of the sensor. A CCD array is used to receive the reflected laser light from the object to determine the distance from the object.

General Specifications

Laser power	Class 2, 650nm red visible diode for measurement ranges to152mm Class 3A for measurement ranges from 203 to 1270mm
Power (VDC)	12 to 24
Operating Temp.	0 to 50º C
Weight	85g (3 oz.)
Dimensions	L* x 94.23 x 27.94
Enclosure	aluminum, Nema - 4, IP -67
Sample rate	1250Hz. maximum

Outputs

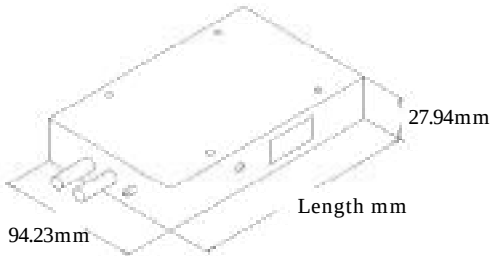
Analog outputs	4-20ma (scalable) (optional)
Serial output	RS 232 (300 - 56Kb) binary or ASCII

Options

1. Higher power upgrades for dark, shinny and radiating surfaces
2. Optical filter for bright or glowing targets
3. 4 - 20ma current loop output
4. RS 422 serial output
5. 1600 series utility software to set parameters and to read measurements
6. Integrated cables with power supply

1600 Series DSP Sensors

Meas. Range	Stand off	Resolution	Linearity
3.175mm	12.7mm	0.953µm	± 0.0032mm
6.35mm	15.24mm	1.905µm	± 0.0064mm
12.75mm	22.83mm	3.825µm	± 0.0128mm
25.4m	63.5mm	7.62µm	± 0.0254mm
50.8mm	57.15mm	15.24µm	± 0.0508mm
102mm	88.7mm	30.6µm	± 0.102mm
152mm	178mm	45.6µm	± 0.152mm
203mm	330.5mm	60.9µm	± 0.203mm
406mm	292mm	121.8µm	± 0.406mm
508mm	966mm	152.4µm	± 0.508mm
813mm	660.5mm	243.9µm	± 0.813mm
1270mm	762mm	381µm	± 1.27mm



Length* varies according to measurement range (MR)

1. For MR up to 102mm, L = 149.86mm
2. For MR of 152mm, L = 187.45mm
3. For MR from 203 to 406mm, L = 327.66mm
4. For MR from 508 to 1270mm, L = 632.46mm

The closer you look, the better we measure!

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