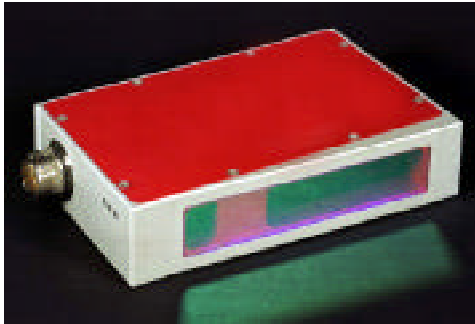


## DSP Laser Displacement Sensor Overview



1000 series sensor for high accuracy measurements on metal and plastic sheet stock



1200 series sensor for measurements on materials such as metals, rubber, plastic and wood products.



3000 series sensor for longer displacements in harsh environments on ferrous and non ferrous products



1600 series sensor for higher accuracies than the 1200 series in factory environments on a variety of products.

### General Description

Today, non contact measurements are rapidly replacing the traditional contact methods for two very important reasons, first they make objective measurements since they are not operator dependent and secondly, they do not mar the surface to be measured. In addition the rapid response of high speed non contact measurements ensure easy integration into production processes.

For the manufacturing environment, Freedom Technologies provides a wide variety of geometric lasers to meet the numerous needs for non contact displacement and thickness measurements. All sensors incorporate the latest in Digital Signal Processing (DSP) technology which significantly reduces the laser speckle problem enabling them to easily measure materials ranging from black rubber to shiny steel. Even hot materials can be measured with the DSP series.

All of our DSP sensors are a complete system in one rugged housing. A separate controller is not required. Sensor outputs can include, analog, RS 232, RS 485 and Ethernet. In addition tolerance alarms are available.

### Measurement Types

- Thickness and displacement
- Profile a moving surface
- Seam or defect detection
- Level detection
- Height
- Flatness
- Radial and lateral runout
- Alignment and vibration
- Product sizing
- Lobing and circular and lateral runout

### Typical Applications

- Web thickness measurements of all materials in process
- OSB board, plywood, veneer, and gypsum board
- Paper roll mills for width and diameter
- Steel mills for width, length and thickness of hot steel

## DSP Laser Displacement Sensor Overview

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### 1000 Series DSP Sensors

Meas. Range	Stand off	Resolution	Repeatability	Linearity
10mm	51mm	0.2µm	± 4.5µm	± 7µm
30mm	100mm	0.5µm	± 10µm	± 20µm
70mm	190mm	1µm	± 20µm	± 45µm
130mm	220mm	2µm	± 45µm	± 85µm
250mm	380mm	4µm	± 70µm	± 150µm
400mm	440mm	6µm	± 140µm	± 500µm

### 3000S Series DSP Sensors

Meas. Range	Stand off	Resolution	Repeatability	Linearity
500mm	620mm	4.2µm	± 220µm	± 330µm
1000mm	955mm	16.7µm	± 450µm	± 660µm
1500mm	1250mm	25µm	± 680µm	± 990µm

### 3000L Series DSP Sensors

Meas. Range	Stand off	Resolution	Repeatability	Linearity
500mm	890mm	0.008mm	± 0.12mm	± 0.24mm
2000mm	1300mm	0.0330mm	± 0.70mm	± 1.40mm
4000mm	1550mm	0.0670mm	± 1.68mm	± 3.36mm

The 3000 Series DSP Sensors are available in a variety of Stand off distances and Measurement ranges. Above are typical performance values. To meet your exact requirements, advise us of the preferred Stand off distances and Measurement ranges, and we will provide you with the accuracies for your requirements. The 3000 series DSP sensors can be upgraded for outdoor use and for measuring components at high temperatures up to 1300° C in hostile environments such as steel mills.

### 1200 Series DSP Sensors

Meas. Range	Stand off	Resolution	Linearity
6.35mm	17.8mm	0.0019mm	± 0.013mm
12.7mm	17.7mm	0.0038mm	± 0.0254mm
25.4mm	21.3mm	0.0076mm	± 0.0508mm
50.8mm	16.6mm	0.015mm	±0.1016mm

### 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
25.4mm	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

The closer you look, the better we measure!

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