

SpotOn *ANALOG & USB*



Sophisticated Analog and Digital Beam Positioning System

Main Features

- Real time measurement of laser displacement down to $\pm 0.1\mu\text{m}$
- Analog bandwidth up to 60 kHz
- Parallel modes of operation: analog and digital data
- Built in high precision power supply
- External trigger for synchronized data acquisition
- Multiple device control via USB (up to 8 devices)
- TCP/IP Communication protocol and remote control
- ActiveX software for integration in customer's application program



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Specifications

| | |
|---|--|
| Photodetector | 9*9mm dual axis silicon Lateral Effect (default) 4*4mm dual axis silicon Lateral Effect (optional) |
| Usable beam size range | 50 μ m < diameter < 8 mm for 9*9mm version 50 μ m < diameter < 3 mm for 4*4mm version |
| Position resolution | Better than $\pm 1\mu$ m typical for 9*9mm version, with averaging Better than $\pm 0.5\mu$ m typical for 4*4mm version, with averaging Special: <u>$\pm 0.1\mu$m for a ± 1mm dynamic range using the 4*4mm PSD</u> <u>$\pm 0.2\mu$m for a ± 2mm dynamic range using the 9*9mm PSD</u> |
| Position accuracy | $\pm 25\mu$ m over 8mm diameter using HeNe beam of 0.8mm |
| Calibrated spectral range | 350 - 1100 nm |
| Power Input range (*) | High Amplification module : 1 μ W - 250 μ W Low Amplification module : 10 μ W - 2500 μ W |
| Power accuracy (*) | $\pm 5\%$ |
| Power Supply Voltage (Vs) | ± 18 V |
| Current Consumption (Is) | 200mA |
| Data Update Rate (**) | Display Mode - Digital 40 Hz for single head Scope Mode - Digital 4kHz up to 2000 points in memory (position) 8kHz up to 4000 points in memory (power) Analog Mode - 30kHz max speed for 9*9mm PSD, or 60kHz max speed for 4*4mm PSD |
| Response time (Analog) | <60 μ S for 9x9mm PSD <20 μ S for 4x4mm PSD |
| Minimum detectable Deviation (CW/Pulsed) (***) | 1mV (CW) / 5mV (Pulsed) in Analog Mode |
| Environmental | Operating temperature T _{opt} : 0° - 50°C |
| Weight | Sensor head with 3m long cable 175gr |
| ND Filters | Optional per special order (ND / Red filter / BandPass filter) |

(*) To maintain full calibration accuracy, attenuating optical filters (ND) may be necessary for operation with beams greater than 1mW. Saturating “non-linear” effects depend on the beam size, type and wavelength. Caution should be exercised when using the lateral effect detector above 1-3mW.

(**) Data Update Rate at Display and Remote Modes depend on computer resources and other application programs that run on same computer in parallel.

(***) Conversion factor: 1mV = 1 μ m for 9*9mm PSD 4.5mV = 1 μ m for 4*4mm PSD (special version)
2.5mV = 1 μ m for 4*4mm PSD 2.25mV = 1 μ m for 9*9mm PSD (special version)

Power Supply Specifications

The SpotOn Analog - USB contains a universal switching power supply, as follows:

| | |
|----------------------------|---------------------------|
| Input Voltage: | 90-264 Vac typical |
| Input Frequency: | 47-63Hz |
| EMI: | Meet EN55022/FCC Class B |
| Output Wattage: | 10W |
| Line Regulation: | 0.1% typical |
| Load Regulation: | +/-1.5 – 3% typical |
| Noise & Ripple: | Typical 1% peak to peak |
| Safety Standard: | UL1950 / EN60950 Class II |

External trigger Specifications

For Single Mode only with Scope function!

| | |
|--|--|
| Trigger Source (external digital): | TRIG_IN |
| Trigger mode (software selectable): | Level Sensitive, configurable for TTL level high input |
| Trigger latency: | 25µs min, 50µs max |
| Trigger pulse width: | 40µs min |
| Input high voltage: | 3.0V min, 15.0V absolute max |
| Input low voltage: | 0.8V max |
| Input leakage current: | ±1.0µA |

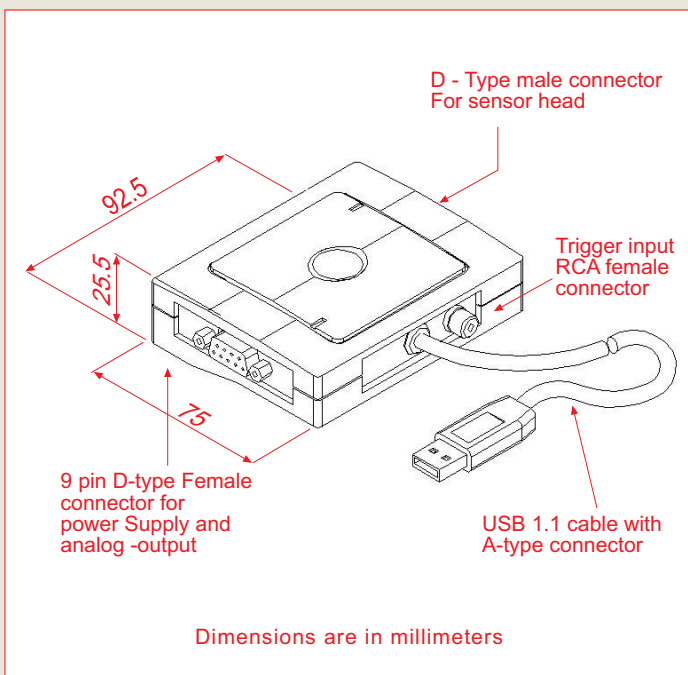
Manifold Box

| | |
|------------------------------|------------------------------|
| Device type: | USB 1.1 low-speed |
| Device compatibility: | USB 1.1, USB 2.0 |
| Weight: | 215 gram with 1.8m USB cable |
| Supply current: | 20mA from USB port |

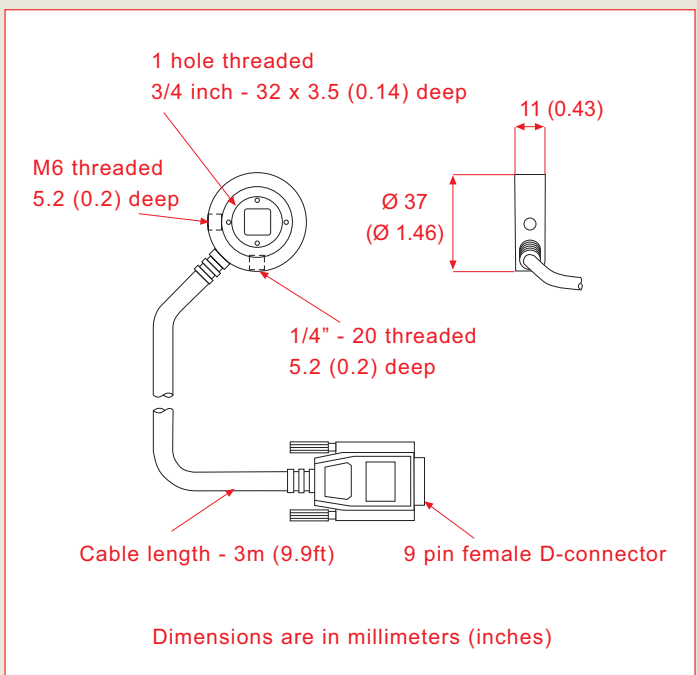
Sensor Head

| | |
|-----------------------------|---|
| Dimensions (Default) | 37 mm diameter, 11 mm long, aligned to detector axes to $\leq \pm 0.5^\circ$ |
| Type | Dual-axis Lateral Effect sensor |
| Cable | 3m long, attached to sensor head |

Manifold Box dimensions

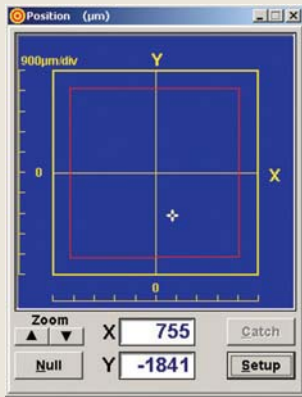


Sensor Head dimensions



Software Presentations

Position

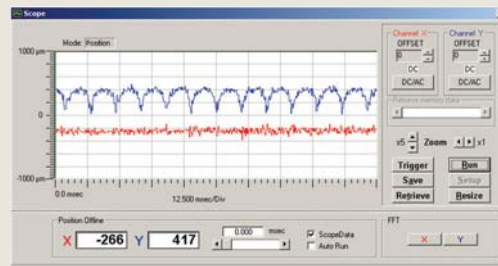


Real Time display of X,Y beam position.

features:

Set relative center,
Perform zooming, alarm setting, Average

Scope



A simultaneous, real-time oscilloscope type display of beam position deviations (or power fluctuations) as a function of time. Up to 4K points can be saved at a time to memory, with zoom, hold, offset, DC/AC and triggering mode operations.

Power

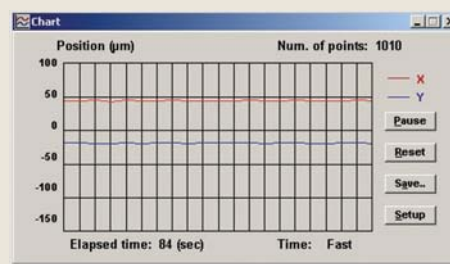


Display power with analog and digital displays.

More features:

Change measuring units,
load a filter file, perform ambient light suppression.

Chart



Display changes in the X,Y position (or in Power) versus time, with autoscaling

Main Software Features

- Real time display of Position and Power
- Three operation modes for digital data: Display, Scope and Remote operation
- Simultaneous presentations of Position, Power, Plot, Chart and Scope modes
- Data streaming via RS232 or TCP/IP
- Multiple systems operation
- Direct data logging to Excel files
- Scope Mode for saving and analyzing memory data (up to 4kHz Position, up to 8kHz Power)
- Position offset canceling for ambient light compensation

Host Computer Requirements

Pentium III, 800 MHz with 128MB RAM, 15MB HDD free, one CD ROM, Windows 98/ME/2000/XP, VGA 8MB 1024X768 resolution, 16Bit, One (to eight) USB1.1 socket/s.

Ordering Information

Complete system based on a Lateral Effect detector head, with a 3m long attached cable, an electronics box, a stabilized power supply, software and user manual on CD, carrying case. The **Low** type module operates at low amplification of 10µW-2500µW, while the **High** type module operates at high amplification of 1µW-250µW.

SPOTANA-4-USB Low:
SPOTANA-4-USB-High:
SPOTANA-9-USB Low:
SPOTANA-9-USB-High:

System with 4mmx4mm PSD, Low Amp.
System with 4mmx4mm PSD, High Amp.
System with 9mmx9mm PSD, Low Amp.
System with 9mmx9mm PSD, High Amp.

NOTE: All models can be delivered with a **special** version for **High Position Resolution**. Model name will include an "S" character.
For example: SPOTANA-4S-USB-LOW.

Optional Accessories:

- A variety of ND filters in housing (3/4"-32 thread), filters include: NG4, NG9, NG10.
- Additional hood (55mm length) for ambient light suppression

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