

SpotOn Analog & USB

Sophisticated Analog and Digital Beam Positioning



- 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
 - 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

Specifications

Wavelength	350 - 1100 nm
Sensor size	4x4 mm model SPOTANA-USB-4, 9x9 mm model SPOTANA-USB-9
Usable beam size range	9x9: $50\mu\text{m} < \text{diameter} < 8 \text{ mm}$. 4x4: $50\mu\text{m} < \text{diameter} < 3 \text{ mm}$.
Position accuracy	$\pm 25 \mu\text{m}$ over 8 mm diameter using HeNe beam 0.8 mm
Position resolution	Better than $\pm 1\mu\text{m}$ typical (9x9 ver. with averaging) Better than $\pm 0.5\mu\text{m}$ typical (4x4 ver. with averaging) Special: $\pm 0.1\mu\text{m}$ for $\pm 1\text{mm}$ dynamic range using the 4x4 mm PSD $\pm 0.2\mu\text{m}$ for $\pm 2\text{mm}$ dynamic range using the 9x9 mm PSD
Response time (analog)	$< 20 \mu\text{s}$ for 4x4 mm version, $< 60 \mu\text{s}$ for 9x9 mm version
Data update rate (**)	Display mode: Digital 40 Hz for single head. Scope mode: Digital 4 kHz up to 2000 points in memory (position), 8 kHz up to 4000 points in memory (power). Analog mode: 30 kHz max. speed for 9x9 mm version, 60 kHz max. speed for 4x4 mm version
Power Input range (*)	High Amplification: 1 - 250 μW Low Amplification: 10 - 2500 μW

Power accuracy (*)	$\pm 5\%$
Minimum detectable deviation (CW/Pulsed) (***)	1 mV (CW) / 5mV (Pulsed) in Analog Mode
Power supply voltage	$\pm 18\text{V}$
Current consumption	200 mA
Operating temperature	$0^\circ - 50^\circ \text{C}$
Weight	Sensor head with 3m cable 175 g
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 1 mW. Saturating “non-linear” effects depend on the beam size, type and wavelength. Caution should be exercised when using the lateral effect detector above 1-3 mW

(**) – 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 μm for 9x9 mm PSD
2.5mV = 1 μm for 4x4 mm PSD
4.5mV = 1 μm for 4x4 mm PSD
2.25mV = 1 μm for 9x9 mm PSD

Ordering Information

A complete system based on a PSD sensor (Lateral Effect type) with 3m long attached cable, an electronics box and power supply.

SPOTANA-4-USB-L: System with 4x4mm PSD, Low amp.
SPOTANA-4S-USB-L: System with 4x4mm PSD, Low amp, High Position Resolution.
SPOTANA-4-USB-H: System with 4x4mm PSD, High amp.
SPOTANA-4S-USB-H: System with 4x4mm PSD, High amp, High Position Resolution.
SPOTANA-9-USB-L: System with 9x9mm PSD, Low amp.
SPOTANA-9S-USB-L: System with 9x9mm PSD, Low amp, High Position Resolution.
SPOTANA-9-USB-H: System with 9x9mm PSD, High amp.
SPOTANA-9S-USB-H: System with 9x9mm PSD, High amp, High Position Resolution.

Accessories:

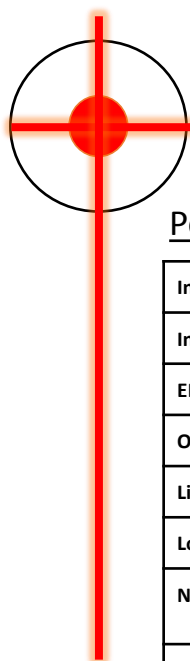
NG4 Filter: NG4 filter in mounting ring, $\frac{3}{4}$ " – 32 thread
NG9 filter: NG9 filter in mounting ring, $\frac{3}{4}$ " – 32 thread
Hood: 55mm long hood for ambient light suppression

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Power Supply Specifications

Input Voltage	90-264 VAC Typical
Input Frequency	47-63 Hz
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

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

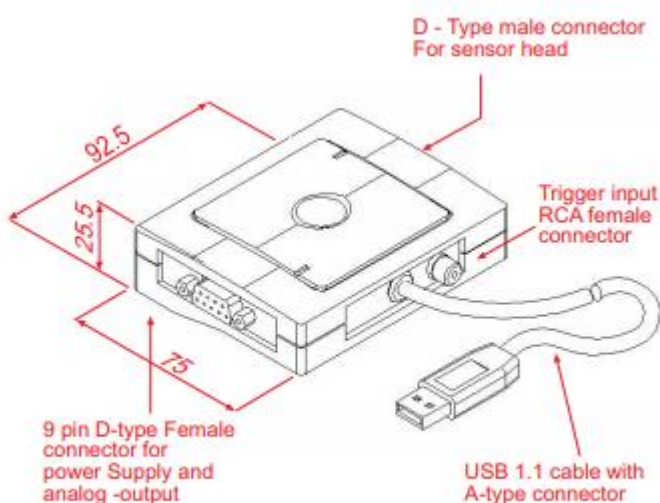
Manifold Box

Device Type	USB 1.1 low-speed
Device Compatibility	USB 1.1, USB 2.0
Weight	215 g with 1.8 m USB cable
Supply Current	20 mA from USB port

Sensor Head

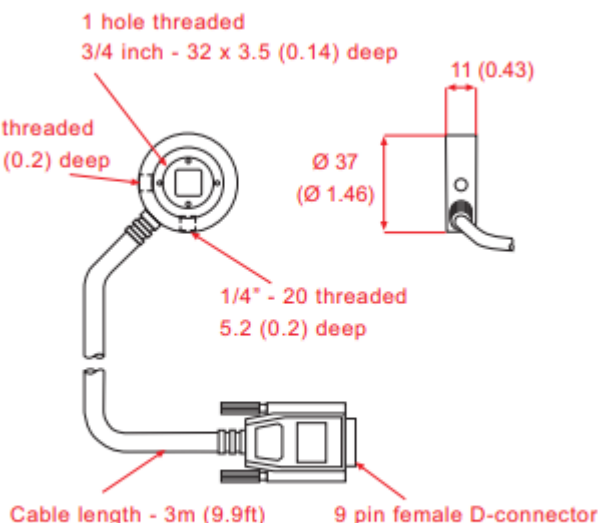
Dimensions (default)	37 mm diameter, 11 mm long, aligned to detector axes to <±0.5°
Type	Dual-axis Later Effect Sensor
Cable	3m long, attached to sensor head

Manifold Box Dimensions



Dimensions are in millimeters

Sensor Head Dimensions



Dimensions are in millimeters (inches)

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