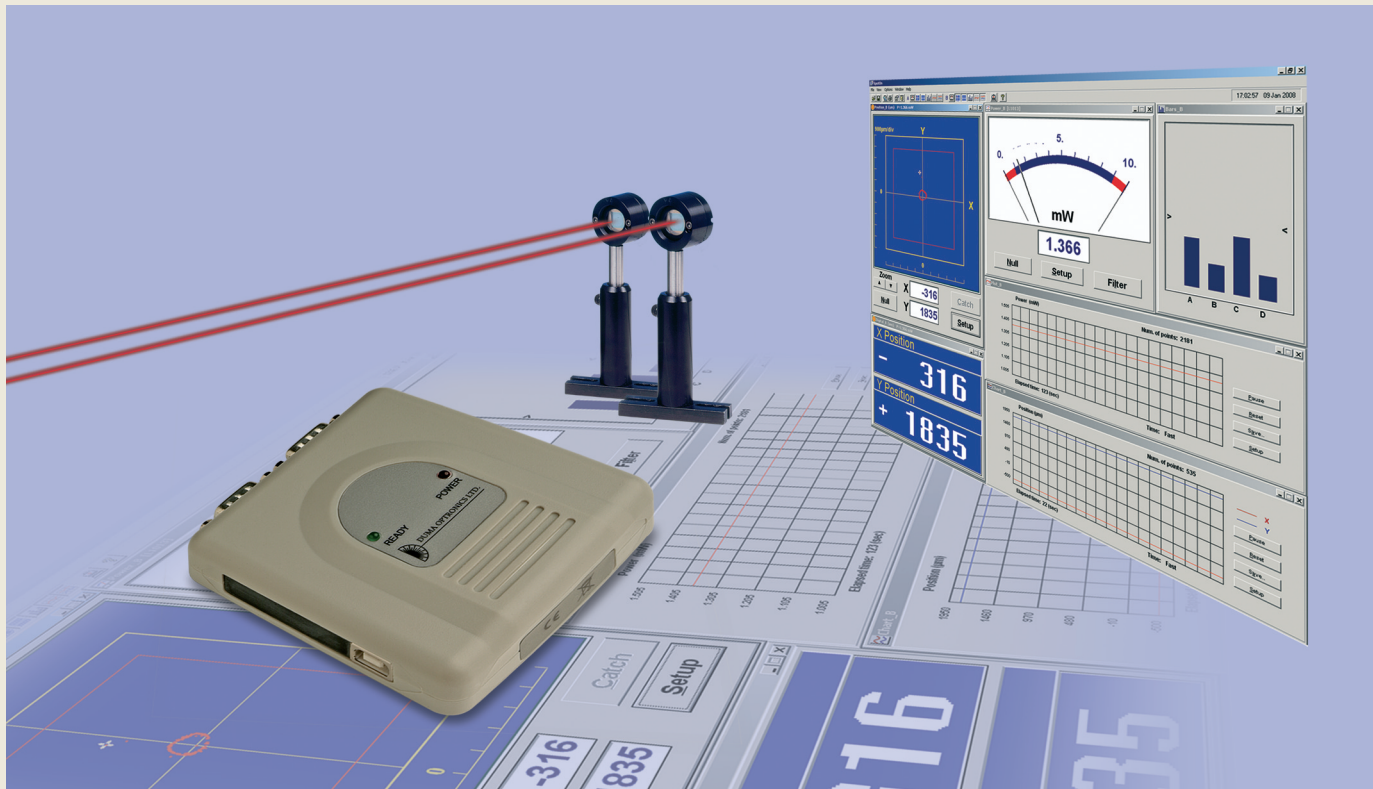# *S*potOn *USB* Optical Beam Position and Power Measurement System

A portable, fast and accurate positioning system

- **Versatile:** Measures both Beam Position (over area up to 9mm diameter) and power (from 10μW to 2.5mW without filters)
- **Precise:** Available with dual axis Lateral Effect detector (down to 0.1μm resolution & 50Hz digital filter, ±25μm absolute accuracy) or with a 4-Quadrant detector (accuracy down to ±0.025% of beam diameter)
- **Convenient:** USB2.0 interface, detectors and software work with any Notebook/Desktop under WinXP/Vista
- **Easy to use:** User friendly software, complete on-line Help routine

Key Features

- Power input through USB2.0 port
- Convenient automatic Gain setting
- New hardware having 24 bit A/D
- Simultaneous operation of one or two PSD's in one system
- ActiveX package for integration in user application program
- Multiple devices operation available
- Real time display of Position and Power measurements
- Data streaming via RS232, direct data logging to Excel files

Main Applications

- Measure laser power and centration or displacement
- Align beams and quality control optical systems
- Measure target rotation and displacement
- Calibrate surface flatness and machine tool alignment
- Monitor vibration, deflection and motion

DUMA OPTRONICS LTD.

1st Hazait St., P.O.Box 3370 Nesher 20306, Israel   Tel:972-4-8200577 Fax: 972-4-8204190
Website:http://www.duma.co.il   E-mail:sales@duma.co.il

Measurement Specifications

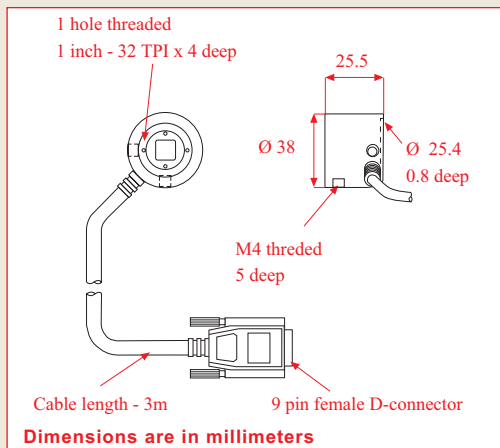| Detector	N – Lateral Effect	L – Lateral Effect	U – Four Quadrant	F – Four Quadrant
Size	10mmx10mm	9mmx9mm	10mmx10mm	10mmx10mm
Type	Dual-axis Si with glass cover	Dual-axis Si resin No glass cover	4XSi sectors separated by 10μm gap, with glass cover	4XSi resin sectors separated by 30μm gap, no glass cover
Usable beam size	50μm to ⌀8mm	50μm to ⌀9mm	50μm to ⌀5mm	50μm to ⌀5mm
Position measurement range	⌀8mm	⌀ 9mm	One beam radius up to ±2.5mm	One beam radius up to ±2.5mm
Position resolution	Down to 0.1μm at 50Hz digital filter plus averaging	Down to 0.1μm at 50Hz digital filter plus averaging	Down to±0.025% of beam size	Down to±0.025% of beam size
Position accuracy	±25 μm over 8 mm dia.	±12.5 μm over 9 mm dia.	±1 μm or ±0.025% of beam size	±1 μm or ±0.025% of beam size
Update rate	Max 150Hz at 500Hz digital filter			
Operational spectral range	350-1100nm			
Power range	10μW to 10 mW with attenuating ND filters			
Power accuracy(*)	±5%			

∗ To maintain full calibration accuracy, attenuating optical filters may be necessary for operation with beams greater than 1 mW. Saturating "non-linear" effects depend on the beam size, type and wavelength, but caution should be exercised when using the 4Quad PSD above 3-6mW or the Lateral Effect PSD above 1-3mW.

Resolution versus Digital Filter bandwidth
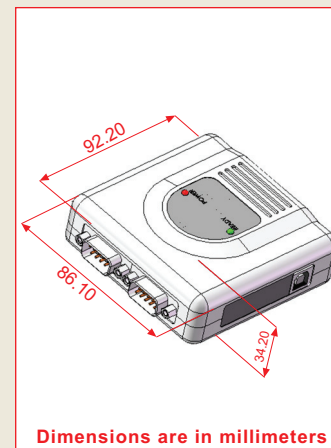

Lateral Effect
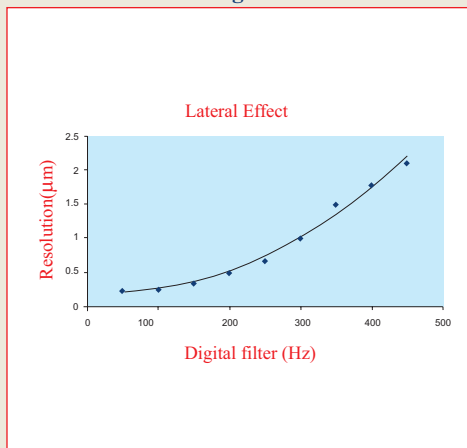
Controls the bandwidth of detector's response, where lower digital Filter attenuates the system noise and increases system's resolution

Sensor head dimensions

1 hole threaded
1 inch - 32 TPI x 4 deep
25.5
⌀ 38
⌀ 25.4
0.8 deep
M4 threded
5 deep
Cable length - 3m
9 pin female D-connector

Dimensions are in millimeters

Weight: 175 G with cable

Manifold Box dimensions

92.20
86.10
34.20

Dimensions are in millimeters

Weight: 125 G

Ordering information

SPOTUSB - Complete system including manifold box, USB2.0 cable, software and user manual on CD, carrying case.

Select one or two sensor heads, calibration files are saved on the PSD heads and loads automatically to the software:

L – Lateral Effect PnP 9X9mm, no glass cover

N – Lateral Effect PnP 10x10mm, with glass cover

Q – Four Quadrant PnP 10x10mm with 30μm gap, no glass cover

U – Four Quadrant PnP 10x10mm with 10um gap, with glass cover

Additional Optional Heads

L44 - DUM SPOT Lateral Effect PnP

L18 - Lateral Effect PnP 18x18mm with glass cover

L04 – Lateral Effect PnP 4x4mm, no glass cover

ER – Dual Lateral Effect PnP with built in optical expander

Hardware Requirements

Pentium 4, 2.4GHz and above with 128MB RAM, 15MB HDD free, one CD ROM, Windows XP/Vista, VGA 8MB 1024x768 resolution , 16 bit, one USB2.0 socket

Optional accessories

NG4/NG9/NG10 – ND filter in housing (3/4" –32 thread)

Hood – 55mm long, for ambient light suppression

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