Data sheet
WID Detector

WID

- Fast position measurement
- Dynamic for intensity range > 3 decades
- Highest resolution (down to < 100 nm)

Figure 1: Rear view of WID detector
(The base plate is not included in the delivery.)

Product description

The WID detector is a 4-quadrant detector with extended intensity range ("Wide-Intensity"). It is ideal for applications where the laser intensity is varied or modulated over large ranges. For example, it is recommended when a high power laser needs to be prealigned at a low power.

The performance of the WID detector is independent of the incident intensity, as the signal gain automatically adapts to the changing powers. A special logarithmic amplifier circuit is used for this purpose. Intensities can vary by more than a factor of 1000 without having to adjust the gain or change optical filters. In addition, the signal-to-noise ratio does not change relevantly over the entire intensity range, resulting in optimum resolution at any intensity.

The WID detector is also available in a clean room version.

Note: Because of the wide intensity range, the detector can detect lowest power levels. There, depending on the choice of optical filters, the signal can be influenced by ambient light.

Specification

Detector type	Wavelength	Detection area	Gap *
WID	320 – 1100 nm	10 x 10 mm^2	30 µm
UV WID	190 – 1000 nm	3 x 3 mm^2	100 µm

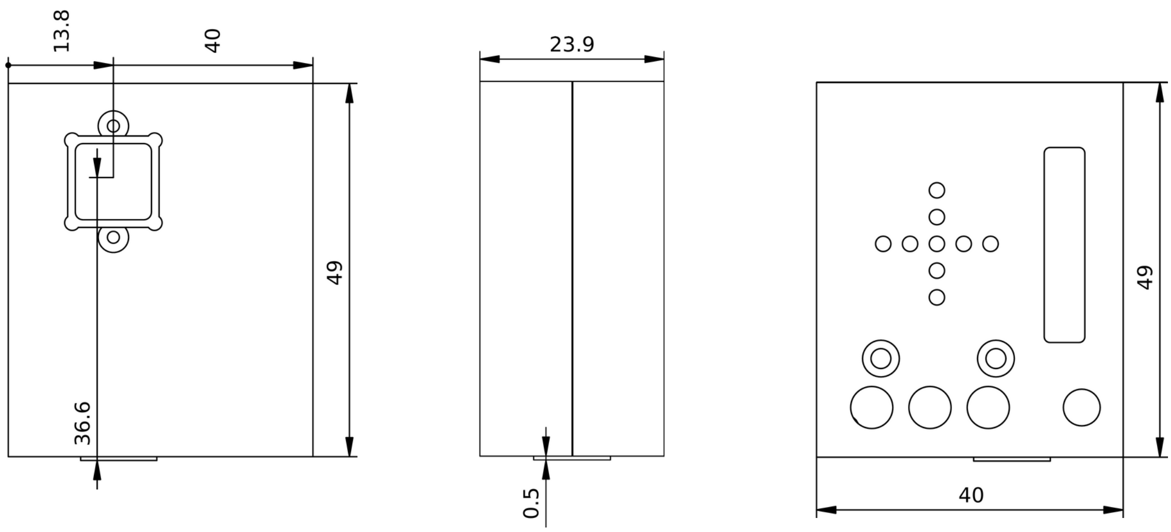
Resolution	down to < 100 nm
Bandwidth	up to 10 kHz
Sensitivity range (power/pulse energy)	5 µW – 5 mW / 5nJ – 5 µJ @ 532 nm and cw / 1 kHz ** (without changing the filters)
Optical filters in compartment in front of sensor / dimension	2 pieces, exchangeable / 11.9 x 11.9 mm^2
Position and intensity display on housing	LED cross with 9 LEDs / LED line with 10 LEDs
Signal scaling	9 mV/µm @ d = 1 mm and I = 2.86 V ***
Electrical power consumption	max. 1.8 W (12V, 110 – 150 mA)

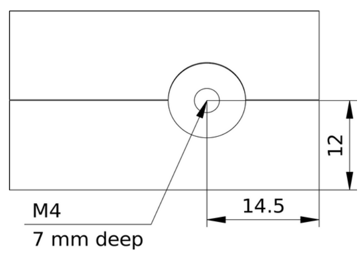
* The "Gap" designates the non-sensitive dividing line between the four quadrants of the diode.
** The specification refers to the values on the sensor. With optical filters in front of the sensor, significantly higher powers or energies can be set. The damage threshold of the detector is defined by these filters alone.
*** Here d denotes the beam diameter and I the intensity hitting the sensor. A formula for calculating the position output for other parameters is given in the manual.

General data

Material	anodized aluminum, invar, etc.
Dimensions (H x W x D)	49.5 x 40 x 23.9 mm (without base plate and rod)
Weight	85 g in weight (without base plate and rod)
Cables	Adapter cable: 4x MCX (at the detector), length 16 cm Extension cable: LEMO->LEMO, length 4 m

Technical drawings





Pin configuration LEMO FGG.0B.306.CLAD52

LEMO	Signal
Pin 1	GND
Pin 2	+ 12V
Pin 3	-
Pin 4	X signal
Pin 5	Y signal
Pin 6	Intensity

Contact

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