

CN0310VIS-M2-B

Automatic M^2 Beam-Quality Measurement

Automate beam-quality measurements for CW and pulsed lasers using a motorised scan, beam profiler and analysis software. Measure M^2 , divergence, focus diameter, waist position and Rayleigh length over the configured optical path.

Measurement method

Initialise the measurement parameters, select the lens and attenuation, then acquire profiles along the propagation axis. Software fits the beam evolution to report the beam-quality parameters.

Features

- 340-1100 nm detection
- CW and pulsed operation from 20 Hz repetition rate
- Automatic OD selection
- 200 mm double-optical-path travel
- USB 3.0 sensor and dual-axis RS232 controller

Applications

- Laser beam-quality analysis
- Focusing and process development
- Laser, fibre-optic and optical research

System performance

Parameter	Specification
Model	CN0310VIS-M2-B
Product	Automatic beam-quality analyser
Detection wavelength	340-1100 nm
M^2 range	1-50
Laser repetition rate	20 Hz to CW
Minimum input beam diameter ($1/e^2$)	≥ 1.0 mm at 355 nm; ≥ 1.2 mm at 532 nm; ≥ 1.6 mm at 1064 nm
Maximum input beam diameter ($1/e^2$)	≤ 7.0 mm at 355 nm; ≤ 10.0 mm at 532 nm; ≤ 16.0 mm at 1064 nm
Detection accuracy	<3%
Focal-position accuracy	$\pm 10\%$
Maximum input power	<1 W
Detection mode	Automatic after parameter initialisation
Typical detection time	≤ 60 s excluding initialisation
Weight	<15 kg
Dimensions, L × W × H	467.37 × 130 × 177.56 mm, excluding feet
Operating environment	15-40 °C; relative humidity <60%; clean environment

Sensor module

Parameter	Specification
Sensor	CN0310VIS-B
Pixel size	3.2 μm
Resolution	2448 × 2448 pixels
Response band	340-1100 nm
Sensitive area	7.8 × 7.8 mm
Bit depth	12-bit
Sensor spot range	0.03-5 mm, TEM00
Interface	USB 3.0

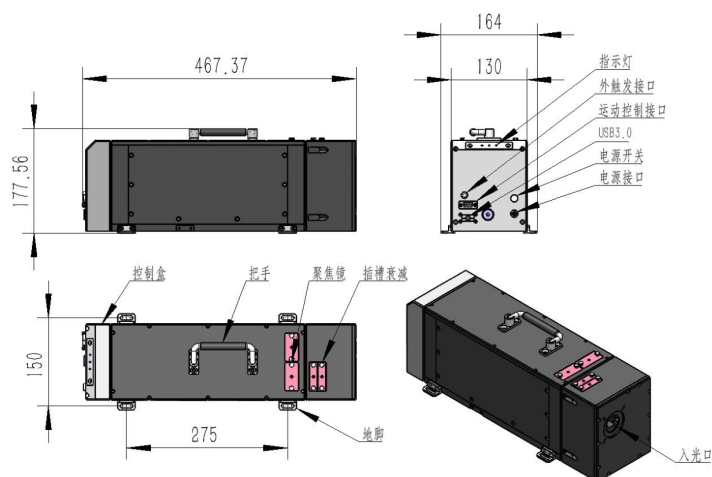
Motion, attenuation and optics

Parameter	Specification
Travel	200 mm, double optical path
Repeat positioning accuracy	$\pm 5 \mu\text{m}$
Controller	RS232; dual-axis
Stage	5-phase stepper with cross-roller guide
Power supply	24 V, 2 A
Attenuator maximum input diameter	16.0 mm at $1/e^2$
Attenuation settings	OD0.5 / OD1 / OD1.5 / OD2 / OD3, automatic switching
Standard lens focal lengths	F200 / F350 / F500
Lens effective clear aperture	<17 mm
Wavefront distortion	< $\lambda/10$ at 1064 nm

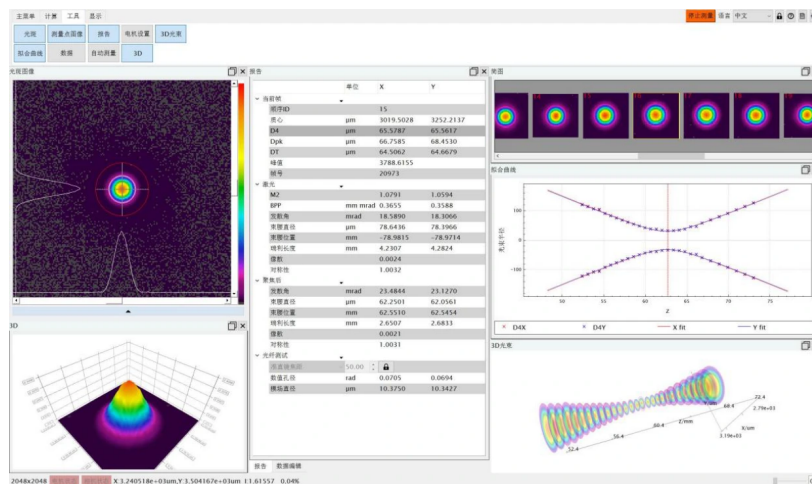
Software and computer

Parameter	Specification
Operating system	Windows 10 / 11, 64-bit
Office software	WPS Office pre-installed
RAM	$\geq 8 \text{ GB}$
Processor	$\geq 2.5 \text{ GHz}$; ≥ 4 cores; Intel i5 or equivalent recommended
Recommended display	1920 × 1080

Technical figures



CN0310VIS-M2-B mechanical outline



CN0310VIS-M2-B software and analysis example (illustrative)

Conditions and configuration notes

The model PDF gives minimum input diameters as lower bounds ($\geq$); the web overview reverses the inequality. The model PDF limits are used here.

The introduction quotes overall accuracy within $\pm 5\%$, while the model table specifies detection accuracy $< 3\%$ and focal-position accuracy $\pm 10\%$. Treat these as distinct fields and confirm the required uncertainty.

The input-power limit is < 1 W. Observe lens, attenuation and beam-size limits together; the sensor-only spot range is not the full system input range.

Specify your measurement

- Wavelength, repetition rate and pulse parameters
- Input power and $1/e^2$ beam diameter
- Expected waist, lens choice, scan range and computer configuration

Prepared by Precisometer. Technical review: 24 October 2026. Confirm the supplied configuration, measurement conditions, accessories and warranty with the quotation.

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