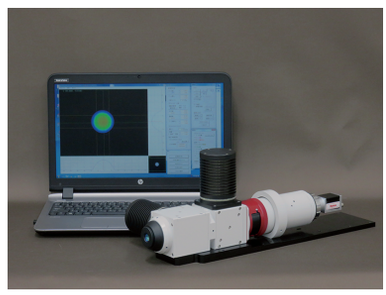
FFP MEASUREMENT SYSTEM FOR ~10W CLASS HIGH POWER LASER

FFP measurement system especially targeting for ~10W output class high power laser.

FFP measurement system for high power laser is suitable for measuring the emission angle distribution of ~10W class high power laser. FFP measurement optics for high power laser **M-Scope type HF** is used. The light flux emitted from high power laser sample is attenuated by beam sampler unit after passing through f-θ lens module, and is further attenuated by ND filter at subsequent stage. The FFP image that has been attenuated to appropriate beam power is captured and image processing analysis is performed.



【Features】

○**M-Scope type HF**, FFP measurement optics for high power laser
- Specially designed f-θ lens optics for high power laser measurement
- Attenuation of incident beam with two-stage beam sampler and ND filters
- Covers a wide range of measurement luminous flux diameters of approx. 3mmφ
- Wide measurement angle coverage of approx. ±43°

○1″ high resolution CMOS detector **ISA061** is used as dedicated detector

○Optical beam analysis module **AP013**, specially designed high-functional image processing software for optical beam profile analysis
- All-in-one package of PC, optical beam analysis software, detector driver, calibration data.
- High-performance image processing software for optical beam profile measurement **Optimetrics BA Standard** is pre-installed.

【Standard component】

○Optics
- 850~940nm : **M-Scope type HF/NIR**

*Please specify the measurement wavelength because AR coating to some optical parts is required.

○Available detector (dedicated)
- 400~1100nm : 1″ HR CMOS detector **ISA061**

○Optical beam analysis module **AP013**
- PC for image processing, optical beam analysis software **Optometrics BA Standard**, detector driver, calibration data, USB key

○Accessories
- Cables, instruction manuals, etc.

【Detector, angle coverage, pixel resolution (approx. value)】

Detector	1″ HR CMOS detector **ISA061**	
Spectral range	400~1100nm	
Total pixels	2048×2048 pixels	
Pixels pitch	5.5μm sq.	
Meas. angle / pix. resolution	Meas. angle	Pix. resolution
	±43°/N.A. 0.68	0.05°

*Pixel resolution: The measurement angle corresponding to 1 pixel of the detector, calculated from the measurement angle range and the pixel pitch of the detector.

【Option】

○ND filter (for M-Scope type HF, dedicated 35φ)
- NIR (700~1100nm): **NDF NIR 35-5** (5 types per set)

○Optics bench
- Optics bench for fiber measurement with manual stages
- Vertical setting optics bench

【Large emission area compatible model】

It is possible to configure system using FFP measurement optics for high power laser of large emitting area **M-Scope type HF+**.

○Optics
- 850nm~940nm : **M-Scope type HF+/NIR**

*Please specify the measurement wavelength because AR coating to some optical parts is required.

○Detector (recommended)
- 400-1100nm : 2/3″ digital CCD detector **ISA011-01**

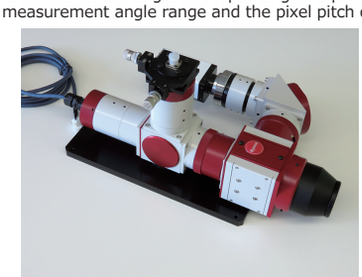
○Optical beam analysis module **AP013**
- PC for image processing, optical beam analysis software **Optometrics BA Standard**, detector driver, calibration data, USB key

○Accessories
- Cables, instruction manuals, etc.

【Detector, angle coverage, pixel resolution (approx. value)】

Detector	2/3″ digital CCD detector ISA011-01	
Spectral range	400~1100nm	
Total pixels	1392×1040 pixels	
Pixels pitch	6.45μm sq.	
Meas. angle / Pix resolution	Meas. angle	Pix. resolution
	±12°/N.A.0.2	0.026°

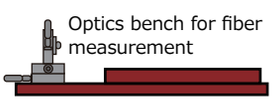
*Pixel resolution: The measurement angle corresponding to 1 pixel of the detector, calculated from the measurement angle range and the pixel pitch of the detector.



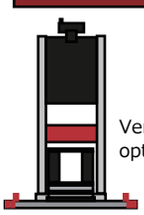
【Component selection of high power laser FFP measurement system】

○Stages・optics bench

Sample stages
Optics stages



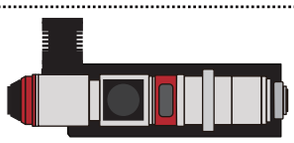
Optics bench for fiber measurement



Vertical setting optics bench

＊Can be combined with various motorized/manual stages

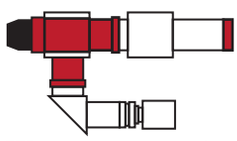
○Optics & detector selection



FFP measurement optics for high power laser M-Scope type HF

●for 400~1100nm

1″ HR CMOS detector ISA061



FFP measurement optics for high power laser M-Scope type HF+

●for 400~1100nm

2/3″ digital CCD detector ISA011-01

○Optical beam analysis module **AP013**

- Personal computer
  - ・Main unit
  - ・Accessories

- Optical beam analysis software **Optometrics BA Standard**
- Detector driver
- Calibration data
- USB licence key

○Accessories

●35φ NIR ND filter