M-Scope type F　FFP(FAR-FIELD PATTERN) MEASUREMENT OPTICS

Far-field pattern measurement optics using optical method. Realtime measurement in combination with optics and image analysis.

【Product overview】

M-Scope type F is specially-designed optics for optical method FFP (Far-Field Pattern) measurement. It is applicable for real-time FFP and N.A. measurement and analysis of laser diode, optical fiber, optical waveguide module, etc.

【Feature】

- Specially designed optics for real-time observation and analysis FFP (far field pattern)
- Realize long working distance of approx. 6mm
- By selecting detector, it will be applicable for optical beam profile observation and analysis from visible to NIR wavelength

☞*About detector in details, please refer to P25-28.*

- In combination with SYNOS' Optical beam analysis module **AP013,** it will be applicable to FFP measurement and analysis application including EAF(Encircled Angular Flux) analysis.

【Summery of specification】

- Measurement method: Special f-θ optics and image processing and analysis method
- Working distance: approx. 6mm±0.8mm
- Extinction method: by Neutral Density Filter
- Camera mount: C mount

【Detector and measurement angle coverage, resolution】

- High resolution digital CCD detector **ISA011**
  - Waverength: visible -1100nm
  - Angle coverage: approx. ±40°/N.A. 0.65
  - Pixel resolution: approx. 0.09°
- InGaAs high sensitivity NIR detector **ISA041H2**
  - Waverength: 950 - 1700nm
  - Angle coverage: approx. ±39.5°/N.A. 0.65
  - Pixel resolution: approx. 0.4°

Note) Pixel Resolution : calculated value, means angle value equivalent to 1pixel of image sensor.

【Standard component】

- Main optics: 1unit
- Optics base: 1

【Option, accessory】

- ND filter
- Optics bench for optical fiber measurement

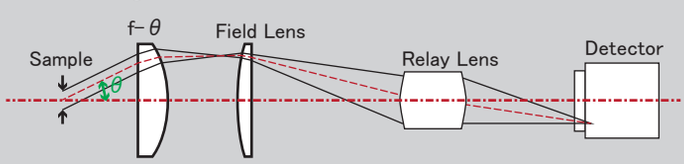
☞ *About accessory in details, please refer to P31-32.*

【Application】

- FFP measurement and analysis of various light emitted device such as laser, laser diode, and so on.
- FFP and N.A. measurement and analysis of various optical fibers such as SMF, MMF, POF and so on.
- FFP and N.A. measurement of optical waveguide modules, polymer optical waveguide module, optical connector and so on.
- Inclination measurement of built-in 45° mirror of polymer waveguide module for optical interconnection.
- Encircled Angular flux analysis of various MMF (multi-mode optical fiber)

【Principle of "optical method FFP measurement"】

As shown in the lower diagram, the light flux, having incident angle θ from the sample, is focused at a point on the detector through f-θ lens, field lens and relay lens set. By this way, FFP image of the sample is formed and acquired by imaging detector, and analyzed directly and quickly by image processing method of the FFP image formed on the detector.



M-Scope type C　COLLIMATED BEAM MEASUREMENT OPTICS

Collimated beam observation and measurement optics. Best suit for lens alignment of various collimated lens modules.

【Product overview】

M-Scope type C is specially-designed optics for collimated beam observation and analysis, applicable to adjustment of collimated lens of fiber collimator, LD module, and so on.

【Feature】

- Specially designed optics for realtime observation and analysis for collimated beam
- Realize high angle measurement resolution, requisite for measurement, adjustment of collimated beam
- By selecting detector, it will be applicable for optical beam profile observation and analysis from visible to NIR wavelength range

☞*About detector in details, please refer to P25-28.*

- In combination with Synos' Optical beam analysis module **AP013**, it will be applicable to various collimated beam measurement and analysis application.

【Summery of specification】

- Measurement method: Special optics and image processing and analysis method
- Focal distance: approx. 150mm (standard, negosiable)
- Extinction method: by Neutral Density Filter
- Camera mount: C mount

【Detector and measurement angle coverage, resolution】

- High resolution digital CCD detector **ISA011**
  - Waverength: visible -1100nm
  - Angle coverage: approx. ±1.23° x ±0.92°
  - Pixel resolution: approx. 0.0018°
- InGaAs high sensitivity NIR detector **ISA041H2**
  - Waverength: 950 - 1700nm
  - Angle coverage: approx. ±1.22° x ±0.97°
  - Pixel resolution: approx. 0.008°

Note) Pixel Resolution : calculated value, means angle value equivalent to 1pixel of image sensor.

【Application】

- Adjustment of collimator lens for vis-NIR LD modules
- Evaluation of collimated beam
- Assembling, adjustment, evaluation of various collimator devices and modules.
- Assembling, adjustment of collimator lens of various butterfly package modules.

【Standard component / M-Scope type L】

- Main optics: 1unit
- Optics base: 1

【Option, accessory】

- ND filter
- Optics bench for optical fiber measurement

☞ *About accessory in details, please refer to P31-32.*