M-Scope type C　COLLIMATED BEAM MEASUREMENT OPTICS

High precision beam divergence angle measurement optics for collimated beam. Best for evaluation, assembling adjustment of various collimator modules.

M-Scope type C is designed for beam divergence angle measurement of collimated beam with high resolution and in real time. It can be used for assembling adjustment of collimator module and quality evaluation of collimated beam.

【Features】

○Dedicated optics and image processing method enable real-time beam divergence angle measurement of collimated beam (collimated beam parallelism) with high resolution and high accuracy.
○Possible to measure in 400nm to 1700nm wavelength range by selecting detector.
○High-performance collimated beam measurement system can be constructed by using Synos' optical beam analysis module **AP013** together.

【Summary of specifications】

○Measurement method:　Dedicated optics & image processing
○Measurement luminous flux diameter: Approx. 15mmφ
○Attenuate:　By neutral density filter
○Camera mount:　C mount

【Optics selection】

○focul length 200mm:　M-Scope type C/200
○focul length 150mm:　M-Scope type C/150
○focal length 100mm:　M-Scope type C/100

【Available detectors selection】

○for 400~1100nm: Hi-resolution CMOS detector **ISA071**, **ISA071GL**
○for 950~1700nm: InGaAs NIR detector **ISA041H2**
○for 400~1700nm: InGaAs NIR derector **ISA041HRA**
☞Regarding the measurement angle coverage and pixel resolution during collimated beam measurement by the detector used, please refer to P50【Detector selection and collimated beam measurement specifications】

【Standard component】

○Main optics:　1
○Optics base:　1

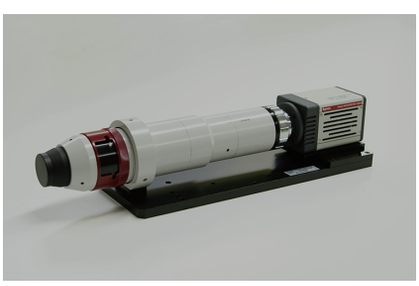
【Option】

○Accessories for optics
　●Objective lens, ND filter, optics bench, etc.

M-Scope type FHR　HIGH RESOLUTION FFP MEASUREMENT OPTICS FOR IR RANGE

High resolution FFP measurement optics for 1310-1550nm spectral range.

M-Scope type FHR is the optics for measuring FFP in 1310nm~1550nm NIR spectral range. The combination with VGA type InGaAs high sensitivity NIR detector **ISA041VH** enables high accuracy FFP measurement with an angle pixel resolution of approx. 0.1 ° in 1310-1550nm spectral range. It can be applied to high precision FFP measurement and N.A. measurement of various optical devices in optical communication field such as optical fibers, optical waveguides, silicon photonics devices, and so on.



【Features】

○Specially designed optics for real-time observation and analysis of FFP
○Realize high angle pixel resolution of approx. 0.1° in 1310nm~1550nm spectral range
○Long working distance design of approx. 6mm
○High-performance collimated beam measurement system can be constructed by using Synos' optical beam analysis module **AP013** together.

【Summary of specification】

○Measurement method: Dedicated f-θ optics & image processing
○Corresponding spectral range: 1300-1600nm
　＊ Please contact us regarding the measurement wavelength.
○Measurement luminous flux diameter: approx. φ1mm
○Working distance:　approx. 6mm±0.8mm
　*W.D. depends on the measured sample size.
○Attenuate:　by Neutral Density Filter
○Camera mount:　C mount

【Available detector, measurement angle, pixel resolution】

Detector	VGA type InGaAs NIR detector ISA041VH	
Spectral range	950~1700nm	
Total pixels	640×512 pixels	
Pixels pitch	20μm sq.	
Measurement angle	Meas. angle coverage	Pixel resolution
Pixel resolution	approx.±32°(V)×±25.6°(H)	approx.0.1°

*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.

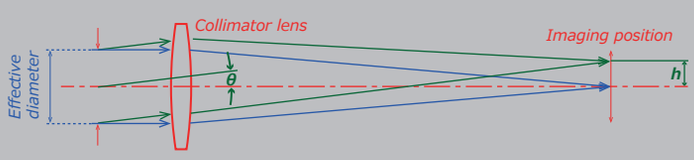
【Standard component】

○Main optics:　1
○Optics base:　1

【Option】

○Accessories for optics
　●IR ND filter, optics bench, etc.

☞Technical information【Principle of collimated beam measurement】



The light flux emitted from the sample enters the collimator lens. If we consider each angle component as parallel light flux, the light flux parallel to the optical axis will be focused at one point on the imaging position on the optical axis. On the other hand, the parallel light beam with incident angle 'θ' is imaged at the position 'h' of the imaging position due to the relationship between the focal length 'f' and the incident angle 'θ'. If the luminous flux has a divergence angle, the size of the beam spot at the imaging position changes depending on the divergence angle. In this way, image processing analysis of the beam formed at the imaging position is performed, and the parallel state of the collimated beam is analyzed in real time and high resolution.