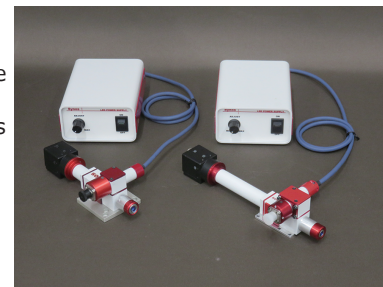


**M-Scope type M COMPACT TYPE OPTICAL MEASUREMENT OPTICS**

Synos' original and specially-designed multi-purpose optics for optical beam irradiation & detection, beam profile measurement.

**M-Scope type M** is a compact type optical beam irradiation & detection measurement optics that equips coaxial observation camera for observing target position. It is monocular type and ultra-compact optical unit, suitable for embedding in equipment. It can be used for a wide range of applications such as light incident measurement of light receiving elements, light receiving measurement of light emitting elements, and light incident on bio cells, etc. There are two types of **M-Scope type M**, one is **M-Scope type M6** with 6x objective lens model, another is **M-Scope type M20** with 20x objective lens model.



**[Features]**

- Imaging port for coaxial observation camera is equipped. Direct observation of irradiating beam position and light detecting position.
- Compact and light weight, suitable for mounting on various stage system and built-in use.
- Two types of **M-Scope type M6** with 6x objective lens, and **M-Scope type M20** with 20x objective lens
- Polarization compensation optical fiber connect port is equipped as standard equipment.
- Various commercially available fiber light sources can be used.

**[Summary of specifications]**

	M-Scope type M6	M-Scope type M20
Relay magnifications	1:1	
Light irradiation	Irradiate the core diameter of connected fiber on the target sample with 1:1 magnification	
Light detection	Detect the light from target sample area equivalent to the core diameter of connected fiber with 1:1 magnification	
Fiber connector	FC connector	
Measurement wavelength	Select and specify the measurement wavelength from 400~1550 nm spectral range	
Epi-illumination	LED coaxial epi-illumination (dedicated M-Scope type M)	
Coaxial observation camera	1/1.8" CMOS detector ISA071 (recommended), other detectors can be used	
Optical magnifications	approx. 6.25x	approx. 22x
W.D.	approx. 4.9mm	approx. 2.5mm
Field of view (ISA071)	approx. 1.13mm×0.84mm (1/1.8" CMOS)	approx. 320μm×240μm (1/1.8" CMOS)

**[Standard component]**

- Main optics: 1
  - Fiber connect port: 1
  - Imaging port (1x): 1
  - LED epi-illumination system (dedicated): 1
- Optics base: 1

**[Available detectors selection]**

- for 400~1100nm: Hi-resolution CMOS detector **ISA071**, etc.
- for 950~1700nm: InGaAs NIR detector **ISA041H2**, etc.
- for 400~1700nm: InGaAs NIR detector **ISA041HRA**, etc.

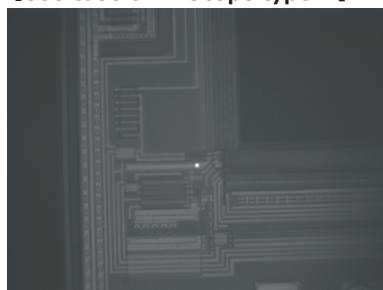
**[Option]**

- Accessories
  - Manual/motorized stage system, etc.

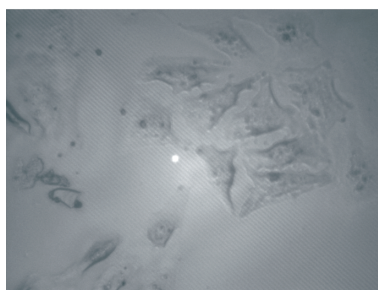


M-Scope type M mounted on a manual positioning stage

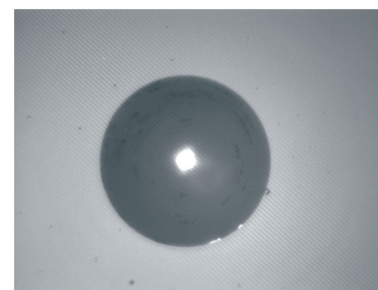
**[Use case of M-Scope type M]**



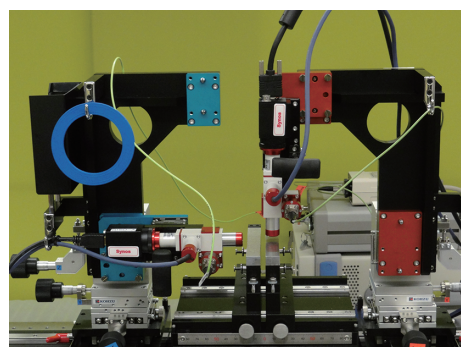
Beam irradiation onto semiconductor chip



Beam irradiation of bio cell



Beam introduction to the optical fiber



**[Applied system of M-Scope type M] Optical method insertion loss measurement system**

This is the optical method insertion loss measurement system using **M-Scope type M**. By using coaxial observation camera mounted on **M-Scope type M**, it becomes possible to perform direct image observation of input and output end faces of the measured optical waveguide. While checking the observed core image of the optical waveguide, it is possible to directly introduce the measurement beam into the core and receive the beam emitted from the waveguide for measurement. In this way, insertion loss measurement similar to optical fiber alignment can be performed easily and quickly even when combined with a manual precision positioning stage. Best for manual insertion loss measurement of polymer waveguide module for OPCB substrate.  
 ☞ About optical method insertion loss measurement system in detail, please refer to P29.