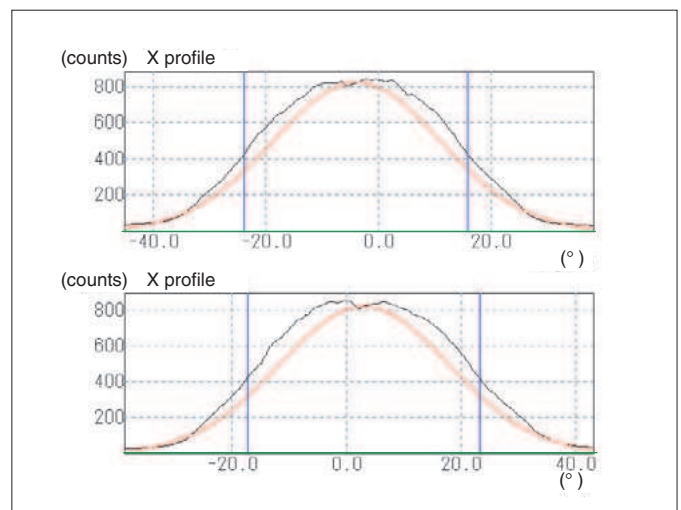
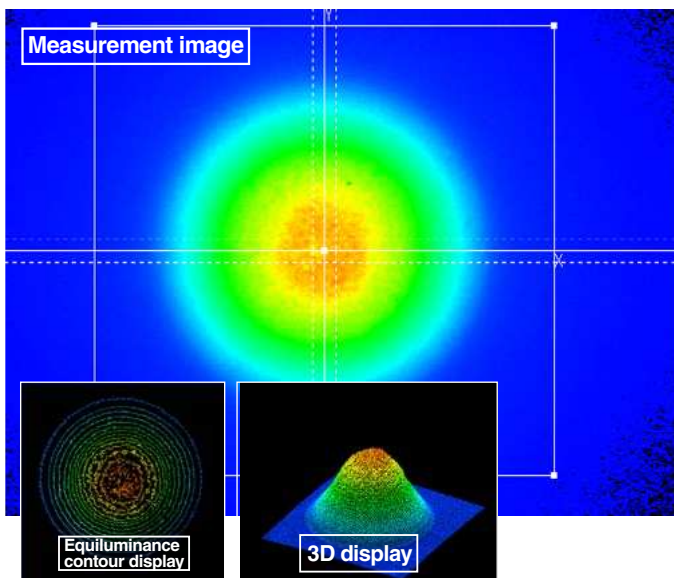


## Fiber NA measurement system

Instantly measures NA - a basic parameter for communication optical fibers - in 2 dimensions. Compatible not only with single-mode, but also with multimode fibers.



The NA (Numerical Aperture) is a basic parameter for optical fibers. The fiber NA measurement system instantly determines the NA of a fiber in 2 dimensions. This system uses FFP optics for converting the angle distribution of the fiber output beam into position distribution data for analysis. When measuring multimode fibers such as plastic fibers, the A3267-12 FFP optics is used because of its wide measurement range. When measuring single-mode fibers, the A3267-15 FFP optics is used because of its narrow measurement angle.



### Beam parameter display

	FWHM	1/e	1/e <sup>2</sup>	5 %
Peak intensity (counts)	898			
Peak position (μm)	-1.80, -0.60			
Total beam energy (counts)	37 420 718			
Gravity position (°)	-4.00, 3.00	-4.00, 3.00	-4.00, 3.20	-4.00, 3.40
Beam angle (°)	39.63, 40.37	46.20, 46.60	59.43, 60.20	72.77, 71.63
Beam gauss angle (°)	35.00, 34.60	41.97, 41.83	59.07, 59.40	72.60, 72.53
Beam energy (counts)	21 461 276	25 974 757	32 879 289	35 132 753
Average energy (counts)	661.59	588.82	436.73	326.10
Dispersion (%)	17.81	26.98	50.67	76.82
Tilt (°)	90.69	64.26	77.80	1.88
Ellipticity (%)	100.79	100.81	100.16	100.31
N.A.	0.3390, 0.3450	0.3923, 0.3955	0.4957, 0.5015	0.5932, 0.5852

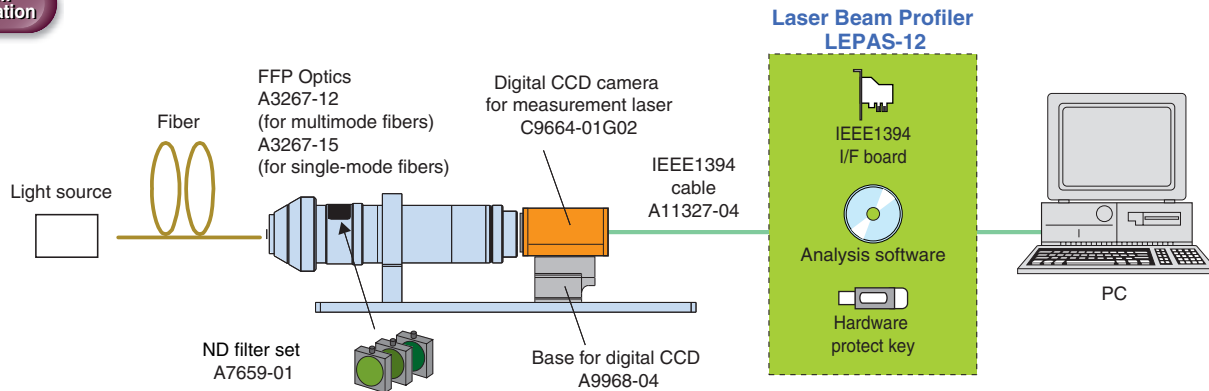
### Specifications

Optics type	A3267-12	A3267-15
Measurement object	multimode fibers	Waveguide, single-mode fibers
Wavelength range	635 nm to 1100 nm	
fiber core diameter	< φ1.5 mm	

# Fiber NA measurement system



## System configuration



## Specifications

### Optics specifications

Optics type	A3267-12	A3267-15
Measurement angle range(N.A.)	±45 ° (0.7)	±10 ° (0.17)
Angular resolution	< 0.1 °	< 0.025 °
Wavelength range	630 nm to 1100 nm	
Working distance	2.8 mm	
N.A.	< φ1.5 mm	
Lens mount	C mount	
Optical axis height	80 mm ±2 mm	
Mass	3.4 kg	3.7 kg

### Reducing filter set A7659-01

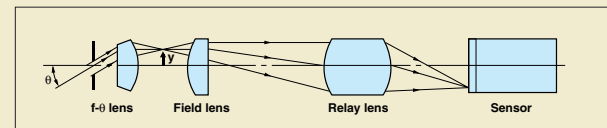
Wavelength	600 nm to 1100 nm
Transmittance (1)	1/10, 1/2, 1/50, 1/100, 1/250, 1/500, 1/1000, 1/2500, 1/5000 1/10 000, 1/25 000, 1/50 000, 1/100 000

(1) In terms of transmittance, the A7659-01 shows an approximate value in the wavelength range from 650 nm to 850 nm.

### Operating principle of the FFP optics

The FFP optics is configured of three types of lenses: an f-θ lens, a field lens, and a relay lens. The f-θ lens forms the nucleus of the FFP optics and serves to convert the angle  $\theta$  of the incident beam to positional information  $y$  ( $= f \cdot \theta$ ). Consequently, the illumination distribution on the focal surface of the f-θ lens (the camera imaging surface) serves as the angle distribution of the light source, and the FFP itself of the light source is formed of the focal surface. Images formed with FFP optics have a radiative angle distribution similar to that of an image projected on a semi-spherical screen with a light-emitting point at its center and are equivalent to the two-dimensional form of conventional mechanical scanning using a photodiode.

Patent: No. 1639209 Light Source Two-Dimensional Light Distribution Measurement Device



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Cat. No. SOCS0011E03  
DEC/2012 HPK  
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