Learn More

Manufacturer:
Arden Photonics

Product Name:
Arden Photonics External Illuminator for Fujikura-Style Ribbon Fiber Holders

Manufacturer Part Number:
FGC-EXT-RIBBON

Click here for more details on the Arden Photonics External Illuminator for Fujikura-Style Ribbon Fiber Holders

Arden PHOTONICS

OPTICAL FIBER MEASUREMENT SPECIALISTS

FGC Array

Geometry Measurement

Fiber Array Units (FAUs) are integral to telecommunication networks, data centres, Photonic Integrated Circuits (PICs), and other advanced and emerging photonic applications.

Characterising FAUs is essential for ensuring quality by minimising coupling losses and maintaining Polarisation Extinction Ratio (PER) if polarisation-maintaining (PM) fibers are in the FAUs. With Arden's cutting-edge FGC Array Fiber Geometry System, users can accurately characterise their FAUs in just 1 minute*, whether in R&D, laboratory, or production settings.

The FGC Array measures the majority FAUs up to 22 mm wide. It measures the most critical parameters, such as the relative position of each fiber core and the inter-core distances, PM stress rod angle, among numerous others.

Equipped with a production-ready software with a comprehensive GUI and an API, an advanced fiber-handling system, and a fully automated translation stage, the FGC Array delivers consistent, user-independent results, setting a new standard for fiber geometry measurement in FAUs.

*Measuring an FAU with 8 single mode fibers

- Measures the majority of FAUs up to 22 mm wide.
- Core Illumination Technology to enhance measurement accuracy and repeatability
- Automatic translation stage and fiber-handling system ensures consistent and user-independent results
- Characterise FAUs in one minute*

Contact the professionals at Fiber Optic Center for a quote or to get more details.

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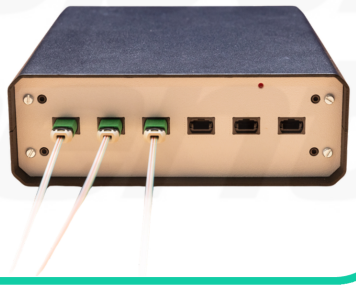
Key Features and Technologies

Measure Wide Range of Fibers and FAUs

Measure the majority of FAUs up to 22 mm wide, consisting of a variety of fiber types, including single-mode, multi-mode, and polarisation-maintaining (PM) fibers.

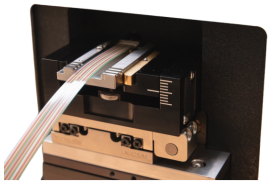
Core Illumination Technology

The cores of the fiber are illuminated using 630 nm red light by a dedicated core illumination system to ensure even light distribution and enhanced measurement accuracy and repeatability for various connectors such as MTP, FC/APC and ribbon holder connectors. Options for core illuminators include systems with 6 MTP or 8 FC ports. Up to 6 units can be linked to the system.



Fully Automated Translation Stage

The stage delivers 0.25 µm* core measurement accuracy and repeatability down to 0.1 µm, ensuring consistent and repeatable results with the newly-designed software and fiber handling system.



* The stated accuracy is achievable with smaller arrays and may decrease over long measuring distance.

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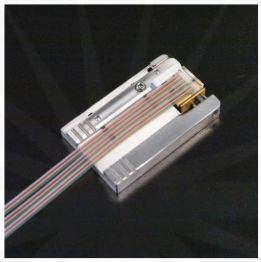
Key Features and Technologies

Advanced Fiber Handling System



A newly designed tiltable 32 mm mount and adjustable-width array holder provides a versatile mounting solution for fiber arrays ranging from 2.5 mm to 22 mm, with tilt angles from -8° to +8°.

Enhanced Optical System & Algorithm

Refined imaging quality is achieved using an infinity-corrected objective and a high-resolution CMOS camera for sharper, more evenly illuminated images. Its large 1100 (V) x 800 µm (H) field of view captures detailed images and accommodates significant core height variations using a motorised focusing stage. Proprietary distortion correction algorithms ensure highly accurate imaging and measurement results, setting new benchmarks for precision.

Production-ready software

Simplifies the measurement process while providing powerful analysis tools for deeper insights into data and results. Suitable for use in R&D, laboratory, and production environments.

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FGC Array

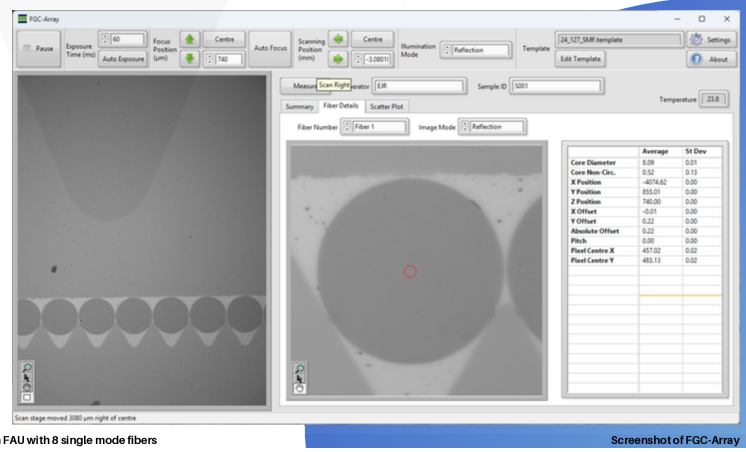
Measures the fiber geometry of Fiber Array Units (FAUs) in one minute,* whether in R&D, laboratory, or production settings.

Product highlights

- **High Precision** – Measures core positions with 0.25 µm accuracy and 0.1 µm repeatability for reliable results.
- **Core Illumination Technology** – Uses 630 nm red light for even illumination, improving measurement accuracy.
- **Enhanced Optics** – High-resolution CMOS camera and infinity-corrected objective capture clear, distortion-free images.
- **Versatile Fiber Handling** – Adjustable holder supports FAUs from 2 mm to 22 mm with a tiltable 32 mm mount.
- **Production-ready Software** – Easy-to-use software simplifies measurements and ensures consistent, repeatable results.

Applications include

- Telecommunication Networks
- Data Centers
- Photonic Integrated Circuits (PICs)
- Fiber Optic Sensing
- Medical and Biomedical Optics



*Measuring of an FAU with 8 single mode fibers

Screenshot of FGC-Array

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Technical Specification

Measurement Capabilities - V-Groove Array	
Array Block Width	Up to 22 mm as standard
Scan Range	Up to 20 mm (core to core pitch can be measured within this range)
End face vertical angle	-8° to +8° tilt angle
Fiber Types	Single row only - single mode, multi mode, PM
Core pitch	Any possible sequence, missing/non-illuminated cores are permissible
Standard Parameters	X-Y positions of cores, PM stress rod angle
Measurement Time	30 second setup/analysis, plus 5 seconds per core
Reference Line	First to last core, Fiber cladding reference points, Best Fit

Accuracy & Repeatability	
Stage translation accuracy (1σ, between any two points)	0.25 µm + 0.025 * L (where L is the horizontal distance between points in mm)
Core X/Y positions	0.1 µm

*Repeatability (1σ) is measured on the FGC-Array using an 8 fiber array (250 µm nominal pitch) without removing the sample from the unit.

Fiber Illumination	
Measurement Wavelength	630 nm
Reflection	Internal light source
Transmission	External module only – FC, MTP and ribbon holder options
Polarisation-Maintaining Fiber	External module only – optional extra PANDA style PM only, illuminates fiber arrays up to 9 mm width (not compatible with standard adjustable holder). Bow-tie style fibers can be imaged and core centroid determined, but not the angle of the fast/slow axes

Optical	
Field of view	1100 µm (V) x 800 µm (H)

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Technical Specification

Physical	
Weight	23 kg
Size	0.46 x 0.46 x 0.2 m
Operating temperature	10 – 30°C
Performance specification validated at	21± 4°C
Power supply	24 V (external power supply supplied)
Power consumption	120 W
Data interface	1 X USB 3.0 (USB B to USB A: 1m cable supplied)
Computer requirements	All FGC Array systems are supplied with a computer running up-to-date Windows operating system.

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Ordering Information

Part Number	Description
FGC Array	FGC Array measurement system for measurement of optical fiber V-groove arrays. Including FGC Array optical unit, PC, and the following accessories: FGA-CK – cable kit, FGA-SFT – software package

Part Number	Description
FGA-CK	FGC Array cable kit including power cable and 1m USB 3.0 cable
FGA-SFT	FGC Array software package
FG-H-VA	FGC Array adjustable width array holder for 2.5 – 22 mm
FG-H-VAPM	FGC Array adjustable width array holder for 2.5 to 9 mm, PM Illuminator compatible
FG-H-SP16	Spacer block for 16 mm holders
FGA-PMI	PM illuminator for arrays (not compatible with FG-H-VA adjustable holder)
FGA-EXT-FC	External illuminator for 8 x FC connectors. Works with both FC/PC and FC/APC
FGA-EXT-MTP	External illuminator for 6 x MTP/MPO connectors. Works with both straight and angled connectors
FGC-EXT-RIBBON	External illuminator for Fujikura style holders
FGA-ART	FGC Array measurement verification artefact, mounted chrome on glass
FGA-UEW3	FGC Array extended warranty covering parts and labour for 3 years from purchase, return to base.
FGA-UEW5	FGC Array extended warranty covering parts and labour for 5 years from purchase, return to base.
FGA-CC	FGC Array optical unit flight case
FGA-CCA	FGC Array accessories carry case