

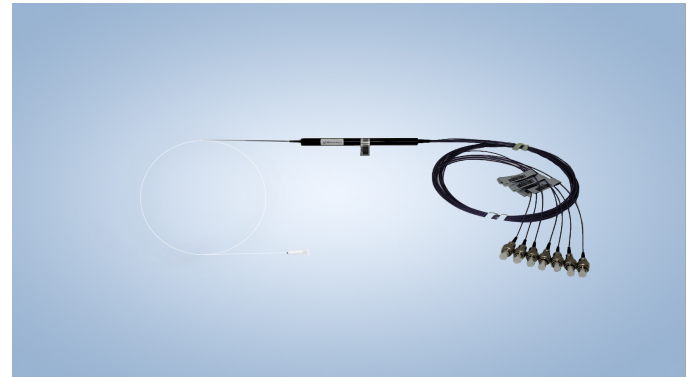
# T103 / Multi Core Fiber FBG Array

## Description

The T103 Multi Core Fiber (MCF) FBG Array is a Singlemode Multi Core Fiber based Fiber Bragg Grating (FBG) Array for commercial use, offered in a four core and seven core fiber.

Available in a wide range of optical specifications. Naturally packaged (written) directly in fiber, these sensors can be used as they are or they can be packaged into a variety of higher level sensors for use in optical sensing systems. Small-size, fast response time and multiple parallel transmission signals. The T103 Multi Core Fiber FBG Array handling and installation is fast, easy and intuitive. Delivers the advantages inherent to FBG based sensors. Immune to EMI.

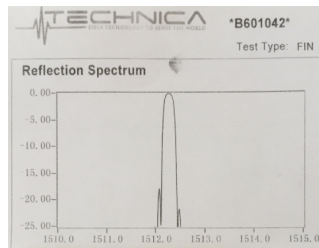
T103 series FBGs are fabricated using licensed and proprietary state-of-the-art laser manufacturing technologies. Standard in Dual Acrylate coated fiber and ready for OEM packaging upon request.



MCF FBG Arrays are manufactured by Technica under International Licenses from Raytheon.

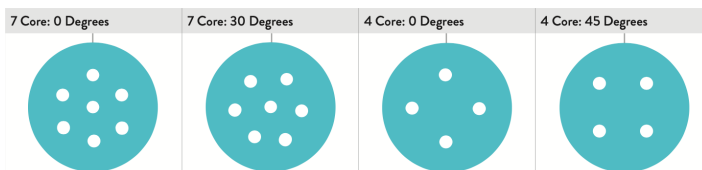
## Key Features

**Temperature linearity.** The precision FBG array structure written into the fibers' core for producing the T103 yields a simple transducer configuration of high resolution, linearity, and measurement repeatability. High SLSR and customer specified BW for clear signal processing.



**Advanced FBG Inscription Controls.** Well suited for projects that include the need to monitor strain and/or temperature at many points along the MCF fiber. The T103 can be provided to customer specifications with FBG Arrays of various lengths and with a flexible number of FBGs. Moreover, the FBGs can be inscribed into all the cores at a physical location, or only on some of the cores. They can also be all with the same wavelength or with all different wavelengths at the same physical location along the multicore fiber.

**Multi Core Design Options.** The T103 is offered in three main fiber core configurations: square, hexagon plus central core, and hexagon plus central core spun. Enables simultaneous transmission of different signals in the parallel cores within the same fiber.



Parameter	Specifications
FBG Wavelength	1460 to 1620 nm, +/-0.5; 980, 1060, 1310nm, other
FBG Bandwidth (FWHM)	0.1 - 1.0nm
FBG Length	1-24mm
FBG Reflectivity	>20% in center core. The FBGs in all cores are clearly visible for monitoring
FBG SLSR	>10dB in center core. The FBGs in all cores have good contrast for monitoring
Response Time	0.01ms, 0.1ms
Temperature and strain sensitivity	10pm/°C and 1.2pm/με
Fiber Coating Type	Dual Acrylate
Operating Temperature	-20°C to +70°C, -55°C to +85°C
Optical Connectors	FC/UPC
Pigtail, Length	Standard SMF28C fiber w/ Acrylate Coat, 1m, other options
Fiber Specifications	See Page 2

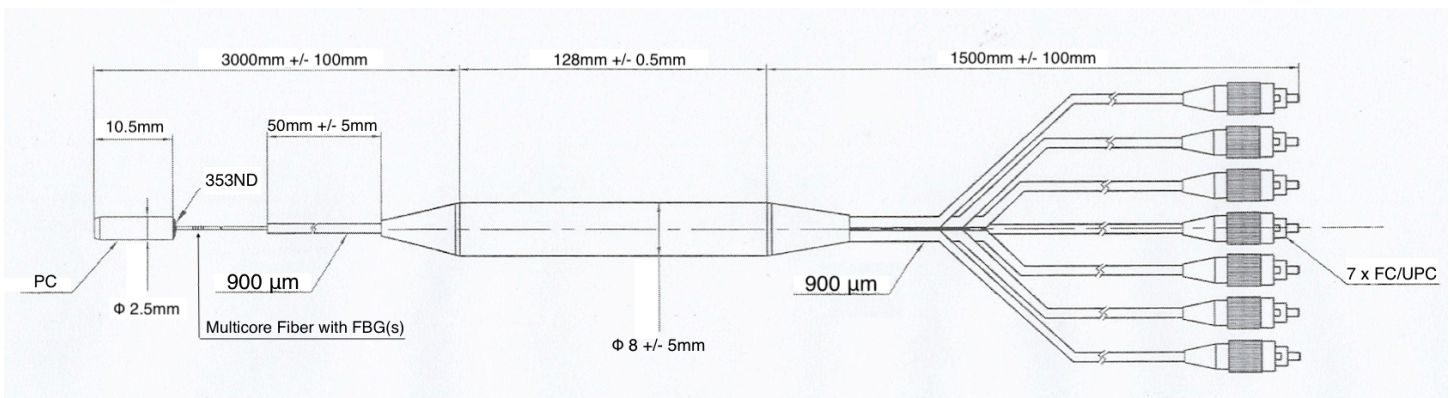
## Applications in Medical, Shape Sensing, Research Labs, Aerospace, Robotics, Other

Technica undertakes a rigorous development process before products release. The company is also firmly committed to continuous improvements after release to insure performance to the highest standards, hence, specifications are subject to update without notice.

Technica Optical Components / 3657 Peachtree Rd, Suite 10A, Atlanta, 30319, USA, info@technicasa.com, www.technicasa.com

# T103 / Multi Core Fiber FBG Array

Multi Core Fiber (MCF) Specifications					
	SM-7CoreStd	SM-7CoreA	SM-7CoreB	SM-7CoreS	SM-4Core
<b>Operating Wavelength</b>	1520 - 1620nm	1310nm	1520 - 1650nm		1520 - 1650nm
<b>Cut-Off Wavelength</b>	1300 - 1500nm	1190 - 1310nm	1300 - 1500nm		1300 - 1500nm
<b>Numerical Aperture</b>	0.20 - 0.22				0.14 - 0.17
<b>Mode Field Diameter</b>	9.8 +/- 0.5 $\mu$ m @1550nm	4.8 - 5.6 $\mu$ m @1310nm	5.7 - 6.5 $\mu$ m @1550nm		7.4 - 8.5 $\mu$ m @1550nm
<b>Core Spacing</b>	80 +/- 0.3 $\mu$ m	35 $\mu$ m (nominal)			50 $\mu$ m (nominal)
<b>Core Position Shape</b>	Hexagon plus central core			Hexagon plus central core spun	Square
<b>Cladding Diameter</b>	240 +/- 0.3 $\mu$ m	125 +/- 1 $\mu$ m			
<b>Coating Diameter</b>	350 +/- 10 $\mu$ m	245 +/- 7 $\mu$ m	245 +/- 10 $\mu$ m	200 +/- 7 $\mu$ m	245 +/- 12 $\mu$ m
<b>Proof Test</b>	1 (100kpsi)				
<b>Fiber Bend Radius</b>	>17mm				



## Applications in Medical, Shape Sensing, Research Labs, Aerospace, Robotics, Other

Technica undertakes a rigorous development process before products release. The company is also firmly committed to continuous improvements after release to insure performance to the highest standards, hence, specifications are subject to update without notice.

**Technica Optical Components** / 3657 Peachtree Rd, Suite 10A, Atlanta, 30319, USA, info@technicasa.com, www.technicasa.com