

Main characteristics

- Weak reflectivity (5% max)
- Strong mechanical strength
- Customizable FBG length (1 to 10mm)
- Customizable FBG spacing (from 100µm to more than 1m)
- Customizable Sensor length (up to 2km)

Applications

- Temperature and strain sensor
- Shape sensing
- Structural Health Monitoring

These fibre Bragg Gratings Arrays are perfectly suited to be used as thermal or strain sensors. The process we use to inscribe them in the fibre directly during the fibre draw allow the fibre to preserve its pristine mechanical strength as if no gratings were inscribed in it. Our process allows us to inscribe as many gratings as you want in the fibre in a repeatable way.

Fibre specifications

Description	FBGA-LL-SSS-NN*	FBGAR-LL-SSS-NN*	FBGAm-LL-SSS-NN*	FBGAs-LL-SSS-NN*
Optical parameters	Single Core Fiber		Multi Core Fiber (7 cores)	
Fibre type	Standard	Reduced clad	Standard	Spun
Reflectivity (%)	0.1 < R < 5			
FWHM (pm)	60 < FWHM < 700			
Center Wavelength (nm)	1540 +/- 2			
SLSR ^(a) (dB)	≥ 7			
FBG length (mm)	1 to 10			
FBG spacing (µm)	≥ 100			
MFD ^(b) @1550nm (µm)	4.8 (typical)		6 (typical)	
Numerical Aperture	0.25 (typical)		0.21 (typical)	
Physical/Material parameters				
Core diameter (µm)	5 +/- 1			
Cladding diameter (µm)	125 +/- 5 (typical)	80 +/- 5 (typical)	125 +/- 2 (typical)	
Coating type	One-layer Acrylate			
Coated Fibre Diameter (µm)	160 +/- 5 (typical)	120 +/- 5 (typical)	160 +/- 5 (typical)	
Spin pitch (mm)	-	-	-	14
Proof test level (kpsi)	100			
Operational T° range (°C)	-20 to 80			

* FBGAx - LL¹ - SSS² - NN³

^(a) Side Lobe Suppression Ratio

^(b) Mode Field Diameter

¹ FBG length (in mm)

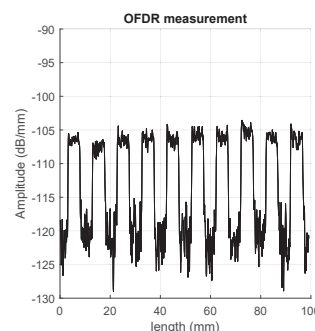
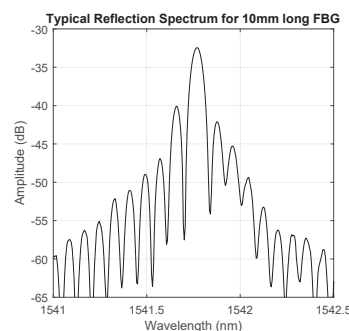
² FBG spacing (in mm), for spacing of 1m or higher please do as the following: FBGA - LL - 1m - NN

³ Number of gratings

Examples

- **FBGAR - 10 - 0.5 - 32:**
32 FBG of 10mm length spaced of 500µm written in 80µm fibre
- **FBGA - 5 - 1m - 24:**
24 FBG of 5mm length spaced of 1m written in 125µm fibre
- **FBGAm - 8 - 200 - 10:**
10 FBG of 8mm length spaced of 20cm written in multicore fibre

Typical reflection spectrum



Typical reflection spectrum for a 10mm long FBG and OTDR trace for a 1-meter long FBGA made of 5mm long FBG spaced of 5mm.

