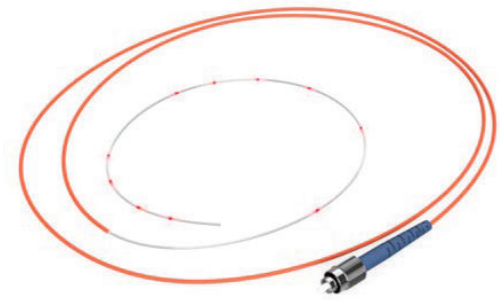
FiSens

micronor sensors

Datasheet

850nm FBG Sensor Array



High quality, flexible, and customizable fiber Bragg grating (FBG) sensor array for distributed sensing in complex and harsh environments.

Overview

The FBG sensor array is a spliceless chain of multiple high-precision FBG sensors on a single fiber. The sensor paired with a FiSpec® FBG Interrogator offers distributed sensing for temperature and strain measurements.

Key Features

Rugged monolithic fiber
Ultra-thin Ø155µm
Immune to RF, EM, HV
Up to 30 FBG per fiber
Up to 500m
Customizable positions
Stable up to 600°C

Applications

Temperature & Strain in
- Machinery
- Instruments
- Structures
- Electronics

For Use With Fispec Interrogators

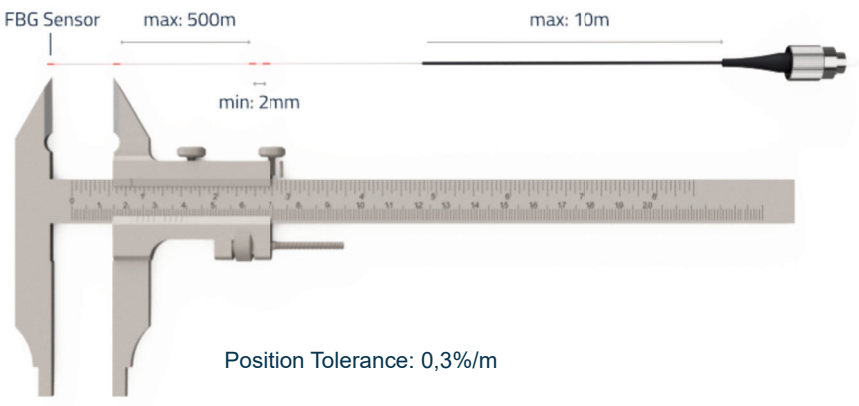
Wideband (W)	FBGX100 FBGX400
Narrowband (N)	FBGX1002 FBGX1004

Basic Properties

FBG Length	1 mm
Number of FBGs	Up to 30 (W), 25 (N)
FBG Spacing	Min 2 mm
Fiber Length	Up to 500 m
Fiber Bend Radius	Min 5 mm
Temperature Range	-250°C to +800°C
Fiber Type	SM800, UHT, UHS
Fiber Coatings	Polyimide, Acrylate, Uncoated
Sensor Capillary Options	Bare Fiber, Stainless Steel, Silica, PEEK, Ceramic

Fiber Optic Rapid Prototyping

Up to 30 FBG at arbitrary positiions along the fiber.



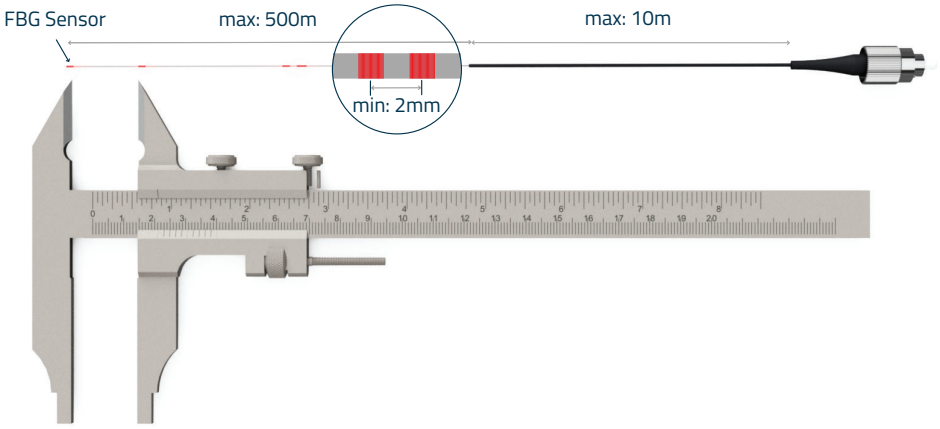
FiSens®

850 nm Ordering System Rev9
Released: November 2023

Fiberoptic Rapid Prototyping

Tailored FBG Arrays for FiSpec Interrogators at 850nm

Up to 30 FBG at arbitrary Positions



Off-the-shelf Packaging Options

Glass Textile (155C)

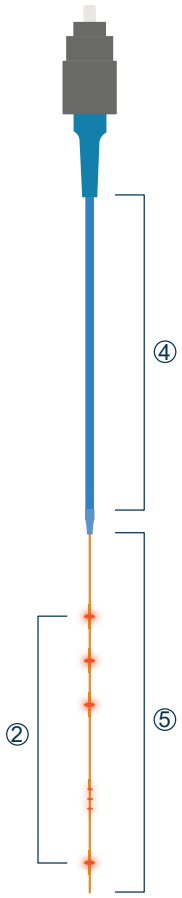
Bare Fiber (350C)

Silica Capillary (350C)

PEEK Tubing (200C)

Corrugated Stainless Steel Tubing (350C)

Stainless Steel Capillary (600C)



Ⓐ FBG Array Part Number

① Sensor Type
P - Polyimide
A - Acrylate
UHT - *Ultra-High Temp*

③ Spectral Range
N - *Narrow [808-865]*
W - *Wide [808-880]*
C - *Custom*

⑤ Sensor Capillary
FI - *Bare Fiber*
PK - *PEEK Tubing*
SSC - *SS Capillary*
SI - *Silica Capillary*
HY - Hytrel Tubing
AC - *Alumina Ceramic*

T - 5 - N - GL - FI

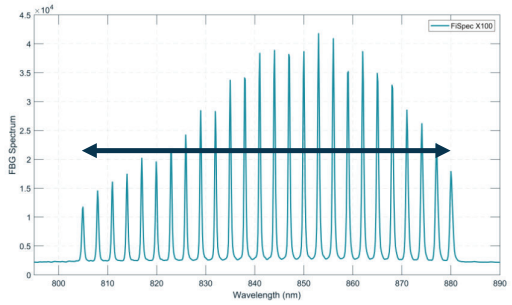
② FBG Quantity
1 - 1 FBG
2 - *2 FBGs*
...
30 - *30 FBGs*

④ Lead-in Protection
GL - Glass Textile
SST - SS Flexible Tube
HY - Hytrel Buffer
LSZ - Standard Telecom

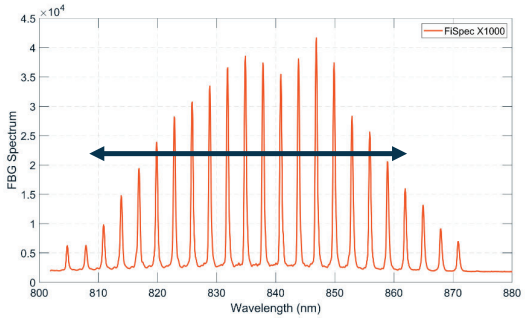
① Sensor Type

	Fiber	Application	Operating Temperature	Capillary Options (5)
P	SM800, Polyimide Coating	Strain, Temperature	-250...+300C	FI, PK, SSC, SI, HY
A	SM800, Acrylate Coating	Temperature	-40...+80C	FI, HY, PK
UHT	Pure Silica Fiber, No Coating	Temperature	-250...+800C	SSC, SI, AC

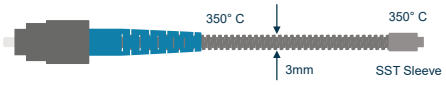
③ Wide Spectral Configuration [for X100-X400]



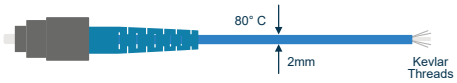
Narrow Spectral Configuration [for X1000-X4000]



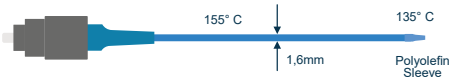
④ SST - Stainless Steel (1.4301) Corrugated Tube



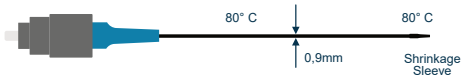
LSZ - Low Smoke Zero Halogen



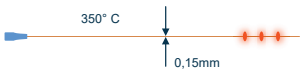
GL - Glass Textile



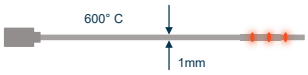
HY - Hytrel Buffer



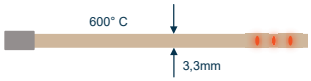
⑤ FI - Bare Fiber with Polyimide Coating



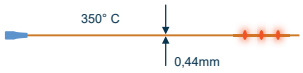
SSC - Stainless Steel (1.4301) Capillary



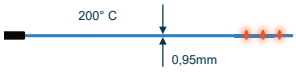
AC - Alumina Ceramic



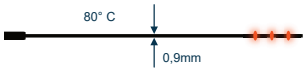
SI - Silica Capillary



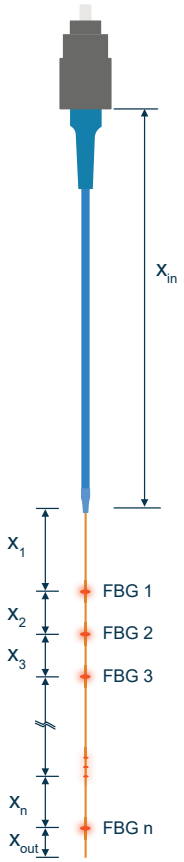
PK - PEEK Tubing



HY - Hytrel Tubing



Ⓑ FBG Array Distance Code



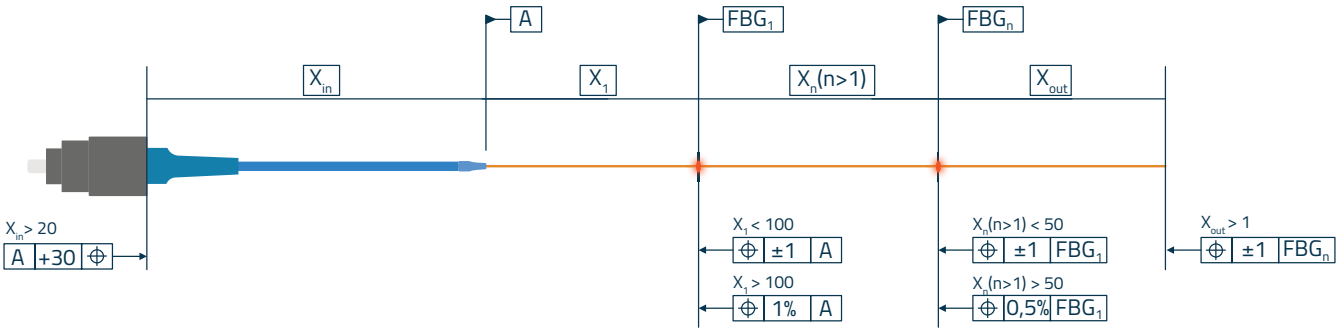
X_{in} X_2 X_n

2000 - 50 - 10 - 10 - ... - 10 - 5

X_1 X_3 X_{out}

in mm

Length Tolerances (in mm)



Length/Bending Limitations

	4. Lead-in Protection				5. Sensor Capilary				
	SST	LSZ	GL	HY	FI	SSC	SI	PK	AC
Crit. Bending Radius	15mm	10mm	5mm	5mm	5mm	100mm	20mm	40mm	-
Max length	10m	10m	5m	5m	500m	3m	2m	10m	1m
Min length	0,5m	0,5m	200mm	20mm	20mm	100mm	50mm	50mm	100mm

Ⓒ Custom FBG Wavelength Code

(only required if custom spectral range “C“ has been chosen in the FBG Array Part Number A)

WL1 WL3

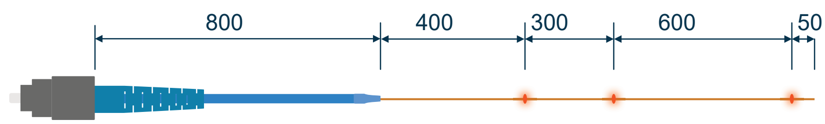
810 - 840 - 845 - ... - 870

WL2 WLn

CWL Tolerance: 0,15nm CWL Range: 800-900nm

Exemplary Order Codes

A: P-3-W-LSZ-SI
B: 800-400-300-600-50



A: A-30-W-HY-HY
B: 10-5-5-5-5-5-5-5-5-5-5
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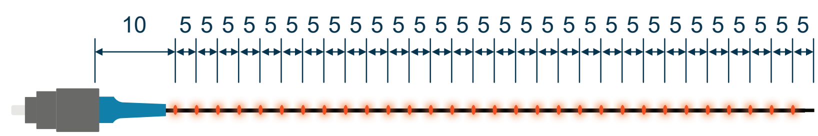
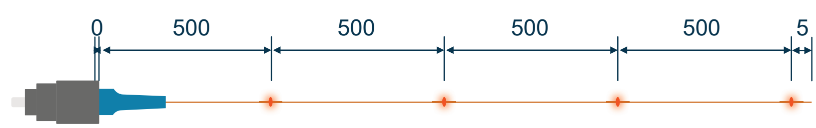
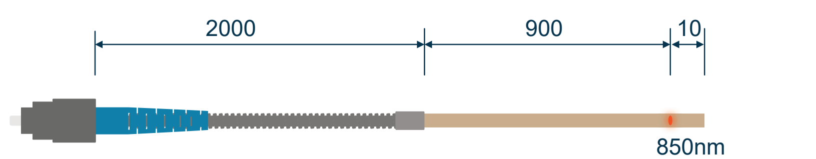
5-5-5-5-5-5-5-5



A: P-4-C-NL-FI
B: 0-500-500-500-500-5
C: 830-840-850-860



A: UHT-1-C-SSC-AC
B: 2000-900-10
C: 850



in mm

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