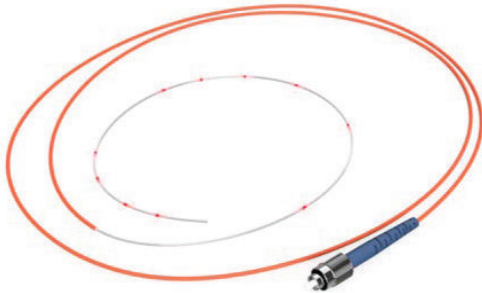




850nm FBG Sensor Array



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 $\varnothing 125\mu\text{m}$
- Immune to RF, EMI
- Up to 30 FBG per fiber
- Up to 500m
- Customizable positions
- Stable up to 100°C

Applications

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

Used With

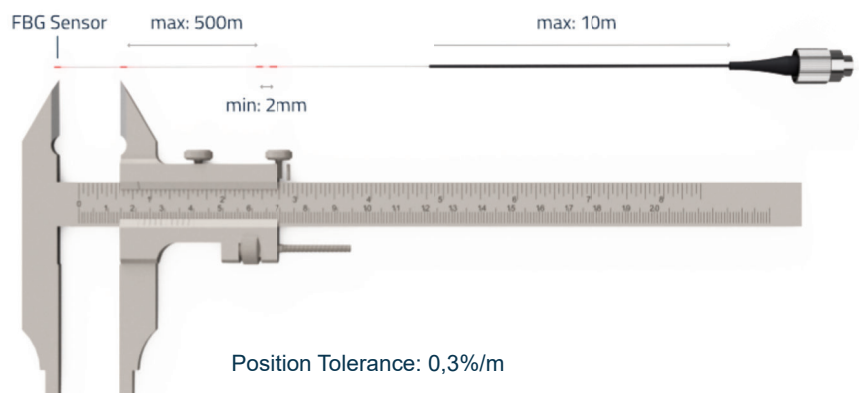
FiSpec (W)	FBGX100
Wideband	FBGX400
Interrogators	

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, SM800P, UHT
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 positions along the fiber.

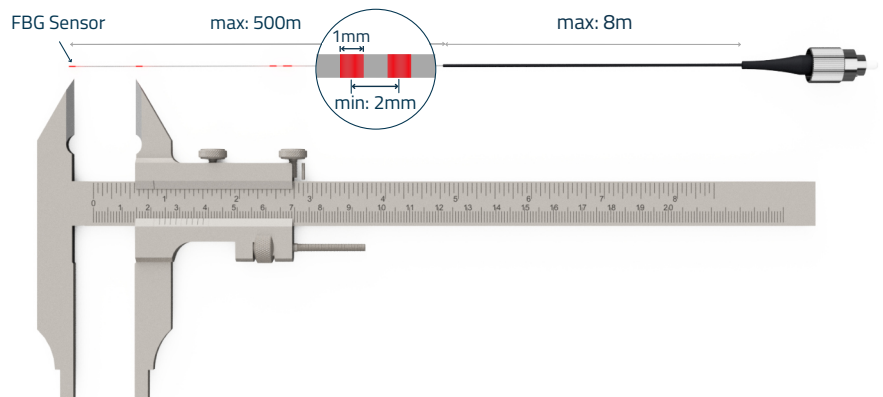




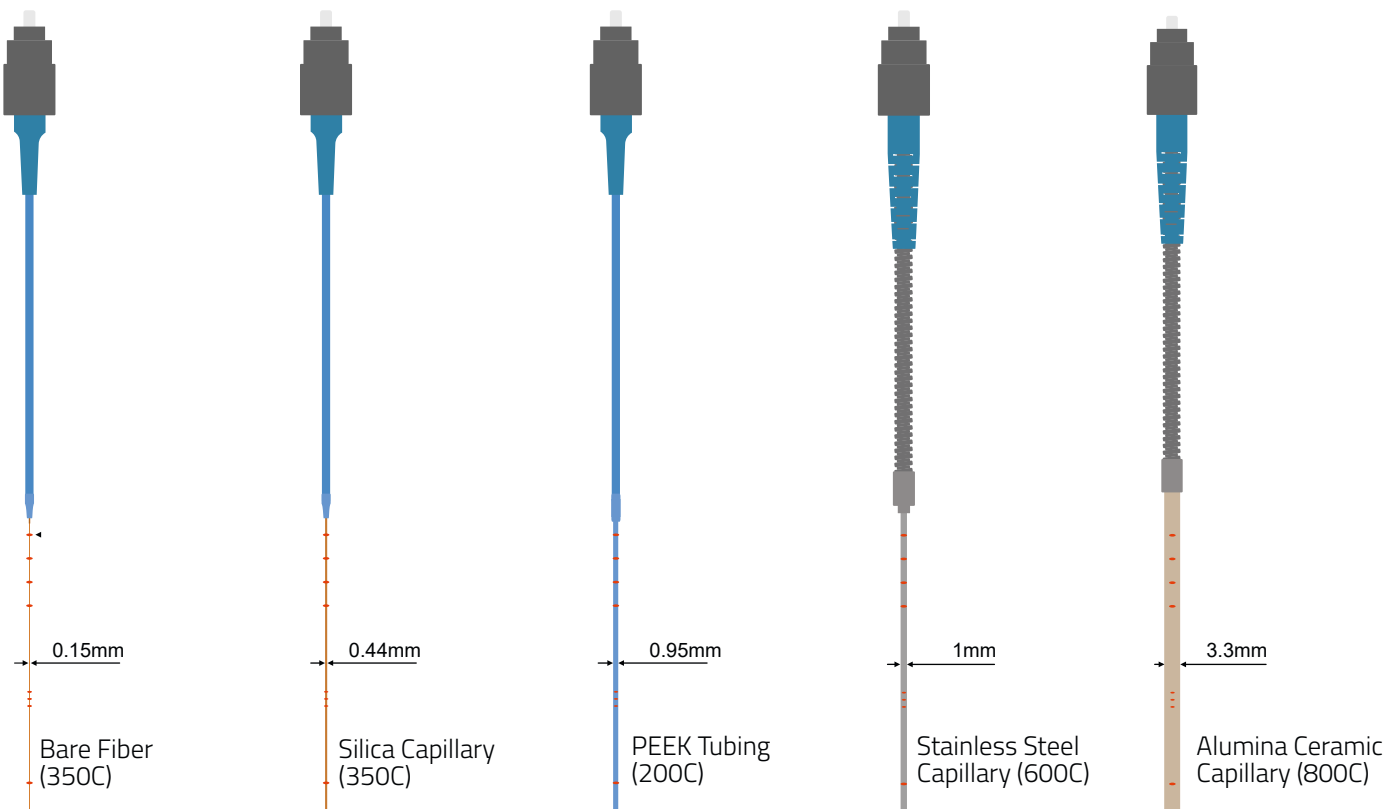
Fiberoptic Rapid Prototyping

Tailored FBG Arrays for FiSpec Interrogators at 850nm

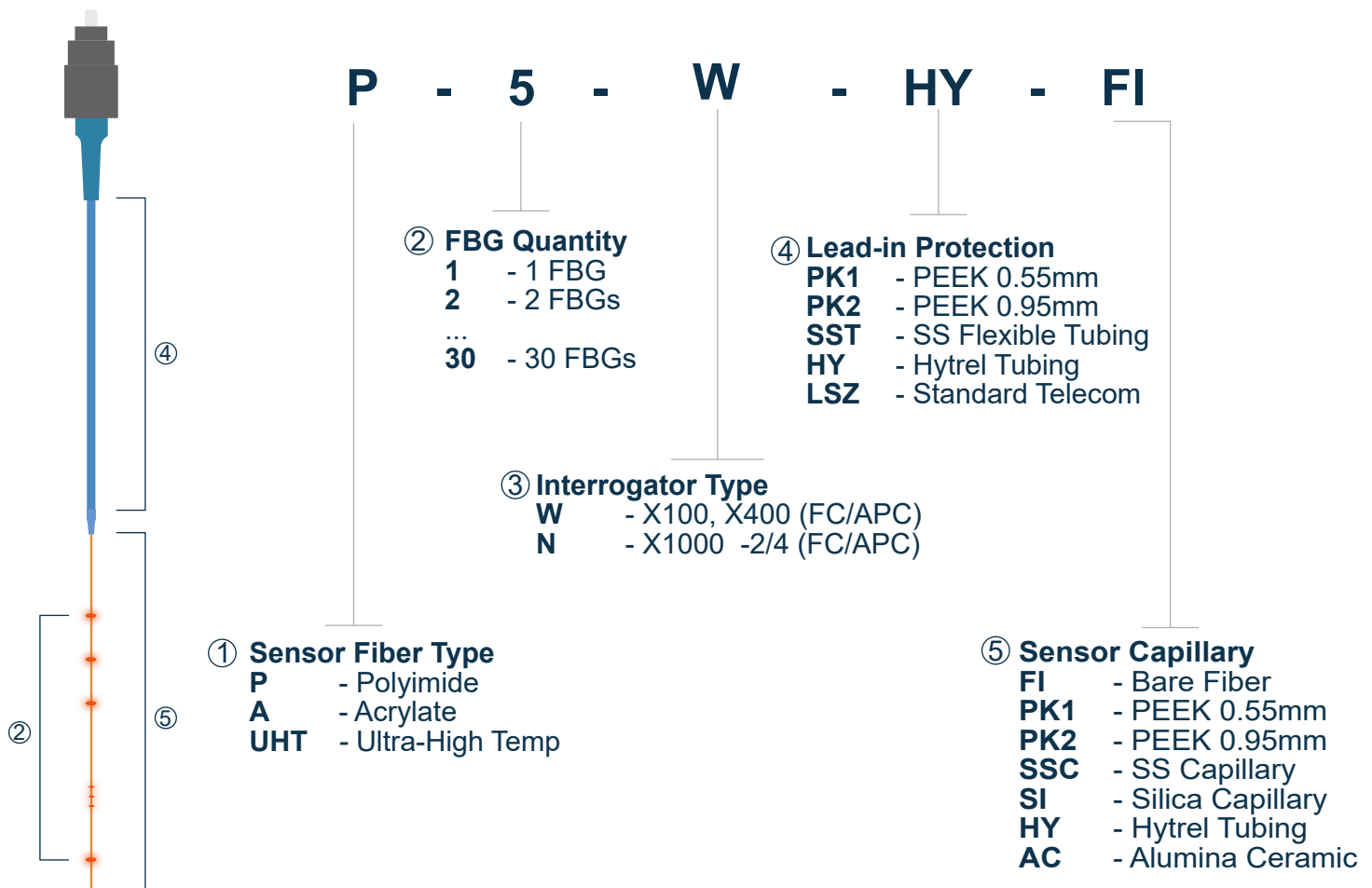
Up to 30 FBG at arbitrary Positions



Off-the-shelf Packaging Options



Ⓐ FBG Array Part Number



① Sensor Fiber Type (Optimization for Application)

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

③ Interrogator Type (Optimization for Connector and FBG Center Wavelengths)

X100 & X400

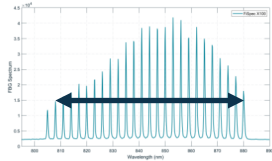
X1000



FC/APC Connector



Wide Spectral Range

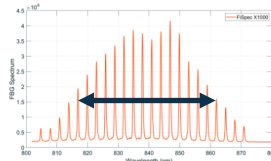


808-880nm

FC/APC Connector



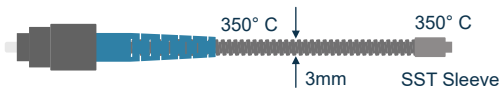
Narrow Spectral Range



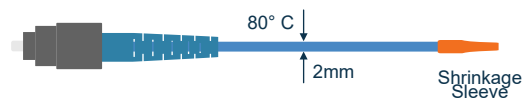
815-865nm

④ Lead-In Protection

SST - Stainless Steel (1.4301) Corrugated Tube



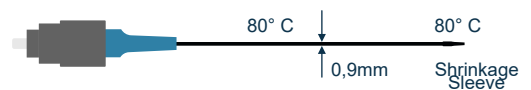
LSZ - Low Smoke Zero Halogen



PK1/2 - PEEK Tubing

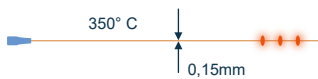


HY - Hytrel Buffer

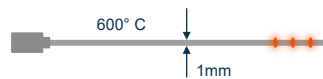


⑤ Sensor Capillary

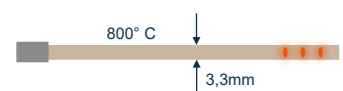
FI - Bare Fiber with Polyimide Coating



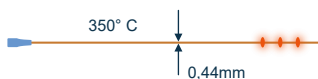
SSC - Stainless Steel (1.4301) Capillary



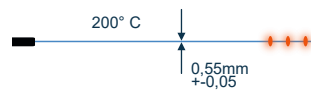
AC - Alumina Ceramic



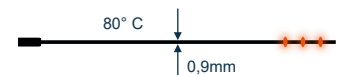
SI - Silica Capillary



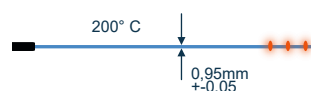
PK1 - PEEK Tubing



HY - Hytrel Tubing



PK2 - PEEK Tubing



Length/Bending Limitations

for Polyimid Fiber Type (P)

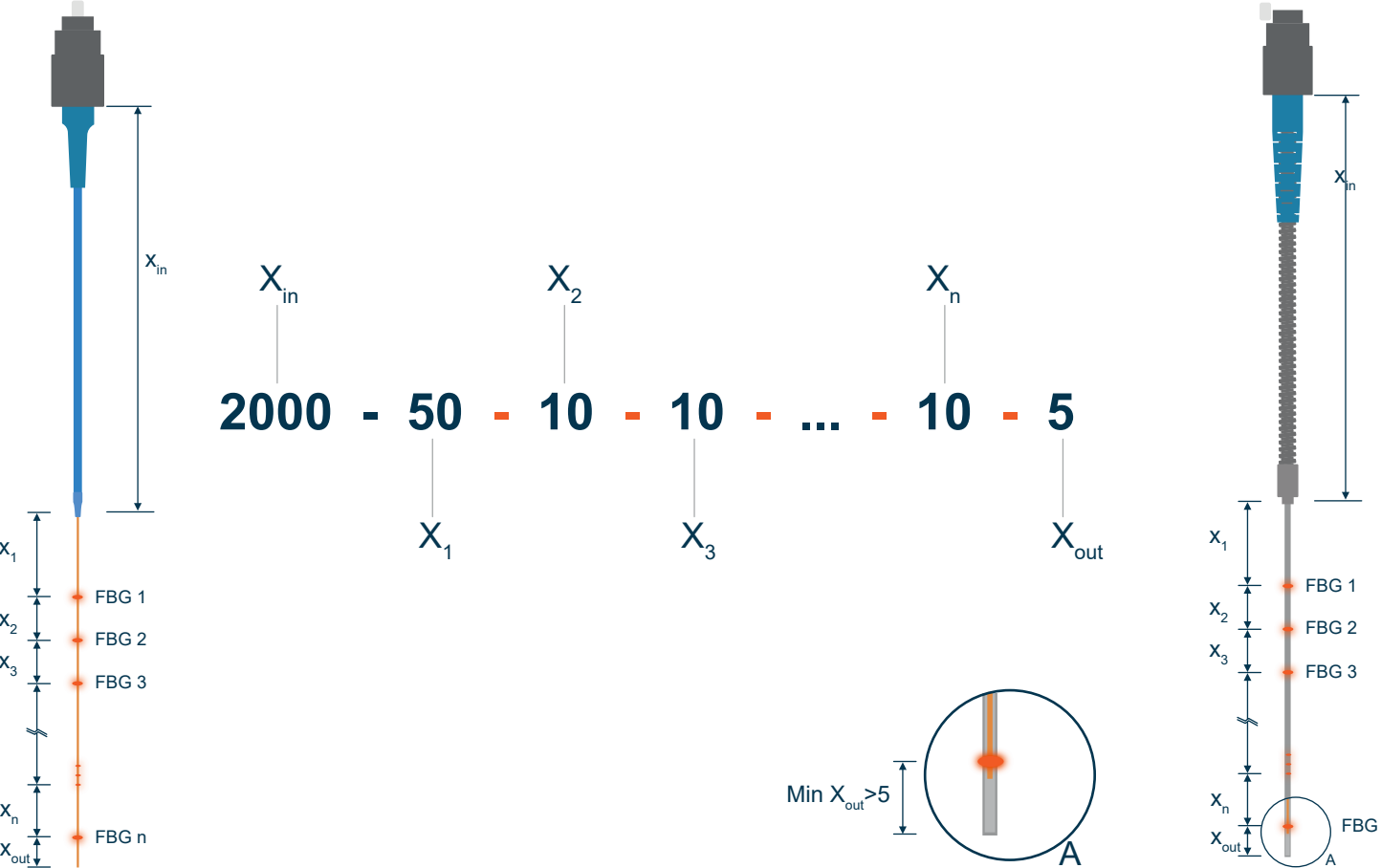
	4. Lead-in Protection					5. Sensor Capillary					
	SST	LSZ	PK1	PK2	HY	FI	SSC	SI	PK1	PK2	AC
Crit. Bending Radius	15mm	10mm	5mm	5mm	5mm	5mm	100mm	20mm	5mm	5mm	-
Max length	8m	5m	1m	3m	5m	500m	3m	2m	1m	3m	0,6m
Min length	0,5m	0,5m	20mm	20mm	20mm	20mm	100mm	50mm	20mm	20mm	100mm

for Uncoated Fiber Type (UHT)

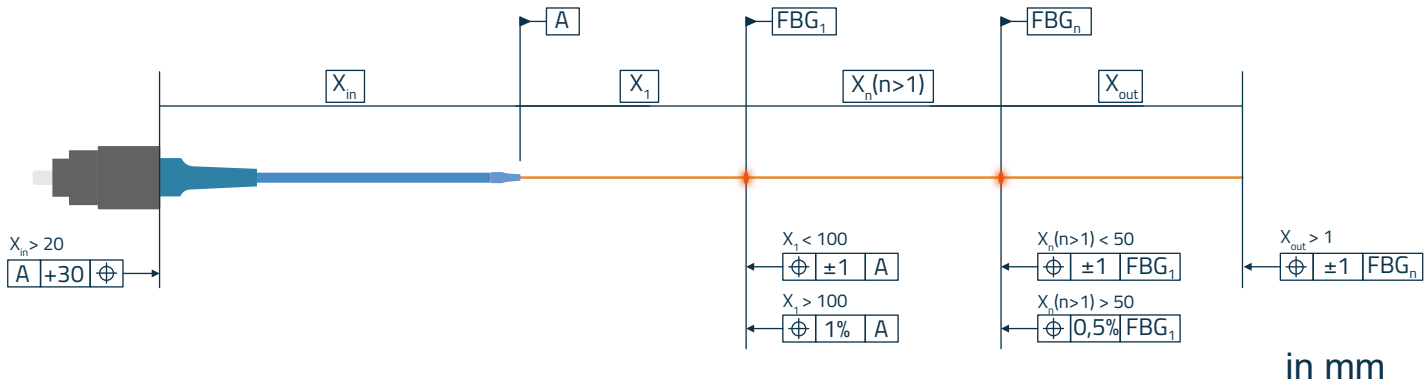
	5. Sensor Capillary		
	SSC	SI	AC
Crit. Bending Radius	100mm	20mm	-
Max length	0,5m	0,5m	0,6m
Min length	100mm	50mm	100mm

B FBG Array Distance Code

in mm



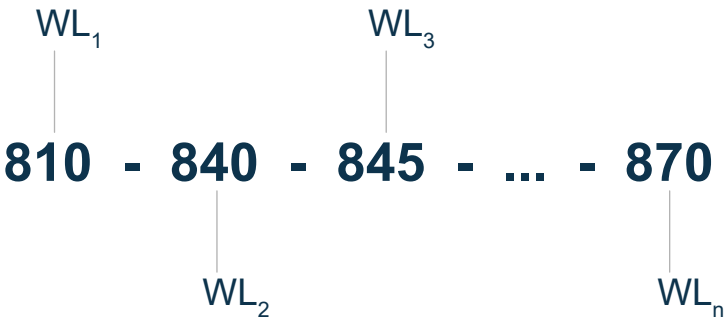
Length Tolerances (in mm)



Ⓒ Custom FBG Wavelength Code

Center wavelengths (CWL) are automatically set to fit FBG Interrogator spectral ranges.
Custom FBG wavelengths can be defined.

Code C is not mandatory.



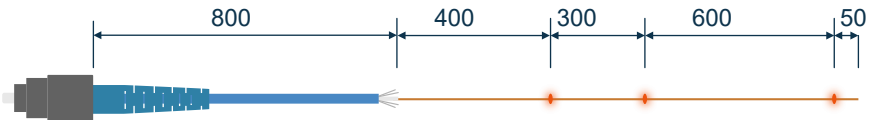
CWL Tolerance: <0,1nm

CWL Range: 808-880nm

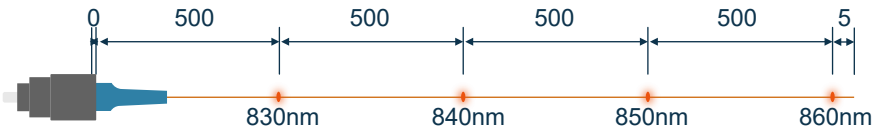
Exemplary Order Codes

Suited for Strain Sensing

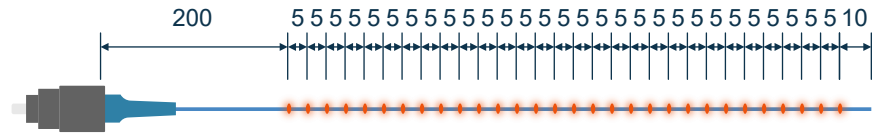
A: P-3-N-LSZ-SI
B: 800-400-300-600-50



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



A: P-30-W-PK1-PK1
B: 200-5-5-5-5-5-5-5-5-5-5-
-5-5-5-5-5-5-5-5-5-5-5-5-
5-5-5-5-5-5-5-10



A schematic diagram of the device structure. It shows a cross-section of a layered material. The top layer is blue, followed by a grey layer, then a brown layer, and finally a thin red layer at the bottom. Dimensions are indicated by arrows: 2000 for the blue layer, 500 for the grey layer, 10 for the brown layer, and 850nm for the red layer.

- 6 -