

- ◇ Long gauge FBG strain sensor
- ◇ Zero power, EMI immune, intrinsically safe
- ◇ Multiple km signal integrity
- ◇ Suitable for embedment in inhomogeneous construction materials
- ◇ Highly stable
- ◇ Temperature compensation option
- ◇ High multiplexing capability



2m long SmartBar embedded rebar sensor

SmartBars are robust FBG sensors packaged to withstand embedment within concrete, bitumen and other construction materials. Smart Fibres have developed and deployed several designs of SmartBar to suit particular applications such as road pavement monitoring and concrete pillar compression. Our SmartBar embedded rebar sensors are being used to monitor supporting pillars in high rise residential buildings during construction and throughout their lifetime.

SmartBar sensors are available in a variety of gauge lengths, with or without temperature compensation, and can be connected in multiple sensor strings.

SmartBar Specifications (typ):

	Unit	Standard	Options*
Sensor length	mm	To suit application	As required > 80 x 8
Gauge length (approx)	Mm	As required within sensor length	
Strain range	µstrain	+/-1,500	Contact us for >1,500 µstrain
Strain sensitivity	pm/ µstrain	1.20	
Strain resolution [†]	µstrain	0.4	
Temperature range	°C	- 20 to +50	Extended temperature range
Temperature sensitivity	pm/°C	11	
Temperature resolution [†]	°C	0.05	
Fibre type		Single Mode SMF-28, 9/125µm	
Typical FBG type		CWL 1510 – 1590 nm, FWHM ~0.7 nm R>70%, Apodised profile, SLSR >15dB	Alternative CWL or spectral profile
Cable and connections		To suit application	

[†] with 0.5 pm resolution interrogator (e.g. W4)
* extended temperature range on request

All specifications are correct at the time of writing and may change without notice. Certain specifications may be speculative or untested - please contact us to confirm the specification meets with your requirements.

Example SmartBar Installations:



Diaphragm wall ground anchor tension, Spain



Road Bridge Pier monitoring, Malaysia



High-Rise Building Columns, Singapore