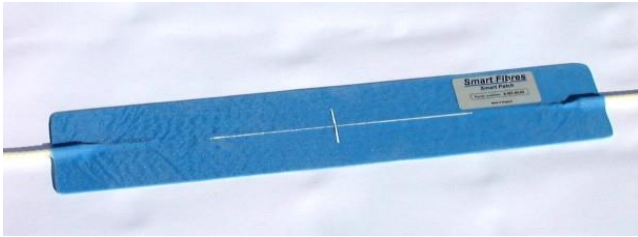
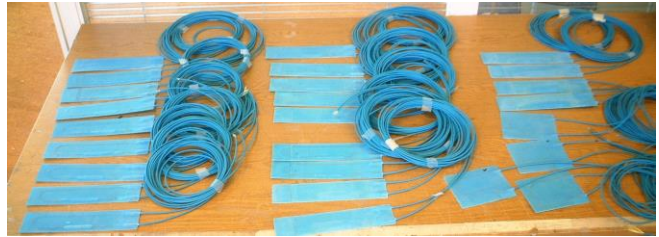


- **FBG strain and/or temperature sensor**
- **Sensor embedded within protective laminate**
- **Zero power, EMI immune, intrinsically safe**
- **Developed by Smart Fibres for surface bonding to metal, concrete, composite etc**
- **Installations include wind turbine, ship hulls, yacht masts and concrete civil structures**
- **Suitable for long-term SHM**
- **Multiple km signal integrity**



Standard FRP Strain SmartPatch



SmartPatch in Production

SmartPatch is a robust and easy to handle FBG strain and temperature sensor that can be temporarily or permanently attached to most substrate materials. It can be applied singly or in multiple SmartPatch arrays of single strain sensors, combined strain and temperature sensors and rosette constructions. A short gauge length (SGL) is the standard construction, and a long gauge length (LGL) option is available for surface strain measurement of inhomogeneous materials.

SmartPatch Specifications (typ):

	Unit	Standard	Options*
Patch dimensions	mm	120 x 20 (strain only) 140 x 20 (strain and temperature terminal) 250 x 50 (strain and temperature in-line)	Smaller dimensions
Gauge length (approx)	mm	6	As required within patch length
Strain range	$\mu$ strain	+/- 5,000 (+/- 4,000 for LGL option)	> +/- 9,000 (SGL only)
Strain sensitivity	pm/ $\mu$ strain	1.20	
Strain resolution <sup>†</sup>	$\mu$ strain	0.4	
Temperature range	°C	-30 to +60	
Temperature sensitivity	pm/°C	11	
Temperature resolution <sup>†</sup>	°C	0.05	
Fibre type		Single Mode SMF-28, 9/125 $\mu$ m	
Typical FBG type		CWL 1510 – 1590 nm, FWHM $\sim$ 0.7 nm R > 70%, Apodised profile, SLSR > 15dB	Alternative CWL or spectral profile
Cable and connections		To suit application	

<sup>†</sup> with 0.5 pm resolution interrogator

\* custom SmartPatch available on request for volume applications

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 SmartPatch Installations:



Road Bridge Superstructure



Airport Roof Structure



Motorway Bridge Deck and Soffit



Gas Pipeline



Wind Turbine Rotorblade Roots