

- ◇ Gauge FBG pressure sensor
- ◇ Zero power, EMI immune, intrinsically safe
- ◇ Dense multiplexing capability
- ◇ Highly stable
- ◇ Available in different case materials to suit aggressive environments
- ◇ High accuracy
- ◇ Temperature compensated
- ◇ Multiple km signal integrity



ø35mm SmartCell Package with cable fittings



Miniature SmartCell Package

SmartCell is a fibre Bragg grating based pressure (or load) transducer. An additional grating can be included within the cell for temperature measurement and compensation. Designed for long-term operation with insignificant measurement drift, SmartCell is intrinsically safe, can be used for remote monitoring and is suitable for multiplexing as part of a serial multi-sensor array.

Smart Fibres' FBG sensing experts have spent many years optimising the design of SmartCell, qualifying its performance with extensive laboratory testing (pressure calibration, temperature calibration, long-term stability, acceleration, vibration, shock). The development has led to a high-performance, rugged and low-cost product with negligible hysteresis and excellent long-term stability. The design of SmartCell employs several unique features for which a patent is pending.

SmartCell Specifications (typ):

	Unit	Standard	Options*
Case Material		Duplex/Super-Duplex & Stainless Steels, Inconel, Titanium, Invar	Alternative case material
Dimensions	mm	ø20 x 4 to 7 ø35 x 34 x 7.25 ø58 x 56 x 50 x 17	As required (Min. ø12 x 3)
Full scale pressure	bar	10, 20 or 100	2-700
Max pressure	%FS	150	
Pressure sensitivity †	pm/FS	450 to 3000	
Pressure resolution ††	%FS	0.01 to 0.002	
Pressure accuracy ††	%FS	< 0.25 to < 0.1	
Operating Temperature Range	°C	-50 to +100 -160 to +150 on request	>+150 contact us
Temperature sensitivity	pm/°C	Typ 11 - 24 pm	
Temp resolution ††	°C	Typ. 0.02 - 0.05	
Temp accuracy ††	°C	Typ. 0.04 - 0.1	
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 / 1pm accuracy (e.g. W4) interrogator

* Custom SmartCells available on request for volume applications

‡ Case material dependant

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.