

- 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



*ø35 mm 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.

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<br>ø35 x 34 x 7.25<br>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<br>-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, 9/125 µm  |                                     |
| Typical FBG Type            |       | CWL 1510 - 1590 nm, FWHM ~0.7 nm<br>R>70%, Apodised profile, SLSR >15dB | Alternative CWL or spectral profile |
| Cable and connections       |       | To suit application   |                                     |

† with 0.5 pm resolution/1 pm accuracy (e.g. SmartScan) 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.