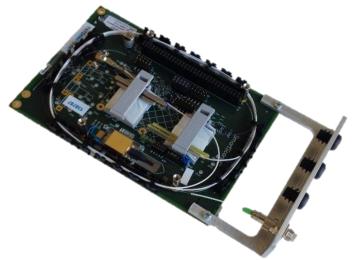




For OEM Integration into Customer Systems



SmartScan SBI Single Board Interrogator (1-channel model)

- Complete Single Board FBG Interrogator
- Multi-kHz Scanning
- Extraordinary SmartScan Resolution
- Scalable Modular Architecture
- Rugged Solid State Design with no moving Parts
- Available as an OEM module for customer integration

SmartScan SBI is a complete FBG interrogator offering dynamic measurement of numerous connected FBG sensors from a single board Eurocard format. It has been developed from Smart Fibres' highly popular SmartScan instrument. This single board instrument is based on an agile, tuneable laser source that enables high resolution interrogation at multi kHz frequencies. It offers connection via a PC 104 interface to a separate processing module required to run software routines to set-up the SBI, read the high-speed FBG wavelength data across the PC 104 bus, and package the received data for processing or onward communication. A suitable PC 104 processing module is available from Smart Fibres, as are drivers for the software routines should a client choose to run them on their own hardware.

Each SmartScan SBI contains an agile electrically tuneable laser, four photo-detector channels, and custom Smart Fibres high-speed gate array electronics for driving the laser and processing the photo-detected signals. The SBI is scalable, and modular systems with multiple SBIs can be assembled to offer 40 nm or 80 nm high-speed interrogation of 4, 8, 12 or 16 fibres. Smart Fibres' Modular SmartScan is an example of a developed product exploiting this capability.

SmartScan SBI Specifications

Measurement and Processing	SmartScan SBI	SmartScan SBI Lite
Wavelength Range	40 nm (1528 – 1568 nm or 1568 – 1608 nm)	
Number of Optical Channels	1, 2, 3, 4	
Maximum Number of Sensors / Channel	16	
Scan Frequency (all sensors simultaneously)	2.5 kHz	250 Hz
Scan Frequency (per each sensor in turn)	25 kHz	-
Repeatability 1, 2,	<1 pm	
Wavelength Stability	< 5 pm over operating temperature range, +/- 20 pm over 25 years	
Dynamic Range	27 dB	
Suitable FBG profile (FWHM)	Minimum > 0.2 nm, > 0.5 nm recommended	
Mechanical, Environmental and Electrical		
Form Factor	108 x 160 mm (excluding optional connector frame)	
Weight	250 g	
Operating Temperature	-20 to +75 °C	
Comms Interface	PC 104	
Power Connector	Two way terminal screw	
Optical Connector ³	FC/APC (others on request)	
Input Voltage	+9 to +32 VDC	
Power Consumption	typ < 6 W	
EMC Certification ⁴	Per BS EN 61326-1 edition 2006	
Hazardous Area Certification (optional)	Per ATEX for hazardous zones 0, 1 or 2 with gas groups IIA, IIB or IIC	
	Link to certification Specifications are subject to change without notice	

Specifications are subject to change without notice

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Measured over 1 minute, standard uncertainty (1 σ distribution)

² Using recommended FBG profile

³ Connector required to be fitted on cable to mate with unit

⁴ Achieved by modular SmartScan containing multiple SmartScan SBIs