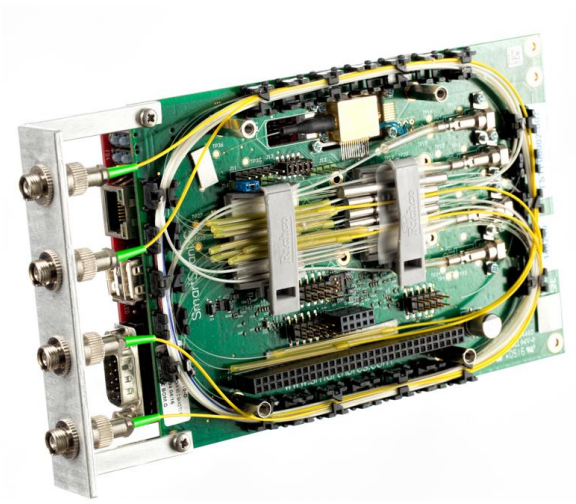
SmartScan SBI

FBG Interrogator



SmartScan SBI 04 Single Board Interrogator

Key Features

- 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

About SmartScan SBI

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.

Specifications

Measurement and Processing	SmartScan SBI	SmartScan SBI Lite
Wavelength Range	40 nm (1528 to 1568 nm or 1568 to 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)
Mass	250 g
Operating Temperature[3]	-20 to +65 °C
Comms Interface	PC 104
Power Connector	Two way terminal screw
Optical Connector[4]	FC/APC (others on request)
Input Voltage	+9 to +32 VDC
Power Consumption	typ. < 6 W
EMC Certification	EMC compliance is the responsibility of the system integrator
Hazardous Area Certification (optional)	Per ATEX for hazardous zones 0, 1 or 2 with gas groups IIA, IIB or IIC Link to certification

1. Measured over 1 minute, standard uncertainty (1 σ distribution).
2. Using recommended FBG profile.
3. +75 °C is possible with a suitable heat-sinking arrangement.
4. Connector required to be fitted on cable to mate with unit.

Specifications may change without notice

Ordering Information

Product Type		# of Channels		Scan Rate		Wavelength Band		ATEX Certified		USB Logging
S-SBI	-	XX	-	X	-	X	-	X	-	X
		01		F		C		EX		U
		02		L		L				
		03								
		04								

Order code example:
S-SBI-03-F-C-EX-U

Variant Description	Variant Options	Variant Code
# of Channels	1 Channel	01
	2 Channels	02
	3 Channels	03
	4 Channels	04
Scan Rate	2.5 kHz	F
	250 Hz	L
Wavelength Band	C-band (1528-1568 nm)	C
	L-band (1568-1608 nm)	L
ATEX Certification	ATEX Certified	EX
	Not ATEX Certified	Blank
USB Logging to Removable USB Memory Device	USB Logging Enabled	U (Limited to 2.5 kHz scan rate)
	USB Logging Disabled	Blank