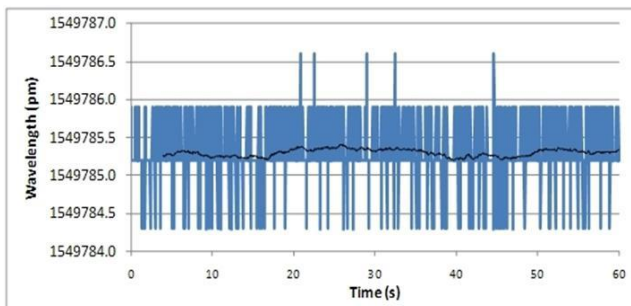




Commercial Grade SmartScan 04

- Multi-kHz Scanning
- Ultra Compact
- All Solid State
- Highly Robust Optics (flight tested variants available)
- Data logging to USB drive option

SmartScan is an ultra-compact and robust interrogator for dynamic measurement of FBG sensors. This WDM instrument is based on an agile, tuneable laser source that enables high resolution interrogation at multi kHz frequencies. The high frequency scan rates allow over-sampling and averaging to give extraordinary resolution.



Example Data Set: SmartScan reading 2 mm FBG, 1550 nm, 70% R, 0.7 nm FWHM		
Data Averaging	STDEV Resolution (pm)	STDEV Resolution (microstrain)
60s, raw data - 2.5 kHz	0.39	0.33
60s, 10 averages - 250 Hz	0.13	0.11
60s, 100 averages - 25 Hz	0.06	0.05
60s, 1000 averages - 2.5 Hz	0.04	0.03

Specifications

Measurement and Processing	SmartScan	SmartScan Lite
Wavelength Range	40 nm (1528 – 1568 nm)	
Number of Optical Channels ¹	1, 2, 3, 4	
Maximum Number of Sensors/Channel	16	
Scan Frequency (all sensors simultaneously)	2.5 kHz	250 Hz
Maximum Scan Frequency (with reduced wavelength range)	25 kHz	-
Repeatability ^{2,3,4}	< 1 pm	
Wavelength Stability	< 5 pm over operating temperature range, +/- 20 pm over 25 years	
Dynamic Range (total tolerable optical attenuation without loss of performance)	27 dB	
Dynamic Range (laser launch power minus detection noise floor)	37 dB	
Gain Control	9 levels, per channel or per sensor, automatic or user controlled	
Onboard Processing	For conversion of measuring units and interfacing to client systems	
Bragg Grating Full Width Half Maximum (FWHM)	Minimum > 0.2 nm, > 0.5 nm recommended	
Mechanical, Environmental and Electrical		
Dimensions	140 x 115 x 85 mm / 5.5 x 4.5 x 3.3"	
Weight	0.9 kg / 2 lb	
Operating Temperature	-15 to +55°C / +5 to 131°F	
Optional Increased Temperature Range	-20 to +60°C / -4 to 140°F	
Comms Interface	Ethernet (UDP-IP), CAN bus and others on request	
Data Connector	RJ45 standard	
Data Logging (optional)	To USB memory device (no need for connected PC)	
Power Connector	via mains adapter supplied	
Optical Connector ⁵	FC/APC	
Input Voltage	+9 to +36 VDC	
Power Consumption	typ 7.5 W, max 8.5 W	
EMC Certification	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	

¹ 8, 12 and 16 channel [Modular SmartScan](#) also available
² Measured over 1 minute, standard uncertainty (1 σ distribution)
³ Averaging allows 2, 4, or 8 times data reduction, improving repeatability

⁴ Using FBG profile as shown
⁵ Connector required to be fitted on cable to mate with unit

Specifications are subject to change without notice