



SmartScope

- **3 $\sigma$  1 pm repeatability**
- **Solid State**
- **Developed from flight tested Wx instrument**
- **Robust optics**
- **Compact and lightweight**
- **Multiple interface options**

Building on the success of the SmartScan FBG interrogator, the SmartScope offers increased precision for accurate measurement of FBG sensors. The SmartScope uses the same tuneable laser core optics but with radically redesigned circuitry to improve the repeatability.

This WDM instrument is aimed at application demanding greater accuracy over a wider temperature range, such as oil well instrumentation. With the wavelength range increase from 40 nm to 80 nm and channel capacity increase (in 2012) the SmartScope will also be very attractive to users requiring high sensor counts.

## Specifications

Measurement and Processing	
Wavelength Range	40 nm (1528 – 1568 nm)
Number of Optical Channels <sup>1</sup>	1, 2 or 4
Maximum Number of Sensors / Channel	16
Scan Frequency (all sensors simultaneously)	5Hz
Repeatability <sup>2,7</sup>	< 1 pm
Wavelength Stability <sup>5</sup>	Max variation +/- 2 pm ,
Differential stability <sup>6</sup>	Max variation +/- 2 pm
Dynamic Range <sup>3</sup>	27 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 (W x H x D)	130 x 85 x142 mm / 5.1 x 3.3 x 5.6"
Weight	1 kg / 2.2 lb
Operating Temperature	-10 to +50 °C / 14 to 122 °F
Comms Interface	Ethernet (UDP-IP),
Data Connector	RJ45
Optical Connector <sup>4</sup>	FC/APC
Input Voltage	+9 to +36 VDC 100–250 V AC 50/60 Hz mains adaptor supplied
Power Consumption	typ 7.5 W, max 8.5 W

<sup>1</sup> 8, 12 and 16-Channel SmartScope products will follow initial 4-channel unit  
<sup>2</sup> 3  $\sigma$  distribution measured over 1 hour, Interrogator at 50°C +/- 0.5°C, with no averaging.  
<sup>3</sup> Total tolerable optical attenuation without loss of performance.  
<sup>4</sup> Connector required to be fitted on cable to mate with unit

<sup>5</sup> Peak wavelength shift of an optical reflection reference.  
 Interrogator between -10°C– 50°C  
<sup>6</sup> Maximum difference between two peaks of an optical reflection reference.  
 Interrogator between -10°C–50°C  
<sup>7</sup> Using FBG profile as shown

Specifications are subject to change without notice