

## Target specification for client review



- 16 channel instrument
- 80 nm bandwidth
- $3\sigma$  1 pm repeatability
- Solid State
- Rack mount enclosure
- Robust optics
- Multiple interface options

SmartScan 16-80, the forerunner of SmartScope 16-80

Building on the success of the SmartScan FBG interrogator, the SmartScope offers increased precision for accurate measurement of FBG sensors. The SmartScan 16-80 was developed to meet a Naval application and the SmartScope uses the same tuneable laser core optics but with redesigned circuitry to improve the repeatability.

This WDM instrument is aimed at applications 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 the SmartScope will also be very attractive to users requiring high sensor counts.

### Specifications

Measurement and Processing	
Wavelength Range	80 nm (1528 – 1608 nm) (40 nm option)
Number of Optical Channels	16
Maximum Number of Sensors / Channel	32
Scan Frequency (all sensors simultaneously)	1Hz
Absolute Accuracy	+/- 5 pm
Repeatability <sup>1</sup>	< 1 pm
Wavelength Stability <sup>4</sup>	Max variation +/- 1 pm
Differential stability <sup>5</sup>	Max variation +/- 1 pm
Sensitivity to birefringent sensors	< 1 pm
Dynamic Range <sup>2</sup>	23 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
Mechanical, Environmental and Electrical	
Dimensions (W x H x D)	19" rack mount x 3U x 11" deep
Weight	3 kg / 6.6 lb
Operating Temperature	-30 to +60 °C / -22 to 140 °F
Comms Interfaces	Ethernet (UDP-IP) and Modbus RTU
Data Connector	RJ45 and 9 way D type serial for Modbus
Optical Connector <sup>3</sup>	FC/APC
Input Voltage	100–250 V AC 50/60 Hz mains adaptor supplied (+9 to +36 VDC option)
Power Consumption	Typ. 20 W, max 25 W

<sup>1</sup> 3  $\sigma$  distribution measured over 1 hour, Interrogator at 50°C +/- 0.5°C, with no averaging.

<sup>2</sup> Total tolerable optical attenuation without loss of performance.

<sup>3</sup> Connector required to be fitted on cable to mate with unit

<sup>4</sup> Peak wavelength shift of an optical reflection reference. Interrogator between -30°C–60°C

<sup>5</sup> Maximum difference between two peaks of an optical reflection reference. Interrogator between -30°C–60°C