



- High Speed – 2 kHz
- Lifetime Calibration
- Large Sensor Capacity
- Compact Size
- Full Spectrum Mode
- Robust Operation

The W5-R is an industrial grade dynamic FBG interrogator, designed for high-speed sensor interrogation. This versatile instrument is able to take measurements from hundreds of sensors simultaneously, and at a rate of up to 500 Hz, enabling a single system to measure both dynamic and static phenomena for large complex structures.

Specifications	W5-R2	W5-R5	W5-R7
Optical			
Wavelength Range	1510 – 1590 nm		
Number of Optical Channels	1	4	16
Maximum Number of Sensors / Ch	80 (up to 160 with expanded λ range)		
Scan Frequency	100 Hz	500 Hz	250Hz
Stability	2 pm typical, 5 pm max		
Repeatability ¹	1 pm, 0.05 pm with 1000 averages		
Dynamic Range ²	25 dB with user selectable gain		
Optical Connector	FC/APC		
FBG requirements ³	0.25 +/-0.05 nm, FWHM (-3 dB point); >15dB isolation		
Mechanical			
Dimensions	435 x 442 x 45 mm		
Weight	4.1 kg		
Environmental			
Operating Temperature	0 to 50 °C		
Operating Humidity	0 to 80%, non-condensing		
Electrical			
Interface	Ethernet (TCP-IP)		
Input Voltage	7 – 36 VDC		
AC/DC Converter	Included (100-240 VAC, 47-63 Hz)		
Power Consumption	25 W typical, 50 W max		
Options			
FBG Distance Measurement ⁴	Optional	Optional	Optional
1 kHz Scan rate	Optional	Optional	Not available
2 kHz Scan rate	With 40 nm λ range (1525 ~ 1565 nm)		Not available
Expanded FBG capacity ⁵	λ range of 1460 ~ 1620 doubles max FBGs to 160/ ch, 2 pm repeatability at full acquisition speed		
1310 nm λ range	Available λ range of 1280 – 1360 nm		

¹ Per NIST Technical Note 1297, 1994 Edition, Section D.1.1.2

² Defined as laser launch power minus detection noise floor.

³ Used for performance qualification. Bandwidths of 0.1 to 1.0 nm may reduce performance.

⁴ Min FBG λ spacing is 1.5 nm; FBGs must be ascending λ order along fibre

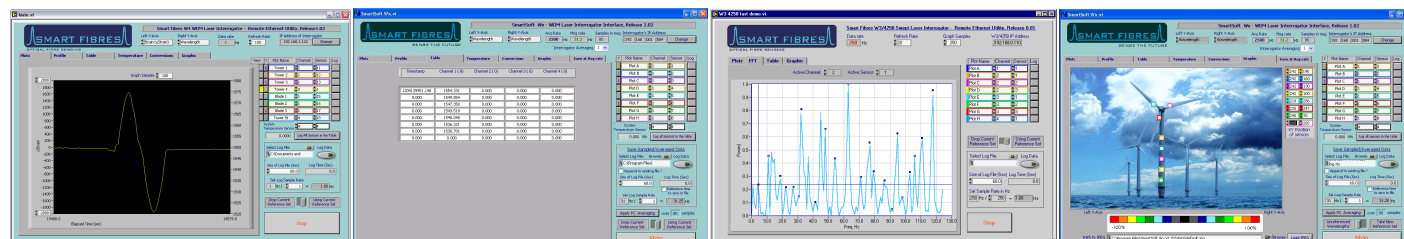
Distance measurement accuracy is ~2 m, 1kHz / 80 nm max

⁵ Maximum scan frequency of 500 Hz, 125 Hz for 16 channel model. Not compatible with FBG distance measurement.

Specifications are subject to change without notice

SmartSoft Remote Utility

Our SmartSoft suite of LabView based applications is supplied with every W5 interrogator. It's an easy to use utility that will provide you with up to date information in a variety of formats to suite your application needs.



Time history of sensor responses, can be simultaneously logged to file

Real-time sensor data in units of wavelength or calculated measurand

A fast Fourier transform view of any selected sensor allowing frequency analysis

Graphical representation of sensors readings on image of structure

Details of our Standard W5 SmartSoft Utility can be [downloaded](#) from our website. Customised SmartSoft functions can be provided on request.