



AHMOS military grade Wx-01M pictured

- Multi-kHz Scanning
- Compact and Robust
- Wavelength Agile Platform
- Onboard Data Averaging
- All Solid State
- Flight Tested

Wx is a compact and highly 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.

Wx was developed by Smart Fibres under the EU defence research project [AHMOS](#). During this project the intrinsic stability and reliability of the design have been proven through rigorous ground and fast jet flight tests. The below specifications relate to a military grade product offering using components qualified under the AHMOS testing. A [commercial grade Wx variant](#) is also available.

Specifications	Wx-01 M	Wx-02 M	Wx-04 M
<b>Optical</b>			
Wavelength Range <sup>1</sup>	40 nm (1528 – 1568 nm)		
Number of Optical Channels <sup>2</sup>	1	2	4
Maximum Number of Sensors / Channel <sup>3</sup>	16		
Scan Frequency <sup>1</sup>	2.5 kHz		
Repeatability <sup>4,5</sup>	< 2 pm		
Wavelength Stability	< 5 pm expected		
Dynamic Range <sup>6</sup>	20 dB		
Optical Connector <sup>7</sup>	Deutsch RSC06		
<b>Mechanical</b>			
Dimensions	170 x 280 x 55 mm		
Weight	1.8 kg		
<b>Environmental</b>			
Operating Temperature	-15 to +55 °C		
EMC: Conducted susceptibility and conducted emissions	MIL-STD-416E parts CS101 and CS 102		
Acceleration	Vertical-Z (9g); Lateral-X&Y (2.5g)		
Vibration	0.15 (g <sup>2</sup> /Hz) 0-100Hz, 0.10 (g <sup>2</sup> /Hz) 100-1000Hz		
Acoustic Noise	MIL-STD-810F		
<b>Electrical</b>			
Interface	Ethernet (UDP-IP)		
Data Connector <sup>7</sup>	Amphenol TV06RW-0935PN		
Power Connector <sup>7</sup>	Deutsch HDJ070835PN		
Input Voltage	+10 to +40 VDC		
AC/DC Converter	Included (100-240 VAC, 47-63 Hz)		
Power Consumption	< 25W		

<sup>1</sup> Wavelength range can be traded for scan frequency, e.g. 5 kHz/20 nm, 10 kHz/10 nm, 20 kHz/5 nm

<sup>2</sup> 16-Channel Wx under development

<sup>3</sup> Subject to bandwidth restrictions

<sup>4</sup> Measured over 1 minute, standard uncertainty (1  $\sigma$  distribution)

<sup>5</sup> Onboard averaging allows 2, 4, or 8 times data reduction, improving repeatability

<sup>6</sup> Uses per-channel automatic gain control (AGC). Increased dynamic range and per-sensor AGC in development

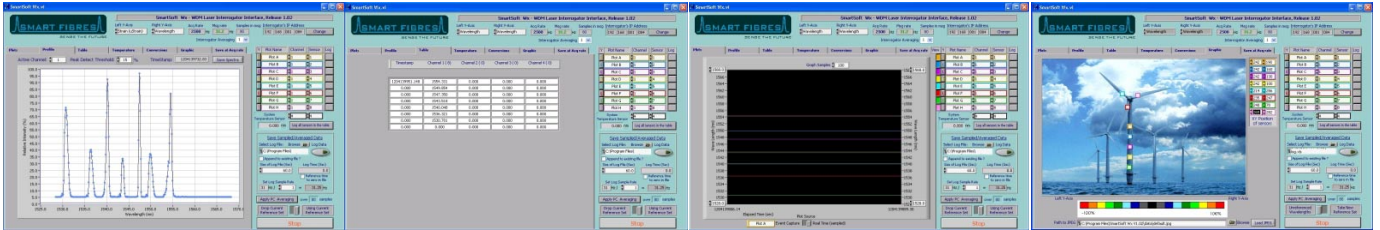
<sup>7</sup> Alternative connectors on request

Specifications are subject to change without notice

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### SmartSoft Remote Utility

Our SmartSoft suite of LabView based applications is supplied with every Wx 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.



Full spectra of sensors on each optical channel, can be saved to file

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

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

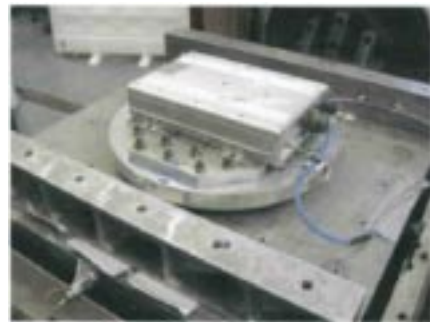
Graphical representation of sensors readings on image of structure

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

### Testing images



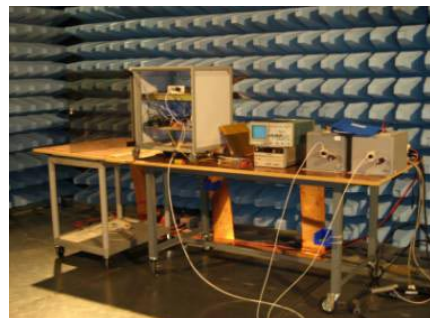
Operating Temperature



Vibration



Acceleration



EMC

### AHMOS Aircraft Installation

