

FB200

Fiber Bragg Grating Sensor Monitor



Compact and Highly Reliable

■ Measures Power and Center Wavelength of FBG Reflection Spectra

- Number of simultaneously measurable FBG sensors: 40 (typ.)
- Wavelength range: 1527 to 1567 nm or 1568 to 1607 nm
- Wavelength resolution: 1 pm
- Power range: -4 dBm to -65 dBm (0.1 nm RBW)

■ Ultra-Compact and Highly Reliable

- 170 × 28 × 220 mm (W × H × D), 1.2 kg
- Polychromator architecture with no moving parts
- Highly reliable for WDM system applications (lifetime > 10 years)
- Operating temperature: 0 to 60 degrees C

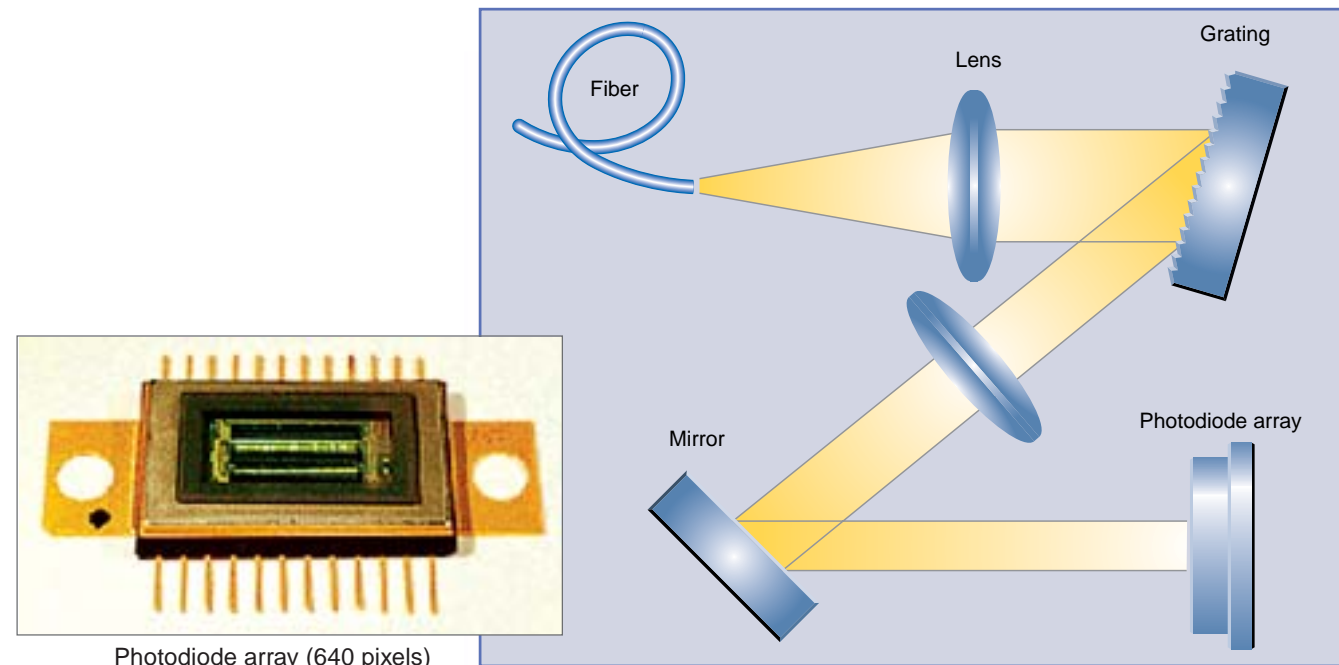
■ High Speed Measurement

- Sampling interval: 10 msec minimum (100 Hz max.)
- Interval is selectable: 10 msec to 990 msec, 1 sec to 360 sec

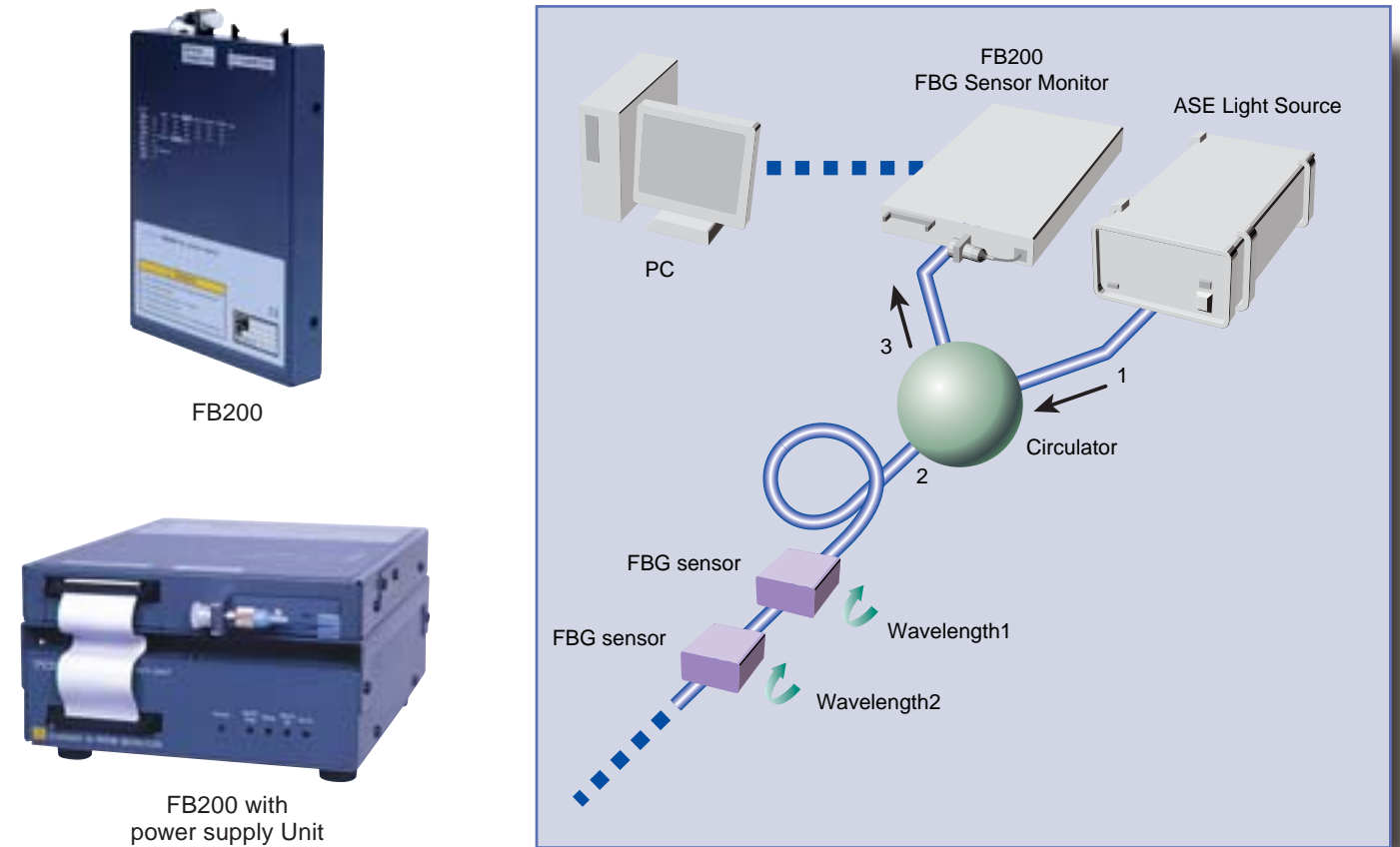
FBG: Fiber Bragg Grating

Spectroscope

- Polychromator architecture with in-house InGaAs PDA
- Fixed diffraction grating offers robust configuration
- Architecture has no moving parts which enables the module to be compact, highly reliable, and to achieve high-speed measurement.



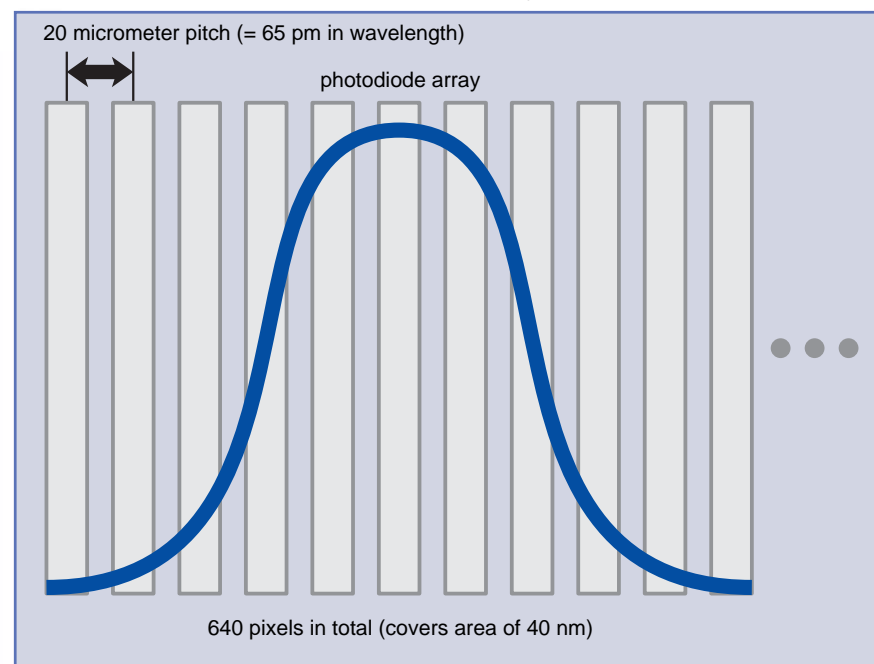
Sensing System



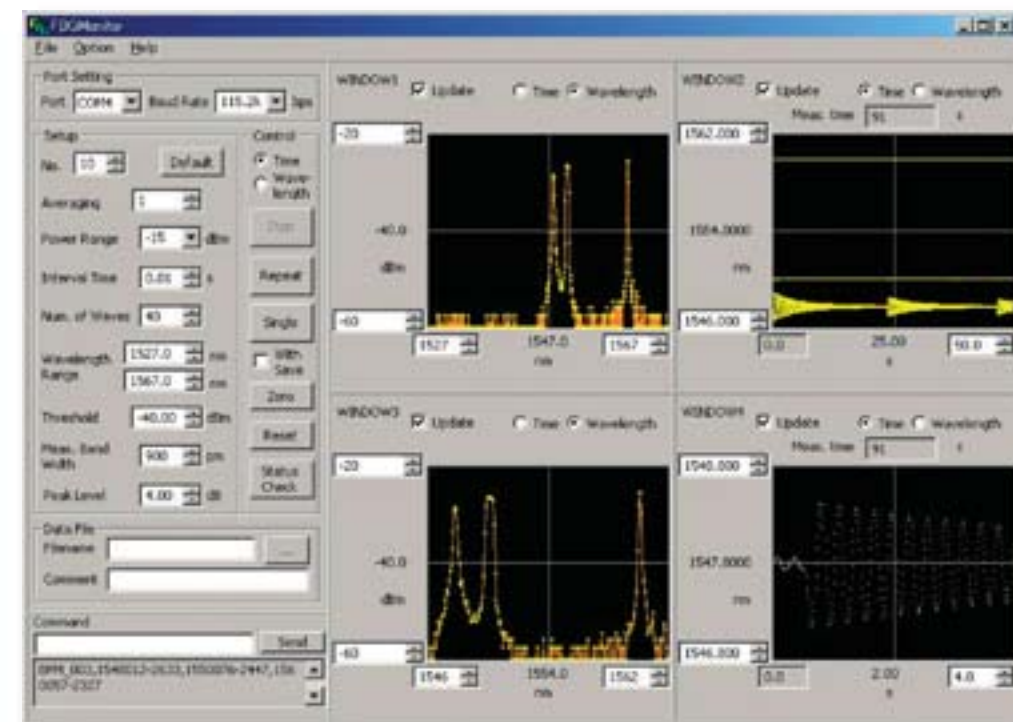
FBG Spectrum Measurement

The center wavelength of an FBG spectrum is calculated through interpolation of pixel data, which allows a wavelength display resolution of 1 pm. Number of simultaneously measurable FBG sensors is 40 (typical, depending on FWHM, and wavelength interval of FBGs (max. 100 FBGs))

Schematic of photodiode array and reflection spectrum of FBG



GUI



GUI Example (3 FBG sensors)

Specifications

	Specifications	Note
Wavelength Range	40 nm (39 nm)	1527 to 1567 nm (C-band model) or 1568 to 1607 nm (L-band model)
Wavelength Readout Resolution ^{*1}	1pm	
Wavelength Accuracy ^{*1}	< +/-50 pm	
Relative Wavelength Difference ¹	< +/-10 pm	Within 40nm (temperature fluctuation 10 degrees C/6 h)
Wavelength Repeatability ^{*1}	< +/-5 pm	3 sigma at the same condition (3 pm peak to peak typ., 0 to -10 dB each range)
Measurement Power Range (0.1 nm RBW)	-5 dBm range	-4 to -35 dBm, (-25 dBm) (without averaging)
	-15 dBm range	-15 to -45 dBm, (-35 dBm)
	-25 dBm range	-25 to -55 dBm, (-45 dBm)
	-35 dBm range	-35 to -65 dBm, (-50 dBm)
Minimum Detecting Power	< -60 dBm	0.1 nm RBW
Maximum Power Tolerance	< +16 dBm (40 mW)	Total power of all spectra
Number of FBG sensors measurable	40 typ.	Maximum: 100
Wavelength Interval of FBG	1.0nm (typ.)	Should be larger than twice of FBG FWHM
Sampling Interval	10 msec-360 sec	Interval is selectable: 10 msec-990 msec, 1 sec-360 sec 10 msec: when 16 FBGs, -5 or -15 dBm range, baud rate 921.6 kbps
Operating Temperature	0 to 60 degrees C	Performance: 0 to 50 degrees C Storage: -40 to 70 degrees C
Operating Humidity	< 85%RH	No condensation
Output Data	ASCII	Center wavelength, optical power (RBW 0.1 nm)
Lifetime	> 10 years	
Dimension (W x H x D)	170 x 28 x 220 mm	With power supply 170 x 101 x 220 mm
Weight	1.2 kg (approx.)	With power supply 2.2 kg (approx.)
Operating Power	DC5 V 2 A max.	With power supply AC 100-240 V 20 VA max.
Serial Interface	RS422	Baud rate 9600 bps to 921.6 kbps (6 steps, default: 115.2 kbps) With power supply RS232C

*1) Recommendation of FBG reflection spectrum: Flattop, FWHM (Full Width Half Max) 0.25 to 1.0 nm

Order number of FBG Sensor Monitor
 : 703753-D1-CN1-W1 (1527 to 1567 nm C-band Model)
 : 703753-D1-CN1-W2 (1568 to 1607 nm L-band Model)
 Order number of Power Supply unit: 703781-D-C2

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