

## High Speed FBGA Analyzer

### WaveCapture™ FBGA Series



Fibre Bragg  
Gratings  
reinvented

DrawTowerGratings(DTG®s) are produced during the drawing process of the fibre itself, before the primary coating is applied. This is a cost effective production process for high quality Fibre Bragg Gratings. This offers unique characteristics such as extremely high breaking strength, insensitivity to bending, spliceless array configurations and uniform coating coverage. FBG parameters and coating material can be selected based on customer needs.

#### Description

BaySpec's WaveCapture™ FBGA Interrogation Analyzer is an integrated spectral engine simultaneously covering multiple wavelengths for precise and rapid fiber bragg grating (FBG) sensor system measurements

The device covers wide wavelength ranges and provides simultaneous measurements at very fast response rates and excellent wavelength resolution. High reliability (MIL STD 810F shock and vibration) is achieved through a rugged mechanical design with no moving parts. Periodic calibration is not required. High speed Input/Output (I/O) is achieved through the use of USB2.0 communications (serial communications also supported at lower speeds).

The WaveCapture™ FBGA Series employs a highly efficient Volume Phase Grating (VPG) as the spectral dispersion element and an ultra sensitive InGaAs array detector as the detection element, thereby providing high-speed parallel processing and continuous spectrum measurements. As an input, the device uses a tapped signal from the main data transmission link through a single mode fiber, then collimating it with a micro lens. The signal is spectrally dispersed with the VPG, and the diffracted field is focused onto an InGaAs array detector. The control electronics read out the processed digital signal to extract required information. Both the raw data and the processed data are available to the host.



## Features

### KEY FEATURES

- Wide wavelength range
- Ultra fast response time (up to 5kHz)
- Excellent wavelength repeatability and resolution
- Athermal design enabling battery-operated portable operation
- High reliability for use in harsh environment
- Compact, card-mountable design

### KEY BENEFITS:

- No moving parts
- Ultra reliable Volume Phase Grating (VPG)
- Athermal (no TEC)
- Solid-state electronics
- Hermetically sealed

### APPLICATIONS:

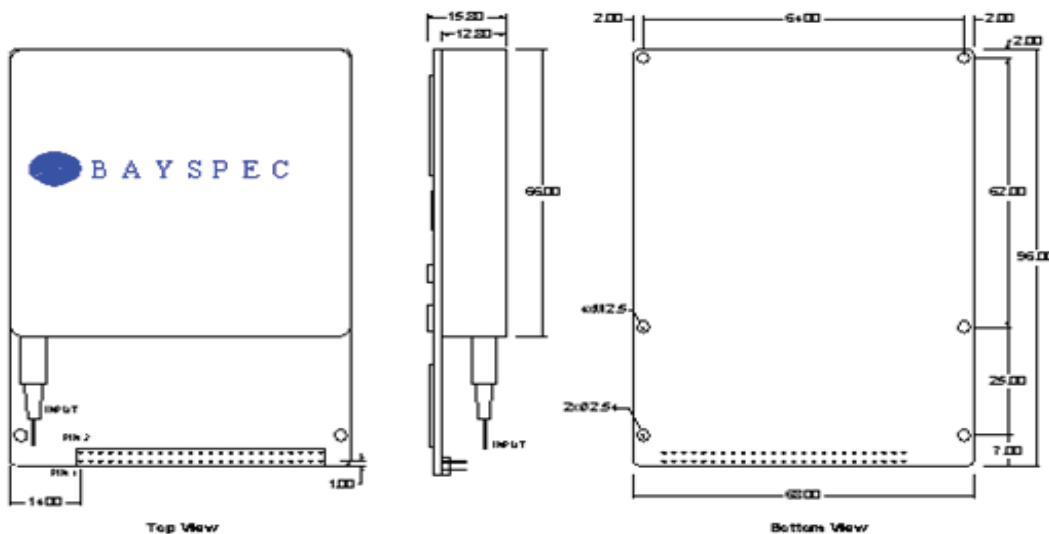
- Real time fault detection and isolation in fiber optic sensing systems
- OEM module for portable handheld field test equipment

## Standard Specification

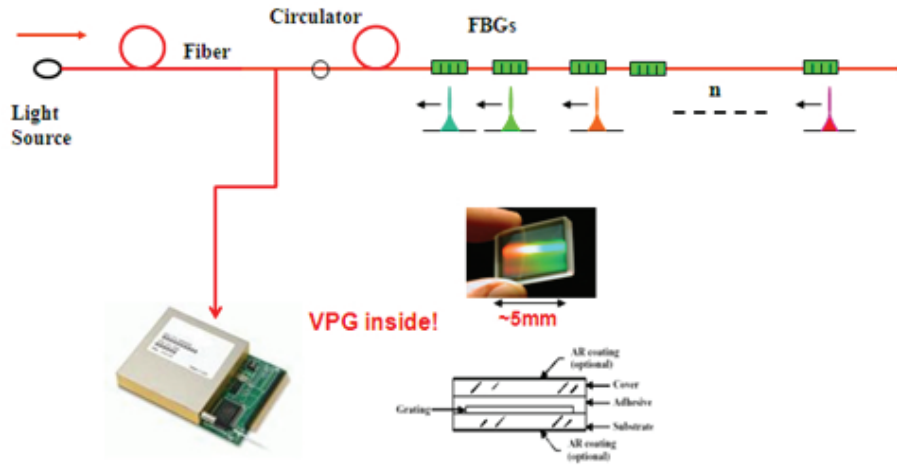
Specifications	Data	Unit
Standard Wavelength Ranges*	Standard: 1525-1565 Extended: 1510-1590	nm
Wavelength Repeatability	± 5	pm
Wavelength Readout Resolution	1	pm
Minimum Detectable Wavelength Change	± 1	pm
Frequency response time (typ.)	Standard: ~5 Hz (RS232/USB1.1) Fast: ~5 kHz (USB2.0)	
Channel Input Power Range	-60 to -20 or specify	dBm
Power Resolution	0.1	dB
Size	96 x 68 x 15.8	mm <sup>3</sup>
Interface	RS232 or USB  (Fast board USB only)	
Operating Temperature	-5 to +70° C	
Software	GUI evaluation software included, DLL for development	

\* Other wavelengths available upon request

## Mechanicals



## Fiber Bragg Grating (FBG) Sensing



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