

## WaveCapture™ FBGA Interrogator

FBGA-E Series – Ethernet ready



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 Ethernet IEEE 802.3 interface.

The WaveCapture™ FBGA E-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. The signal is collimated with a micro lens and 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

- Ethernet interface
- 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
- Easy OEM integration

### APPLICATIONS:

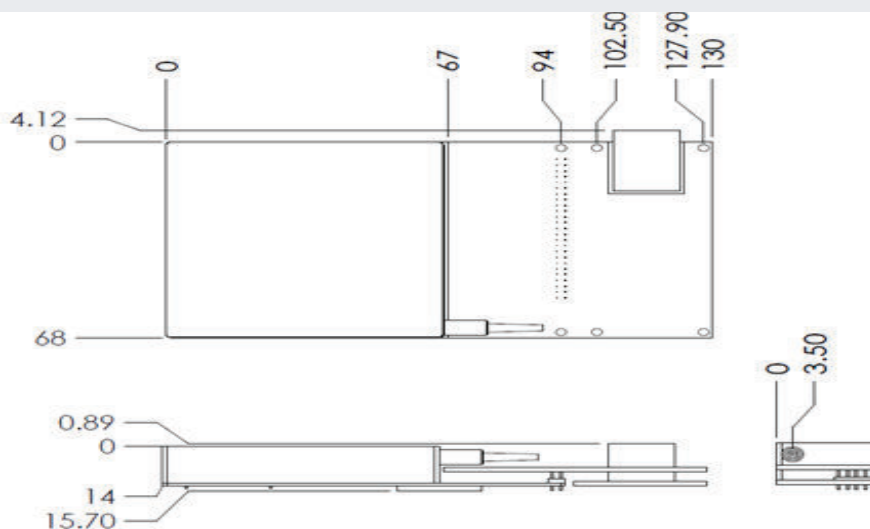
- Real time fault detection and isolation in fiber optic sensing systems
- OEM module for portable handheld field test equipment
- Oil & Gas pipelines
- Mining
- Wind Energy
- Tidal Energy
- Marine vessels
- Aerospace
- Structural Health Monitoring
- Medical
- Sports

## Standard Specification

| Specifications                       | Data   | Unit            |
|--------------------------------------|--|-----------------|
| Standard Wavelength Ranges*          | 1525-1565<br>Extended: 1510-1590   | nm              |
| Wavelength Repeatability             | ± 5  | pm              |
| Wavelength Readout Resolution        | 1  | pm              |
| Minimum Detectable Wavelength Change | ± 1  | pm              |
| Frequency response time (typ.)       | ~5 kHz   |                 |
| Channel Input Power Range            | -60 to -20 or specify  | dBm             |
| Size                                 | 130 x 73 x 15.7  | mm <sup>3</sup> |
| Interface                            | Ethernet IEEE 802.3  |                 |
| Operating Temperature                | -5 to +70  | °C              |
| Storage Temperature                  | -20 to +85   | °C              |
| Software                             | BaySpec's <i>Sense2020</i> evaluation software included, SDK/dll for development |                 |

\* Other wavelengths available upon request

## Mechanicals



FBGS International reserves the right to make changes without further notice to any products herein. FBGS-International January 2012 V1.0. All rights reserved.

FBGS International - Bell Telephonaan 2H - B-2440 Geel

T: +32(0)14581191 - F: +32(0)14591514 - WWW.FBGS.COM - INFO@FBGS.COM