FBGA-1 / Fiber Bragg Grating Amplifier

Description

The FBGA-1 is a Single FBG Interrogator operating at 40kHz with 0.1pm resolution, 1pm repeatability, and 5pm accuracy. Small and simple to use, the industrial grade FBGA-1 is more like a strain gage amplifier: It excites the sensor, measures its reflection, and outputs the wavelength or sensor data (temperature, strain, vibration, pressure…) via (1) 0-5V Analog Output w BNC, (2) MODBUS w RS485, and (3) TCP/IP.

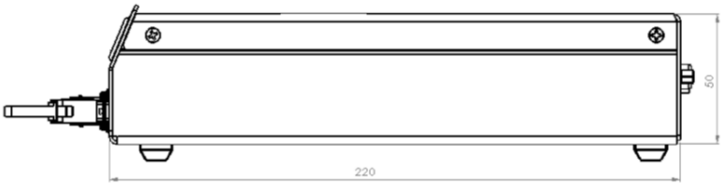
The FBGA-1 is designed to be the electrical engineer's simple and natural gateway to the world of Optical Sensing: It can be controlled by virtually any industrial PLC or computer, and can be monitored by any multimeter, oscilloscope, or data acquisition system. The FBGA-1 offers the shortest learning path to monitoring EMI immune, lightning proof, passive FBG based optical sensors. The FBGA-1 is easy to install and use. It delivers the advantages inherent to optical sensors while preserving the speed and sensitivity of traditional electrical ones.

Key Features

FBGA-1 Onboard Configuration Software. Free of charge and intuitive to use, the software allows each user to enter (1) the sensor wavelength to its engineering parameter conversion formula to output data directly as strain, temperature, pressure, acceleration, displacement…etc, (2) the desired gain and resolution, and (3) the zero offset, if applicable. The web-app also allows for setting various internal digital filtering options such as Averaging, Low-pass, High-pass, and Band-pass filtering.

Standalone or easy to integrate. The FBGA-1 can be operated alone, or it can be synchronized to other FBGA-1s, as well as to other types of optical or electrical sensing systems.

Small and simple to use: Connect the FBG sensor. Press the power switch with ring LED. Wait for initialization to complete. The system will automatically track and lock onto the sensor. Get data!



Modbus Interface. Supports 32 devices on a single bus. Half-duplex, multi-drop bus topology using a single differential pair plus a common conductor for communication with multiple devices.

Low cost and long lifetime. The FBGA1 is a solid-state design with no movable parts, no tunable filters, and no opto-mechanical switches. It is plug-and-play in the literal sense and its price scales down well with higher volumes.

Parameter	Specifications
Number of Channels	1
Number of FBGs / Channel	1
Wavelength Range	1548nm - 1552nm
Scanning Rate (Speed)	40kHz (kS)
Wavelength Resolution, Repeatability, Accuracy	0.1pm +/-1pm +/-5pm
Drift with temperature	0.5pm/°C
Operating Temperature, Storage Temperature	0°C to +50°C -40°C to +80°C
Noise	0.5pm @ 900Hz
Input Power Supply Voltage	+9V to +36V
Power Consumption	12W typ, 20W max
Dimensions, Weight	100 x 50 x 220mm, 1kg
Optical Connector	E-2000
Analog Output, Connector	0-5V, BNC
Modbus Output	RS485
Ethernet Output	TCP/IP
EMC Certification	IEC61326-1
Hazardous Certification	IEC60079-28

Applications include Industrial, Robotics, Transportation, Civil & Geo, Energy, and R&D

Technica undertakes a rigorous development process before products release. The company is also firmly committed to continuous improvements after release to insure performance to the highest standards, hence, specifications are subject to update without notice.

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