SAFIBRA

Solutions, When the Conventional Ones Run Out of Breath

FBGUARD 1550

ADVANCED MONITORING SYSTEMS

Highly accurate monitoring system for industrial measurements

The FBGuard 1550 is a reliable, industrial grade FBG monitoring unit designed for a long term field operation. This field-proven system provides static and dynamic measurements of different Fiber Bragg Grating (FBG) sensors simultaneously, with excellent wavelength precision and accuracy. It offers a cost-effective solution suitable for diverse applications.

Complex monitoring system

The FBGuard 1550 provides not only an interrogation unit but also data storage and basic data processing. More layers are available through additional HW and SW.

Advanced customization available

The monitoring system can be modified to meet your project's needs, such as the desired functionality, interoperability, and others.

Usage of existing fiber optic network

Installation of an expensive sensor infrastructure or availability of electrical power is not necessary.

PRODUCT VERSIONS

The FBGuard monitoring system comes in two product versions: the standard 19" rack version and the compact Mini version

Both of them are configurable to your needs by selecting a single or multi-channel version (2, 4, 8 or 16), and the scanning frequency speed (slow or fast).

	19" rack version	Mini version
Number of channels	1, 2, 4, 8 or 16	1, 2, 4 or 8
Size	Rack compatible	Compact
PC inside	Powerful	Industrial
Customization	OTDR, WIM, TDM	×
Battery ready operation	×	✓
Electrical sensors handling	×	Optional
WiFi/LTE module	×	Optional

20+ YEARS

KEY PRODUCT FEATURES & BENEFITS

Long term field operation
FBGuard is highly durable and reliable even in demanding environments. This makes it especially suitable for a long term field operation.

Real-time monitoring 24/7
The unit monitors any issues that may arise in real time, alerting you immediately if necessary. Furthermore, it enables you to work with collected data right away.

Scan frequency up to 11,000 samples/s
The FBGuard can achieve a maximum scan frequency of up to 11,000 samples for a single optical channel operation. This „Superfast option“ is available in the FAST version only.

Fully autonomous system
Thanks to an embedded PC and a web server running on Linux, the FBGuard is independent of external devices and control procedures.

Analysis and configuration SW
The monitoring system is supplied with analysis and configuration SW, which are both platform-independent and feature an embedded processing board with all decision functions.

Event notification and data exchange
The monitoring system is equipped with three direct alarm relays for immediate notifications to be sent via email. Additional communication interfaces are available for data exchange.

Up to 640 FBG sensors monitored at 16 channels
The system is designed for highly accurate measurements of up to 40 FBG sensors per channel, which can be monitored at up to 16 parallel optical channels (1, 2, 4, 8, 16).

Multifunctional measuring platform
The monitoring system can measure a variety of physical parameters (even electrical) simultaneously at very fast response rates and excellent resolution.

SSH and web interface
The configuration of the monitoring system, sensors and alarms, frequency of measurements, and self data logging on an integrated SSD can all be adjusted by SSH and the web interface.

Manufactured in-house
The FBGuard 1550 is made by Safibra, which gives us complete control over the product output, quality, logistics, production costs, and support.

Remote control from any PC
The monitoring unit has an Ethernet interface, which allows remote control from any standard PC through the TCP/IP protocol using the Measurement System Configurator (MeSyCo).

Easy system settings
FBGuard features a web-based configuration interface called the Measurement System Configurator (MeSyCo) which provides automation functions for FAST system and sensor settings, even for sensors with unknown parameters.

ADDITIONAL HARDWARE, SOFTWARE & SERVICES

FBG sensors
Fiber optic sensors based on FBG gratings allowing to monitor different physical parameters.

ProcessGuard
Server for data processing. For proper functionality it needs to be equipped with SigProc licence.

SigProc
Signal Processor

Software used for acquisition of raw data and their consequent analysis and processing.

Database server
Local or in cloud

Server that provides other systems with services related to accessing and retrieving data from a database.

Graflux
Data storage, analyzing and visualisation service for easy and user friendly presentation of collected data.

UPS
Uninterruptible power source

Provides backup power when your regular power source fails or voltage drops to an unacceptable level.

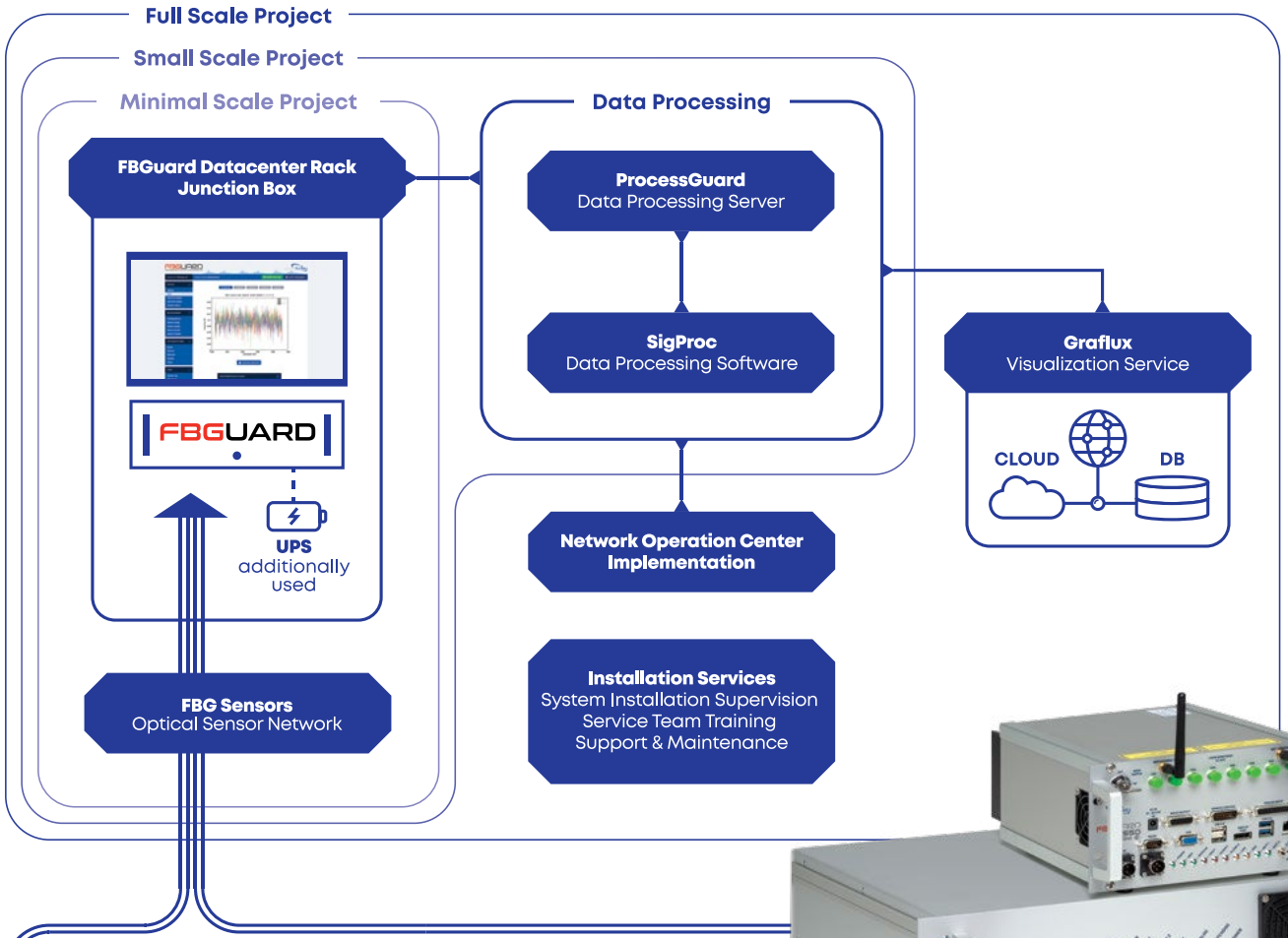
Relay units
Electrically operated switches used to protect electrical circuits from overload or faults.

Installation services
System installation, supervision and commissioning, support and maintenance, service level agreement.

Training
Service team training tailored to your needs provided by a highly skilled and experienced team.

PROJECT REQUIREMENTS

You can choose the preferred project scale.



TRANSPORTATION

WIM, vehicle detection and classification, railways, roads, highways, airports, waterways

CIVIL STRUCTURES

bridges, mines, dikes, embankments, buildings, dams, roofs, concrete structures, masonry structures, underground utilities, historical monuments

ENERGY

wind turbines, pipelines, nuclear reactors, solar panel farms, electricity pylons, power transformers, power plants, tidal energy structures

INDUSTRY

airframes, composite structures, wind tunnels, dynamic tests, oil and gas

SECURITY

perimeters, manholes, handholes, cabinets, gates, fences, entrances, pipeline shaft covers

R&D

novel and undiscovered applications

TECHNICAL PARAMETERS

Optical	19″ rack version	Mini version
Number of measured FBG sensors	up to 40 FBG sensors per channel	up to 40 FBG sensors per channel
Number of channels	1, 2, 4, 8 or 16	1, 2, 4 or 8
Wavelength range	1505 - 1590 nm	1505 - 1590 nm
Wavelength resolution	≤ 1 pm	≤ 1 pm
Wavelength repeatability	±3 pm (typically), ±5 pm (max)	±3 pm (typically), ±5 pm (max)
Absolute wavelength accuracy (EOL)	typical: ±5 pm	typical: ±5 pm
Scan frequency	2 samples/s/channel (static measurement only) **FAST version:** 2,000 samples/s all channels: 1,000 samples/s/CH @2 CH 500 samples/s/CH @4 CH 250 samples/s/CH @8 CH 125 samples/s/CH @16 CH **SUPERFAST option:** up to 11k samples/s (FAST version only, available at one channel operation only)	2 samples/s/channel (static measurement only) **FAST version:** 2,000 samples/s all channels: 1,000 samples/s/CH @2 CH 500 samples/s/CH @4 CH 250 samples/s/CH @8 CH **SUPERFAST option:** up to 11k samples/s (FAST version only, available at one channel operation only)
Dynamic range	30 dB+	30 dB+
Optical connector	FC/APC or others on request	FC/APC or others on request
Durability of optical switch	> 10^{11} cycles	> 10^{11} cycles

Electrical, Environmental and Mechanical		
Power supply	12 V/15 A DC (AC adaptor included)	10 - 30 V DC; battery ready
Power consumption	Average < 50 W Max. 180 W	Average < 32 W Max. 78 W
Operating temperature	0 °C to 40 °C	0 °C to 50 °C
Operating humidity	< 80%, non-condensing	< 80%, non-condensing
Dimensions (LxWxH)	482 mm x 383 mm x 131 mm additional lugs: +40 mm in depth	246 mm x 293 mm x 132 mm additional lugs: +40 mm in depth
Weight	9 kg	7.5 kg

Other		
Embedded PC/SSD Disk	Yes/Yes	Yes/Yes
Communication protocol	TCP/IP, RS-232, Modbus	TCP/IP, RS-232, Modbus
Interfaces & Ports	12 V DC, IN/OUT, HDMI, 2x USB 3.1, RS 485 IN/OUT (on request), Ethernet	10 - 30 V DC, IN/OUT, analogue input, 2x USB 2.0, 2x USB 3.0, display port, Ethernet, battery-connection
Compatible sensor types	strain, displacement, acceleration, pressure, security, load, temperature, vibration, inclination, application customized, etc.	

We reserve the right to change these parameters. All pictures shown are for illustration purpose only.

GET IN TOUCH WITH US

and we will recommend the most suitable solution for your project.

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