



FS22 - Industrial BraggMETER DI

Industrial Optical Interrogator (Dynamic)

FS22 – Industrial BraggMETER DI interrogators are specifically designed to interrogate Fiber Bragg Grating (FBG) based sensors in industrial environments.

BraggMETER interrogators employ proven continuous swept laser scanning technology. They include a **traceable wavelength** reference that provides continuous calibration to ensure system accuracy over long term operation. The **high dynamic range** and output power allow **high resolution** to be attained even for long fiber leads and lossy connections.

Characteristics

- **Robustness**
24/7 operation ensured by clever design, careful selection of components (electronic, optical, mechanical) and compact assembling.
- **Real-time operating system**
Consistent and deterministic operating system.
- **High interrogation capacity**
Broadband tuning range and 1, 4 or 8 parallel optical channels allowing the simultaneous measurement of a large number of sensors.
- **Multiple or Hybrid grouping of devices**
Possibility of combination of several interrogators or of interrogators with other HBM devices.
- **Powerfull software**
catman® compatibility

Fiber optic technology
Real-time operating system
Up to 8 parallel optical channels
Full control through SCPI Commands
Up to 1000 S/s
NTP synchronization
Standard 19" racks available

Applications

HBM FiberSensing Industrial interrogators meet the required reliability and versatility to be used in both laboratory testing and field deployment in Civil, Aeronautics, Energy and R&D.

Control

HBM FiberSensing Industrial BraggMETER interrogators have Ethernet interface allowing their remote connection to any standard PC through TCP/IP. The interrogators can be fully controlled using ASCII textual strings. Easy-to-use software, BraggMONITOR DI, is available to be installed on the control PC for direct data acquisition and archiving, optical spectrum visualization and intuitive sensor configuration. HBM FiberSensing interrogators are compatible with catman software, a powerful tool for data acquisition and processing.

Quality

All HBM FiberSensing's processes are strictly controlled from development to production. Each product is subjected to high standard performance and endurance tests, individually calibrated and checked before shipping. HBM FiberSensing, S.A. concentrates all optical sensing activity of HBM and is an ISO 9001:2008 certified company.





Specifications

Wavelength Measurement

Range	100 nm (1500 to 1600 nm)				
Resolution/Repeatability ¹	<1 pm				
Stability/Reproducibility ¹	5 pm				
Optical channels ²	1, 4 or 8				
Sample rate	All available, user selectable				
Possible values (S/s)	1000	500	200	100	50
Max. sensors / OC	31	63	127	127	127
Max. sensors total	48	96	200	400	600
Optical detection	Linear (selectable gain steps)				
Dynamic range ³	> 25 dB				

Laser Source

Optical output power ⁴		
Single Channel	Quad Channel	Octo Channel
0 dBm	-3 dBm	-6 dBm
Linewidth		
< 500 MHz		

Connectors

Optical	FC/APC or SC/APC	
Electrical	ST	RM
	Weidmüller Terminal Block SLDF 5.08 2-way supplied with 100-230V power adapter and Type F plug cable ⁵	C14 (IEC/EN 60320-1) supplied with Type F plug cable ⁵
Communication	RJ45 Ethernet	

Control

Interface	Ethernet (TCP/IP)
Commands	SCPI (ASCII textual strings) ⁶
Synchronization	NTP

Features

OSA trace	Continuous (1S/s) (Wavelength, absolute power) ⁷
-----------	--

Environmental

Operation temperature	0 to 50 °C
Storage temperature	-20 to 70 °C
Operation humidity	< 90% at 40 °C
Storage humidity	< 95% (non-condensing)
Shock resistance	20 g; 11 ms (EN60068-2-27)
Vibration resistance ⁸	2.5 g (EN60068-2-6)

Mechanical

Dimensions (w x h x d)	
ST	RM
155 x 125 x 275 mm	483 x 88 x 400 mm
Mounting	
ST	RM
6 screws M6	19" rack mountable – 2U
Weight	
ST	RM
4.5 kg (w/o mounting brackets)	7 kg
Enclosure	Aluminum (IP20)

Power

Voltage	
ST	RM
11-36 VDC	100-240 VAC 50-60 Hz
Consumption ⁴	
Nominal ⁹	Stand by
22.5 W	2 W

¹ As per NIST Technical Note 1297:

Repeatability [§D.1.1.2], σ of measurements carried out under the same conditions;
Reproducibility [§D.1.1.3], σ of measurements carried out under the full operation conditions

(temperature and power cycles). Abovementioned measurements accuracy [§D.1.1.1] carried out using calibrated instrument against a NIST traceable gas cell. Further details on HBM FiberSensing technical notes.

² With simultaneous acquisition.

³ Considered as the ratio between the optical power emitted at an optical channel and the minimum detectable optical power reflected by a fiber Bragg grating.

⁴ Typical values.

⁵ Different plug format can be added upon request.

⁶ Standard Commands for Programmable Instruments.

⁷ Full spectrum trace with 7050 points acquired over the 100 nm range.

⁸ Sinusoidal vibration.

⁹ Peak consumption may reach 50 W (during startup).

Ordering Information

FS22 – Industrial BraggMETER DI

P/N

K-FS22 aa 500 ccc

OPTICAL CONNECTORS
120 - 1
420 - 4
820 - 8

HOUSING AND CONNECTIONS
01 - Standard (ST) - FC/APC
03 - Standard (ST) - SC/APC
11 - 19" rack (RM) - FC/APC
13 - 19" rack (RM) - SC/APC