

DATA SHEET

FS22DI

Industrial BraggMETER DI

SPECIAL FEATURES

- Up to 8 connectors with parallel acquisition
- Dynamic selectable acquisition rates up to 1000 S/s
- NTP synchronization
- Catman® compatibility



DESCRIPTION

FS22DI Industrial BraggMETER Interrogators are specifically designed to interrogate Fiber Bragg Grating (FBG) sensors. Based on continuous swept laser scanning technology, these Interrogators include a traceable wavelength reference that provides continuous calibration and ensures system accuracy over long term operation. The combination of high dynamic range and high output power allow high resolution to

be attained even for long fiber leads and/or lossy connections.

HBK FiberSensing Industrial BraggMETER interrogators run on a real-time operating system for consistent and deterministic acquisition of a large number of sensors provided by the combination of a broadband tuning range and the simultaneous and parallel acquisition over 1, 4 or 8 optical connectors.

BENEFITS AND APPLICATIONS

Sensor design

- Laboratory and field deployment in Civil, Aeronautics, Energy and R&D applications
- Full control through SCPI Commands for integration in user's own software
- Multiple device or hybrid (electrical+optical) measurements possible by combining and synchronizing multiple interrogators and other HBK data acquisition devices

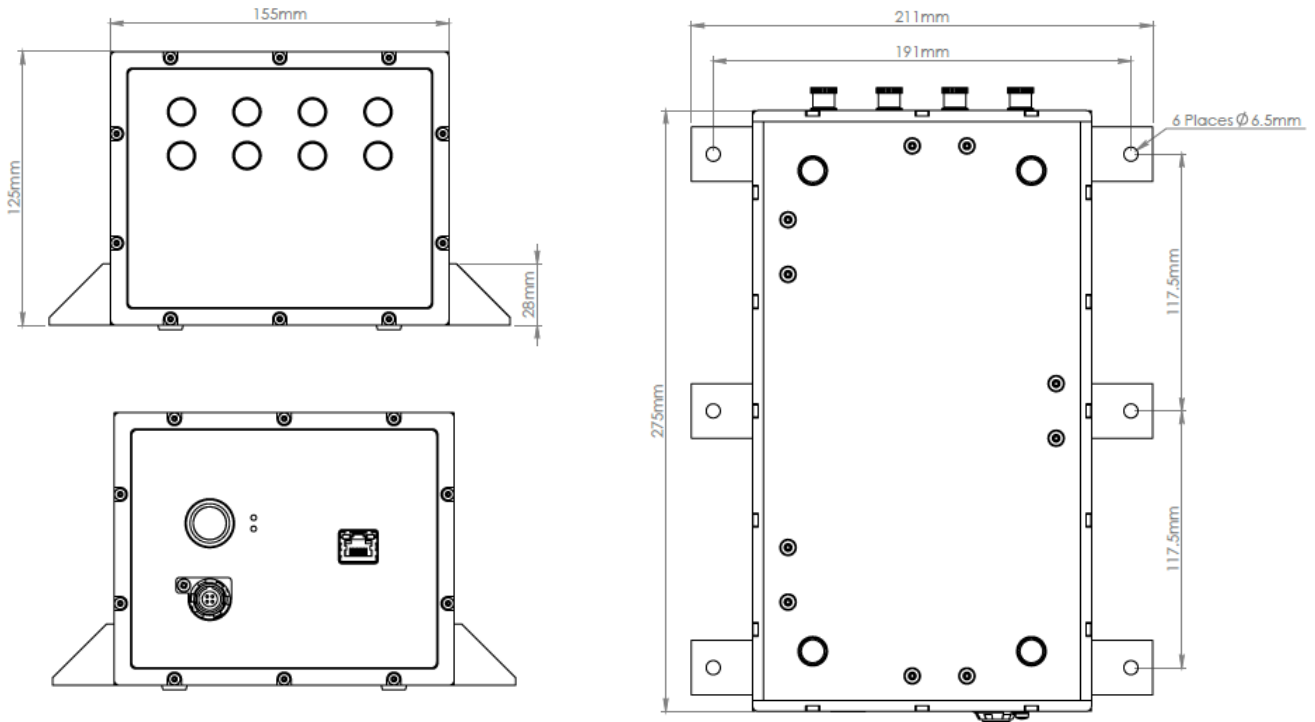
Fiber Bragg grating technology

- Absolute reference measurement
- Insensitive to EM/RF interferences
- Passive (can be used in Ex-areas)
- Intrinsic multiplexing capability reducing cabling requirements
- Long distances between sensors and the interrogators possible
- Combination of different sensor measurands

TECHNICAL DRAWING

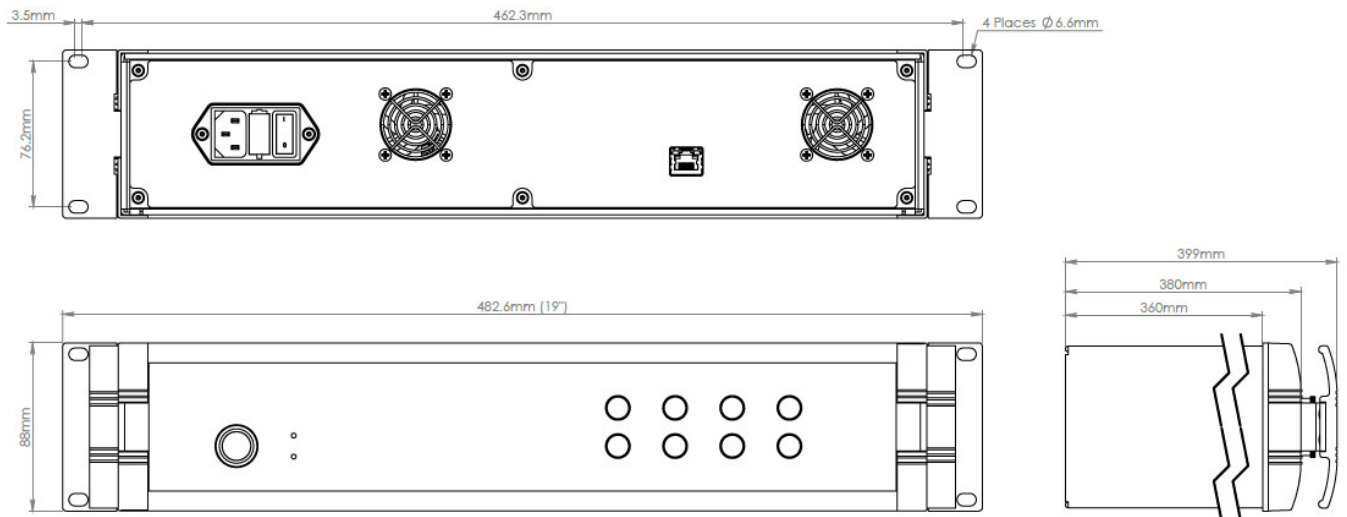
Standard

Represented configuration with 8 FC/APC connectors

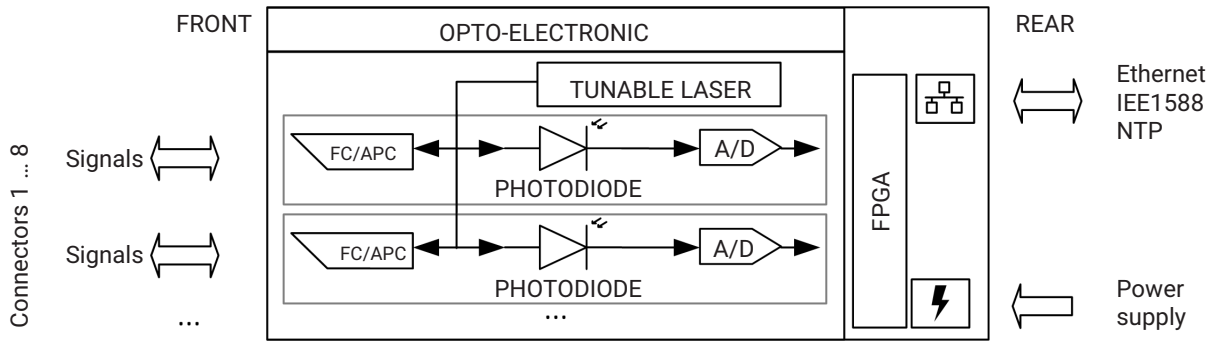


Rack Mountable

Represented configuration with 8 FC/APC connectors



BLOCK DIAGRAM



SPECIFICATIONS

General						
Measurement range	nm	100 [1500 ... 1600]				
Resolution/Repeatability ¹⁾	pm	<1.5				
Stability/Reproducibility ¹⁾	pm	5				
Optical connectors (simultaneous acquisition)	n.a.	1, 4 or 8				
Connector type	n.a.	FC/APC or SC/APC				
Sample rate ²⁾	S/s	1000	500	200	100	50
Maximum number of detected FBG peaks						
Per OC		31	63	127	127	127
Total	n.a.	80 ³⁾	96	200	400	600
Optical detection method	n.a.	Linear (selectable gain steps)				
Dynamic range ⁴⁾	dB	> 25				
OSA ⁵⁾	n.a.	Yes				
Optical output power per connector						
One connector						
Typical						2
Maximum						3
Four connectors						
Typical						-1
Maximum						0
Eight connectors						
Typical						-4
Maximum						-3
Power supply						
Standard	VDC	11 ... 36				
Rack-mountable		100 ... 240 (50 ... 60Hz)				
Power connector						
Standard	n.a.	ODU Medi-Snap S11M08-P04MJGO-5280 ⁷⁾				
Rack-mountable		C14 (IEC/EN 60320-1) ⁸⁾				
Consumption ⁶⁾						
Peak						20
Nominal						8
Stand by						2

Communication Technology Connector Protocol Syntax	n.a.	Ethernet RJ45 TCP/IP SCPI ⁹⁾ (ASCII textual strings)
Synchronization	n.a.	NTP
Environmental and mechanical		
Operation temperature	°C	0 ... 50
Storage temperature	°C	-20 ... 70
Operation humidity	%	< 90% (at 40 °C)
Storage humidity	%	< 95% (non-condensing)
Mechanical tests ¹⁰⁾ Sinusoidal vibration (EN60068-2-6) Acceleration Duration per axis Frequency Random vibration (EN60068-2-64) Acceleration Power Spectral Density Frequency Shock resistance (EN60068-2-27) Acceleration Pulse duration	g0-pk min Hz g0-pk min Hz g0-pk ms	2.5 30 5 ... 65 9 1 10 ... 500 20 11
Dimensions (w x h x d) Standard Rack-mountable	mm	155 x 125 x 275 483 x 88 x 400
Weight Standard Rack-mountable	kg	4.5 7
Enclosure Material	n.a.	Aluminum
Degree of protection (EN60529; IEC529) Standard Rack-mountable	n.a.	IP40 IP20
EMC requirements	n.a.	Per EN 61326

- 1) Measurements carried out using calibrated instrument against a NIST traceable gas cell. Accuracy as per NIST Technical Note 1297. Further details on HBK FiberSensing technical notes.
- 2) All available, user selectable.
- 3) For 1000 S/s acquisition rate the presented values are valid when operating the device with catman® or SCPI commands with binary format reply. For operation with BraggMONITOR DI or SCPI commands with ASCII format reply, the maximum number of sensors, in total is 48.
- 4) Considered as the ratio between the optical power emitted at an optical connector and the minimum detectable optical power reflected by a fiber Bragg grating.
- 5) Optical Spectral Analysis (1S/s refresh rate; 7050 points per sample, ~15 pm resolution)
- 6) Typical values. Peak consumption may reach 50 W (during start up).
- 7) Supplied with 100 ... 240 V power adapter with international AC plugs and 1.5 m cable length. For additional orders use 1-NTX001 material number.
- 8) Supplied with international AC plug cables.
- 9) Standard Commands for Programmable Instruments.
- 10) During tests the interrogator is powered off. The correct functioning of the equipment is confirmed after the test (transport simulation).

ORDERING INFORMATION

Configurable Item		Standard item ¹¹⁾
K-FS22 – 1 - 2 - 3		
Options		1-FS22DI-ST/4CH
1	01 - Standard (ST) - FC/APC; 03 - Standard (ST) - SC/APC; 11 - 19" rack (RM) - FC/APC; 13 - 19" rack (RM) - SC/APC	1-FS22DI-ST/8CH
2	500 - Dynamic (up to 1000S/s)	
3	120 - 1 optical connector; 420 - 4 optical connectors; 820 - 8 optical connectors	

¹¹⁾ Standard Items correspond to a configuration: Standard format and FC/APC connectors. With 4 or 8 optical connectors.

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 They are not to be understood as a guarantee of quality or durability.