TEMPERATURE SENSORS

engionic Fiber Optics

BENEFITS

- Immune to electromagnetic interference
- High sensitivity and fast responsiveness to temperature change
- Robust design and high physical stability
- Single-point sensor systems and multipoint-sensor-array systems for high spatial resolutions
- Minimum cabling and space requirements
- Large distances, without the need of amplification (>20km)
- Intrinsically passive
- Accurate and distributed temperature profiles can be mapped out in real time

PRODUCT RANGE

ST150 Standard	-30 to 150°C
ET300 Elevated	30 to 300°C
HT500 High temp.	up to 500°C
XT700 Xtra high temp.	up to 700°C

FBG SPECIFICATIONS

Wavelength:	1,460nm to 1,620nm*
Reflectivity:	~50%*
SLRS:	> 15dB
FWHM:	~0,3nm*

Our FBG specifications are suitable for all commercially available interrogation units

KEY FEATURES

Grating type:	FEMTO or FEMTO*Plus*®
Fiber Type:	SMF-28 compatible
Thermal response:	~ 12pm/°C
Response time:	~ 100ms

*Other values upon request

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DESIGN OPTIONS

# of FBGs	Housing	Length	Sensor length	Sensor spacing	Sensor position
1-20	steel probe	up to 2m	1 – 10mm	Standard >5mm Min <1mm	Free of choice

Sensor type	Housing material	Outer diameter	Connectors	Pigtails
ST150 Standard	1.4404 & 1.4301	min 1mm	LC/APC FC/APC FC/PC E2000	Custom length and buffer (PVC, PTFE, flexible steel)
ET300 Elevated	1.4404 & 1.4301			
HT500 High temp.	1.4841			
XT700 Xtra high temp.	1.4841			

SENSOR CALIBRATION

Sensor type [1]	Accuracy[2] in probe config.[3]
ST150 Standard	+/- 0,5°C
ET300 Elevated	+/- 2,0°C
HT500 High temp.	+/- 3,0°C
XT700 Xtra high temp.	+/- 4,0°C

- Individual sensor calibration according to DIN EN 60751 Class B standard for Pt100 temperature probes and fiber optic temperature probe guideline VDI/VDE 2660 (currently in preparation)
- Highest calibration accuracy through high-end calibration equipment: FLUKE 1586A-2588 DAQ-STAQ Multiplexer incl. 1586A Super DAQ Precision Temperature Scanner and Platinum Resistance Thermometer (PRT) reference, Model 1913-4-7/SN:4546

[1] For HT500 and XT700 at elevated temperature operation, regular recalibration will be required, due to expected drift at maximum operation temperature of about 1,5K per month (HT500) and 1.5K per week (XT700).
[2] To achieve specified accuracy, a reference measurement with customer measurement unit in installation condition within sensor calibration range for absolute temperature reference is required.
[3] For Sensors in other configurations, the expected accuracy will be lower. Depending on geometry and installation conditions, it may be about two times the given probe accuracy.

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