

TEMPERATURE SENSORS

Fiber optic sensor product range for temperature measurement

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 FEMTOPlus®
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	Custom length and buffer (PVC, PTFE, flexible steel)
ET300 Elevated	1.4404 & 1.4301		FC/APC	
HT500 High temp.	1.4841		FC/PC	
XT700 Xtra high temp.	1.4841		E2000	

SENSOR CALIBRATION

Sensor type ¹	Accuracy ² in probe config. ³	
ST150 Standard	+/- 0,5°C	<ul style="list-style-type: none"> 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
ET300 Elevated	+/- 2,0°C	
HT500 High temp.	+/- 3,0°C	
XT700 Xtra high temp.	+/- 4,0°C	

¹ For HT500 and XT700 at elevated temperature operation, regular recalibration will be required, due to expected drift at maximum operation temperature of about 1K per month.

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.