# FX Series Data Sheet

FX Series

The FX series thermo sensors made out of fluorocarbon plastic like PTFE are specially designed for monitoring the temperature of ultrapure water, chemicals and gases for the semiconductor, photovoltaic or other related industries. Due to the innovative sealing and used sapphire sensing technology, no contamination, liquid entrapping or rapid aging effects takes place. The monitoring of aggressive ultra pure fluids or gases without sensing drifts over long periods of time are guaranteed. Patent granted.

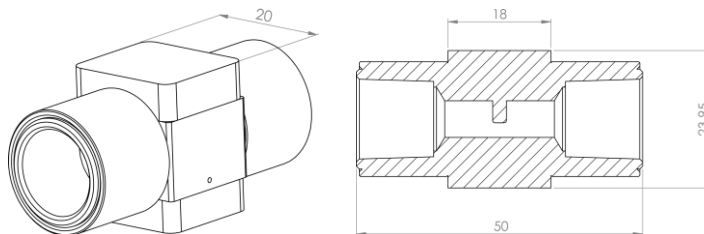## >> immediate temperature sensing for chemicals <<
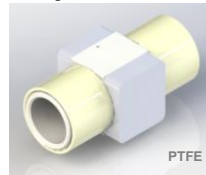
PTFE

- Measuring characteristics as per DIN EN 60751
- Best accuracy, repeatability and stability
- Ultra fast response time
- 100 % virgin PTFE wetted parts for high purity and corrosion resistance
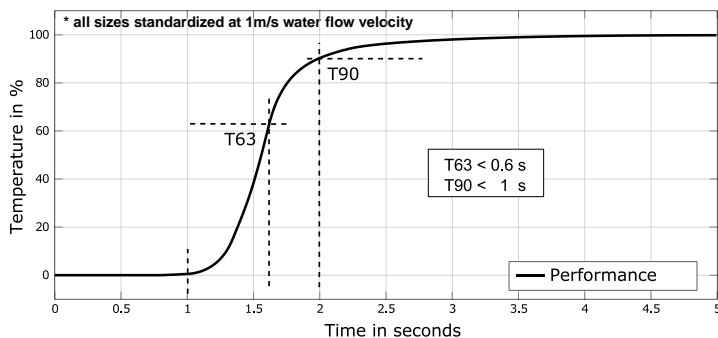- PT100 or PT1000 measuring technology
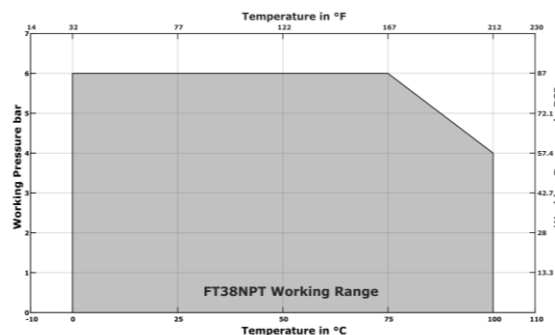- Screw-mounting capability

Specifications

Dimensions

FXSize	Thread Size	Nominal Diameter	L x W x H
FX14	¼" NPT Thread	6,4mm	50mm x 20mm x 23,95 mm

Performance

* all sizes standardized at 1m/s water flow velocity

T63 < 0.6 s
T90 < 1 s

Maximum pressure vs. tube size

FT38NPT Working Range

specification sensor	temperature range[1]	10 °C to 90 °C (50°F to 194°F)[6]
	applicable chemistry	virtual any chemistry
	maximal working pressure[2]	check out max. pressure for specific temperature and sensor size in pressure graph
specification sensing element (PT100, PT1000)	measuring range[1]	±0°C to 150°C (32°F to 302°F)
	accuracy[3]	±0.25°C (±0.45°F) @ 90°C (194°F) standard | up to ±0.075°C (±0.135°F) on request
	interchangeability[3]	±0.13°C (±0.234°F) @ 20°C (68°F) standard | up to ±0.04°C (±0.072°F) on request
	long term stability @ 150°C	less than 0.04%
	element response time T50 {T63} in water stream (v = 0.4m/s)	0.05 sec {0.08 sec}
sensor rise time[3]	T63 {T90}[4]	< 0.6 sec {< 1.0 sec} @ 1m/s (purified water)
wetted material	thermal conduction element	Al2O3 (99.99987% purity)[7]
	body	100% virgin PTFE
material - no media contact	top and bottom cover	PVDF
	sensing element	platinum thin film element
	fixing elements	stainless steel screws (A4 grade)
	cable	4 line shielded litz wire FEP insulation
	sealing	Perfluorelastomer FFKM (ultra pure)
fluid connection	available size[5]	3/8" screw-mounting
pressure drop coeff.	FNPT 1/4"	Cv = 7.73 [US gpm] | Kv = 6.68 [m3/h]

[1] higher temperature on request | [2] higher pressure on request | [3] class F0.1 DIN standard (higher on request) | [4] time to reach 63% {90%} of final value for hole sensor assembly | [5] customized size on request | [6] HF49% limited to 80°C (176°F) | [7] other material on request

Note: Information presented enclosed is subject to change as product enhancements are made on a regular basis.

CE RoHS FT_REV1.0

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Technical Data Sensing Elements (PT100 / PT1000)*

Type:	Platin thin film element (thin film technology)
Specification:	DIN EN 60751:2009-05
Standard temperature range:	-0°C to +150°C (32°F to +302°F)*
Standard temperature coefficient:	PT100 (PT1000)	TCR = 0.00385K^{-1} *
Standard tolerance class:	standard: F0.1	optional: 1/5 DIN B, 1/10 DIN B*
Recommended applied current:	1mA @ 100Ω (0.3mA @ 1000Ω)

*other tolerance classes, temperature ranges, temperature coefficients or ohmic values on request

Technical Data Cable

Type:	4 wire cable / shielded / FEP insolation
Specifications:	MIL-C-27500, MIL-W-16878 and ASTM-B-298
Temperature range:	-200°C to +200°C (-328°F to +392°F)
Insulation class:	ET+ (up to 250V AC eff)
Type litz wire:	silver plated copper wire

Connection Plan
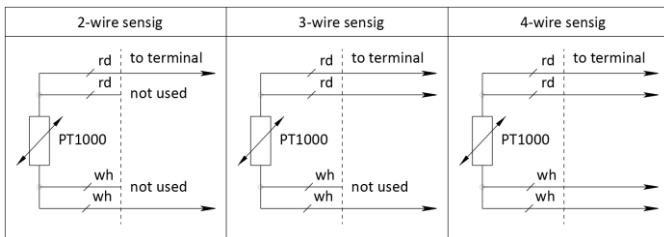
Note: don't connect wires which are not used, it will effect accuracy!

Scope of delivery
- Cable length: customer specific
- PTFE housing

Orientation and flow direction

Sensor labeling according DIN EN 60751:2009-05

Example:

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 1 x Pt100/F0.1/4/+10/+90

Pressure drop coefficient Cv

$$Q = Cv\sqrt{\frac{DP}{SG}}$$

Q flow (US gallons per minute)
DP pressure difference (psi)
SG specific gravity (dimensionless)
SG 1 in case of water

Optional: Contact manufacturer for specific fitting assembly, different cable length or different class/type of sensor element.

CE

RoHS