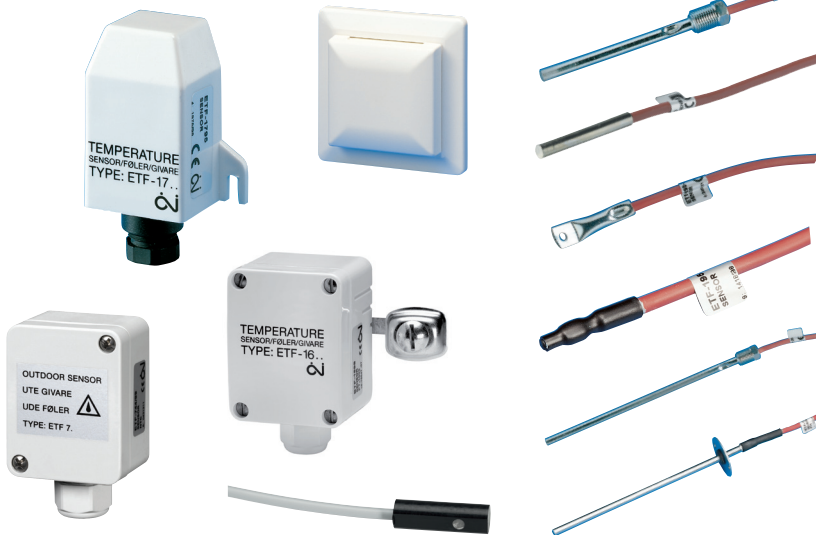
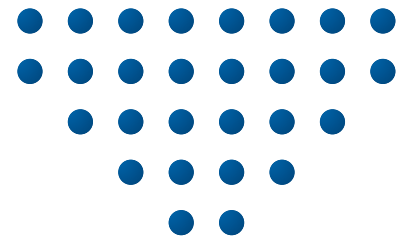


ETF

NTC 12k



HVAC CONTROLS AND POWER

# All-purpose temperature sensors

ETF is a range of temperature sensors designed for use in heating, ventilation and cooling systems, etc.

No one temperature sensor satisfactorily meets all needs. The requirements to be met must therefore be carefully considered.

Is temperature to be measured in a swimming pool complex, for example, or in an aggressive liquid or flue gas?

All major parameters have been taken into consideration in the design of our ETF sensors, including: measured temperature, mechanical load, corrosion, erosion and required response time.

## APPLICATIONS

The ETF range consists of a variety of temperature sensors, each specially designed and engineered to suit its own particular purpose:

ETF-122/ETF-144-99A is suitable for measuring floor temp.

ETF-422 is suitable for liquids and gases.

ETF 522 is a universal sensor suitable for machine parts.

ETF-622 is a surface sensor for pipes and machine parts.

ETF-744/99 is suitable for measuring outdoor temperature.

ETF-822 is a stainless steel sensor suitable for liquids.

ETF-944/99H is a room temperature sensor in OJ design.




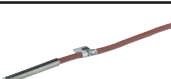
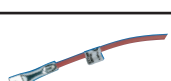








ETF-1133/44/55 is a multi-purp. sensor w. mounting flange.

ETF-1633/44/55 is a surface sensor for piping systems.

ETF-1733/44/55 is an outdoor temperature sensor.

ETF-1899A is a surface temperature sensor.

ETF sensors are designed to provide our customers with an advantageous combination of high quality, accurate measurement and low life cycle costs.

Sensor	Type	Dimensions	Sensor element (NTC 12k@25°C)	Material	Applications
	ETF-122	Ø6.5 x 30 mm 2.5 m cable	NTC 12k +25°C = 12 kΩ Range -40°C-+120°C	Polyolefin Ceramic Stainless AISI 316	Universal sensor e.g. floor sensor
	ETF-144/99A	Ø6.5 x 30 mm 2.5 m cable	NTC 12k +25°C = 12 kΩ Range -20°C-+70°C	ABS plastic PVC insulated	Universal sensor e.g. floor sensor
	ETF-422	Ø6.5 mm, L100 mm ¼" pipe, 2.5 m cable Max. pressure 6 atm	NTC 12k +25°C = 12 kΩ Range -40°C-+120°C	Brass	Non-aggressive liquids and media
	ETF-522	Ø6.5 mm, L50 mm 2.5 m cable Max. pressure 0.5 atm	NTC 12k +25°C = 12 kΩ Range -40°C-+120°C	Brass	Universal sensor Machine parts
	ETF-622	8 x 12 mm Hole Ø3.5 mm 2.5 m cable	NTC 12k +25°C = 12 kΩ Range -40°C-+120°C	Copper	Machine parts Surfaces
	ETF-744/99	86x45x35mm	NTC 12k +25°C = 12 kΩ Range -20°C-+70°C	ABS plastic Melamine	Wet environments Outdoors
	ETF-822	Ø6.5 mm, L200 mm ¼" pipe, 2.5 m cable Max. pressure 6 atm	NTC 12k +25°C = 12 kΩ Range -40°C-+120°C	Brass Stainless AISI 316	Non-aggressive liquids and media
	ETF-944/99H	80 x 80 x 16 mm IP20	NTC 12k +25°C = 12 kΩ Range -20°C-+70°C	Bayblend noryl	Room sensor Dry rooms Indoors
	ETF-1133/44/55	Ø6.5 x 200 mm Flange 2.5 m cable	NTC 12k +25°C = 12 kΩ Range -20°C-+70°C	Brass	Non-aggressive liquids and gases
	ETF-1633/44/55	60 x 30 x 30 mm Max. pipe diam. 50 mm Incl. clamp IP54	NTC 12k +25°C = 12 kΩ Range -50°C-+70°C	Polycarbonate Stainless AISI 316	Pipe surfaces
	ETF-1733/44/55	55 x 52 x 27 mm IP54	NTC 12k +25°C = 12 kΩ Range -40°C-+70°C	Polycarbonate	Wet environments Outdoors Non-aggressive
	ETF-1899A	Ø12.0 x 40 mm 2.5 m cable Flat on sensor side Excl. clamp	NTC 12k +25°C = 12 kΩ Range -20°C-+70°C	Polycarbonate	Universal sensor for surfaces
	ETFL-2	Ø7 mm L100 mm ¼" thread		Brass	Sensor pocket Non-aggressive

**NTC 12k resistance table**

-20°C = 112246Ω	11°C = 22300Ω	16°C = 17750Ω	21°C = 14238Ω	26°C = 11506Ω	35°C = 7978Ω	60°C = 3201Ω
-10°C = 63929Ω	12°C = 21292Ω	17°C = 16974Ω	22°C = 13636Ω	27°C = 11035Ω	40°C = 6569Ω	70°C = 2306Ω
0°C = 37942Ω	13°C = 20335Ω	18°C = 16237Ω	23°C = 13064Ω	28°C = 10587Ω	45°C = 5442Ω	80°C = 1692Ω
5°C = 29645Ω	14°C = 19428Ω	19°C = 15537Ω	24°C = 12519Ω	29°C = 10159Ω	50°C = 4535Ω	90°C = 1263Ω
10°C = 23364Ω	15°C = 18567Ω	20°C = 14871Ω	25°C = 12000Ω	30°C = 9752Ω	55°C = 3800Ω	100°C = 958Ω

**CE MARKING**

ETF sensors meet the requirements contained in the following directive:

MACHINERY DIRECTIVE  
89/392/EEC