

EMS-TL-STC

Matched clamp-on surface temperature pair, PT100

Two thin-film elements clamped to the pipe surface and calibrated together on one record, for retrofit on a closed pipe run

EMS-TL-STC carries the same matched, calibrated pair logic as the wetted pair, because two unmatched sensors at ± 1 °F still put almost 50 % uncertainty on a 5–10 °F supply-to-return difference. It is a clamp-on and strap-on build, which is the only non-invasive option where the pipe cannot be opened on a brownfield rack, and it is calibrated on one record as one part number. The failure it exists to catch is a retrofit ΔT channel that reads the insulation rather than the fluid and is never corrected.

ORDERING INFORMATION

Part number	EMS-TL-STC
Supplied as	One matched pair, two sensors on one calibration record
Element	Thin-film PT100
Tolerance class	IEC 60751 Class A, class name only
Mounting	Clamp-on / strap-on, non-invasive
Measuring range	Narrowed to the loop envelope
Wetted material	None: the sensor does not enter the fluid path
Replacement	Order the pair, not one sensor

MEASUREMENT

Parameter	Value	Notes
Element	Thin-film PT100	Platinum resistance element, 100 Ω at 0 °C
Tolerance class	IEC 60751 Class A	Class name only
Temperature accuracy	Stated as an IEC 60751 class, not as a $\pm$ °C figure and not as a percent of range	The class tolerance in degrees is not published: the research did not verify it from a retrieved primary document
Measuring range	Narrowed to the loop envelope	The full –40 to +150 °C industrial range is the wetted build EMS-TL-ST; the clamp-on reading is bounded by the pipe surface the strap sees
Pairing	Both sensors calibrated together on one record and shipped as one pair	Same bath, same reference, same session, two serials on one sheet
Differential-temperature uncertainty	Two unmatched ± 1 °F sensors put almost 50 % uncertainty on a 5–10 °F difference	Pairing is the specification; tolerances otherwise add
Channel naming	Supply and return as separate channels	Matches production CDU channel practice
Quantity per part number	2 sensors	One supply channel and one return channel

INSTALLATION

Parameter	Value	Notes
Mounting	Clamp-on / strap-on	The only non-invasive option where the pipe cannot be opened on a brownfield rack

Parameter	Value	Notes
Pipe surface preparation	Clean, bare metal under the sensor face	Paint, scale or lagging under the strap adds an unknown offset
Insulated-pipe correction	Required where the pipe is lagged	A clamped sensor under insulation reports the pipe wall it is strapped to; the installation must be recorded so the same offset is applied to both channels
Wetted material	None: no part of the sensor enters the fluid path	No seal material is introduced into the loop by this instrument
Ambient envelope of the unit it serves	0–40 °C operating, –40 to 70 °C storage	Published CDU envelope, quoted for context

CALIBRATION RECORD AND REPLACEMENT

Parameter	Value	Notes
Calibration record	One record covering both sensors	Two serial numbers on one sheet; the record travels with the pair
Record contents	Bath, reference and session, common to both sensors	The record does not carry a class tolerance in degrees
Replacement rule	Replacing one sensor of a pair breaks the pairing	Order the pair, not the sensor
Comparison against the wetted build	Same element and same pairing rule as EMS-TL-ST	The difference between the two codes is the mounting, not the measurement chain

APPLICATIONS

- Retrofit ΔT measurement on a rack or row loop that cannot be drained
- Supply and return channels added to an existing pipe run
- Temporary commissioning measurement where a thermowell is not available

COMPATIBLE WITH

- EMS-TL-K100, EMS-TL-K300, EMS-TL-K800 and EMS-TL-K2300 kits
- EMS-TL-G10, EMS-TL-G25 and EMS-TL-G50 gateways, universal input channels
- EMS-TL-SDP, EMS-TL-SF, EMS-TL-SFU, EMS-TL-SL and EMS-TL-SK instruments

SCOPE

- Sensors and their calibration record: coolant distribution units and cold plates are outside this scope

TEMPERATURE INSTRUMENT LADDER

Parameter	Value	Notes
EMS-TL-ST	Matched supply-and-return pair, wetted	Thermowell or compression fitting
EMS-TL-STC	Matched clamp-on surface pair	Retrofit where the pipe cannot be opened

NOTES

- The element tolerance class is named as IEC 60751 Class A. The class tolerance in degrees is not published because the research did not verify it from a retrieved primary document.

- The measuring range of the clamp-on build is narrowed to the loop envelope; the wide industrial range is claimed for the wetted build EMS-TL-ST.
- Clamp-on measurement on a lagged pipe carries an offset that must be recorded and applied to both channels of the pair, or the pairing advantage is lost in installation.
- An IP rating is not specified for this product class.
- Certification names are published on the badge cards; approval documents are shown on request.
- Scope: no coolant distribution units and no cold plates.

Full specification sheet and current pricing	EMS-TL-STC
EMS-Trade Cooling · ems-cool.com	Rev. A
Typical lead time confirmed on order acknowledgement.	2026-09-19