

EMS-TL-K300

Loop telemetry kit, row 100–300 kW

Matched pair, flow, two differential-pressure ranges, level and two leak channels as one part number for a row-class loop

A row loop's supply-to-return difference is the same fragile 5–10 °F measurement as a single rack's, and two unmatched sensors at ± 1 °F still put almost 50 % uncertainty on it, so K300 keeps the matched, calibrated pair on one record as one part number. It covers the 20 GPM (≈ 75 L/min) secondary-flow class with an electromagnetic flow run, adds a 0–400 kPa differential-pressure range beside the 0–100 kPa filter range, and carries two leak channels. The failure it exists to catch is a row that is commissioned on a capacity figure nobody can re-measure later.

ORDERING INFORMATION

Part number	EMS-TL-K300
Loop class	Row, 100–300 kW
Loop flow covered	20 GPM secondary class (≈ 75 L/min)
Differential-pressure ranges	0–100 kPa filter duty and 0–400 kPa loop duty
Leak channels	2
Temperature range	–40 to +150 °C
Flow accuracy	± 0.5 % of reading standard, over 20–100 % of flow
Gateway	Ordered separately: EMS-TL-G10, EMS-TL-G25 or EMS-TL-G50

KIT IDENTIFICATION AND LOOP SIZING

Parameter	Value	Notes
Kit part number	EMS-TL-K300	One part number; every channel below ships as one delivered set
Loop class	Row, 100–300 kW	Sized from the loop class, then from the flow it must cover
Loop flow range to be covered	20 GPM (≈ 75 L/min) secondary class	Taken from published CDU secondary-flow classes
Kit boundary	Instruments and consumables for the loop	No coolant distribution units and no cold plates
Gateway	Not included on this code	Add EMS-TL-G10, G25 or G50 where the loop has no BMS point list of its own

TEMPERATURE CHANNEL (MATCHED PAIR)

Parameter	Value	Notes
Temperature channel	Matched supply-and-return pair, thin-film PT100	Both elements calibrated together on one record and shipped as one pair
Temperature accuracy	IEC 60751 Class A element tolerance, class name only	The class tolerance in degrees is not published: the research did not verify it from a retrieved primary document
Differential-temperature uncertainty	Two unmatched ± 1 °F sensors put almost 50 % uncertainty on a 5–10 °F difference	Pairing is the specification; separate tolerances add
Temperature measuring range	–40 to +150 °C	Industrial envelope of the element

Parameter	Value	Notes
Channel naming	Supply and return as two separate channels	Matches production CDU channel practice
Replacement rule	Order the pair, not one sensor	One replacement sensor breaks the pairing

FLOW CHANNEL

Parameter	Value	Notes
Flow channel	Electromagnetic flow meter, DN25 kit default	Chosen for a conductive, glycol-bearing or facility-water loop
Flow range at DN25	0.5–18 m³/h (≈8–300 L/min), turndown ≈36:1	Covers the 20 GPM class with wide margin
Flow accuracy	±0.5 % of reading standard; ±0.2 % of reading special	Percent of reading, not percent of full scale. Specified over 20–100 % of flow at 10 m/s
Minimum fluid conductivity	5 µS/cm	Below the floor the meter reads near zero without raising a fault; use EMS-TL-SFU on a de-ionised loop
Velocity band	0.3–10 m/s; low-flow cut-off about 0.1 m/s	Optimal accuracy near 2–4 m/s
Straight-run requirement	5× DN upstream and 3× DN downstream	Omitting the runs adds about 1.5 % of reading
Flow accuracy basis	ISO 20456:2020-03	Reference basis stated by the meter documentation

DIFFERENTIAL PRESSURE, LEVEL AND LEAK CHANNELS

Parameter	Value	Notes
Differential-pressure channels	0–100 kPa filter duty and 0–400 kPa loop duty	Two ranges because filter health and loop pressure drop move on different scales
Differential-pressure accuracy	±0.075 % FS standard; ±0.05 % FS high accuracy	Percent of full scale, not percent of reading
Range compression	10:1 standard, 100:1 optional	Compression is what puts a small working span inside a large nominal range
Differential-pressure stability	±0.1 % of maximum range per 12 months	Transmitter drift only
Filter change-out context	35 psid (≈2.4 bar) trigger; 60 psid (4.1 bar) terminal at 20 °C	Terminal and trigger figures are element figures; the clean start on a 2 µm element is 0.17 bar (2 psid)
Level channel	Optical reflective-prism point switch	Analogue reservoir level is added on EMS-TL-K800
Leak channels	2 channels	2-wire rope detects; 4-wire rope detects and locates
Alarm logic	Two-of-two for automatic intervention	Either sensor alone alarms; both together permit intervention

MATERIALS, SUPPLY AND ENVIRONMENT

Parameter	Value	Notes
Wetted materials	316L stainless steel, peroxide-cured EPDM	Brass only where dezincification resistance is verified to ISO 6509 at $\leq 100\text{ }\mu\text{m}$ depth The 100 μm figure is a dezincification penetration depth under ISO 6509: it is not a protection rating, a commissioning staging step or an inlet strainer rating.
Supply	24 VAC/DC at the gateway; 10–36 V DC or 90–260 V AC at the flow transmitter	Two supplies because the devices are separate
Gateway operating envelope	–20 to 60 °C, 5–95 % RH non-condensing	Applies to the EMS-TL-G enclosure; no enclosure IP rating is published for it
Fluid this kit is specified for	Glycol-premix or facility-water loop	Conductivity 50–300 $\mu\text{S/cm}$ and pH 7.0–9.0 on this loop type

APPLICATIONS

- Row-level instrumentation where two ranges of differential pressure are both in use
- Filter health monitoring with a change-out trigger that can be trended
- Two-point leak supervision across a row manifold or two rack boundaries
- Loops that need a recorded ΔT and flow baseline at commissioning

CHANNELS DELIVERED

- Temperature: matched supply-and-return PT100 pair on one calibration record
- Flow: electromagnetic run, DN25 default, 0.5–18 m^3/h
- Differential pressure: 0–100 kPa and 0–400 kPa ranges, $\pm 0.075\%$ FS standard
- Level: optical reflective-prism point switch
- Leak: two channels, 4-wire rope detects and locates

COMPATIBLE WITH

- EMS-TL-ST and EMS-TL-STC temperature pairs
- EMS-TL-SF and EMS-TL-SFU flow instruments
- EMS-TL-SDP differential-pressure transmitter
- EMS-TL-SL level devices and EMS-TL-SK leak channel input module
- EMS-TL-G10, EMS-TL-G25 and EMS-TL-G50 gateways

SCOPE

- Instrumentation for the loop: coolant distribution units and cold plates are outside this scope

KIT LADDER BY LOOP CLASS

Parameter	Value	Notes
EMS-TL-K100	Single rack, up to 100 kW · 10–100 L/min	Matched pair, one flow run, DP 0–100 kPa, level point switch, 1 leak channel
EMS-TL-K300	Row, 100–300 kW · 20 GPM ($\approx 75\text{ L/min}$) secondary class	Adds DP 0–400 kPa and a second leak channel
EMS-TL-K800	Row, up to 800 kW · 90 GPM ($\approx 340\text{ L/min}$) secondary class	Adds analogue reservoir level
EMS-TL-K2300	Room, 2.3 MW class · up to 340 GPM ($\approx 1\,300\text{ L/min}$) secondary	Adds 4 leak channels and a second flow run

NOTES

- The kit is our own configuration of the documented sensor, transmitter and gateway models listed under Compatible with; every row above belongs to those models.
- Flow accuracy is percent of reading and differential-pressure accuracy is percent of full scale; the two bases are labelled separately on every row.
- The differential-pressure range is nominal and the accuracy is quoted against full scale, so a 400 kPa transmitter working across a 30–150 kPa pressure drop carries a wider error than the headline figure suggests.
- Pipework design envelope for the loops these kits serve: 6.9 bar (100 psig) nominal operating pressure and 60 °C (140 °F) fluid temperature.
- 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-K300
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