EMS-CF-WQ-PC

Inline particle counter and contamination monitor, 3-channel, ISO 4406

Particulate classification on a bypass, with an ISO 16232 and VDA 19.1 companion method

An inline particle counter performing 3-channel contamination measurement to the ISO 4406 classification framework, rated 350 bar and IP65–67 with a 4–20 mA output and manifold mounting. The companion contamination monitor adds RS485, Modbus, CANbus and 4–20 mA, humidity and temperature sensing, 4000 stored results, a 420 bar rating and a die-cast aluminium housing. The 350 bar and 420 bar figures are hydraulic-system ratings: a side-stream vessel is published to 150 psi (10.3 bar), so those figures are headroom rather than a loop requirement, and the ISO 4406 numeric code range held is confirmed at order.

ORDERING INFORMATION

Part number	**EMS-CF-WQ-PC**
Instrument	**Inline particle counter and contamination monitor**
Measurement channels	**3**
Classification framework	**ISO 4406**
Output	**4–20 mA; monitor adds RS485, Modbus, CANbus**
Mounting	**Manifold mounting**
Ingress protection	**IP65–67**
ISO 4406 code range held	**Open — confirmed at order**

MEASUREMENT AND CLASSIFICATION

Parameter	Value	Notes
Measurement channels	**3-channel contamination measurement**	Published channel count for the inline counter
Classification framework	**ISO 4406**	Developed for hydraulic fluids and used for coolant loops; cited as a classification framework only, and no counting volume is published here
ISO 4406 numeric code range held	**Open — not published**	The source research could not verify the code range held by the instrument; confirmed against the supplier document at order
Calibration basis	**ISO-calibrated**	Published description of the monitor; no certificate or registration identifier is published
Companion component standards	**ISO 16232 and VDA 19.1**	Flush extraction onto a filter membrane for automatic optical analysis; governs component cleanliness rather than loop fluid
Accuracy	**Open — not published**	Confirmed against the supplier document at order
Resolution	**Open — not published**	Confirmed against the supplier document at order

INLINE PARTICLE COUNTER

Parameter	Value	Notes
Maximum working pressure	**350 bar**	A hydraulic-system rating. A side-stream vessel is published to 150 psi (10.3 bar), so this figure is headroom on a coolant loop and not a loop requirement

Parameter	Value	Notes
Output signal	**4–20 mA standard**	Published standard output
Mounting	**Manifold mounting**	Published installation arrangement
Ingress protection	**IP65–67**	Published rating for the counter
Process connection	**Manifold mounting**	Specific thread and port size confirmed against the supplier document at order
Supply voltage	**Open — not published**	The source research publishes no supply figure; confirmed at order
Calibration interval	**Open — not published**	No interval is published in the source research; confirmed at order

CONTAMINATION MONITOR

Parameter	Value	Notes
Outputs and protocols	**RS485, Modbus, CANbus and 4–20 mA**	Published output set for the monitor
Additional sensing	**Humidity and temperature**	Sensing published alongside the particle channels
Stored results	**4000 test results**	Onboard storage
Maximum working pressure	**420 bar**	A hydraulic-system rating; a side-stream vessel is published to 150 psi (10.3 bar), so this figure is headroom and not a loop requirement
Ingress protection	**IP65/67**	Published rating for the monitor
Housing material	**Die-cast aluminium**	Published housing construction
Supply voltage	**Open — not published**	Confirmed against the supplier document at order

TARGETS THE READING SITS AGAINST

Parameter	Value	Notes
Loop particulate target	**Turbidity below 1 NTU**	A proxy for suspended particulate used alongside the count
Conductivity band, glycol-premix or facility-water loop	**50–300 µS/cm**	Glycol is a weak electrolyte; the loop type is named because the band does not apply to a de-ionised loop
Conductivity band, de-ionised technology cooling loop	**0.2–20 µS/cm**	A near-DI technology cooling loop with no glycol is held here
pH band, glycol-premix or facility-water loop	**7.0–9.0 pH**	Set by the metallurgy of the loop
pH band, de-ionised technology cooling loop	**8.0–9.5 pH**	The technology cooling side of the ASHRAE split
Change-out record fields	**ΔP at change; hours in service; ISO 4406 code trend; fluid appearance**	The ISO 4406 trend belongs in the same record as the element change
Verification boundary	**Inline counting is a trend instrument**	The laboratory panel, every 50–100 days or quarterly, is the reference

APPLICATIONS

- Particulate classification on a side-stream bypass
- Trend of loop cleanliness between element changes

- Verification that a staged filter train is holding its target
- Component cleanliness work to ISO 16232 and VDA 19.1 on the bench

COMPATIBLE PRODUCTS

- EMS-CF-WQ-NTU turbidity instrument for the optical proxy
- EMS-CF-FP-DP element differential-pressure monitor
- EMS-CF-S10 side-stream unit on the same header
- EMS-CF-F5-20 cartridge element in the stage upstream

PARTICLE INSTRUMENTATION

Parameter	Value	Notes
Inline particle counter	**3-channel, ISO 4406, 350 bar, 4–20 mA**	Manifold mounting; IP65–67
Inline contamination monitor	**ISO-calibrated, RS485, Modbus, CANbus, 4–20 mA**	4000 stored results; 420 bar; IP65/67; die-cast aluminium
Component-level method	**ISO 16232 and VDA 19.1**	Flush extraction onto a filter membrane for automatic optical analysis

WATER-QUALITY INSTRUMENT LADDER

Parameter	Value	Notes
EMS-CF-WQ-C	**Contacting conductivity cell**	0.04–200 µS/cm across the published fine cell constants
EMS-CF-WQ-CI	**Inductive conductivity cell**	Spans both the de-ionised and the glycol-premix or facility-water band
EMS-CF-WQ-PH	**Process pH sensor**	1–12 pH, 0–14 pH and 0–10 pH application variants
EMS-CF-WQ-NTU	**Turbidity instrument**	Polices the below-1 NTU loop target
EMS-CF-WQ-G	**Glycol refractometer**	0.0–90.0% (V/V) with 0.2% (V/V) resolution
EMS-CF-WQ-PC	**Particle counter and contamination monitor**	3-channel measurement to ISO 4406

NOTES

- The 350 bar and 420 bar figures are hydraulic-system ratings. A side-stream vessel on a liquid cooling loop is published to 150 psi (10.3 bar) and proof-tested at 1.5× that figure under IEC 62368-1, about 15.5 bar (derived), so these pressure ratings are headroom and not a loop requirement.
- ISO 4406 is cited as a classification framework only. No counting volume is published, and the numeric code range the instrument holds is confirmed against the supplier document at order.
- The ISO 4406 trend is recorded beside the element differential pressure, the hours in service and the fluid appearance at every change-out.
- Conductivity and pH bands published on this datasheet are labelled by loop type: 50–300 µS/cm and pH 7.0–9.0 on a glycol-premix or facility-water loop; 0.2–20 µS/cm and pH 8.0–9.5 on a de-ionised technology cooling loop.
- Inline counting is a trend instrument; the laboratory panel every 50–100 days or quarterly is the reference, and ISO 16232 and VDA 19.1 govern component cleanliness rather than the loop fluid.

Full specification sheet and current pricing
EMS-Trade Cooling · ems-cool.com
Typical lead time confirmed on order acknowledgement.

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