

Process Instrumentation

Product information for five Endress+Hauser instruments

This sheet covers five instruments for the main process measurements: flow (**Promag W 400**), level (**Micropilot FMR60B**), pressure (**Cerabar PMP71B**), temperature (**iTHERM ModuLine TM131**) and liquid analysis (**Liquiline CM444**).

At a glance

Product	Measures	Range	Accuracy	Communication
Proline Promag W 400	Flow (electromagnetic)	DN 25 to DN 3000	+/-0.5% (+/-0.2% option)	HART, PROFIBUS DP, EtherNet/IP, Modbus RS485
Micropilot FMR60B	Level (80 GHz radar)	Up to 50 m	+/-1 mm	4-20 mA HART, PROFIBUS PA, PROFINET Ethernet-APL
Cerabar PMP71B	Pressure	Up to 700 bar	+/-0.05% (platinum +/-0.025%)	4-20 mA HART, PROFINET Ethernet-APL
iTHERM ModuLine TM131	Temperature	-200 to +1,100 C**	IEC 60751 Class A / AA	4-20 mA, HART, PROFIBUS PA, FOUNDATION Fieldbus
Liquiline CM444	Liquid analysis	4 Memosens channels	Sensor dependent*	PROFIBUS DP, Modbus, EtherNet/IP, PROFINET, HART

Common features

- Digital communication on all five: HART, PROFIBUS or fieldbus protocols, and Ethernet-APL or PROFINET on the newer devices
- Bluetooth with the SmartBlue app is offered on the Micropilot FMR60B, Cerabar PMP71B and iTHERM TM131
- Explosion protection approvals are available across the range (ATEX, IECEx, CSA and others, depending on the device)
- Heartbeat Technology diagnostics and verification on supported devices such as the Micropilot FMR60B

Product profiles

Proline Promag W 400

Electromagnetic flowmeter for water and wastewater

Electromagnetic flowmeter for drinking water, utility water and municipal or industrial wastewater, with a transmitter that can be mounted on the sensor or remotely.

- Nominal diameters DN 25 to DN 3000 (1 to 120 inch); pressure ratings up to PN 40, Class 300 and 20K
- Accuracy $\pm 0.5\%$ or ± 1 mm/s as standard; $\pm 0.2\%$ or ± 2 mm/s with the premium Flat Spec option
- Liners of hard rubber (0 to 80 C), polyurethane (-20 to 50 C) or PTFE (-20 to 90 C); electrodes in 316L, Alloy C22 or tantalum
- Three outputs: 4-20 mA HART, pulse, frequency and switch; 4-line backlit touch display
- Custody transfer approval (MI-001 / OIML R49) and drinking water certificates (ACS, KTW/W270, NSF 61, WRAS)
- Supply 100 to 240 V AC or 24 V AC/DC

Micropilot FMR60B

80 GHz radar level sensor for liquids

Non-contact W-band radar for continuous level measurement in liquids. The narrow beam suits vessels with many internal fittings.

- Frequency about 80 GHz; maximum measuring distance 50 m
- Accuracy ± 1 mm; process temperature -40 to +200 C; pressure from vacuum to 20 bar
- Outputs: 4-20 mA HART, PROFIBUS PA or PROFINET with Ethernet-APL; optional Bluetooth with the SmartBlue app
- SIL 2 according to IEC 61508; overfill protection (WHG)
- Threaded (G3/4, 1-1/2 inch) and UNI flange (DN 80 to DN 150) connections; Heartbeat Technology

Cerabar PMP71B

Digital pressure transmitter with metallic process diaphragm

Pressure transmitter with a welded metal diaphragm for absolute and gauge pressure in liquids and gases, also used for level measurement.

- Pressure ranges up to 700 bar; smallest calibratable spans from 80 mbar to 140 bar depending on the cell
- Reference accuracy $\pm 0.05\%$ as standard, down to $\pm 0.025\%$ for platinum versions
- Turn-down up to 100:1 (standard) and 5:1 (platinum)
- Process temperature -40 to +85 C; -70 to +400 C with diaphragm seals
- Diaphragms in 316L, Alloy C276, tantalum or Alloy 400, with optional PTFE coating
- Outputs: 4-20 mA HART or PROFINET with Ethernet-APL; optional Bluetooth; SIL declaration available

iTHERM ModuLine TM131

Modular industrial thermometer (RTD or thermocouple)

Modular thermometer built from a sensor insert, thermowell, process connection and head transmitter, assembled to suit each application.

- Sensors: Pt100 thin-film (-50 to +400 C), wire-wound Pt100 (-200 to +600 C) or thermocouples J, K and N (type K to +1,100 C)
- Accuracy classes A and AA to IEC 60751; response time down to 1.5 s with iTHERM QuickSens
- Vibration resistance above 60 g with iTHERM StrongSens
- Thermowells of 9 to 16 mm in 316L, 316Ti or Alloy 600; threaded, flanged or compression-fitting connections
- Head transmitters with 4-20 mA, HART, PROFIBUS PA or FOUNDATION Fieldbus; optional Bluetooth
- Explosion protection approvals include ATEX, IECEx, FM, CSA and NEPSI

Liquiline CM444

4-channel multiparameter transmitter for liquid analysis

Four-channel transmitter for pH, redox, conductivity, oxygen, chlorine, turbidity and other parameters, using digital Memosens sensors.

- 1 to 4 digital Memosens sensor inputs; optional 2 x 0/4-20 mA and 2 to 4 digital inputs
- Over 12 parameters, including pH, ORP, conductivity, dissolved oxygen, chlorine, turbidity, sludge level, SAC and nitrate
- 2 to 8 current outputs plus alarm and 4 relays
- Protocols: PROFIBUS DP, Modbus RS485 and TCP, EtherNet/IP, PROFINET, HART and a web server
- Plastic housing, 237 x 194 x 162 mm, IP66/IP67; expansion modules with IECEx, ATEX and CSA approvals

Notes and sources

* Accuracy for the Liquiline CM444 depends on the connected Memosens sensor, and its power supply was not stated in the sources used.

** The iTHERM TM131 range depends on the sensor chosen: Pt100 thin-film -50 to +400 C, wire-wound Pt100 -200 to +600 C, type K thermocouple -40 to +1,100 C. The TM131 is also offered in an intrinsically safe version; check the order code.

Ratings for all five devices vary with the order code (materials, connections, approvals), so the figures show the maximum or typical values.

Compiled from Endress+Hauser technical information sheets and product pages for each device, and from distributor data sheets. Confirm against the current Endress+Hauser documentation before quoting or ordering.