

Proline Promag 400

For flow measurement of water and wastewater

Time and cost-saving measuring technology

- Industry-optimized flowmeters with internationally recognized drinking water approvals
- Suitable for pipes up to DN 2400 (90")
- Convenient device configuration in the field using cutting-edge web server technology
- HistoROM: Automatic device backup ensures high plant availability
- Reliable long-term operation underwater or underground thanks to IP68 (Type 6P incl.) and certified corrosion protection (EN ISO 12944)
- Heartbeat verification for reliable fulfillment of traceability requirements in accordance with ISO 9001
- Tried-and-tested sensors: installed successfully in over 1.7 million applications since 1977



Proline

simply clever

Process monitoring is becoming more demanding and the need for maximum product quality is steadily increasing. This is why Endress+Hauser continues to provide industry-specific flow measurement solutions optimized for future technology requirements.

The new generation of our Proline flowmeters is based on a uniform device concept. This means time and cost savings, as well as maximum safety over the entire plant life cycle.

Optimal application solutions Proline incorporates all modern flow measuring technologies, hereby optimizing plant up-time – true to our motto: “The industry-optimized flowmeter for your application”.

Ingeniously simple Proline is user-friendly through and through, ensuring that your process can be securely controlled with confidence.

Perfect integration Proline can be integrated seamlessly into your plant asset management, providing reliable information for optimizing production and business processes.

Added value in every respect



HistoROM

- Automatic data storage ensures maximum plant safety
- Simple data restoration enables quick exchange of components
- Event logbook and data logger for quick failure analysis



Heartbeat Technology™

- Permanent self-monitoring for all Proline measuring technologies
- Diagnostics for reduced maintenance and quick remedies
- Verification of measuring points, e.g. printing documents for quality reporting (e.g. ISO 9001)



Seamless system integration

- Direct and transparent through a wide range of fieldbuses
- Risk-free thanks to extended host testing and certification
- Compatibility over the entire product life cycle enables device replacement without expert know-how



W@M

- Open information system for device documentation and management
- Device-specific information for everyday work
- Quality of information unparalleled in scope and depth



Web server

- Time-saving local operation without additional software
- Comprehensive access to device, diagnostics and process information
- Fast data upload/download for maintenance and service



Simple operation

- Time-saving Endress+Hauser operating concept
- Optimal usability through guided parameterization
- User-specific menu structures and device access



Promag 400

The water specialist

Whether drinking water, industrial water or wastewater, whether in urban or rural areas – water has become a scarce commodity. This is due to worldwide population growth, as well as rapidly advancing industrialization and urbanization. The future aims of sustainable water management are therefore clearly defined:

- Conveying water in sufficient quantities
- Distributing and billing water comprehensively
- Purifying water optimally

A decisive factor in these applications is the accurate measurement of water flows. To accomplish this, plant operators need robust and high-quality flowmeters that guarantee reliable operation around the clock. Precisely these are the requirements that Promag 400 fulfills without compromise. For over 35 years, Promag sensors have proven ideal for deployment in a wide range of applications such as:

- Quantity measurement of drinking water, industrial water, irrigation water or wastewater
- Applications in small plant engineering or in large-scale projects
- Measurement in distribution networks, pump systems or in shafts
- Monitoring, regulating, billing and leak detection



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Promag 400

Advantages at a glance

Secure data storage

- High plant availability through customer-friendly data storage concept (HistoROM)
- No loss of data – automatic backup of device data
- Fast recovery of device and configuration data for servicing
- Integrated data logger for querying, monitoring and analyzing measured values

Simple operation

- Fast commissioning with the standard-integrated web server
- Time-saving device configuration with the uniform Endress+Hauser operating concept
- Guided parameterization with make-it-run wizards
- 17 display languages for worldwide use
- Wide range of operating options from local display to commercially available field devices

Maximum operational safety

- With drinking water approvals
- With custody transfer approvals according to OIML R49 and MI-001 water meter standards (in prep.)
- Heartbeat Technology
 - Permanent self-monitoring
 - Clear categorization of errors; display of remedies in case of device and process errors
 - Ultimate reliability resulting from long-term stability in testing electronics, several internal references, and guaranteed metrological traceability starting from the factory
 - No re-calibration or tracing of external testing devices required

Seamless system integration

- Flexible operation via web server or via HART, PROFIBUS DP, Modbus RS485 and EtherNet/IP
- Compatibility between field device and process control system ensured at all times as firmware/device drivers are available during the entire life cycle

Sensors proven in real-world applications

- Tried and tested 1.7 million times in 35 years
- Industry-optimized Promag sensors for continuously reliable operation
- High measuring accuracy even in long-term operation
- Traceable measurement results as every device is certified on accredited and traceable calibration rigs (ISO/IEC 17025)



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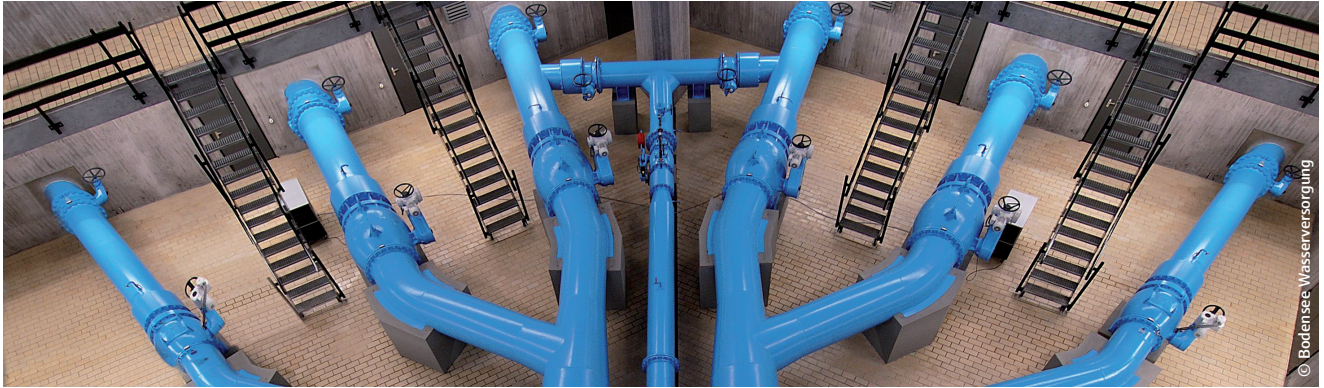


Your benefits throughout the life cycle

- Accurate measurement of drinking water, industrial water and wastewater
- Assured compliance with guidelines and regulations
- Reduced operating costs by means of proven, innovative and maintenance-free measuring technology

Sensors for your application

Endress+Hauser offers a wide range of high-quality, electromagnetic flowmeters, all of which can be delivered with internationally recognized drinking water approvals



Promag L

Versatile standard device

- Unique lap-joint flange concept (DN ≤ 300/12") for flexible installation, independent of the orientation of the pipe flange pitch diameter
- Weight-saving design with short installation lengths taking into account ISO and DVGW
- Compact design without any limitation of accuracy
- DN 50 to 2400 (2 to 90")

Promag W

Specialist for every application

- Approved for custody transfer according to OIML R49 and MI-001 (in prep.)
- With certified corrosion protection and IP 68 (Type 6P enclosure) ingress protection for continuous underwater use, for corrosive environment and for direct underground installation
- DN 25 to 2000 (1 to 78")

Promag D

Compact wafer device

- Space-saving compact design for use where space is at a minimum
- Short installation length with low dead weight
- Customized and fast centering thanks to innovative housing construction
- DN 25 to 100 (1 to 4")



Electromagnetic

Promag W

Long-term reliability underground or underwater

Measuring devices are frequently installed outdoors and subjected to heat, dust or extreme climatic fluctuation. Continuous use underwater or underground is even more demanding. Promag W 400 is specially designed for such environmental conditions and guarantees long-term reliable operation without additional protective measures or costs:

- Certified corrosion protection according to EN ISO 12944 for installing a the device:
 - Underwater (fulfills Im1 and Im2 acc. to EN ISO 12944)
 - Underground (fulfills Im3 acc. to EN ISO 12944)
 - In regions with a saline environment (fulfills C5-M acc. to EN ISO 12944)
 - In regions with extreme fluctuations of humidity or temperature (in deserts, tropics, etc.)
- Accurate long-term operation due to the robust and completely welded sensor
- Multi-seal with corrosion-resistant connection housing made of polycarbonate
- High water ingress resistance due to IP68 (Type 6P enclosure) protection type



Verification made easy



High accuracy and maximum reliability are absolutely essential for quality-related measuring points in the water industry. Heartbeat Technology is a new function integrated into Proline measuring electronics, which enables continuous diagnostics and comprehensive device verification in addition to the long-term measurement stability of the Promag 400. Using this technology,

traceability requirements set forth by ISO 9001 can be properly fulfilled – whenever and wherever you want:

- Verification via all device interfaces possible at any time
- No dismantling of the device and no interruptions during operation
- Creation of inspection reports via web servers or asset management systems
- Complete documentation of a device's performance
- Automatic saving of verification results directly in the device
- Comparison of verification results over longer periods of time (trend analysis), e.g. by the Endress+Hauser service

Technical data

| Promag 400 (transmitter) | | Promag L, W, D (sensors) | |
|----------------------------|---|--------------------------|--|
| Measured values | Volume flow, electrical conductivity | Diameters | Promag L: DN 50 to 2400 (2 to 90") Promag W: DN 25 to 2000 (1 to 78") Promag D: DN 25 to 100 (1 to 4") |
| Display | Backlit, 4-line, 3 optical keys (Touch control) | Process connections | Promag L: Flanges (EN [DIN], ASME, AWWA, AS), lap-joint flanges (EN [DIN], ASME) Promag W: Flange (EN [DIN], ASME, JIS, AWWA, AS) Promag D: Wafer (EN [DIN], ASME, JIS) |
| Operation | <ul style="list-style-type: none"> ■ Via local display ■ Via web browser ■ Via operating tool, e.g. "FieldCare" from Endress+Hauser ■ Via HART handheld | Process temperature | Promag L: -20 to +90 °C (-4 to +194 °F) Promag W: -20 to +80 °C (-4 to +176 °F) Promag D: 0 to 60 °C (32 to 140 °F) |
| Power supply | With universal power supply: AC 85 to 264 V (45 to 65 Hz) AC 18 to 30 V (45 to 65 Hz) DC 18 to 30 V | Degree of protection | Standard: IP67 (Type 4X enclosure) Optional: IP68 (Type 6P enclosure) |
| Housing | Polycarbonate, aluminum (in prep.) | Max. measured error | Promag L, W: ±0.2% o.r. Promag D: ±0.5% o.r. (additional accuracy specifications are optional) |
| Ambient temperature | -40 to +60 °C (-40 to +140 °F) | Turndown | 1000:1 |
| Degree of protection | IP66 and IP67 (Type 4X enclosure) | Materials (liners) | Promag L: Polyurethane, hard rubber, PTFE Promag W: Polyurethane, hard rubber Promag D: Polyamide All liners have drinking water approvals: KTW/W270, ACS, NSF 61, WRAS BS 6920 |
| Design | Compact version (with/without angled housing) or remote version | Electrical conductivity | ≥5 µS/cm (liquids in general) |
| Galvanic isolation | All circuits for outputs and power supply are galvanically isolated from each other | Subject to modification | |
| Outputs / Inputs | Current output (0/4-20 mA HART), pulse/frequency/switch output (2), status input | | |
| Communication | HART, EtherNet/IP; PROFIBUS DP (in prep.), Modbus RS485 (in prep.); integrated web server and service interface via RJ45 Ethernet | | |
| Ex approvals | cCSAus (Cl. I Div 2) | | |
| Custody transfer approvals | Measurement Instrument Directive MI-001 (Modul B & D), OIML R49 type examination certificate (in prep.) | | |

The Promag L 400 / W 400 / D 400 measuring system fulfills the EMC requirements according to IEC/EN 61326 and NAMUR NE21. It also conforms to the requirements of the EU and ACMA directives and thus carries the **CE** and **MEAS** mark.