For more safety, quality and availability in your plant

- Robust and reliable: multi-functional transmitter for the ultimate measuring performance in the process industry
- Complies with all industry requirements: Proline 300/500 is available with Promass® (Coriolis) and Promag™ (electromagnetic) sensors, which have been tried-and-tested for decades
- Fast commissioning: simple and intuitive operation via display, web server, WLAN, operating tools or fieldbuses
- Maximum operational safety:
  - Developed in accordance with SIL (IEC 61508)
  - Device verification with Heartbeat Technology™ during operation
  - Permanent self-diagnostics
  - Automatic storage of device data (HistoROM®)
- Seamless system integration: wide variety of fieldbus technologies such as HART®, WirelessHART®, PROFIBUS® PA/DP, FOUNDATION™ Fieldbus, Modbus® RS485, EtherNet/IP™, PROFINET®
- Reduced complexity and variance: configurable analog I/O functionality

Proline 300/500
The future-oriented flow measuring technology
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.

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

**Innovative and proven in use** Proline is based on a versatile, continually updated technology concept, guaranteeing that you are always implementing state-of-the-art technology.

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

**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
- Remedy based diagnostics for reduced maintenance and quick resolution
- Permanent self-monitoring for all Proline measuring technologies
- Attested verification concept i.e. printed documents for quality reporting per ISO 9001

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

### W@M® Life Cycle Management
- 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 (HMI)
- Universal formats by display, embedded Web server, PAS, AMS, WLAN or handheld
- Optimal usability through guided parameterization
- User-specific menu structures and device access
For almost 40 years Endress+Hauser has been providing its customers with one of the most comprehensive flow measurement product portfolios for liquids, gases and steam. And for 20 years Proline has guaranteed that users receive the best possible flowmeter for their applications: Over 2 million magmeters and over 650,000 Coriolis flowmeters have been shipped since 1977.

However, as modern challenges in the process industry have increased drastically, plant operators are subject to an increasing level of competition and cost pressure. In addition, there are more and more legal regulations to ensure process safety. This means that flexibility in planning plants, optimal plant efficiency and the highest level of product quality are key to defining the success of a company today.

These challenges are met by Proline 300/500 without compromise. This is because the Proline series is based on years of industry experience and the permanent development of our transmitter technology. Proline has been designed in accordance with SIL requirements and, as a result, guarantees the maximum level of safety, quality and availability in operation. Unique diagnostic functions and a sophisticated data storage concept also help to ensure these standards.

Proline 300/500 already meets and exceeds the future requirements of your process facility. This is accomplished by using numerous functions adapted to your application, as well as by the industry-optimized device portfolio with all relevant approvals and certifications.

Proline 300/500 offers added value across the board and supports you with unbeatable advantages throughout the entire life cycle of your plant – from the planning phase of your plants, to commissioning, to maintenance and service or even during operation with 24/7 diagnostics and on-demand verification through Heartbeat Technology.

Proline 300/500
Innovation and practical experience combined
Safe all-around – you can count on that

Using Proline 300/500 flowmeters puts you in the right position from the very beginning to deal with the growing challenges of plant safety. In concrete terms, this means avoiding failures and property damage in plants, and thus avoiding hazards for people and the environment.

In this respect you can rely on our new generation of devices 100%. This new generation is based on decades of experience in safety-related applications and long-standing partnerships with international testing, certifying and other organizations. As a result, the new Proline 300/500 device design exceeds even the highest levels of safety standards:

- Ideal suitability for application in safety systems (SIL applications)
- Optimum accessibility for all customers and user interfaces via a single connection compartment from the front
- Permanent device diagnostics thanks to Heartbeat Diagnostics with a test coverage of over 95%
- Quick and secure remedying of device and process errors, thanks to clear and unambiguous categorization of errors according to NAMUR NE107 (Maintenance / Out of specification / Function check / Failure)
- Backwards compatibility with previous Proline measuring points and applications: mechanical, electrical and functional

Your benefits close-up

Proline 300/500 – for permanently increased safety, quality and availability in your plant
High-quality – for smooth processes
The expectations for process facilities and measuring instruments in the field are constantly increasing: the highest levels of process and product quality coupled with low maintenance effort and low total cost of ownership. Precisely for this reason the Proline 300/500 was developed.

The sophisticated diagnostics, monitoring, and verification concept of Heartbeat Technology allow for a comprehensive level of process monitoring that cannot be found anywhere else in the world. You benefit through fewer failures, lower costs and improved reliability, all of which lead to a sustainable competitive advantage. A measuring device, however, is only as good as the quality of its measured data. For this reason all of our calibration rigs are accredited by national accreditation bodies. This ensures reliable measurement results around the clock.

- Reliable device and process monitoring, thanks to Heartbeat Technology:
  - Continuous self-diagnosics in accordance with NAMUR NE107
  - Early recognition of disturbances in the process, such as empty pipes (partial filling), deposits, buildup, erosion, corrosion, multiphase fluids, etc.
- Service-friendly data storage (HistoROM):
  - Automatic data storage for maximum plant safety
  - Automatic restoration of data after component exchange
  - Automatic storing of up to 1,000 status/error messages in a logbook
- Highest measurement quality due to the fact that each Endress+Hauser flowmeter is checked on accredited, and therefore traceable, calibration rigs (ISO/IEC 17025)

Available at any time – process and device information
In large industrial plants with thousands of field devices, not only are the measured values accumulated, but often an endless amount of process and diagnosis information is also gathered and never used. With its wide variety of fieldbus interfaces, Proline 300/500 makes it possible to access all of this data directly and thus ensures optimal measuring operation.

The availability of process-critical measuring points is vital, particularly in safety-related or custody transfer applications. Proline 300/500 can check its own operational reliability using sophisticated verification functions – wherever and whenever you want. And last but not least, Proline has numerous operating options for accessing device and diagnostic data directly during commissioning or service.

- Extensive access to process and diagnostic data using a broad range of fieldbus options including Industrial Ethernet (EtherNet/IP and PROFINET)
- Reliable and metrologically traceable device verification during operation with “Heartbeat Verification” (TÜV attested, the only verification methodology to have achieved third party validation). No field presence is required; verification can be triggered at any time, from anywhere.
- Versatile operating options using display, web server (service interface), WLAN or fieldbus interfaces
- Standardized Endress+Hauser operation concept with guided parameter configuration and over 17 display languages
The Proline transmitter

Highlights at a glance
1 Transmitter housing – industry-optimized
   - Robust housings (materials ▶ page 11)
   - Compact version (Proline 300) with/without display, or remote display
   - Remote version (Proline 500), can be installed up to 1000 ft. (300 meters) from the sensor

2 Two-chamber system – securely separated (IP43)
   - Connection compartment with all interfaces easily accessible from the front
   - Separate electronics compartment:
     - Fully protected against dust
     - With modular electronics design concept

3 Inputs and outputs – seamless system integration
   - Can be integrated into existing plants at any time using HART, WirelessHART®, PROFIBUS PA/DP, FOUNDATION Fieldbus, Modbus RS485, EtherNet/IP or PROFINET
   - Numerous inputs/outputs available, including a freely configurable I/O module

4 Display according to NAMUR NE107 – precise event identification
   - Clear and unambiguous categorization of events (NAMUR NE107) for precise resolution, thus preventing plant shutdowns
   - The history of plant and device events retrievable at any time (logbook with an “event counter”)

5 HistoROM – simply unforgettable
   - Maximum security due to automatic data storage (3 data storage units)
   - Automatic restoration of device and configuration data following component exchange
   - Easy transfer of device configuration after device replacement

6 HMI operation concept – intuitive and secure
   - Guided parameter configuration with plain text instructions
   - Over 17 operating languages for worldwide use
   - Standardized menu structures for all flow measurement technologies
   - Advantage: Less training effort and fewer operator errors

7 WLAN connection – wireless service interface
   - On-demand access to measured values, diagnostic data, process information and device parameter configuration
   - Range: 15 ft. (5 meters) with internal and 164 ft. (50 meters) with external antenna

8 Web server – easy configuration in the field
   - Time-saving operation on-site via laptop using a standard Ethernet cable or a tablet using WLAN (without additional software or tools)
   - Comprehensive access to all device information, diagnostic and process information
   - Fast upload/download of device data

9 Proline sensors – robust and proven
   - Industry-optimized sensors with high measuring accuracy even in long-term operation
   - Proven in use – over 2.7 million Promass and Promag sensors installed since 1977
   - Immune to process and environmental influences (temperature, vibrations, dust, heat)
   - Guaranteed measurement quality thanks to traceable and worldwide accredited calibration rigs

All highlights (1–9) apply equally to the Proline 500 remote version.

Approvals and certificates (examples)
### Customized sensors

**For your application**

<table>
<thead>
<tr>
<th>Coriolis (gases, liquids)</th>
<th>Promass F</th>
<th>Promass E</th>
<th>Promass X</th>
<th>Promass O</th>
<th>Promass H</th>
<th>Promass P</th>
<th>Promass S</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Universally applicable</strong></td>
<td>High-accuracy measuring of liquids and gases under fluctuating process conditions</td>
<td>Accurate measurement of liquids and gases for a broad spectrum of standard applications</td>
<td>Four-tube device (up to 4,100 t/h)</td>
<td>High-pressure measuring device</td>
<td>Single-tube measuring device for highly accurate measurement of liquids and gases</td>
<td>For the life sciences industry</td>
<td>Drainable single-tube system</td>
</tr>
<tr>
<td>½&quot; to 10&quot; (DN 8 to 250)</td>
<td>½&quot; to 3&quot; (DN 8 to 80)</td>
<td>12 to 16&quot; (DN 300 to 400)</td>
<td>3 to 10&quot; (DN 80 to 250)</td>
<td>½&quot; to 2&quot; (DN 8 to 50)</td>
<td>½&quot; to 2&quot; (DN 8 to 50)</td>
<td>½&quot; to 2&quot; (DN 8 to 50)</td>
<td></td>
</tr>
<tr>
<td>Coriolis (gases, liquids)</td>
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</tr>
</tbody>
</table>
| **Promass I**  
With in-line viscosity measurement  
- Straight, single-tube measuring device for liquids and gases with low pressure loss  
- ⅛ to 3” (DN 8 to 80) |
| **Promass A**  
For the smallest flow rates  
- Self-draining single-tube device for the accurate measurement of the smallest amounts of liquids and gases  
- ⅛ to ⅛” (DN 1 to 4) |
| **Cubemass C**  
Ultra-compact device  
- For the accurate measurement of the smallest amounts of liquids and gases  
- ⅛ to ¼” (DN 1 to 6) |

<table>
<thead>
<tr>
<th>Electromagnetic (conductive liquids)</th>
</tr>
</thead>
</table>
| **Promag P**  
For very high temperatures  
- For chemical and process applications with corrosive liquids and high fluid temperatures up to +356°F (+180°C)  
- ⅛ to 24” (DN 15 to 600) |
| **Promag H**  
For the smallest flow rates  
- For demanding hygienic applications  
- ½ to 6” (DN 2 to 150) |
| **Promag W**  
The water specialist  
- For demanding applications in the water and wastewater industry (optional: IP68/Type 6P)  
- 1 to 80” (DN 25 to 2000) |
Regardless of which application: You can integrate Proline 300/500 flowmeter systems perfectly into your plant and adapt them to your process conditions, thanks to the variety of designs, housing variants, nominal diameters and installation options.

### Installation concept – Proline 300/500

For flexible installation and secure operation

<table>
<thead>
<tr>
<th></th>
<th>Proline 300</th>
<th>Proline 500</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>(compact version)</strong></td>
<td><strong>Non-Ex</strong></td>
<td><strong>Non-Ex</strong></td>
</tr>
<tr>
<td></td>
<td>Ex: Zone 2, Class I Div. 2</td>
<td>Ex: Zone 2, Class I Div. 2</td>
</tr>
<tr>
<td></td>
<td><img src="image1" alt="Proline 300 Compact" /></td>
<td><img src="image2" alt="Proline 500 Remote" /></td>
</tr>
<tr>
<td><strong>(remote version)</strong></td>
<td>Ex: Zone 1, Class I Div. 1</td>
<td>Ex: Zone 1, Class I Div. 1</td>
</tr>
<tr>
<td></td>
<td><img src="image3" alt="Proline 300 Compact" /></td>
<td><img src="image4" alt="Proline 500 Remote" /></td>
</tr>
</tbody>
</table>
Sensors
- Promass (description ▶ page 8–9)
- Promag (description ▶ page 9)

Materials (housing)

**Proline 300 transmitter (compact version)**
Compact housing:
- Aluminum
- Stainless steel die-cast

Remote display (cable length up to 1,000 ft. / 300 m):
- Aluminum
- Stainless steel die-cast

**Proline 500 transmitter (remote version)**
Wall-mount housing (cable length up to 65.6 ft. / 20 m for Coriolis, or 656.2 ft. / 200 m for magmeters):
- Aluminum
- Stainless steel die-cast

**Proline 500 transmitter (“digital” remote version)**
Wall-mount housing (cable length up to 1,000 ft. / 300 m):
- Aluminum
- Polycarbonate

**Proline 500 sensor (remote version)**
Connection housing:
- Aluminum
- Stainless steel die-cast
- Stainless steel, hygienic
## Technical Data

<table>
<thead>
<tr>
<th>Transmitter</th>
<th>Proline 300 (compact)</th>
<th>Proline 500 (remote)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Display</td>
<td>4-line backlit display with Touch Control (operation from outside)</td>
<td>4-line backlit display with Touch Control (operation from outside)</td>
</tr>
<tr>
<td>Optional: with remote display</td>
<td></td>
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</tr>
<tr>
<td>Operation Configuration</td>
<td>via: display, web server, WLAN, WirelessHART fieldbuses as well as via various operating tools (FieldCare®, HART handheld, etc.)</td>
<td>Proline 500 transmitter &quot;digital&quot;: Aluminum, polycarbonate</td>
</tr>
<tr>
<td>Housing material</td>
<td>Transmitter: Aluminum, hygienic stainless steel, die-cast stainless steel</td>
<td>Proline 500 transmitter: Aluminum, hygienic stainless steel die-cast stainless steel</td>
</tr>
<tr>
<td>Remote display: Aluminum, hygienic stainless steel die-cast stainless steel</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power supply</td>
<td>AC 100 to 230 V, DC 24 V (Zone 1, Div. 1); AC/DC 24 to 230 V (Zone 2, Div. 2, Non-Ex)</td>
<td>Proline 500 transmitter &quot;digital&quot;: Aluminum, polycarbonate</td>
</tr>
<tr>
<td>Ambient temperature</td>
<td>Standard: –40 to +140°F (–40 to +60°C) Option (Coriolis only): –58 to +140°F (–50 to +60°C)</td>
<td>Proline 500 transmitter: Aluminum, hygienic stainless steel die-cast stainless steel</td>
</tr>
<tr>
<td>Degree of protection</td>
<td>IP 66/67 (Type 4X enclosure), Option: IP69K (stainless steel), Option: Type 6P (electromagnetic only)</td>
<td></td>
</tr>
<tr>
<td>Outputs</td>
<td>Port 1 (communication): HART (4–20 mA), PROFIBUS PA/DP, FOUNDATION Fieldbus, Modbus RS485, EtherNet/IP, PROFINET</td>
<td>Port 1 (communication): HART (4–20 mA), PROFIBUS PA/DP, FOUNDATION Fieldbus, Modbus RS485, EtherNet/IP, PROFINET</td>
</tr>
<tr>
<td>Inputs</td>
<td>Port 2/3 (freely selectable):</td>
<td>Port 2/3/4 (freely selectable, Proline 500 &quot;digital&quot;):</td>
</tr>
<tr>
<td>Communication</td>
<td>Configurable in/outputs (I/O)</td>
<td>Freely configurable in/outputs (I/O)</td>
</tr>
<tr>
<td></td>
<td>Current outputs (4–20 mA)</td>
<td>Current outputs (4–20 mA)</td>
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<tr>
<td></td>
<td>Pulse/frequency/switch outputs</td>
<td>Pulse/frequency/switch outputs</td>
</tr>
<tr>
<td></td>
<td>Status inputs</td>
<td>Status inputs</td>
</tr>
<tr>
<td></td>
<td>Current inputs (4–20 mA)</td>
<td>Current inputs (4–20 mA)</td>
</tr>
<tr>
<td></td>
<td>Relay outputs</td>
<td>Relay outputs</td>
</tr>
<tr>
<td>Ex approvals</td>
<td>rCSAus, ATEX, NEPSI, INMETRO, EAC, etc.</td>
<td></td>
</tr>
<tr>
<td>Approvals</td>
<td>SIL: Use for flow monitoring up to SIL 2 (single-channel architecture) or SIL 3 (multi-channel architecture with homogeneous redundancy); OIML R117; custody transfer approvals; CRN, PED; 3A, EHEDG, etc.</td>
<td></td>
</tr>
</tbody>
</table>

Subject to modification

The Proline 300/500 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 ÇÇ and the ç mark.

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ISO 9001 Certified

Endress+Hauser
People for Process Automation