Your process has evolved; has your flow measurement?

Advanced Technology + Quality = Reliability

ADMAG Series

Responding to your process needs, ADMAG series continues to evolve. Continuing to adapt to your process requirements and continual reliable operation.

ADMAG AXW

ADMAG AXR

ADMAG AXF

ADMAG CA

ADMAG AE

YEWMAG

Digital Signal Processing

ADMAG History

1983

User Friendly

Stable Measurement

02

03 Long Life

Present
Dual Frequency Excitation Method

Dual Frequency Excitation is an innovative method that superimposes high frequencies on low frequencies, and utilizes all the advantages of both while eliminating the disadvantages. This ensures excellent flow noise immunity and fast response times, while maintaining high accuracy and high zero stability.

Electrode Variation

Platinum-Alumina Cermet Electrode
The electrode is made from Pt-alumina powder and is molded with the ceramic flowtube creating a leak-free single piece body design as the electrode is chemically bonded with the liner.

Replaceable Electrode
Fouled electrode can be easily removed for cleaning, allowing for and less down time.

Capacitance Electrode
Flow is detected by non-wetted electrodes installed on the outside of the flowtube. With non-wetted electrodes, high frequency excitation and a high impedance circuit, stable flow measurement of extremely low conductive or coating fluids is possible.

3-line Full Dot-matrix LCD
A full dot-matrix LCD indicator can display up to 3 lines and is available in multiple languages.

Alarm Indication
When the unit has an alarm, a clear message is displayed along with a solution.

Rotatable Neck and Display
The housing along with the LCD displays can be easily rotated to facilitate access and adjust the viewing position.

Self Diagnostics
With Advanced diagnostics, such as a 4 level Adhesion diagnostic and empty pipe detection, uninterrupted flow can be ensured with minimal downtime.

Verification Tool
The Verification Tool verifies flowmeters without having to remove from the process. Standard and Enhanced verification is available. Results can be printed and saved.
The AXF magnetic flowmeter is a sophisticated product with outstanding reliability and ease of operation, developed on the basis of decades of fieldproven experience. Dual Frequency Excitation method ensures greater stability, higher noise immunity and quicker response even the most difficulty of applications.

- Construction
  - Integral flowmeter
  - Remote type flowtube/ Remote type converter

- Wiring
  - Four-wire

- Type & Size:
  - General-purpose use: 2.5 to 400 mm (0.1 to 16 inch)
  - Explosion proof type: 2.5 to 400 mm (0.1 to 16 inch)
  - Submersible type: 15 to 400 mm (0.5 to 16 inch)
  - Sanitary type: 15 to 125 mm (0.5 to 5.0 inch)

As an optional function of FieldMate Advanced, the AXF verification tool allows verification of the unit without having to remove the HART AXF magnetic flowmeter from process line, its health and correct operation can be verified, stored in device maintenance information and printed.

AXF Functionality

Standard features such as the Dual Frequency Excitation and the advanced diagnostics, including the electrode adhesion detection, not only allow for an uninterrupted clean flow signal, but also minimize downtime and reduce routine maintenance. For the highly difficult slurry applications, the AXF can utilize an Enhanced Dual Frequency Excitation mode, giving a greater signal to noise ratio and reducing the effects of process noise.

Wall mount, pipe mount or the all in one integral type convertor configuration, along with HART/ BRAIN/ FOUNDATION fieldbus communication and the front display infra-red switches, for easy user configurability, the AXF has the flexibility to meet both your installation and operational requirements.

Reliable Health Check

Added Value
Dependable Large Size

The AXW magnetic flowmeter is ideal for industrial process lines, and water supply / sewage applications. With outstanding reliability and ease of operation, developed on decades of field-proven experience, the AXW will increase user benefits while reducing total cost of ownership.

- Construction
  - Remote type flowtube
- Wiring
  - Four-wire
- Type
  - General-purpose use
  - Submersible type
- Size
  - 500 to 1800 mm (20 to 72 inch)

Efficient

The AXR two-wire magnetic flowmeter can be installed in a loop powered system without any additional power source, thus drastically reducing the initial installation cost and ongoing operational expense. The AXR is the world’s only two-wire magnetic flowmeter which employs the noise free “Dual Frequency Excitation method”, achieving excellent process stability at a low operating cost.

- Construction
  - Integral flowmeter
- Wiring
  - Two-wire
- Type
  - General-purpose use
  - Explosion proof type
- Size
  - 25 to 200 mm (1.0 to 8.0 inch)
Capacitance magnetic flowmeter with non-wetted electrodes

The CA capacitance magnetic flowmeter employs non-wetted electrodes, which are mounted outside a ceramic pipe to detect and measure the electromotive force generated in fluids through the capacitance of the pipe. In addition, the CA employs an advanced high-frequency excitation method that reduces flow noise in low conductivity fluids. The adoption of these technologies have resolved the problems that were essentially unavoidable with conventional magnetic flowmeters, providing stable flow measurement with ultra-low conductivity fluids, adhesive fluids, and abrasive/concentrated slurries.

- **Construction**
  - Integral flowmeter

- **Wiring**
  - Four-wire

- **Type & Size**
  - General-purpose use: 15 to 200 mm (0.5 to 8.0 inch)
  - Explosion proof type: 15 to 100 mm (0.5 to 4.0 inch)

### Specialized Application Solutions

<table>
<thead>
<tr>
<th>Industry</th>
<th>Application</th>
<th>Difficulty</th>
<th>Key Solution</th>
<th>Benefit</th>
<th>Model</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Power &amp; Iron</strong></td>
<td>Chilled water</td>
<td>Adhesive fluid</td>
<td>Dual Frequency Excitation to provide the stable measurement close to four-wire magnetic flowmeter</td>
<td>- Stable measurement</td>
<td>AXR</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Variation of the process temperature and the flow volume.</td>
<td>- Two-wire technology to reduce the initial instrumentation cost and power consumption</td>
<td>- CO2 emission reduction</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Metal hat grounding rings (PFA liner)</td>
<td>- Maintenance-free</td>
<td></td>
</tr>
<tr>
<td><strong>Chemical Water &amp; Waste Water</strong></td>
<td>Recycled oil containing water</td>
<td>Ultra-low conductivity and the flow volume.</td>
<td>Ability to measure the ultra-low conductivity fluids to 0.01 µS/cm</td>
<td>- Maintenance-free</td>
<td>CA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- The composition of the components (oil and water) is unstable</td>
<td>- Stable measurement</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Adhesive fluid</td>
<td>- Non-wetted electrode</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Stable output with varying levels of oil and impurities</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Iron &amp; Steel</strong></td>
<td>Dust collection water</td>
<td>Adhesive fluid</td>
<td>Dual Frequency Excitation to provide the stable measurement close to four-wire magnetic flowmeter</td>
<td>- Stable measurement</td>
<td>AXR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Two-wire technology to reduce the initial instrumentation cost and power consumption</td>
<td>- CO2 emission reduction</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Mirror finished PFA liner</td>
<td>- Maintenance-free</td>
<td></td>
</tr>
<tr>
<td><strong>Mining</strong></td>
<td>Abrasive slurry</td>
<td>Slurry noise &amp; Liner abrasion</td>
<td>Dual Frequency Excitation (Enhanced) Ceramic liner</td>
<td>- Stable measurement</td>
<td>CA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Metal hat grounding rings (PFA liner)</td>
<td>- Maintenance-free</td>
<td></td>
</tr>
<tr>
<td><strong>Chemical</strong></td>
<td>High consistency slurry fluids</td>
<td>Insulation between fluid and electrodes by liner adhesion</td>
<td>Dual Frequency Excitation to provide the stable measurement close to four-wire magnetic flowmeter</td>
<td>- Cost reduction</td>
<td>AXR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Two-wire technology to reduce the initial instrumentation cost and power consumption</td>
<td>- Maintenance-free</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Non-wetted electrode</td>
<td>- Stable measurement</td>
<td></td>
</tr>
<tr>
<td><strong>Pulp &amp; Paper</strong></td>
<td>Blow line</td>
<td>Slurry noise &amp; Liner abrasion</td>
<td>Dual Frequency Excitation</td>
<td>- Stable measurement</td>
<td>AXF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>The electrode coating diagnostics function Metal hat grounding rings</td>
<td>- Maintenance-free</td>
<td></td>
</tr>
</tbody>
</table>

The circled number is linked to the table of “Segment of Each Industry.”

- **Chemical Water & Waste Water**
  - Variation of the process temperature
  - Slurry noise
  - Liner abrasion

- **Iron & Steel**
  - Adhesive fluid

- **Mining**
  - High temperature
  - High pressure
  - High consistency alkali
  - Adhesive fluid

- **Chemical**
  - Ultra-low conductivity

- **Power & Iron**
  - Variation of the process temperature and the flow volume.
NOTE: The circled number is linked to the table of "Application Solutions".

Oil & Gas
- Wastewater
- Water
- Water purifier, Water for industrial use
- Solution liquid, Corrosive fluid
- Chilled water
- Chilled water, Seawater

Pulp & Paper
- Water
- Chemical
- Water purifier, Water for industrial use
- Solution liquid, Corrosive fluid
- Chilled water

Mining
- Water
- Chemical
- Water purifier, Water for industrial use
- Solution liquid, Corrosive fluid
- Chilled water

Water & Wastewater
- Water
- Chemical
- Water purifier, Water for industrial use
- Solution liquid, Corrosive fluid
- Chilled water

Chemical
- Water
- Chemical
- Water purifier, Water for industrial use
- Solution liquid, Corrosive fluid
- Chilled water

Iron & Steel
- Water
- Chemical
- Water purifier, Water for industrial use
- Solution liquid, Corrosive fluid
- Chilled water

Power
- Water
- Chemical
- Water purifier, Water for industrial use
- Solution liquid, Corrosive fluid
- Chilled water

Food & Beverage
- Water
- Chemical
- Water purifier, Water for industrial use
- Solution liquid, Corrosive fluid
- Chilled water

NOTE: The circled number is linked to the table of "Application Solutions".

Difficulty of application: Conductivity, Slurry, Abrasive, Viscosity
Our Answer For Your Requirements

Many applications can be served by ADMAG. Some of these applications or process conditions are explicitly harsh and demanding, and require customized solutions.

### Liner Variation

The ADMAG series reinforces your process requirements with a large range of liners from the chemical resistant Fluorocarbon PFA and ultra-pure Alumina Ceramic liners, to the slurry resistant and cost effective range of rubber liners.

<table>
<thead>
<tr>
<th>Liner Material</th>
<th>Industry</th>
<th>Application</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum Ceramic</td>
<td>Chemical, Food &amp; Beverages etc</td>
<td>Alkaline, Adhesive fluid, Coolants, Acid etc.</td>
</tr>
<tr>
<td>Polytetrafluoroethylene (PFA)</td>
<td>Chemical, Food &amp; Beverages, Fuel &amp; Power etc</td>
<td>Acid, Alkali, Fuel, Corrosive Fluid etc.</td>
</tr>
<tr>
<td>Natural Hard Rubber</td>
<td>Water &amp; Wastewater etc</td>
<td>Oil, Corrosion, Chemical</td>
</tr>
<tr>
<td>Natural Soft Rubber</td>
<td>Water &amp; Wastewater etc</td>
<td>Water, Food, Power, Corrosion etc.</td>
</tr>
</tbody>
</table>

### Metal Hat Grounding Ring

Slurry applications, such as a blow line service in a pulp and paper industry or the transportation line in a mining application, can be extremely abrasive on the process lines. With high density slurries, the leading edge of the flowtube is exposed to abrasive flow, even more so with high process temperatures, as this tends to soften the liner and possibly making it more vulnerable to abrasion. Metal hats have been designed to protect the magnetic flowmeter leading edge at the entrance of the flow tube and helps prolong the flow tubes lifespan while maintaining uninterrupted flow measurement.

### Custom Designed Electrode

In some processes, adhesion and/or scaling can occur inside the flowtube. Scaling may be due to the characteristics of the process fluid. This electrodes fouling may cause measurement error by blocking the electrical signal measuring the flow rate. In the worst case, frequent maintenance may be necessary to ensure continual accuracy. These problems can be overcome by using custom designed electrodes with features such as cone extensions or hemispherical extensions.

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### Specifications

#### Series

<table>
<thead>
<tr>
<th>Wiring</th>
<th>Superior</th>
<th>Standard</th>
<th>Efficient</th>
<th>Specialized</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size</td>
<td>Four-wire</td>
<td>Four-wire</td>
<td>Two-wire</td>
<td>Four-wire</td>
</tr>
<tr>
<td>2 to 10 D (1/8 to 1/4 inch)</td>
<td>25 to 200 (10 to 8 inch)</td>
<td>100 to 1000 (40 to 40 inch)</td>
<td>1.5 to 3 (1/2 to 1 inch)</td>
<td></td>
</tr>
</tbody>
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#### Lineup

<table>
<thead>
<tr>
<th>Excitation Type</th>
<th>Four-wire</th>
<th>Four-wire</th>
<th>Two-wire</th>
<th>Four-wire</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Flow Fluid</td>
<td>Min. Span 0.1 m/s</td>
<td>Max. Span 0.1 m/s</td>
<td>Max. Span 0.3 m/s</td>
<td>Max. Span 0.5 m/s</td>
</tr>
</tbody>
</table>

#### Basic Specifications

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</table>

#### Communication

- BRAIN
- BRAIN (Combined with API171 converter)
- BRAIN
- BRAIN

#### Specifications

<table>
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<tr>
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### Features

- Flow Measurement
- Temperature Measurement
- Conductivity Measurement
- Corrosion Protection

Refer to the GS sheets for the detailed specifications.