Battery-powered, reliable and cost efficient.

SITRANS F M MAG 8000 water meter for long-term accuracy.
The water meter of choice for distribution, billing and irrigation.

The SITRANS F M MAG 8000 portfolio of battery-operated flowmeters combines world-class performance with a low cost of ownership, tailored to meet the needs of your specific water application. No mains power required.

The robust SITRANS F M MAG 8000 operates in even the most challenging environments with consistently high accuracy and virtually no maintenance — making it a highly cost-efficient water metering solution.
High-precision water metering – no compromises necessary
Engineered for maximum flexibility without sacrificing accuracy, the SI-TRANS FM MAG 8000 is the ideal flow solution for a wide range of water applications, including abstraction, distribution, revenue and bulk metering, and irrigation.

The MAG 8000 is available in both compact and remote versions with 0D inlet/outlet requirements, making it easy to install virtually anywhere – even underground or in flood-prone locations.

Its sturdy construction according to ISO 12944-2 is built to resist solids and other debris. And when powered by a highly efficient external lithium battery pack, the MAG 8000 can operate continually for up to 15 years in areas lacking mains power.

An integrated power management program calculates the amount of power remaining, and a configurable “low battery” alarm alerts you when replacement is necessary.

Irrigation
Where irrigation systems are used in crop production, the MAG 8000 Irrigation keeps water wastage to a minimum and ensures that farmers get a fair deal with:

- No moving parts - not prone to wear and tear in the usual way
- IP68 / NEMA 6P enclosure - allows for installation in places where flooding can occur, or even complete underground burial
- Optional conduit adaptor - provides a clean, protected pathway for device cables to secure integrity in any conditions
- Battery power and easy connection to solar panels - ensures long-term performance in locations without reliable mains power

Abstraction and distribution
To ensure that consumers receive a consistent supply of drinkable water, the MAG 8000 monitors all stages of network water flow from production plants and trunk lines to local delivery systems with:

- Bidirectional flow capability - one solution for all applications
- Network load monitoring - reduces leakage and saves energy
- Early leakage detection - achieved with reliable and repeatable measurements of low flow at night

Reliable and robust, it also features:
- Remote transmitter option with factory-mounted cables and connectors
- No moving parts resulting in less wear and tear
- Bidirectional accuracy
- Unrestricted flow tube for minimal pressure loss even at high flow rates
- IP68 / NEMA 6P enclosure and cable, allowing for sensor burial and operation in flooding conditions
- Durable enough to withstand extreme temperatures, high humidity and erosion

Bulk water and revenue
To ensure water bills are fair, and to reduce the need for verification, the MAG 8000 CT measures usage precisely and cost effectively with:

- High accuracy - 0.2 to 0.4% of flow rate
- Custody transfer approval - according to international revenue standards OIML 49 and M1-001
- No moving parts - minimal maintenance requirements optimize your cost of ownership
- 0D inlet/outlet - offers greater flexibility in meter installation
Intelligence at your fingertips.

Data flows better with Siemens
To enhance operational efficiency, improve billing accuracy and significantly reduce costs, the SITRANS F M MAG 8000 includes a built-in wireless automated meter reading (AMR) solution designed for use in Water Fixed Networks. Flow measurement data from any site can be accessed via a web browser and secure password protection.

The MAG 8000 also features a standard IrDA interface for configuration, data collection and documentation using SIMATIC Process Device Manager or Flow Tool software. For remote monitoring of water applications, a compact wireless communication module can be added to log all data from the meter and transmit it via FTP, email or SMS at customizable intervals throughout the day.

The MAG 8000 keeps you connected with:
- 2-channel analog input measurement for external ratiometric pressure transmitter, transmission together with flow measurement (2-in-1 solution)
- 4-20 mA alarm signal detection and real-time SMS alarm for tamper protection and flooding situations
- Real-time clock synchronization with internet NTP server, ensuring that all measurement data is accurately time-stamped
- Data transmission at customer-specified points in time, allowing for synchronization of information from multiple MAG 8000 devices
- Seamless communication via both the 2G and 3G networks

MAG 8000 3G communication allows for data transmission via numerous protocols including SMS, email via SMTP, email via SMTPS (TLS/SSL-based encryption), FTP, and FTPS (TLS/SSL-based encryption). This provides customers with the flexibility to receive data via email or text message as well to relay data directly to internet-capable monitoring and control systems anywhere in the world. The MAG 8000 also ensures the security of transmitted data to the levels required by individual customer standards.
With comprehensive data collection and logging options, advanced diagnostic functions and the capability for remote monitoring, the SITRANS FM MAG 8000 keeps you fully in control of your water application – whether you’re on-site or on-the-go.

Once the MAG 8000 is installed, a wide range of smart features ensures reliable performance with minimal maintenance:

- An electrode resistance module measures the meter’s contact with the media
- A product sizing program indicates whether the size of the meter selected is appropriate for the flow conditions on site
- A comprehensive data logging function records and stores consumption levels, alarms and operating conditions from the site
- Remote Qualification Certificate integrated into the 3G module enables offsite quality audits on devices anywhere in the world

The free plug-in integrated into the SIMATIC PDM tool allows for on-site meter assessment and prints a Qualification Certificate for monitoring and auditing purposes.

Flow simulation
Integrated flow simulator verifies and adjusts the pulse output to any connected device or system, with configuration possible via the standard IrDA interface or the communication channel.

Improved low-flow performance
Siemens’ conical flow tube design improves low-flow performance with negligible pressure drop across the meter for reduced energy loss.

Insulation test
Built-in “cross-talk” test checks the entire signal chain of the system to ensure that the sensor flow signal is unaffected by external noise.
Accredited calibration for more accurate water measurement.

Flowmeter calibration is a vital step in ensuring consistently accurate measurement. All SITRANS FM electromagnetic meters are wet calibrated at Siemens flow facilities with traceable instruments referring directly to the physical unit of measurement according to the International System of Units (SI).

A certificate is supplied with every calibration to satisfy worldwide traceability standards, including NIST in the United States.

Siemens offers accredited calibrations assured to ISO/IEC 17025 in the flow range from 0.0001 to 10,000 m³/h.

Siemens Flow Instruments accredited laboratories are recognized by the International Laboratory Accreditation Corporation Mutual Recognition Arrangement (ILAC MRA), ensuring international acceptance of test results.

Every Siemens water meter is calibrated in-house at facilities that are individually accredited in accordance with ISO / IEC 17025.

A calibration certificate is supplied with every water meter, and all calibration data is stored in the instrument.

The maximum uncertainty of measurement following a standard calibration is ±0.4%, and an extended calibration ±0.2%.
A suitable meter for every water application.

The accuracy of each meter is determined by the calibration performed. MAG 8000 water meters are available with three types of calibration, each suited to different application requirements.

<table>
<thead>
<tr>
<th>Calibration type</th>
<th>Applications</th>
<th>Accuracy</th>
<th>Water meter type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard</td>
<td>General water</td>
<td>0.4%</td>
<td>MAG 8000 Standard</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>MAG 8000 Irrigation</td>
</tr>
<tr>
<td>Extended</td>
<td>High-performance</td>
<td>0.2%</td>
<td>MAG 8000 Standard</td>
</tr>
<tr>
<td>Bulk water / revenue</td>
<td>Custody transfer (CT)</td>
<td>OIML R49 Class 1 / Class 2</td>
<td>MAG 8000 CT</td>
</tr>
<tr>
<td></td>
<td>FM fire service</td>
<td>OIML R49 Class 1044</td>
<td>MAG 8000 CT</td>
</tr>
</tbody>
</table>

### Table: MAG 8000 Features

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application</td>
<td>Abstraction and distribution networks, Bulk water and revenue, Irrigation</td>
</tr>
<tr>
<td>Transmitter type</td>
<td>Basic version, Advanced version for advanced information and functionality</td>
</tr>
<tr>
<td>Custody transfer version</td>
<td>Type-approved and verified according to OIML R 49 / MI-001 NMI 10</td>
</tr>
<tr>
<td>Sensor size DN</td>
<td>1” – 48” with EPDM liner, 2” – 24” with EPDM liner, 1” – 48” with Ebonite liner</td>
</tr>
<tr>
<td>Enclosure sensor and transmitter</td>
<td>IP68 / NEMA 6P, compact and remote with connectors and factory-mounted cable</td>
</tr>
<tr>
<td>Display</td>
<td>Display with touch keypad</td>
</tr>
<tr>
<td>Output</td>
<td>2 individual pulse outputs (forward, reverse and net volume)</td>
</tr>
<tr>
<td>Communication</td>
<td>Integrated standard IrDA interface, wireless communication module, RS232 / RS485 with MODBUS RTU protocol, encoder interface module with sensus protocol</td>
</tr>
<tr>
<td>Power supply</td>
<td>Internal 2 D-cell or external 4 D-cell battery pack, 12 – 24 V AC/DC and 115 – 230 V AC with battery backup</td>
</tr>
<tr>
<td>Certifications</td>
<td>Approved to the international water meter standard OIML R 49/Mi-001 (EU), complying with the European CEN – EN 14154, ISO 4064 specifications and FM Fire Service Class 1044</td>
</tr>
<tr>
<td>Transmitter features</td>
<td>Data logger with configurable log interval up to 26 months, time and date, data protection, application identifier, alarm handling, meter status, diagnostics, battery power management, insulation test</td>
</tr>
<tr>
<td>Accuracy</td>
<td>±0.4% ±2 mm/s 1” – 48”, ±0.2% ±2 mm/s 2” – 12”, OIML R 49 Class 1 and 2 MI-001 Class 2, ±0.4% ±2.5 mm/s, ±0.8% ±2.5 mm/s NMI Class 2.5</td>
</tr>
<tr>
<td>Bi-directional measurement</td>
<td>Yes</td>
</tr>
<tr>
<td>Drinking water approvals for sensor part</td>
<td>NSF/ANSI Standard 61 (USA), NSF/ANSI Standard 61 (USA)</td>
</tr>
<tr>
<td>Process connections</td>
<td>EN 1092-1 (DIN 2501), ANSI 16.5 Class 150 lb , AS 4087, and AWWA C207, AS 4087 and AS 2129 Table E Flange drilled according to ENSI</td>
</tr>
<tr>
<td>Operating pressure</td>
<td>145 psi or 232 psi</td>
</tr>
<tr>
<td>Media temperature</td>
<td>32 – 158 °F, 32 – 122°F, 32 – 158 °F</td>
</tr>
<tr>
<td>Electrodes and earthing electrodes</td>
<td>Hastelloy C276, Stainless steel</td>
</tr>
</tbody>
</table>
Siemens Process Instrumentation offers best-in-class measurement and seamless integration into your automation system. We are the total solution provider for flow, level, pressure, temperature, weighing, positioners and more.

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