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Cover article

The first choice
for the process and
water industries



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The first choice for the process and water industries

Three innovative electromagnetic flowmeters at a time attract special attention: The new ProcessMaster, HygienicMaster and WaterMaster flowmeters from ABB feature intuitively operable non-contact keys for easy, quick and reliable configuration and a softkey functionality for easy handling. With their practice-oriented diagnostics and their monitoring functions intended to ensure full operational and process reliability, these state-of-the-art process measurement instruments comply with many up to date standards.

The importance of high-precision flow measurement in processing plants is permanently increasing. ABB is a global leader in measurement and control instruments engineering and manufacturing. World-wide service combined with industry-specific application knowledge make ABB a leading supplier of flow measurement equipment.

ABB's flowmeters are grouped in the FlowMaster product family. All devices share the same ABB operating philosophy, feature long-term stability and low maintenance requirements and provide a wide range of functions. FlowMaster instruments meet even high requirement standards and provide the necessary device state transparency, a constant long-term behavior, and operating convenience.

Industry standard

When developing its new electromagnetic flowmeter ProcessMaster ABB has endeavored to meet the

increasing challenges of advanced flow measurement. The modular instrumentation concept provides flexibility, low cost of ownership, reliability plus an extended service life and reduced maintenance requirements.



The flowmeters of ABB's FlowMaster product family use the same product-spanning, consistent operating concept as all ABB measuring instruments.

The integration into "Asset Management Systems" and the usage of mature self-monitoring and diagnostic functions increase the operational plant availability and reduce downtimes.

The HygienicMaster flowmeter was designed to meet the special requirements of the food and beverages and the pharmaceutical industries. It also features a modular concept offering flexibility, low cost of ownership and reliability combined with a long service life and minor maintenance requirements. The available functions like self-monitoring and diagnostics ensure maximum process safety.

The WaterMaster serves for flow measurement and management applications in the water, sewage and effluent industries. It also provides the modular concept of the FlowMaster family combined with unmatched diagnostic capabilities resulting in flexibility, highest accuracy and long term performance.

The ProcessMaster flowmeter has a modular design concept and provides flexibility, low cost of ownership and reliability combined with a long service life and reduced maintenance requirements.

According to ABB the FlowMaster flowmeters allow customers to retrofit and modernize their plants to bring them to the state of the art.

The variable connection concept with standardized primaries provides for flexibility and facilitates the installation process.

Additionally, the costs for keeping a stock of spare parts are reduced. The vacuum-proof PFA lining keeps shape and meets even the highest requirements. The primary is suitable for CIP/SIP up to 150 °C. Sophisticated filtering methods separate the measuring signal from parasitic signals and allow for high-precision measurement even under the most difficult conditions.

Advanced diagnostic functions

The instrument's operational reliability and the production process are monitored using advanced diagnostic functions which make it possible, for example, to define limit values of the diagnostic parameters on site. When these limit values are exceeded, an alarm is tripped.

Diagnostic data can be read out via an infrared interface for further analysis. As a result, critical states are recognized at an early stage and the counter measures can be taken, thus increasing the productivity and avoiding plant downtimes.



The „Easy Set-up” function and the softkey functionality simplify the configuration and parameter verification.

According to the manufacturer, status messages are classified in compliance with NAMUR. In case of an error, an explaining text regarding possible causes of the error is displayed, which considerably simplifies and shortens the error elimination process. This feature provides maximum process safety.

The innovative primary design with self-cleaning, double-sealing and polished measuring electrodes considerably improves the device reliability and measuring performance. The primary's high excitation frequency makes the ProcessMaster a quick-response flowmeter.

Sophisticated filtering methods separate the measuring signal from interfering signals and allow for high-precision measurement with a maximum accuracy of 0.2 % of rate, even under the most difficult conditions.

Easy and quick commissioning

The latest memory technology for the primary does away with the need to verify the assignment of the primary to the converter. The integrated SensorMemory allows the converter to recognize the primary automatically.

Once the converter is powered, it performs a self-configuration. The primary data and the parameters specific for the measuring point are loaded automatically. This avoids errors and provides for quick and safe commissioning.

If it should become necessary to replace the converter, the new converter automatically loads the sensor calibration data, the parameter settings and the meter readings from the SensorMemory without the need to re-connect any memory elements. When the primary is exchanged, the converter automatically identifies the new primary, loads the new information, i.e. the calibration data, from the SensorMemory and saves the parameter settings and meter readings of the corresponding measuring point in the SensorMemory.

Interference-free digital communication between the converter and the SensorMemory ensures that the data residing in the primary and in the converter are identical.



The converter insert's intelligent, modular design allows for easy dismantling without the need to unscrew cables or disconnect plugs.



The FlowMaster product family is oriented to the specific needs of the individual industries. ProcessMaster and HygienicMaster flowmeters meet the requirements of the processing and the food and beverages industries. The WaterMaster is designed to fit all water industry applications.

Intuitive operation for optimal safety

ABB's engineers have paid special attention to operating convenience. The factory setting can be changed quickly and easily via the user-friendly display and the non-contact keys – without the need to open the housing. The “Easy set-up” function guides inexperienced users in a step-by-step manner through the configuration process. The softkey functionality additionally simplifies the handling and parameter verification. During the configuration process,



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the permissible range of the individual parameters is shown in the display, and invalid entries are ignored.

The backlit display can be turned without additional tools. The contrast can be adjusted and the display is fully configurable. The character size, the number of lines and the display resolution (positions after decimal places) can be set as required. In multiplex mode, various display views can be configured individually and called up one after the other.

The converter insert's intelligent, modular design allows for easy dismounting without the need to unscrew cables or disconnect plugs. The universal converter always provides the appropriate signal – active or passive meter pulses, active or passive 20 mA, or active or passive status output. The HART protocol is a standard feature. As a result, the universal converter simplifies spare parts keeping and reduces the stock-keeping costs.

Conclusion and outlook

With the new FlowMaster product family ABB wants to offer higher user benefits through efficient flowmeters. The product portfolio has been adapted to the needs of the industries in order to provide potential savings over the entire product lifecycle.

The electromagnetic flowmeters ProcessMaster, HygienicMaster and WaterMaster have been designed to meet the specific requirements of the processing, water and the food and beverages industries.

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