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COVER ARTICLE

ALL OF A PIECE

Platform concept simplifies
flow instrumentation



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ALL OF A PIECE

Platform concept simplifies flow instrumentation The plant instrumentation in the food and pharmaceutical industry fairly often is piecemeal: different package units and the multitude of employed measurement instruments with their varying operating concepts are giving hard times to operators. With its new instrument platform, ABB attempts to simplify and unify device operation.

Many process operators in food or pharmaceutical industry factories who only occasionally operate and parameterise their measurement instruments share the same problem: the increasing number of instrument functions often leads to more and more complex menu structures. This is aggravated by the almost unmanageable multitude of devices in cases where plants comprise package units from different plant manufacturers, with each unit comprising instruments from different manufacturers. Years ago, the mobile phone market has

shown that there are optional strategies: in spite of the growing functionality, operating strategies have been established that allow intuitive operation by mobile phone users.

“There are several hundred different parameters and functions that can be set for state-of-the-art electromagnetic flowmeters”, explains Volker Erbe, head of Product Management Flow Measurement at ABB Automation, adding: “It is our challenge to offer our users clear, simple operation with different access levels and assigned parameter selection”.

The user interface, in addition to a simplified order process and optimized device characteristics, plays an important role in the development of the device platform to be used by the provider to implement his instrument portfolio. In ana-

logy to temperature and pressure measurement devices, a unified operational concept has been created for electromagnetic sensors, allowing users to modify the key instrument parameters for each test point in just a few steps using “Easy setup”. Designed like a mobile phone, it uses softkeys which, when operated, trigger an action that is related to the situation and that is indicated in the display. “If our users let us know their preferred parameter settings at the time of ordering, we are able to fully pre-configure the device and deliver it to the customer in an operational status”, adds Volker Erbe.

Simplified commissioning and maintenance

Parameterization is important not only for commissioning, but in some cases also



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“There are several hundred different parameters and functions that can be set for state-of-the-art electromagnetic flowmeters”

Volker Erbe, head of Product Management Flow Measurement at ABB Automation

causes problems to service technicians during maintenance. These are forced to read manuals before being able to customize replacement devices to local process parameters and operating conditions. FlowMaster instruments therefore store parameters both in the sensor and in the converter. In case one of the units has to be replaced, the new converter accepts the process parameters from the sensor, or the existing converter transfers the data to a new sensor.

Under the “FlowMaster” brand, ABB differentiates between mass flowmeters, Vortex flowmeters, variable area flowmeters as well as electromagnetic flowmeters. The company intends to launch electromagnetic flowmeters in spring 2008. The EMF versions are differentiated according to their application – e.g. for industrial processes (ProcessMaster), water management (WaterMaster, AquaMaster) and for hygienic processes (HygienicMaster). “Each newly developed or essentially modified product is given a new name under the FlowMaster roof”,

Erbe explains. Enhanced application characteristics announced by the manufacturer for the new devices include the following aspects:

- New human-machine interface with intuitive operation through the glass of the on-site display without any tools
- Extended diagnosis and its classification according to Namur recommendation NE107 including diagnosis simulation functions
- Encapsulated electronic plug-in module in all housings, usable for all versions
- Sensor memory technology
- Infrared service port
- Application under higher medium and environmental temperatures
- Higher measurement performance

The coil current has been increased and the excitation frequency has been raised to up to 25 Hz in order to improve the performance of the EMF devices. This has increased the standard accuracy to 0.4%, optionally to even 0.2%. Improved signal filters in the converter have helped to enhance the stability of the measurement

DECIDER FACTS

For users

- Faced with increasing numbers of devices and functions in plants and package units used in the food and pharmaceutical industry, operators are more than ever faced with the problem of having to handle different operational concepts.
- ABB has developed the “Master” device platform to unify operation and to provide intuitive operation of field devices.
- The electromagnetic flowmeter “HygienicMaster” has been custom-built for pharmaceutical and food industry applications.
- A three-stage diagnosis concept as well as enhanced performance data are opening up a broader range of applications for these devices

signal. And ABB has added even one more feature: Diagnosis data according to Namur recommendation NE 107 are not only displayed in the control room, but also on the backlit display on site using appropriate symbols as well as plain text. For EMF devices, diagnosis includes the detection of electrode coating, corrosion, and short circuit as well as damaged lining, conductivity and detection of an “empty measurement pipe” and “measurement pipe not completely filled” status. “Device diagnosis largely depends on the application”, adds Bernd Kammann, Global Vice President Flow Products, emphasizing the imperative of a sophistica-



The electromagnetic flowmeter HygienicMaster is used for pharmaceutical and food processes



User parameterization is facilitated by a modular design and a unified, intuitive operational concept

ted alarm management. ABB therefore delivers its products with an inactivated alarm function so that users are able to selectively activate their relevant alarms. "We do this to avoid alarm showers especially during commissioning", Kammann points out.

Error-tolerant operation

"To support less experienced users, or users who only occasionally configure devices, the menu structures have to be error-tolerant", Volker Erbe emphasizes

another target of development. This has been implemented in the menus of the FlowMaster instruments by means of a situation-related plausibility check. For local software or firmware updates, the devices are equipped with a service port including an infrared interface. The service port adapter is attached to the outside of the display and it is connected to the PC USB port by means of a cable.

Another aspect is the nurturing of the existing customer base: the new converter is compatible with the previous gene-

ration of ABB EMF sensors so that existing installations can be upgraded to the new technology. ■

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INTERVIEW WITH BERND KAMMANN AND WOLFGANG STÜBER, ABB AUTOMATION PRODUCTS

“OPERATORS THEMSELVES ARE DEFINING THE STANDARDS”

P+F: Which trends do you notice when it comes to purchasing measurement instruments in the food industry?

Stüber: We have noticed massive changes in the selection and decision process. In the past it was mainly the equipment suppliers and plant manufacturers who decided which equipment to install. Today it is the major operators such as international food groups who themselves establish the standards.

P+F: In the hygiene-sensitive industries, do you see a tendency for the joint development of standards?

Stüber: No. The requirements vary between operators. In addition, there are major differences between the large operators and the small or medium manufacturers. The latter group e.g. usually do not have specialists who are familiar with state-of-the-art field bus systems.

P+F: Are Main Automation Vendor concepts, where operators transfer the responsibility for automation to a supplier, already discussed in the pharmaceutical and food industry?

Stüber: No. MAV has not yet become an issue in these industries. However the instrument portfolio of a provider indeed is an important issue. In particular for the plant manufacturers, who today have to offer not just package units, but complete, one-stop-shopping production facilities.

P+F: ABB's market share for flowmeters has decreased over the past years. What could be the reason and how do you intend to increase our market share?

Kammann: Due to the restructuring that we did in the past years, caused by mergers and acquisitions, we have been less active on the market than our competitors. As a consequence, we have launched a smaller number of innovations which means that our product portfolio now has a few gaps. On the other hand, globally positioned process operators are looking for partners who can cover the entire range of measurement tasks. Our company has seen massive changes over the past three years. With ABB Instrumentation, we are now creating a new quality standard for instrumentation. The FlowMaster concept is an impor-



“We have thoroughly considered how to make it easier for our users to operate their systems”.

Bernd Kammann, Global Vice President Flow Products, ABB Automation Products



“We have noticed massive changes in the selection and decision process”.

Wolfgang Stüber, responsible for the food & beverage industry at ABB Automation Products

tant building block on our international roadmap for our complete portfolio.

P+F: What exactly are your plans?

Kammann: We have spent a considerable amount of time finding out how to make it easier for our users to operate their systems. This covers a whole range of items, from simply structured order numbers, easily accessible information and selection programs on our website, short processing and delivery times in our production to fast installation & commissioning. This package also includes user support covering the entire product life cycle.