

Foxboro® Magnetic Flowmeter for Food & Beverage Applications

9600A Flowtube and IMT30A, IMT31A, IMT33A transmitters

MagPLUS



With a 100-year tradition of excellence and innovation in flow measurement, the Foxboro brand offers a complete breadth of accurate, reliable and worry-free flowmeter solutions.

Based on the Faraday's law of induction, Foxboro magnetic meters are a reliable flow measurement solution with a lower cost of ownership and maintenance, as well as field-proven stability to maximize the availability of flow measurement.

With a hygienic design in conformance to FDA requirements as well as 3A, the 9600A flowtube is ideal for the Food & Beverage industry. In combination with the IMT30A, IMT31A, IMT33A transmitters, Foxboro offers a solution designed to meet the demands for hygienic and sanitary applications such as:

- Exact blending, dosing and batching
- Beverages including beer, wine, fruit juices, milk and other dairy products
- Beverages containing solids such as yogurt with fruits
- Drugs, proteins, antibiotics
- CIP media including acids and caustic solutions

9600A Electromagnetic Flowtube

With a hygienic design in conformance to FDA requirement as well as 3A, the 9600A flowtube has been engineered and manufactured for the Food & Beverage industry. Its various options of hygienic connections and typical insertion lengths make it the ideal solution for food & beverage, pharmaceutical and cosmetics processes.

Features

- Various hygienic connections, including DIN 11851, DIN 11864, Tri clamp and SMS in addition to weld-ended connections
- Wide range of sizes available, 1/10" – 6" / DN2,5 - DN150
- Fully suitable for CIP and SIP



Magnetic Flowmeter

Food & Beverage Applications



Magnetic Flowmeter for Food & Beverage - Features

IMT30A, IMT31A, IMT33A Transmitters

Freely interchangeable with standardized operating concept, the magnetic transmitters IMT30A, IMT31A and IMT33A have been designed to provide the adjusted feature set to the application requirements.

Features

IMT30A – The basic feature set

- With or without large graphic display
- 4-20mA, pulse, HART, Modbus
- Accuracy 0.5% of rate typical

IMT31A – The standard feature set

- Large backlit graphic display
- 4-20mA, pulse, HART, Modbus, FF
- Resistance and noise measurement
- ATEX, IECEX, FM, CSA, EAC
- Accuracy 0.3% of rate typical

IMT33A – The extended feature set

- Large backlit graphic display
- Compact, Wall, Field mounting
- 4-20mA, pulse, HART, Modbus, FF, Control Input
- Resistance and noise measurement
- Self-test on accuracy, linearity and flow profile
- ATEX, IECEX, FM, CSA, EAC, NEPSI
- Accuracy up to 0.2% of rate



IMT30A without and with display



IMT31A Compact 0°-version



IMT31A Compact 45°-version



IMT31A Wall



IMT33A Field



IMT33A Compact



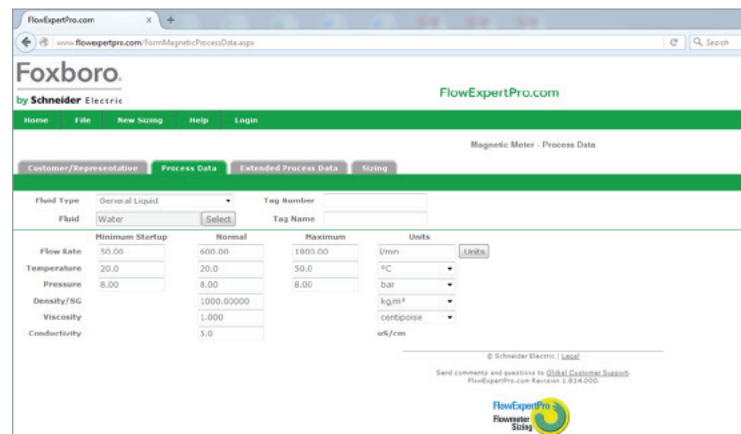
IMT33A Wall

FlowExpertPro

View our Flow Sizing Tool to help select and size your flowmeter.

FlowExpertPro is a free, industry recognized, online sizing tool with a built-in library of 300 fluids.

www.flowexpertpro.com



Magnetic Flowmeter

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Magnetic Flowmeter for Food & Beverage - Business Value

Ease of Use

The flowmeter design and the user friendly interface simplify installation, startup and commissioning:

- Large visible display, for the operator's comfort and for easy tracking of the process in the field
- 14 operating languages to avoid mis-interpretation during commissioning
- Quick Startup configuration menu, to save time during startup
- Various connections and insertion lengths, typical of Food & Beverages and Pharmaceutical process



Flexibility

Flexible construction delivers significant cost savings during planning, procurement, installation and training and enables the product to adapt to any process.

- Interchangeable transmitters with 3 housing versions and standardized operating concept allow free combination on site and low maintenance inventory

- Compact transmitter with 2 angle mountings: 0° version, ideal for installation in vertical pipelines and 45° version for horizontal pipelines
- Modular and various selectable input/output options to fit any application
- Larger diameters available up to DN150 for large-scale production plants, such as the beer or milk industrial production

Reliability

Rugged and reliable, the Foxboro magnetic flowmeter has been designed to "fit and forget".

- Rugged stainless steel housing for sanitary applications
- Stainless steel reinforced PFA liner, more resistant for applications involving vacuum
- Reduced losses thanks to a highly accurate measurement for blending, dosing or batching
- Precise overview of the process and advanced reliability thanks to standard integrated diagnostics: testing of device functions, self-test on accuracy, linearity, flow-profile and application testing

Specifications

Flowtube 9600A - Sanitary Applications

Sizes:	1/10" - 6" / DN2,5 - DN150
Liner:	PFA, stainless steel reinforced
Electrodes:	Hastelloy® C and B2, Stainless Steel, Titanium, Tantalum, Platinum
Flange material:	Stainless steel
Flange standards:	DIN 11850 / 11866, DIN 11851, DIN 11864-2A, DIN 32676, ISO 2037, ISO 2852, SMS 1145, Tri Clamp
Vacuum load:	0 mbar / 0 psi
Process temperature:	-40...+140°C / -40...+284°F
Hygienic approvals:	3A approved, Conform to FDA regulations
Protection class:	IP66/67 - NEMA 4, 4X, 6; IP68 - NEMA 6P (option)
Accuracy:	0.5% IMT30A (above 0.5 m/s) 0.3% ± 1 mm/s IMT31A 0.2% ± 1 mm/s IMT33A

Magnetic Flowmeter

Food & Beverage Applications



Transmitters IMT30A, IMT31A and IMT33A

	IMT30A	IMT31A	IMT33A
Ambient temperature	-40...+65°C / -40...+149°F	-40...+65°C / -40...+149°F	-40...+65°C / -40...+149°F
Electrical conductivity	≥ 5µS/cm (water ≥ 20µS/cm)	≥ 5µS/cm (water ≥ 20µS/cm)	≥ 1µS/cm (water ≥ 20µS/cm)
Repeatability	±0.1%	±0.1%	±0.1%
Outputs	Current output 4-20mA Pulse output (Active) Modbus RS485 Passive binary output	Current output 4-20mA Pulse output (Passive / NAMUR / Active) Modbus RS485 Binary output (Passive / Active)	Current output 4-20mA Pulse output (Passive / NAMUR / Active) Modbus RS485 Binary output (Passive / Active)
Input connections	–	Binary / Control input (Passive)	Binary / Control input (Active / NAMUR / Passive) Current Input (Active / Passive)
Communication	HART, Modbus	HART, Foundation Fieldbus, Modbus	HART, Foundation Fieldbus, Modbus
Power supply	100...230 VAC, 50/60 Hz 24 VDC	100...230 VAC, 50/60 Hz 24 VDC 24 VAC/DC	100...230 VAC, 50/60 Hz 12...24 VDC 24 VAC/DC
Power consumption	AC: 15 VA DC: 5.6 W	AC: 7 VA DC: 4 W	AC: 22 VA DC: 12 W
Electrical certifications	No certification	ATEX / IECEx: II 2 GD Ex d e [ia] mb IIC T4 II 2 D Ex tD A21 IP64 T135°C FM / CSA Class I, Div. 2, Group A, B, C and D EAC, DNV	ATEX / IECEx: II 2 GD Ex d e [ia] IIC T6...T3 FM / CSA Class I, Div. 2 Group A, B, C, D Class II, Div. 2, Group F and G NEPSI Ex d e IIC T6 EAC, DNV
Protection category Compact Wall Field	IP66, 67 - NEMA 4, 4X IP66, 67 - NEMA 4, 4X –	IP66, 67 - NEMA 4, 4X IP66, 67 - NEMA 4, 4X –	IP66, 67 - NEMA 4, 4X, 6 IP65, 66 - NEMA 4, 4X P66, 67 - NEMA 4, 4X, 6
Diagnostics	2 local counters Empty pipe detection	2 local counters Empty pipe detection Deposit on electrodes / short-circuit / corrosion Temperature Gas bubbles / solids	2 (optional 3) local counters Empty pipe detection Deposit on electrodes / short-circuit / corrosion Temperature Gas bubbles / solids Accuracy test Flow profile Partial filling

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