

# 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



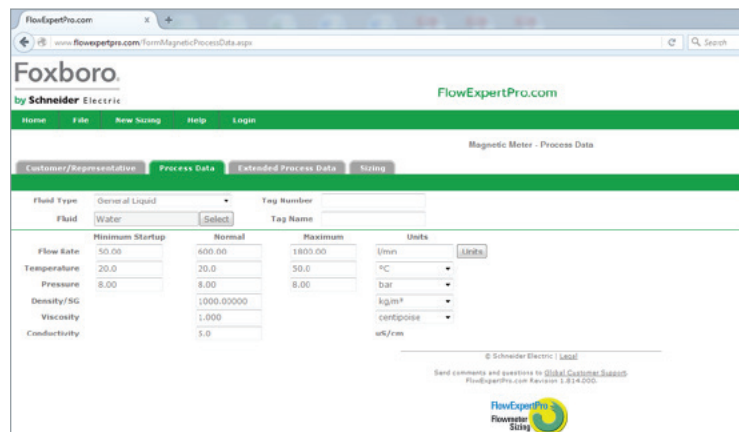
IMT33A Wall

## 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](http://www.flowexpertpro.com)



# Magnetic Flowmeter

## Food & Beverage Applications



### 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 misinterpretation 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, 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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