

# Foxboro® Magnetic Flowmeter for Water & Wastewater Applications

9500A 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 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 wide range of approvals for potable water and a robust, fully welded construction, the 9500A flowtube is ideal for the Water & Wastewater industry. In combination with the IMT30A, IMT31A, IMT33A transmitters, Foxboro offers a solution designed to meet the demands for all water and wastewater applications such as:

- Groundwater
- Potable water
- Wastewater
- Sludge and sewage
- Industry water
- Salt water

### 9500A Electromagnetic Flowtube

With a wide range of approvals for potable water, the 9500A flowtube has been engineered and manufactured for the water and wastewater industry. Its rugged liners assure long-term reliability and durability.

#### Features

- Drinking water approvals including NFS 61 (US), KTW (Germany), WRAS (UK), ACS (France)
- Standard wet calibration of sensors up to diameter DN2000 (80")
- Bidirectional flow metering



# Magnetic Flowmeter

Water & Wastewater Applications



## Magnetic Flowmeter for Water & Wastewater - 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
- Virtual grounding
- ATEX, IECEX, FM, CSA, EAC, NEPSI
- Accuracy 0.2% of rate



IMT30A without and with display



IMT31A Compact 0°-version



IMT31A Compact 45°-version



IMT31A Wall



IMT33A Field



IMT33A Compact



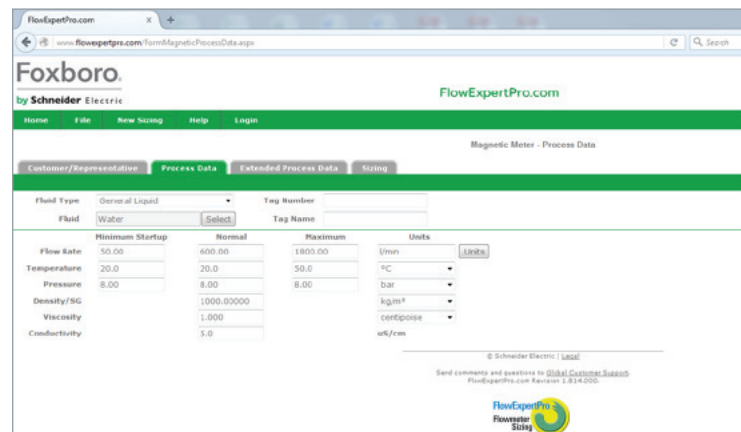
IMT33A Wall

## 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

## Water & Wastewater Applications



### Magnetic Flowmeter for Water & Wastewater - 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 an 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
- With the new virtual reference grounding, the grounding electrodes or rings can be left out, simplifying and reducing installation costs



#### 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
- Wide range of sizes available, 1" - 80"/ DN25 - DN2000, to support Water & Wastewater specifications

#### Reliability

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

- Rugged liners suitable for all water and wastewater applications
- Suitable for underground installation and constant flooding (IP 68)
- New virtual reference grounding significantly increases process reliability by avoiding possible electrochemical reactions on the grounding electrodes and eliminating potential leak points
- 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 9500A - Water & Wastewater Applications

Sizes:	1" - 80"/ DN25 - DN2000
Liners:	Hard rubber, polyolefin
Electrodes:	Hastelloy® C, Stainless Steel, Titanium
Flange material:	Carbon steel 37-c22/A105; stainless steel, DIN 1.4404/316 L; stainless steel, DIN 1.4571/316 Ti
Flange standard:	DIN EN 1092-1, JIS, ASME B16.5, AWWA
Process temperature:	Hard rubber liner: -5...+80°C / 23...+176°F; Polyolefin liner: -5...+80°C / 23...+176°F
Electrical certifications:	ATEX/IECEX II 2 GD Ex e ia mb IIC T6...T3 Gb II 2 (1) GD Ex db e [ ia Ga ] mb IIC T6...T3 Gb FM/CSA Class I Div. 2, Group A, B, C, D ; Class II Div. 2, Group F, G EAC, NEPSI, DNV
Drinking water approvals:	KTW, ACS, DVGW, NSF 61, WRAS Approvals
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

Water & Wastewater 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 G Ex d e [ia] mb IIC T4 II 2 D Ex tD A21 IP64 T120°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
Virtual grounding	No	No	Yes
Protection category			
Compact	IP66, 67 - NEMA 4, 4X	IP66, 67 - NEMA 4, 4X	IP66, 67 - NEMA 4, 4X, 6
Wall	IP66, 67 - NEMA 4, 4X	IP66, 67 - NEMA 4, 4X	IP65, 66 - NEMA 4, 4X
Field	–	–	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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