

# MAG2 (2-Wire) Series Flowmeters

MAG2IC - Flowmeter with Integrally Mounted Transmitter

MAG2RT - Remote Mounted Transmitter

MAG2RS - Remote Mounted Flowtube



## Description

The Foxboro® brand MAG2 Series Flowmeters are high performance, intelligent Magnetic Flowmeters based on field proven two-wire, loop powered technology. They offer the stable and accurate measurement of a traditional magnetic flowmeter with low power consumption, resulting in a lower overall cost of ownership. The flowmeters are provided in an integrally mounted transmitter configuration, or with a remote transmitter and flowtube with an interconnecting cable.

Remote mounting of transmitter is offered to allow access to the electronics when the measurement is not in an easily accessible location. Mounting brackets and hardware are provided for mounting the transmitter to a surface or to a nominal DN 50 or 2 inch pipe. The transmitter can be located up to a cable length of 70 m (233 ft) from the flowtube without loss of low level signal for flowtube sizes 25 mm (1 in) or greater, and up to a cable length of 30 m (98.4 ft) for flowtube sizes less than 25 mm (1 in).

## Wide Variety of Applications

- Corrosive liquid measurement
- Chemical solution measurement
- Drainage/waste disposal fluid measurement
- Drinking water and waste water service
- Industrial/agricultural water measurement
- Seawater measurement

## Summary

The Foxboro brand MAG2 Series Flowmeters are high performance, intelligent Magnetic Flowmeters based on field proven two-wire, loop powered technology. They offer the stable and accurate measurement of a traditional magnetic flowmeter with low power consumption, resulting in a lower overall cost of ownership.

## Business Value

The MAG2 Series Flowmeters have no moving parts and are extremely durable and reliable. This simple design ensures low initial operating and maintenance costs, and therefore an overall lower cost of ownership.

# MAG2 (2-Wire) Series Flowmeters

MAG2IC, MAG2RT and MAG2RS

## Features / Benefits

- Two-wire construction greatly reduces wiring costs and facilitates retrofitting of older flowmeter technology
- Low power consumption allows use with battery or solar powered installations
- High Accuracy Flowmeter suitable for use in numerous process fluid measurement industries
- Approved/Certified by many agencies for use in hazardous area locations
- Proven magnetic flowmeter high rangeability with minimized wiring costs and maintenance costs
- Offered in flanged versions to ANSI class 300 and PN25, ranging in sizes 0.1" (2.5 mm) to 8" (200 mm) and wafer versions 1" (25 mm) to 4" (100 mm)
- Remote mounting of transmitter allows access to the electronics when the measurement is not in an easily accessible location

## Physical Specifications

<b>Size:</b>	<b>Wafer Body:</b> 25, 40, 50, 65, 80, and 100 mm (1, 1½, 2, 2½, 3, and 4 in) <b>Flanged Body:</b> 2.5, 5, 10, 15, 25, 40, 50, 65, 80, 100, 150, and 200 mm (3/8, 1/2, 1, 1½, 2, 2½, 3, 4, 6, and 8 in) <b>Note:</b> The 2.5 and 5 mm (0.1 and 0.2 in) Flanged Body Tubes are available with the Model MAG2IC Flowmeter only
<b>Flange Rating:</b>	ANSI Class 150 or 300; DIN PN10, PN16, or PN25
<b>Enclosure Rating:</b>	Enclosure has the dusttight and immersion protection rating of IP67 as defined by IEC 60529, and provides the environmental and corrosion resistant protection rating of NEMA 4X
<b>Transmitter Enclosure Material:</b>	Low copper, aluminum alloy
<b>Transmitter Enclosure Finish:</b>	<b>Standard:</b> Baked acrylic paint <b>Corrosion Resistant:</b> Baked epoxy paint
<b>Terminal Box Material (Model MAG2RS only):</b>	Low copper, aluminum alloy
<b>Terminal Box Finish (Model MAG2RS only):</b>	<b>Standard:</b> Baked acrylic paint <b>Corrosion Resistant:</b> Baked epoxy paint
<b>Display Cover Material:</b>	Tempered glass
<b>Flowtube Body</b>	<b>Case Material:</b>
<b>Materials:</b>	Sizes 2.5 to 15 mm (0.1 to 1/2 in): CF8M ss Sizes 25 to 200 mm (1 to 8 in): 304 ss <b>Measuring Pipe Material:</b> 304 ss
<b>Flange Material:</b>	Sizes 2.5 to 65 mm (0.1 to 2½ in) 304 stainless steel Sizes 80 to 200 mm (3 to 8 in) Carbon steel with a corrosion resistant paint
<b>Process Wetted Materials:</b>	<b>Lining:</b> PFA <b>Electrodes</b> 316L ss, ASTM B574 (Hastelloy C-276 equivalent), Titanium, Tantalum, Nickel (except with Line Size Codes 002, 005, and 010), Zirconium, or Platinum-Iridium <b>Grounding Rings</b> 316 ss, ASTM B575 (Hastelloy C-276 equivalent), Titanium, Tantalum, Zirconium, or Platinum
<b>Approximate Weight</b>	Model MAG2RT (Remote Mounted Transmitter): 2.8 kg (6.2 lb)

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MAG2IC, MAG2RT and MAG2RS

## Model Codes

### Model MAG2IC - Magnetic Flowmeter with Integrally Mounted Magnetic Flow Transmitter

#### Output Signal

4 to 20 mA dc Analog Output with HART Communications (b) . . . . . T

#### Wiring Connection (Transmitter Enclosure)

G 1/2 Internal Thread - without Watertight Gland . . . . . A

G 1/2 Internal Thread - with one Plastic Watertight Gland . . . . . B

G 1/2 Internal Thread - with one brass Ni-Plated Watertight Gland . . . . . C

1/2 NPT Internal Thread - without Watertight Gland (a) . . . . . D

M20 Internal Thread - without Watertight Gland . . . . . E

G 1/2 Internal Thread - with two Plastic Watertight Glands . . . . . J

G 1/2 Internal Thread - with two Brass Ni-Plated Watertight Glands . . . . . K

#### Electrical Safety

No Approvals or Certifications . . . . . X

FM/CSA Approved/Certified Explosion proof, Class 1, Division 1 (a) . . . . . 1

FM/CSA Approved/Certified Nonincendive, Class 1, Division 1 (a) . . . . . 2

#### Optional Selections

None (Required selection if options are not selected) . . . . . -X

With Tag Number Plate on the Transmitter Enclosure; maximum 20 characters . . . . . -K

With Tag Number Plate attached to Flowmeter with Wire . . . . . -L

### Model MAG2RT - Remote Mounted Magnetic Flow Transmitter

#### Output Signal

4 to 20 mA dc Analog Output with HART Communications (b) . . . . . -T

#### Wiring Connection (Transmitter Enclosure)

G 1/2 Internal Thread - without Watertight Gland . . . . . A

G 1/2 Internal Thread - with one Plastic Watertight Gland . . . . . B

G 1/2 Internal Thread - with one brass Ni-Plated Watertight Gland . . . . . C

1/2 NPT Internal Thread - without Watertight Gland (a) . . . . . D

M20 Internal Thread - without Watertight Gland . . . . . E

#### Transmitter Mounting

Wall Mounting with Standard Surface Mounting Brackets . . . . . G

Nominal DN 50 or 2-inch Pipe Mounting with Standard Bracket Set . . . . . H

#### Electrical Safety

No Approvals or Certifications . . . . . X

FM/CSA Approved/Certified Nonincendive, Class 1, Division 2 (d) . . . . . 2

#### Optional Selections

None . . . . . -X

With Tag Number Plate on the Transmitter Housing; maximum 20 characters . . . . . -K

Corrosion-Resistant Paint . . . . . -2

(a) Wiring Connection Code D must be selected with Electrical Safety Code 1 or 2. (b) Code T replaces Code H.

(c) Code -T replaces -H. (d) Must select Wiring Connection D.

# MAG2 (2-Wire) Series Flowmeters

MAG2IC, MAG2RT and MAG2RS

## Model MAG2RS - Remote Mounted Magnetic Flowtube

### Output Signal

4 to 20 mA dc Analog Output with HART Communications (b) ..... T

### Wiring Connection (Transmitter Enclosure)

G 1/2 Internal Thread - without Watertight Gland ..... A

G 1/2 Internal Thread - with one Plastic Watertight Gland ..... B

G 1/2 Internal Thread - with one brass Ni-Plated Watertight Gland ..... C

1/2 NPT Internal Thread - without Watertight Gland (a) ..... D

M20 Internal Thread - without Watertight Gland ..... E

### Electrical Safety

No Approvals or Certifications ..... X

FM/CSA Approved/Certified Nonincendive, Class 1, Division 2 (a) ..... 2

### Optional Selections (see descriptions below)

#### Miscellaneous Options

None (required selection if options are not selected) ..... -X

With Tag Number Plate on the Flowtube Terminal Box; maximum 16 characters ..... -K

Corrosion-Resistant Paint ..... -2

Attached 304 ss Bolts and Nuts for Installation; Water Body Flowtube only ..... -4

#### Optional Cable Length Selection for interconnecting Flowtube to Remote Transmitter

None (make this selection if interconnecting cable is not desired) ..... -XX

2 m (6.6 ft) ..... -02

3 m (9.8 ft) ..... -03

4 m (13.1 ft) ..... -04

5 m (16.4 ft) ..... -05

10 m (32.8 ft) ..... -10

15 m (49.2 ft) ..... -15

20 m (65.6 ft) ..... -20

30 m (98.4 ft) ..... -30

40 m (131.2 ft) ..... -40

50 m (164.0 ft) ..... -50

60 m (196.8 ft) ..... -60

70 m (229.7 ft) ..... -70

#### Optional Terminals for Flowtubes (b)

Terminals for Flowtube and no Terminals on Transmitter ..... AX

No Terminals on Flowtube and with Terminals on Transmitter ..... XA

Terminals for both Flowtube and Transmitter ..... AA

(a) Wiring Connection Code D (1/2 NPT internal thread) must be selected with Electrical Safety Code.

(b) Select Optional Terminals only when an Optional Cable is selected.