## Specifications

| Item | | Description | | |
|---|---|---|---|---|
| Classification | | Immersion-proof type (compatible with commercially available cables) | Immersion-proof type (used with a dedicated cable) | Submersible type (buried type) |
| Model | Sensor | FMR204AW | FMR204AR | FMR204AU |
| | Converter | EFM204AW | EFM204AU | |
| Cable type | | Commercially available cable | Dedicated cable | |
| Piping connection | | Wafer type: diameter 2.5 - 40 mm Flange type: diameter 50 - 2,600 mm | | Flange type |
| Diameter (mm) | | 2.5, 5, 10, 15, 25, 40, 50, 80, 100, 150, 200, 250, 300, 350, 400, 450, 500, 600, 700, 800, 900, 1,000, 1,100, 1,200, 1,350, 1,500, 1,600, 1,800, 2,000, 2,200, 2,400, 2,600 | | 50, 80, 100, 150, 200, 250, 300, 350, 400, 450, 500, 600, 700, 800, 900, 1,000, 1,100, 1,200, 1,350, 1,500, 1,600, 1,800, 2,000, 2,200, 2,400, 2,600 |
| Design | Sensor | IP67 (immersion proof type) | | IP68 Submersible type (buried type) |
| | Converter | IP66 (water-proof type) | | |
| Flow measuring range | | Minimum range 0 - 0.1 m/s, maximum range 0 - 10 m/s in terms of flow velocity (varies depending on the diameter) | | |
| Accuracy | | +/-0.5% of reading (varies depending on the flow velocity and diameter) | | |
| Output signal | Flow signal | 4 - 20 mADC, load resistance: 1 kΩ max. | | |
| | Total flow pulse signal | Transistor contact (open collector) 1 pulse/h to 1,000 pulses/s | | |
| | Contact signal | A combination of up to five parameters selected among multiple-range, flow direction, flow switch, self-diagnosis | | |
| Display | | Instantaneous flow, total flow (backlit graphical liquid crystal display) | | |
| Optional function | | (1) Reverse flow output signal (flow, total flow pulse) (2) External contact input (remote range switching, zero clamp) | | |
| Fluid temperature | | – 20°C to 120°C (Varies depending on the lining material, pressure etc. Non-freezing) | | |
| Ambient temperature | Sensor | – 20°C to 60°C | | |
| | Converter | – 10°C to 60°C | | |
| Power supply | | 100 /110 VAC, 50/60 Hz, or 24 VDC | | |

Notice: For proper operation, follow the instruction manual when using the instrument.

Specifications in this catalog are subject to change with or without notice, as Hitachi High-Tech Solutions Corporation continues to develop the latest technologies and products for our customers.


**Hitachi High-Tech Solutions Corporation**

**http://www.hitachi-hightech.com/hsl/**

■ Instruments & Control Systems Sales Div.
Harumi Triton Square Office Tower X
1-8-10, Harumi, Chuo-ku, Tokyo, 104-6031 Japan
Tel: +81-3-6758-2092 FAX: +81-3-5859-5764

■ Mito Manufacturing Div.
500, Miyu-cho, Mito-shi, Ibaraki-ken 319-0316 Japan
Tel: +81-29-257-5100 FAX: +81-29-257-5120





Printed in Japan (H) **HTJ-E018** 2014.11


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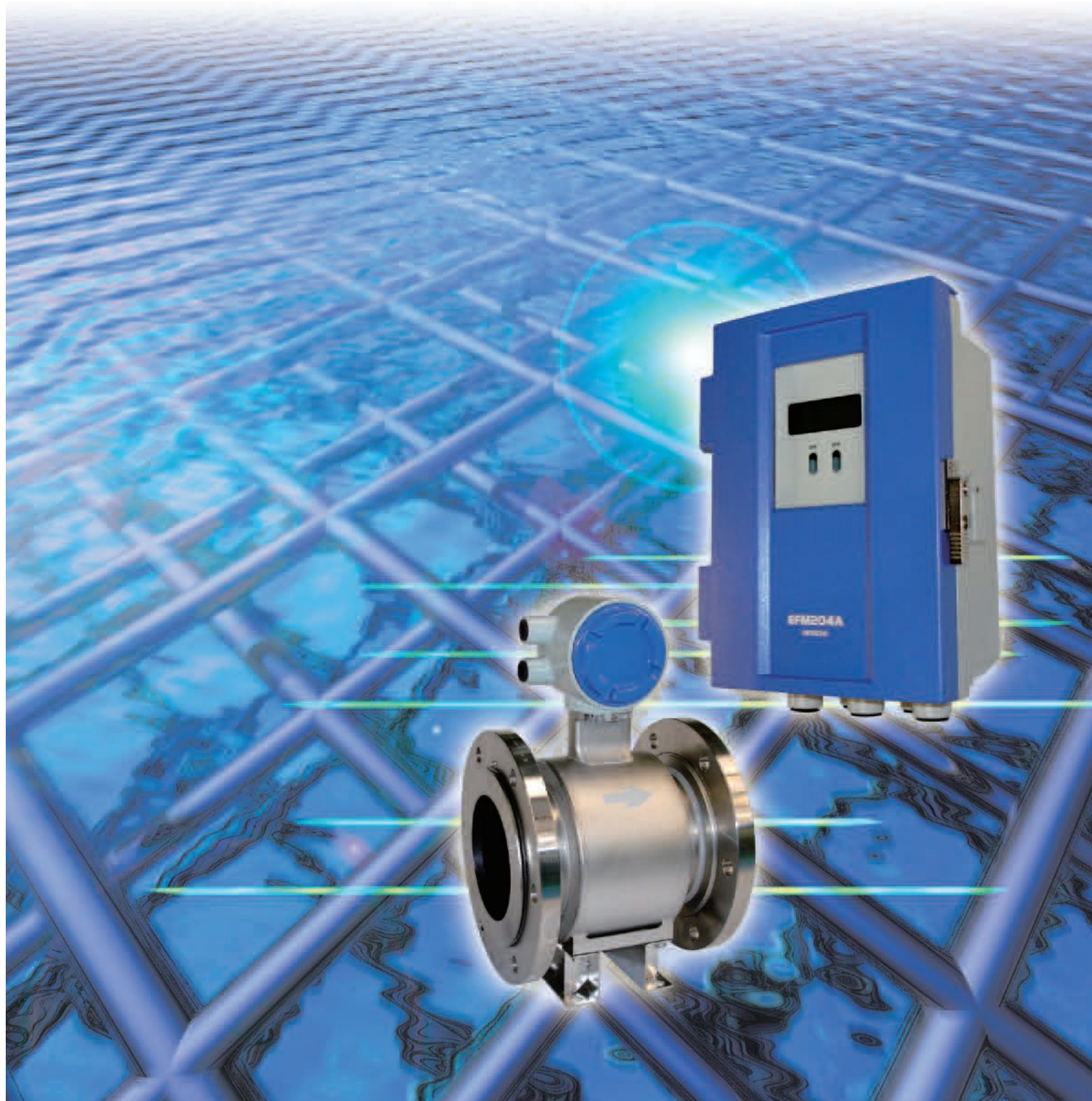
### Hitachi High-Performance Electromagnetic Flowmeter

# FMR204A



# FMR204A

## FMR204A features the reliability that withstands severe operating environments and high functionality that provides user convenience.

Hitachi has identified the needs for flow measurement and has always offered up-to-date solutions. The FMR204A series of flowmeters are high-performance electromagnetic flowmeters leveraging Hitachi's experience and expertise, which are also used for large-scale water processing facilities. The state-of-the-art electronics technology and flow/magnetic field/electric field analysis functions adopted for the series enhanced well-proven flowmeter performance to an even higher level. In addition to assured reliability and stability, the series features high functionality that enhances user convenience, such as reflection switches and backlit liquid crystal displays. The reduced power consumption of the products also contributes to the environmentally friendly features.

## Features


### A variety of functions is already in place

Controls for multiple ranges, flow direction, flow switch, self-diagnosis are provided as standard.
Analog/total-flow pulse signals for reverse flow can be output separately using an optional control.

### Reflection switches for better operability

The infrared reflection switches allow the setting of different functions without opening the cover.

### Easy-to-read indicator

The indicator is a backlit liquid crystal display.
The number of digits displayed has increased from 6 digits to 8 digits.

### Compatible with commercially available cables (model FMR204AW)

The sensor and converter are connected via a commercially available two-core cable (CVV-S).
The cable length can be extended up to 1,000 m.

### An immersion-proof high performance model has been added (model FMR204AR)

An immersion proof sensor suited for installation in areas affected by temporary floods or vibration-prone sites was recently added to FMR204A lineups.


### Enhanced waterproof property (model FMR204AU)

The conventional buried-type waterproof design was enhanced and developed into a submersible type (IP68).

### Earth friendly environment adaptive product

The power consumption has been reduced compared to the conventional products.
(Compared with FMR204U / FMR204AU can reduce 50%)

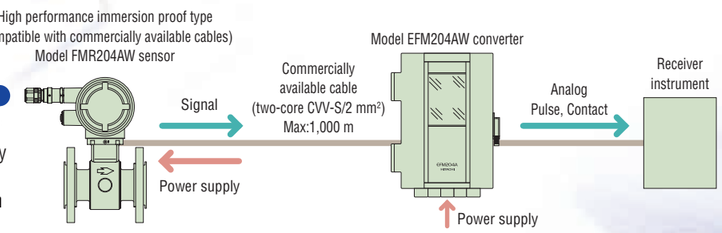
## Lineups and configuration examples

### FMR204AW

**High performance immersion proof type**

**Compatible with commercially available cables**

FMR204AW is a high-performance, immersion-proof flange-type* flowmeter (compatible with commercially available cables). The built-in amplifier in the sensor enables cable extension of up to 1,000 m using a commercially available two-core cable.

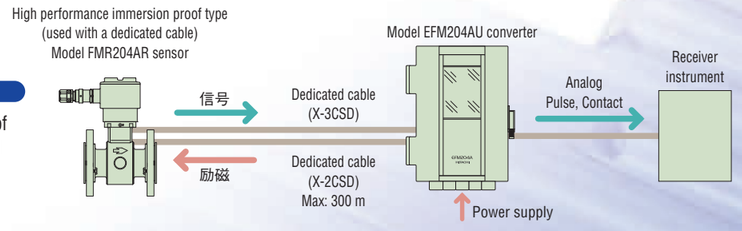



### FMR204AR

**High performance immersion proof type**

**Used with a dedicated cable**

FMR204AR is a high-performance, immersion-proof flange-type* flowmeter (used with a dedicated cable). The model is suited for installation in areas affected by temporary floods or vibration-prone sites.

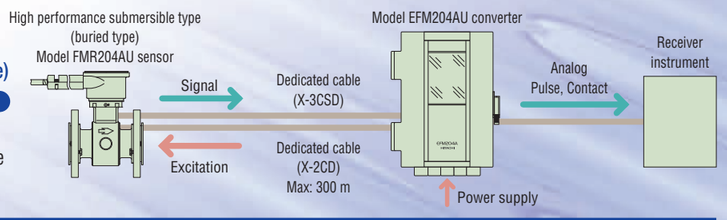



### FMR204AU

**High-performance submersible type (buried type)**

**Used with a dedicated cable**

FMR204AU is a high-performance, submersible flange-type flowmeter. The waterproof structure of the sensor is enhanced for long-term use under water.




*Sensors with diameters from 2.5 mm to 40 mm are wafer type sensors.

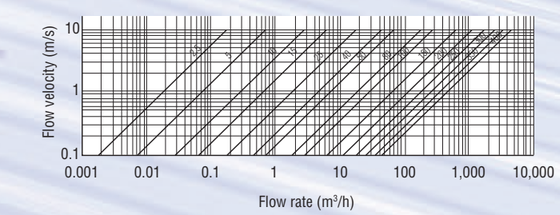
## Flow measuring range

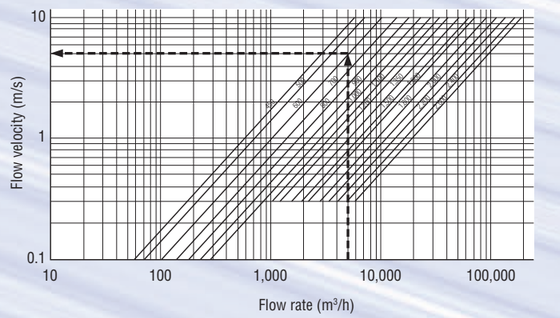
(m³/h)

| Diameter (mm) \ Flow velocity | Approx. 0.1 m/s (0 to minimum flow) | Approx. 1 m/s (0 to reference flow) | Approx. 10 m/s (0 to maximum flow) |
|---|---|---|---|
| 2.5 | 0 - 0.0018 | 0 - 0.018 | 0 - 0.18 |
| 5 | 0 - 0.007 | 0 - 0.07 | 0 - 0.7 |
| 10 | 0 - 0.031 | 0 - 0.31 | 0 - 3.1 |
| 15 | 0 - 0.07 | 0 - 0.7 | 0 - 7.0 |
| 25 | 0 - 0.18 | 0 - 1.8 | 0 - 18 |
| 40 | 0 - 0.453 | 0 - 4.53 | 0 - 45.3 |
| 50 | 0 - 0.70 | 0 - 7.0 | 0 - 70 |
| 80 | 0 - 1.8 | 0 - 18 | 0 - 180 |
| 100 | 0 - 3.1 | 0 - 31 | 0 - 310 |
| 150 | 0 - 7.0 | 0 - 70 | 0 - 700 |
| 200 | 0 - 11.3 | 0 - 113 | 0 - 1,130 |
| 250 | 0 - 17.7 | 0 - 177 | 0 - 1,770 |
| 300 | 0 - 25.4 | 0 - 254 | 0 - 2,540 |
| 350 | 0 - 34.6 | 0 - 346 | 0 - 3,460 |
| 400 | 0 - 45.2 | 0 - 452 | 0 - 4,520 |
| 450 | 0 - 57.3 | 0 - 573 | 0 - 5,730 |
| 500 | 0 - 70.7 | 0 - 707 | 0 - 7,070 |
| 600 | 0 - 102 | 0 - 1,020 | 0 - 10,200 |
| 700 | 0 - 139 | 0 - 1,390 | 0 - 13,900 |
| 800 | 0 - 181 | 0 - 1,810 | 0 - 18,100 |
| 900 | 0 - 229 | 0 - 2,290 | 0 - 22,900 |
| 1,000 | 0 - 283 | 0 - 2,830 | 0 - 28,300 |
| 1,100 | 0 - 1,030 | 0 - 3,420 | 0 - 34,200 |
| 1,200 | 0 - 1,220 | 0 - 4,070 | 0 - 40,700 |
| 1,350 | 0 - 1,550 | 0 - 5,150 | 0 - 51,500 |
| 1,500 | 0 - 1,910 | 0 - 6,360 | 0 - 63,600 |
| 1,600 | 0 - 2,170 | 0 - 7,240 | 0 - 72,400 |
| 1,800 | 0 - 2,750 | 0 - 9,160 | 0 - 91,600 |
| 2,000 | 0 - 3,390 | 0 - 11,300 | 0 - 113,000 |
| 2,200 | 0 - 4,110 | 0 - 13,700 | 0 - 137,000 |
| 2,400 | 0 - 4,890 | 0 - 16,300 | 0 - 163,000 |
| 2,600 | 0 - 5,730 | 0 - 19,100 | 0 - 191,000 |

*The minimum flow for diameters 1,100 mm and larger is approximately 0.3 m/s.

## Flow rate vs. flow velocity chart




### Description of chart

Taking the diameter 600 mm for example, when the flow rate is 5,000 m³/h, the flow velocity is approximately 5 m/s.
*The values in each chart indicate sensor diameters (mm).