



FUM03

Clamp-on Ultrasonic Flow Meter

Flow-FUM03

www.eyc-tech.com

| Features |

- Suitable for all kinds of liquids
- Suitable for all kinds of pipes, measuring range (DN08 ~ DN40)
- No need to cut the pipe for installation and used without downtime
- Quick installation, set the pipe diameter to complete the installation and measurement
- No contact with liquid, not afraid of dirt and corrosion, zero pressure loss

| Applications |

Process Precision Control and Leak Detection / Water Resources and Wastewater Treatment / HVAC Cooling Tower Systems and Energy Management / Industrial Process Monitoring and Control / Beverage Canning Machines / Machine Tool Coolant Management / Drainage Management and Detection Systems

Specification

| | | | |
|------------------------|---|-----------------------------|---|
| Applicable Pipe Size | | Data Retention Time | Approx. 1 year |
| Metric Units | DN8 (1/4") ... DN40 (1 1/2") | Power I/O Connector | M12 8pin connector |
| Pipe Material | Stainless steel, Carbon steel, Copper pipe, Aluminum pipe, PVDF, CPVC, PVC, PPR, PPH, PFA, HDPE | Output | |
| Fluid Temperature | 0°C ... 85°C (Pipe surface must not be frozen) | Switch Output | Instant / Window / Pulse / Accumulated / Error / No Signal NPN / PNP switchable open collector output : ≤ 26.4 VDC, ≤ 80 mA/ch, residual voltage ≤ 2.5 V |
| Maximum Flow Rate | 19.6 ... 376.8 L/min | Analog Output | 1 ... 5 V / 0 ... 10 V (switchable) Load resistance : $50k\Omega$ 4 ... 20 mA / 0 ... 20 mA (switchable) Load resistance : $\leq 300 \Omega$ Note 5 |
| Zero Cut-Off Flow Rate | 0.3 ... 1.0 L/min | Communication Interface | RS-485 |
| Detection Principle | Transmission Time Difference | Relay Output | Relay output : ≤ 30 VDC, max 1A, freq. <2Hz |
| Display | TFT2.0" | Power Supply | |
| Display Refresh Cycle | 4times/sec | Supply Voltage | DC24V $\pm 10\%$ Note 6 |
| Resolution | | Current Consumption | ≤ 200 mA Note 7 |
| Instantaneous Flow | 0.01, 0.1, 1 L/min | Protective Circuit | Power reverse protection, surge protection, output short-circuit protection Note 8 |
| Totalized Flow | 0.01, 0.1, 1 L (up to 8 digits) | Environmental Resistance | |
| Response Time | 0.5s, 1.0s, 2.5s, 5.0s, 10.0s | Enclosure Protection Rating | IP65/IP67 |
| Measurement Accuracy | | Operating Temperature | - 20°C ... +60°C (no freezing) |
| At 10% to 100% of F.S. | $\pm 2\%$ of F.S. Note 1, 2, 3 | Operating Humidity | 35% ... 85%RH (non-condensing) |
| At 0% to 10% of F.S. | $\pm 1\%$ of F.S. Note 1, 2, 3 | Vibration Resistance | 10Hz to 500 Hz power spectral density : $0.816 G^2/Hz$ (X, Y, Z directions) |
| Repeatability F.S. | $\pm 0.8\%$ Note 2, 4 | Menu Language | Traditional Chinese, English |
| Flow Unit | L/min, m ³ /h | Calendar Battery | CR1220 |
| Pulse Output Unit | 0.1 ... 999.99 L | Applicable Medium | Water, solution, chemical reagents (impurities $\leq 4\%$) |
| | | Applicable Viscosity | <300CST (mm ² /s) |
| | | Weight | DN8 / DN10 : 316 g, DN15 / DN20 : 309 g DN25 / DN32 : 392 g, DN40 : 503 g |

Note :

- The ultrasonic-measured liquid must not contain large amounts of bubbles. Measurement may become unstable depending on pipe material and conditions.
- Errors may occur due to the type of piping, condition, fluid type, and fluid temperature used by the customer.
- Zero-point adjustment was performed in a controlled environment at 25° C, considering linearity error.
- The definition assumes a stable velocity distribution. It does not account for pulsations or variations caused by equipment. The stated F.S. (Full Scale) should be interpreted using the rated flow range.
- The output impedance of the analog voltage type is approximately 1 k Ω . If the load impedance is low, the output value may differ significantly. Please verify and account for load impedance error before use.
- DC24V connection current varies depending on whether a load is connected. Consumption current may also vary. Please take special care.
- Load current must be below 200 mA. (Excluding expansion module)
- The built-in protection circuit only covers specific error conditions and load short circuits. It does not guarantee protection against all wiring errors.

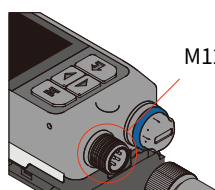
| Flow range |

| Pipe Diameter | DN08 | DN10 | DN15 | DN20 | DN25 | DN32 | DN40 |
|-----------------------------|------------|-------------|------------|------------|-------------|--------------|-------------|
| Minimum Flow Rate Note 1 | 0.6 L/min | 0.94 L/min | 1.06 L/min | 1.88 L/min | 2.94 L/min | 4.82 L/min | 7.54 L/min |
| Maximum Flow Rate Note 2 | 19.6 L/min | 30.62 L/min | 53 L/min | 94.2 L/min | 147.2 L/min | 241.15 L/min | 376.8 L/min |

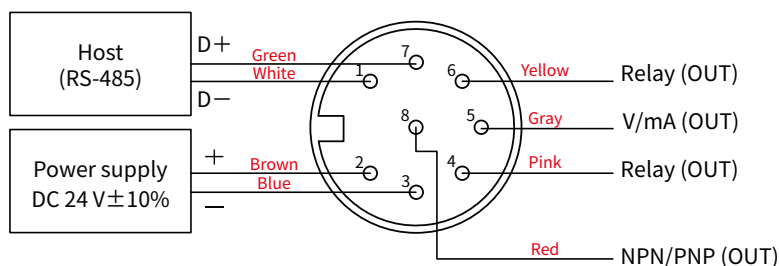
Note 1: For minimum flow rate Ø15 and above, flow is calculated at 0.1 m/s velocity; for Ø15 and below, at 0.2 m/s.

Note 2: For maximum flow rate Ø15 and above, flow is calculated at 5.0 m/s velocity; for Ø15 and below, at 6.5 m/s.

| Diagram |



M12 - 8P Power connector



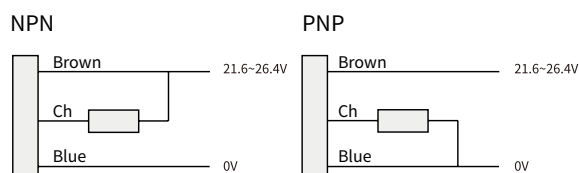
■ Wiring

Unused input wires must be individually insulated.

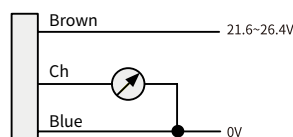
□ Load (Input Device)

⊗ Analog voltage/current input device

1. Wiring for switch output channel

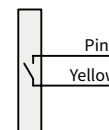


2. Wiring for analog output channel

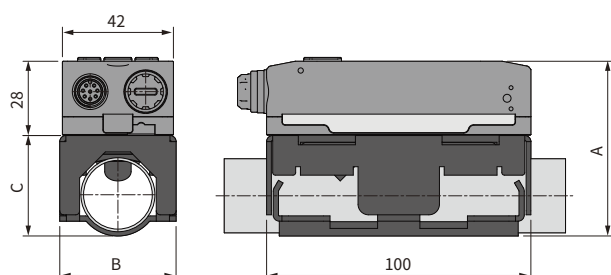


*Selectable output : 0 ... 20 mA / 4 ... 20 mA / 1 ... 5 V / 0 ... 10 V (via configuration)

3. Wiring for relay output channel



| Dimension | Unit : mm



| Pipe Diameter | DN08 | DN10 | DN15 | DN20 | DN25 | DN32 | DN40 |
|---------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Pipe Outer Diameter | ø13 ... ø16 | ø16 ... ø18 | ø18 ... ø23 | ø23 ... ø28 | ø28 ... ø37 | ø37 ... ø44 | ø44 ... ø52 |
| A | 54.9 | 56.9 | 61.9 | 66.9 | 75.9 | 82.9 | 90.9 |
| B | 44 | 44 | 44 | 44 | 60 | 60 | 84 |
| C | 26.4 | 28.9 | 32.8 | 39 | 46.2 | 54.6 | 60.9 |

| Ordering Guide |

Pipe Diameter
FUM03 — **25**

08 : DN8
10 : DN10
15 : DN15
20 : DN20
25 : DN25
32 : DN32
40 : DN40