Mini Vortex Flowmeter GTH

Combined Temp & Flow sensor

Combined Temp & Flow sensor

Self-Lit OLED clear display

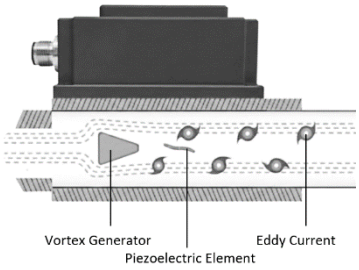
English + GUI easy menu

Dual output Digital + Analog

GTC Global Co., Ltd.
Tel: 82.53.762.6668 Fax: 82.53.355.7295
E-mail: gtcinfo99@gmail.com
Add.: 121-3, Yutongdanji-ro 8-gil, Buk-gu, Daegu, Korea 41515

1. Product Description

GTH_Mini Vortex Flowmeter operates based on the Kármán vortex street principle, theoretically proven by Theodore von Kármán in 1912, calculating the flow rate by detecting the frequency of vortices generated by an internal bluff body (vortex generator) using a high-sensitivity piezoelectric sensing element.



2. Product Features

● Integrated Temp & Flow Measurement	● Self-Illuminating OLED Display
● Smart Temp Display Alarm Contact Output	● Smart FLOW Display Alarm Contact Output
● Intuitive English GUI	● Digital Communication & Analog Integration
● High-Precision Probe Technology	● Anti-fouling Probe Scale/ Corrosion Resistant
● Fully Sealed Waterproof Housing	● High-Pressure Model

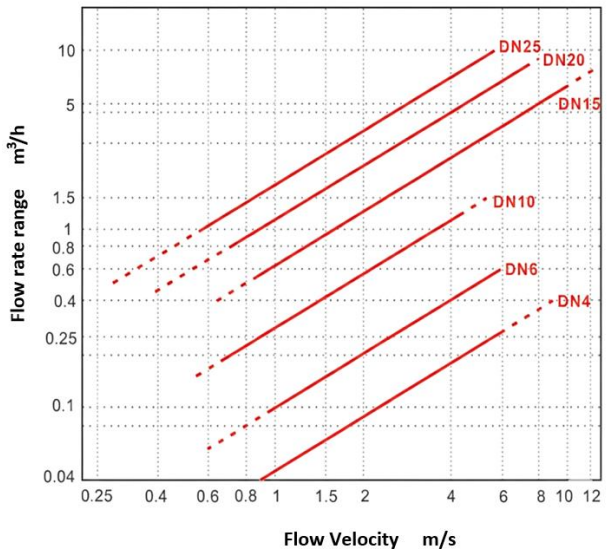
GTH_Mini Vortex Flowmeter features a simple structure, high accuracy, and easy installation, maintenance, and operation.
It enables real-time monitoring of liquid flow and temperature in pipelines, providing flow measurement via 4-20mA or pulse signals with alarm switch outputs, and temperature measurement via 4-20mA signals with alarm switch outputs.

Widely utilized in petrochemical, power, metallurgy, steel plants, papermaking, food processing, water treatment, and battery factories, this sensor ensures reliable performance in diverse industrial environments.

3. Technical Specifications and Parameters

Flow	**Measuring Range**	See the comparison table below
	Accuracy	±2% FS (Full Scale)
Temp.	**Measuring Range**	0 ~ 100°C (customizable)
	Resolution	0.1°C

Display Type & Resolution	OLED / 128 × 64
Power Supply & Consumption	24VDC / 3W
Switching time	Turn-on: ≤ 5s (1~3s) / Turn-off: ≤ 5s (1~5s)
Output Supply & Consumption	1 alarm contact, 4-20mA analog / pulse output (configurable)
Alarm contact type	NPN / PNP
Insulation resistance	50MΩ @ 100VDC
Contact Capacity	24V, 50mA
Interfaces	G1/4", G3/8", G1/2", G3/4", G1" internal thread
Housing material	Aluminum alloy
Base material	SUS304
Environmental conditions	-20 ~ 85°C, <85% RH
Protection grade	IP67

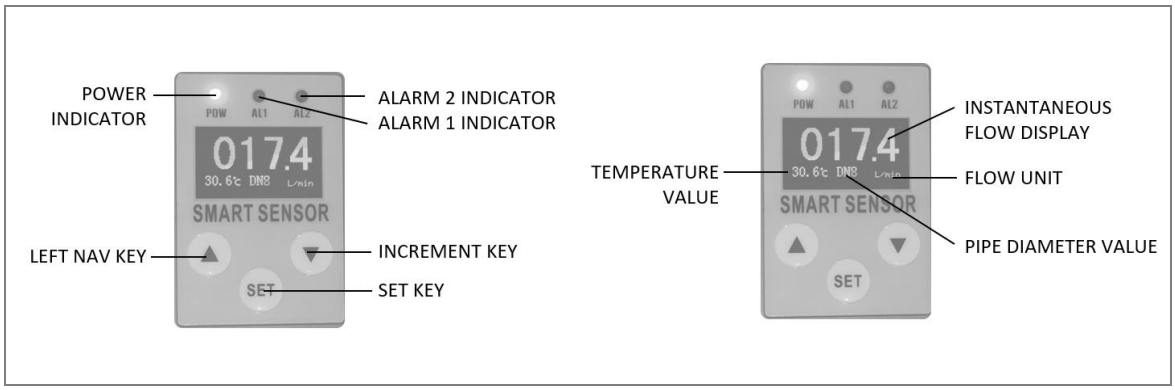


Pipe Diameter	Flow Rate Range	Thread
DN8	1 ~ 20 L/min	G1/2"
DN10	2 ~ 40 L/min	G1/2"
DN15	3.5 ~ 50 L/min	G1/2"
DN20	5 ~ 100 L/min	G3/4"
DN25	9 ~ 150 L/min	G1"

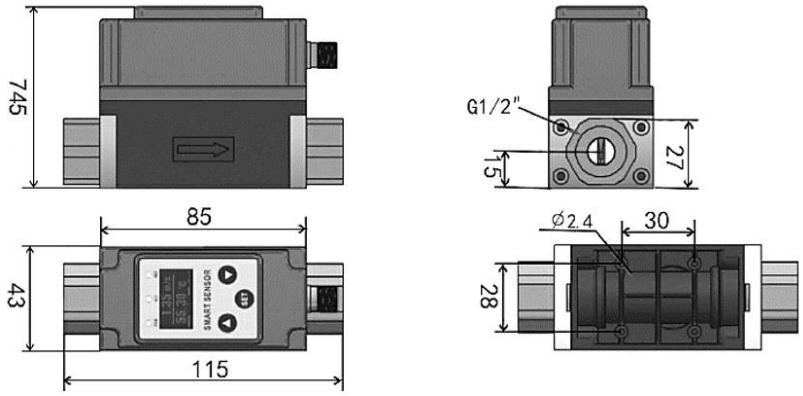
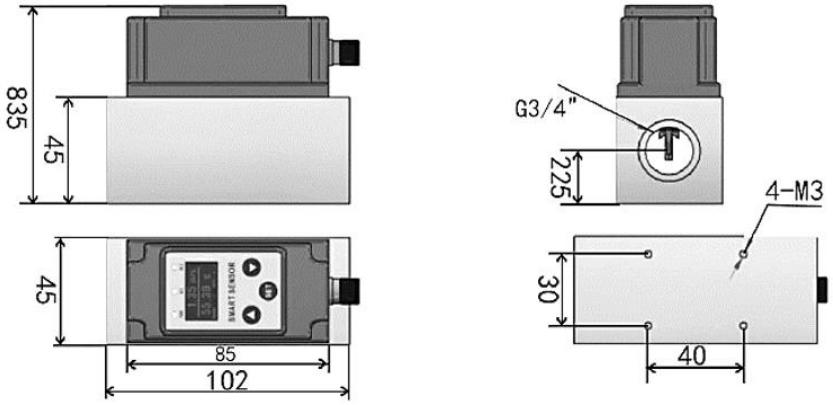
4. Installation and Configuration Diagram

4-1. Panel Introduction Interface & Controls

GTH_Mini Vortex Flowmeter to ensure measurement accuracy and minimize interference from irregular flow patterns or air bubbles, the GTH_Mini Vortex Flowmeter must adhere to specific straight pipe length requirements for both Upstream and Downstream sections.

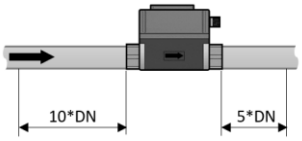
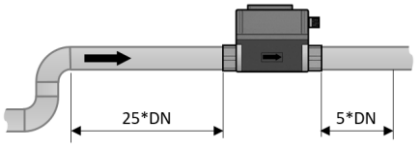
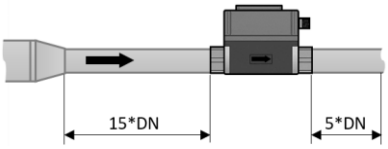
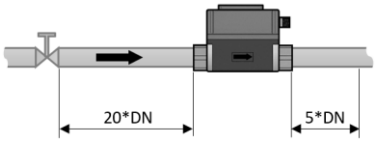


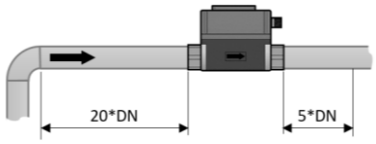
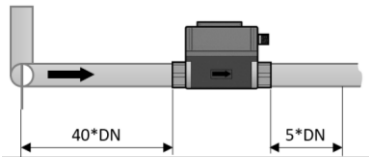
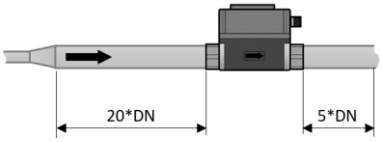
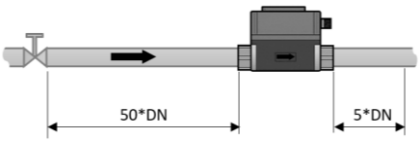
4-2. Dimension

Pipe Diameter **DN4~DN15**	
Pipe Diameter **DN20~DN25**	

4-3. Installation Instructions

To ensure measurement accuracy of the **GTH_Mini Vortex Flowmeter** and minimize interference from disturbed flow and air bubbles, the following requirements apply to upstream/downstream straight pipe sections:

Inlet Section Flow Restrictors Type	Installation Requirements	
	Inlet Section	Outlet Section
General Case		
Two 90° Elbows in the Same Plane		
Pipe Reducer		
Fully Open Valve		

Inlet Section Flow Restrictors Type	Installation Requirements	
	Inlet Section	Outlet Section
90° Elbow		
Two 90° Elbows in Different Plane		
Pipe Expander		
Fully Open Valve		

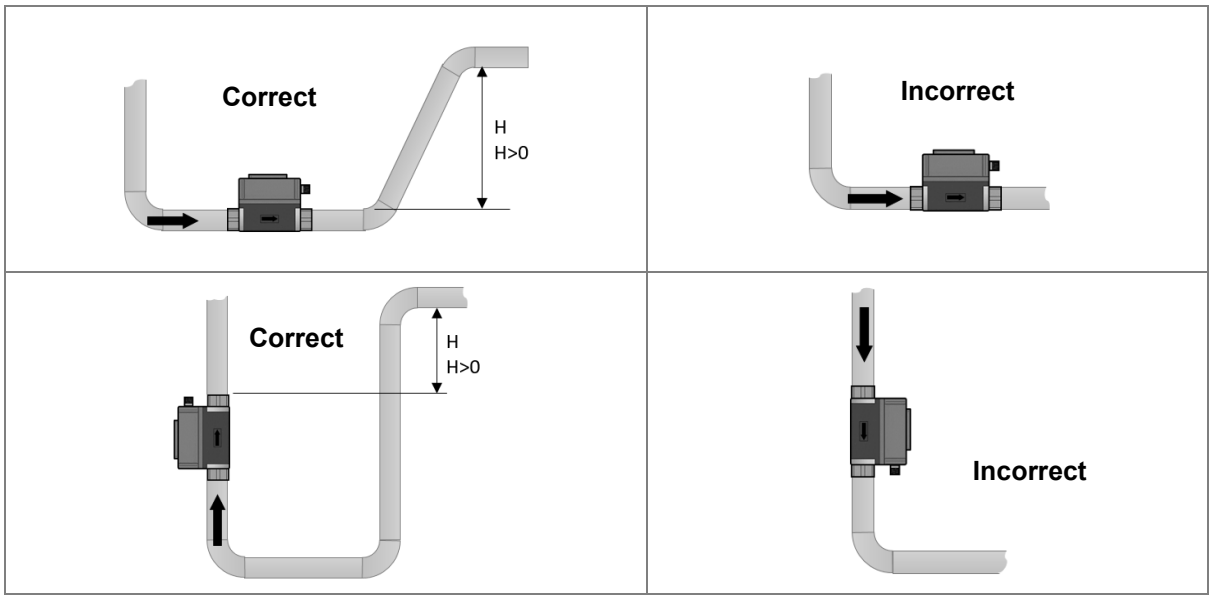
Notes:

The dimensions shown are the straight pipe installation lengths required to ensure accuracy requirements.
If the straight pipe length is doubled, measurement precision can be improved.

- **Upstream**: The minimum allowed straight pipe length must be at least 10 times the pipe diameter. For example, for a DN50 flow sensor, the upstream straight pipe length must be at least 500mm, while the optimal upstream length should be 1000mm.
- **Downstream**: The minimum allowed straight pipe length must be at least 5 times the pipe diameter. For example, for a DN50 flow sensor, the downstream straight pipe length must be at least 250mm, while the optimal downstream length should be 500mm.

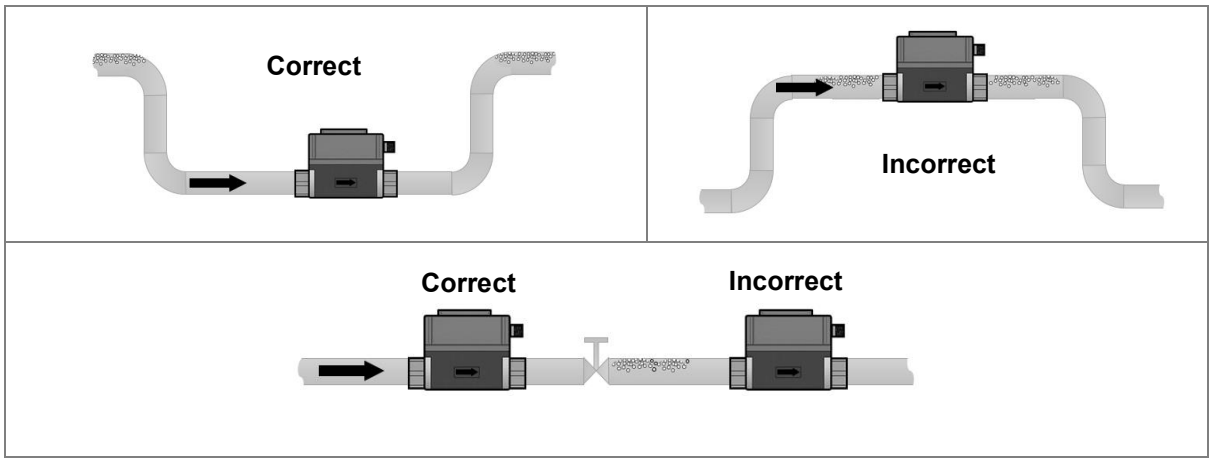
● **The pipeline must be entirely filled with liquid.**

It is critical that the pipe remains completely filled with liquid at all times; otherwise, the flow rate display may be affected, potentially leading to measurement errors.

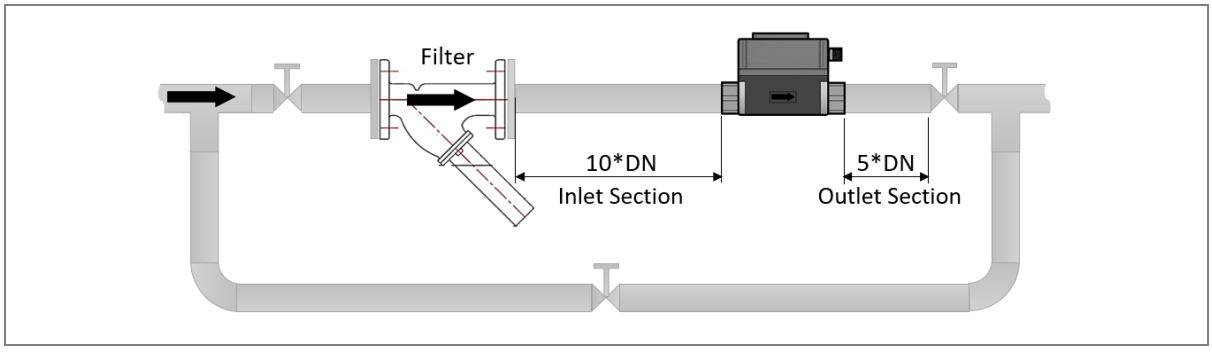


● **Avoid air bubbles.**

If air bubbles enter the measurement pipe, the flow rate display may be compromised, which could result in measurement inaccuracies.



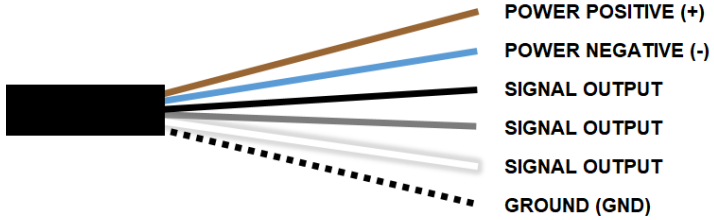
● **Installation location and requirements**



4-4. Pipeline installation precautions

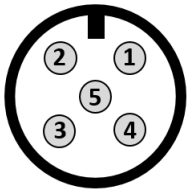
- Sensors should be installed in locations that facilitate maintenance, and must be free from pipeline vibration, strong electromagnetic interference, and thermal radiation effects.
- Horizontal installation: Pipeline inclination should not exceed 5°.
  Vertical installation: Vertical deviation should be ≤5°.
  For non-interruptible flow applications: Install a bypass pipe and shut-off valve; ensure zero leakage in the bypass pipe during measurement.
- Before formal sensor installation in new pipelines: Temporarily connect a short pipe section at the sensor position. Install the sensor only after confirming complete pipeline cleaning.
  For fluids with impurities: Install a filter upstream of the sensor; regularly clean and discharge settled impurities.
- For gas-containing liquids: Install a gas eliminator upstream; outlets of filters/ gas eliminators must be directed to safe areas.
- When installed outdoors: Implement measures to avoid direct sunlight exposure and prevent rain ingress.

4-5. Wiring Instructions



Power Connection: Brown (BN) for Positive (+) and Blue (BU) for Negative (-) power supply
Signal Outputs: Configure Flow/Temperature Alarms and 4-20mA outputs via Black (BK), Gray (GY), and White (WH) wires
Shielded Cable: Aviation-grade shielding design to minimize electromagnetic interference (EMI)

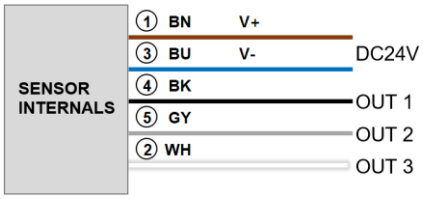
▶Wiring Instructions



Aviation Connector

Users can configure the output types of OUT1, OUT2, OUT3 with four options:
1. Flow Alarm
2. Temperature Alarm
3. Flow 4-20mA Output
4. Temperature 4-20mA Output

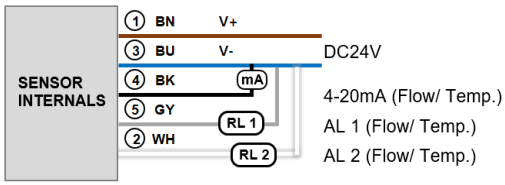
4-20mA, NPN/ PNP Output Wiring Diagram



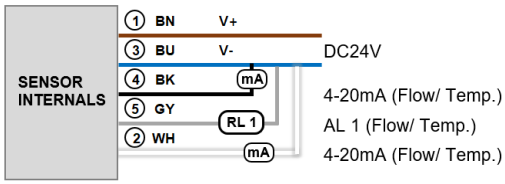
①	**Brown(BN)**	Positive (+) Power Supply / V+ (DC24V)
③	**Blue(BU)**	Negative (-) Power Supply / V-
④ (OUT1)	**Black(BK)**	Flow Alarm Switch Signal, Temp Alarm Switch Signal, Flow: 4-20mA Output, Temp..: 4-20mA Output
⑤ (OUT2)	**Gray(GY)**	Flow Alarm Switch Signal, Temp Alarm Switch Signal
② (OUT3)	**White(WH)**	Flow Alarm Switch Signal, Temp Alarm Switch Signal, Flow: 4-20mA Output, Temp..: 4-20mA Output

▶ PNP Output

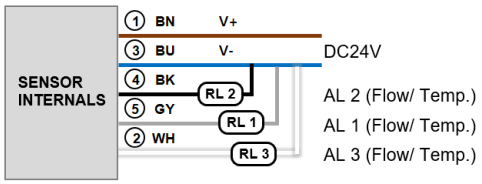
Channel 1: 4-20mA Current,
Channel 1: PNP Alarm Output,
Channel 2: PNP Alarm Output



Channel 1: 4-20mA Current,
Channel 2: 4-20mA Current,
Channel 1: PNP Alarm Output

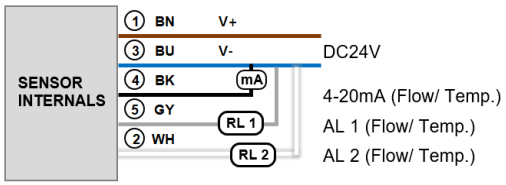


Channel 1: PNP Alarm Output,
Channel 1: PNP Alarm Output,
Channel 3: PNP Alarm Output

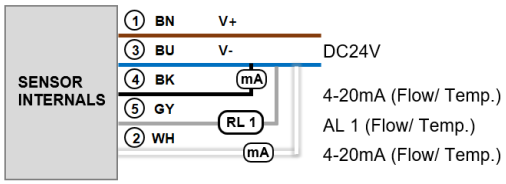


▶ NPN Output

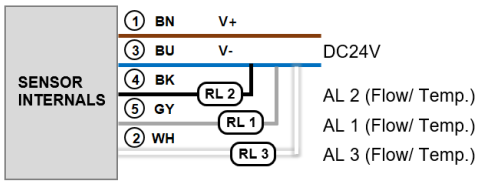
Channel 1: 4-20mA Current,
Channel 1: NPN Alarm Output,
Channel 2: NPN Alarm Output



Channel 1: 4-20mA Current,
Channel 2: 4-20mA Current,
Channel 1: NPN Alarm Output

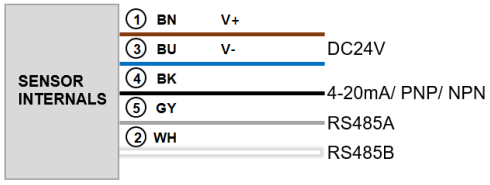


Channel 1: NPN Alarm Output,
Channel 1: NPN Alarm Output,
Channel 3: NPN Alarm Output



▶ RS485 Communication output

RS485 Communication, Single signal output



5. Ordering model selection

Code		Description
Model: GTH		**Mini Vortex Flowmeter**
Flow rate range	**8**	1 ~ 20 L/min
	10	2 ~ 40 L/min
	15	3.5 ~ 50 L/min
	20	5 ~ 100 L/min
	25	9 ~ 150 L/min
Flow/temperature alarm	**P**	3-wire DC PNP output
	N	3-wire DC NPN output
Communication method	**N**	None
	R	RS485 Communication