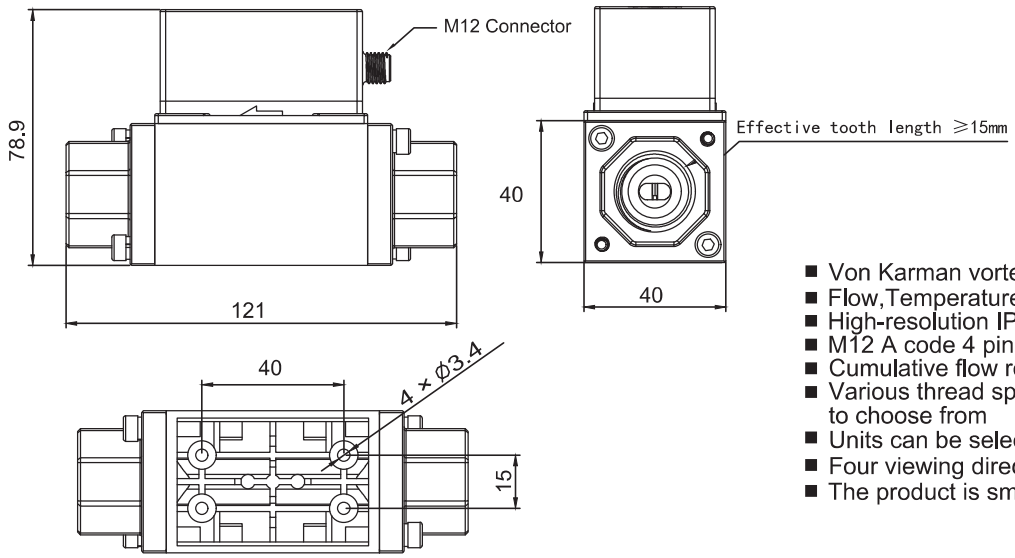
Vortex Flow Sensor

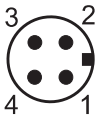
FMV-040-2AO-XXX Dual 4-20mA output (Flow,temperature) XXX:Select by interface



- Von Karman vortex principle vortex flow sensor
- Flow,Temperature dual output,Dual Display
- High-resolution IPS display
- M12 A code 4 pin interface
- Cumulative flow recording function
- Various thread specifications and models to choose from
- Units can be selected, simple button menu operation
- Four viewing directions can be switched
- The product is small in size and occupies little space

Model	FMV-040-2AO-G12 FMV-040-2AO-RC12 FMV-040-2AO-NPT12	FMV-040-2AO-G34 FMV-040-2AO-RC34 FMV-040-2AO-NPT34
Operating / load voltage	24VDC ± 10%	
Operating current	<100mA	
Flow parameters		
Measuring medium	water	
Measuring range	5 - 40 L/min (0.3 - 2.4 m^3/h)	
Flow accuracy	< 3.0%F.S	
Cumulative flow range	99999L or 99999m^3 Note:Power off reset,For reference only	
Contact liquid material	PPS/SUS304(Stainless steel)	
Process connection	Thread G or RC or NPT Model selection	
Pressure Level	10bar,greatest pressure16bar	
Real-time flow unit	L/min m^3/h button optional	
Temperature parameters		
Measuring range	0-100˚C	
Temperature accuracy	1˚C	
Display units	˚C or ˚F Button optional	
Analog output		
Output channels	2	
Interface Type	M12 4-pin	
Output method	4-20mA output	
Output data correspondence	Button optional (OUT1:Flow OUT2: Temperature) (OUT1:Temperature OUT2: Flow)	
Ambient temperature	-10...+65°C	
Protection level	IP65	

M12 connection



1 = +24VDC
2 = OUT2
3 = 0V
4 = OUT1

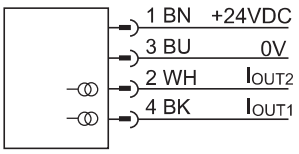
Note:The data relationship button corresponding to the pin is optional

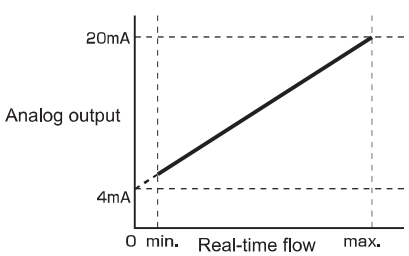
OUT1: Flow data OUT2: Temperature data

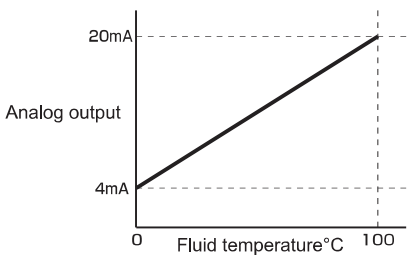
or

OUT1: Temperature data OUT2: Flow data

Wiring Diagram







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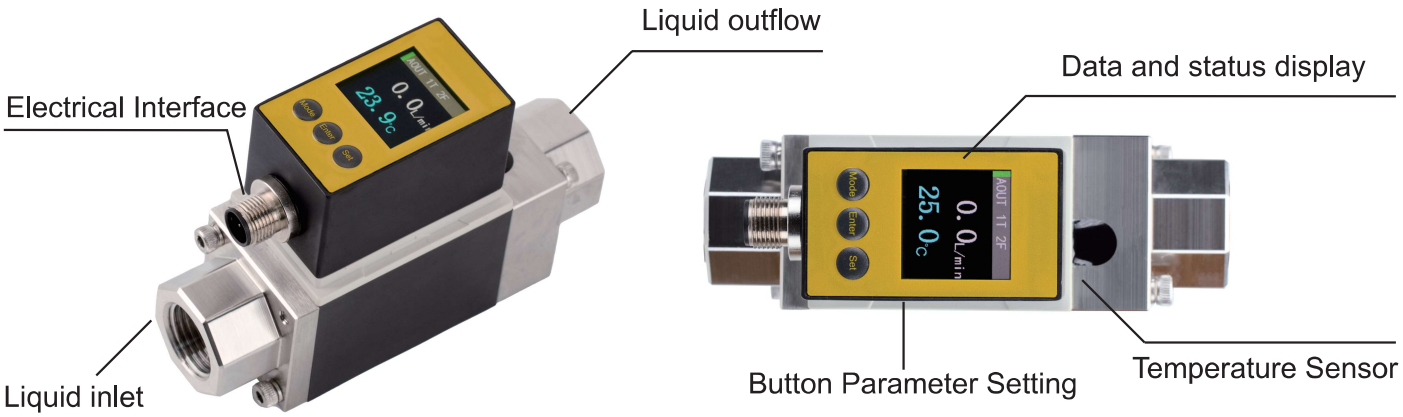
Product structure



Product model naming rules

Product Series Name **FMV-040-2AO-G38**

Flowmeter Vortex

Range

016 : 2 - 16L/min
040 : 5 - 40L/min
100 :10 - 100L/min

output signal

2AO : Two 4-20mA outputs
2VO : Two 0-10V outputs
IOL : Two-way switching IO-Link

Interface thread specifications

Model code	Corresponding specifications	Adaptable range
G38	G3/8	016
RC38	RC3/8	016
NPT38	NPT3/8	016
G12	G1/2	016 040
RC12	RC1/2	016 040
NPT12	NPT1/2	016 040
G34	G3/4	100 040
RC34	RC3/4	100 040
NPT34	NPT3/4	100 040
G1	G1	100
RC1	RC1	100
NPT1	NPT1	100

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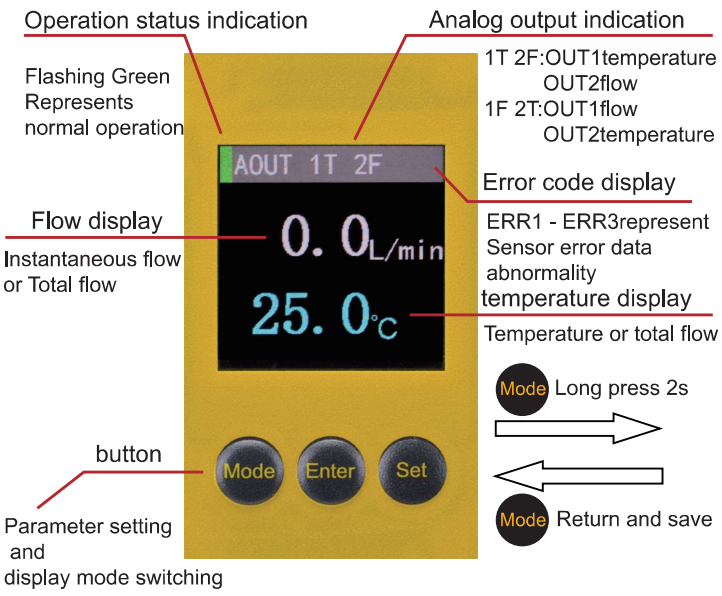
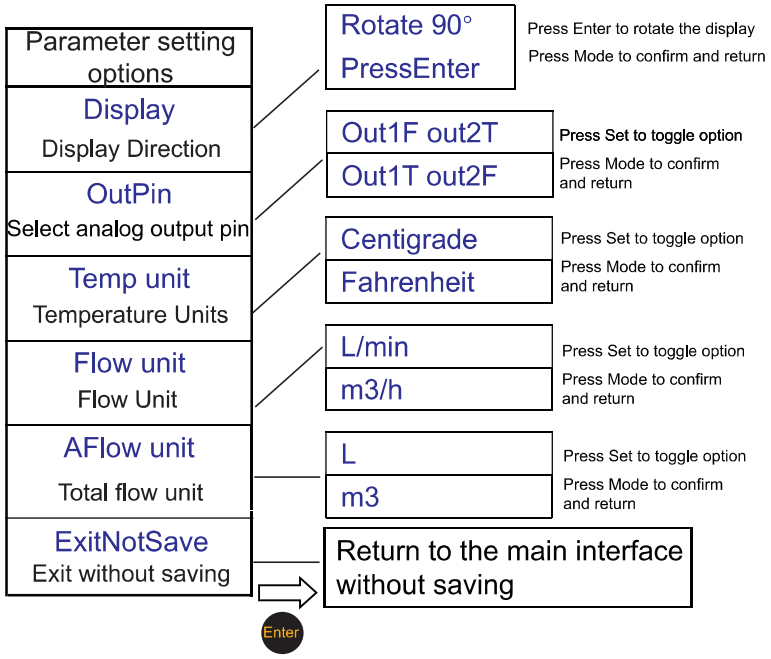
Display and parameter settings

Main interface display



First menu / Secondary menu



Main interface operation

※Press the Mode key for 2s to enter the first level menu
※Press Enter for 4 seconds to switch between instantaneous flow and cumulative flow display in the flow display bar
※Press the Set key for 4 seconds to switch between temperature and cumulative flow display in the temperature display bar
※When the cumulative flow is displayed, press Enter + Set for 4 seconds to clear the cumulative flow

First level interface operation

※ Press the Set key to switch the setting options
※ Press Enter to select the Settings option
Go to the next level menu
※ Press the Mode key to return to the main interface and save the setting parameters

Secondary interface operation

※ Press the Set key to switch the setting options
※ Press Enter to select the Settings option
※ Press the Mode key to return to the first level interface and select the settings option

Notice:

1.The accumulated flow will be cleared when the power is turned on; there is an error in the accumulated flow, which is for reference only;
2.When the flow display bar and the temperature display bar both display the accumulated flow, the two display units automatically switch to different units;
3.After entering the menu and not performing any operation, the system will automatically exit the menu and return to the main interface in 3 minutes without saving the settings.
4.When the flow rate exceeds the detection range, the flow display characters will turn red and flash at a frequency of about 1HZ;
5.When the error code display area displays ERR1 to ERR3, the displayed data is abnormal and the sensor is abnormal. Please contact the manufacturer;
6.In the main interface, if the green frame in the operation status display area flashes, it is normal operation. If it does not flash, the sensor is abnormal, please power on again;

Piping precautions

When piping the product, use a wrench to connect the metal parts (pipe fittings) that are integrated with the piping. If a wrench is used on other parts, the flow sensor may be damaged. The safe torque for piping is shown in the table below.

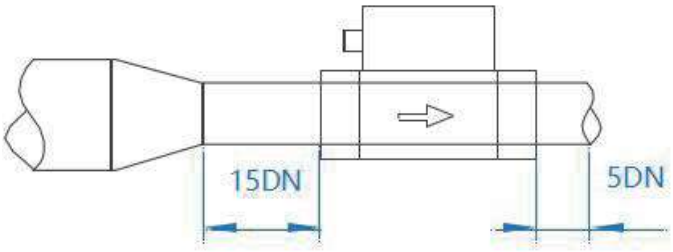
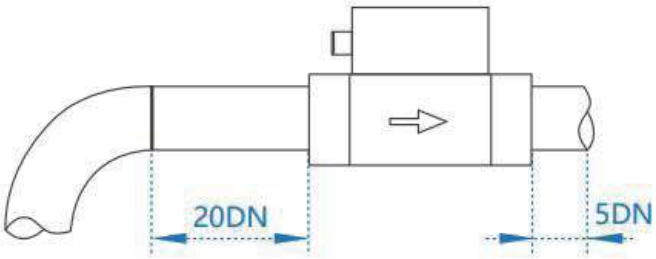
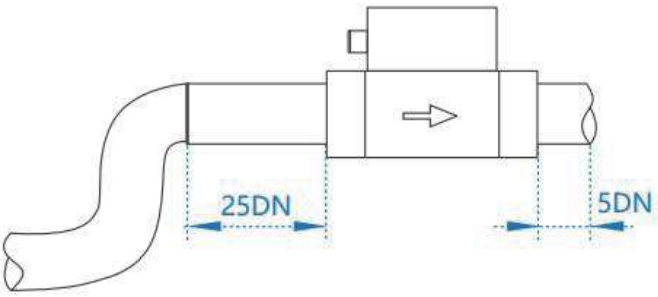
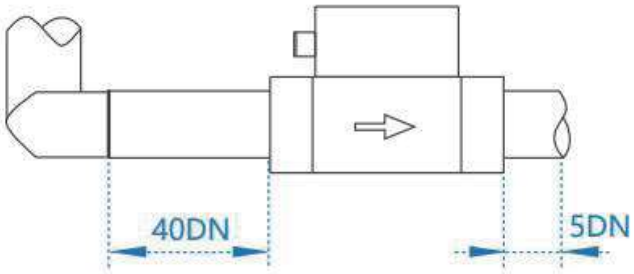
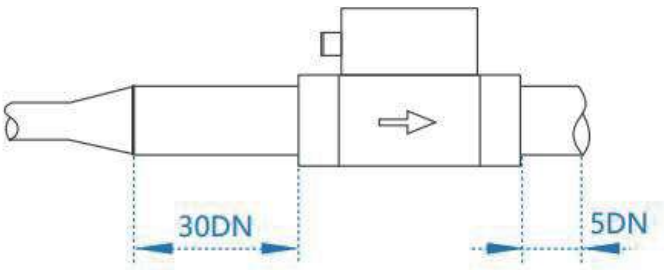
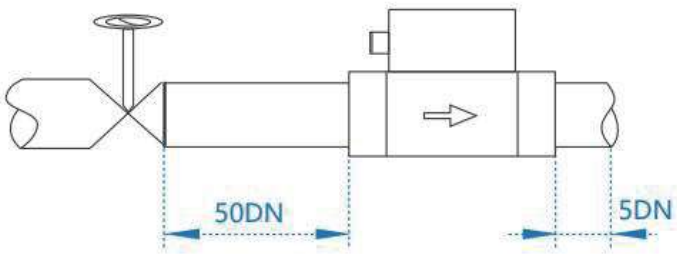
Thread (G/RC/NPT)	3/8	1/2	3/4	1
Applicable torque range	22～24 N·m	28～30 N·m	28～30 N·m	36～38 N·m
Torque safety range	<200N·m	<200N·m	<200N·m	<200N·m

Pipeline installation precautions

For the sensor to work properly, the following instructions must be followed:
1. Avoid multiple bends that are not on the same level before approaching the inlet.
2. The inner diameter of the pipe cannot be smaller than the inner diameter of the measuring pipe.

The table on the right shows the pipe installation requirements for different situations.

Sensor upstream pipeline type and straight pipe length before and after

Pipe type upstream of sensor	Length of front and rear straight pipe sections
Concentric contraction fully open valve	
One 90 degree elbow	
Two 90 degree elbows on the same plane	
Two 90 degree elbows in different planes	
Concentric expansion	
Regulating valve half open valve (not recommended)	

Note: DN represents the nominal diameter or diameter of the pipe.