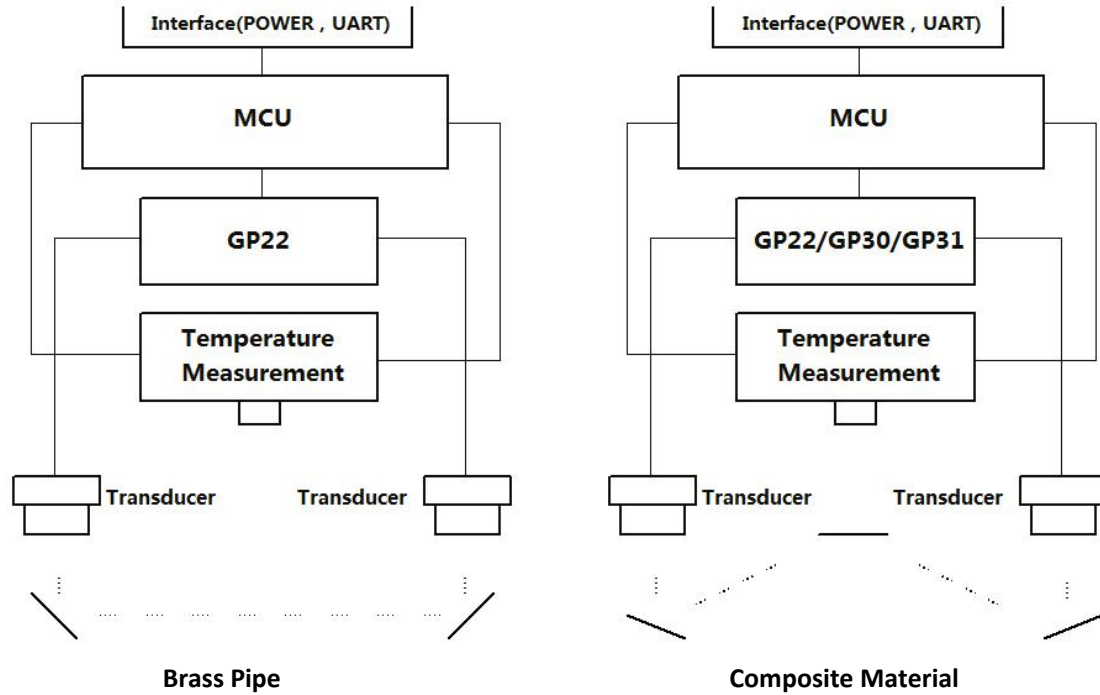


Ultrasonic Water Metering Module

Version: 2018-10-09

1. Block Diagram



2. Measurement Characteristics

Flow calculation model and temperature compensation algorithm are integrated in the modules.

GP22 solution:

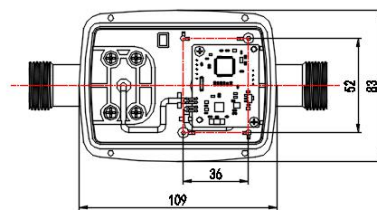
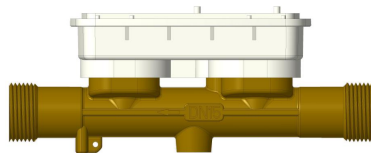
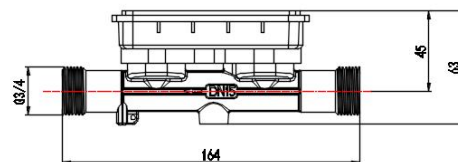
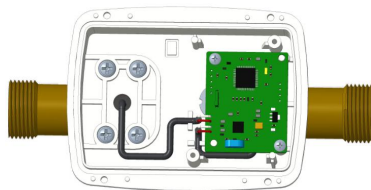
Nominal Diameter (DN)	15	20	25	32	40
Starting Flow (m ³ /h)	0.002	0.003	0.003	0.005	0.005
Minimum Flow Rate Q ₁ (m ³ /h)	0.010	0.016	0.025	0.040	0.064
Transitional Flow Rate Q ₂ (m ³ /h)	0.016	0.025	0.040	0.064	0.100
Permanent Flow Rate Q ₃ (m ³ /h)	2.5	4.0	6.3	10.0	16.0
Overload Flow Rate Q ₄ (m ³ /h)	3.125	5.0	7.875	12.5	20.0
Flow Range Ratio (Q ₃ /Q ₁)	400 ^① 、250 (default)				
Accuracy Class	Class 2				
Temperature Classes	T30				
Sample Rate	0.5Hz~4Hz, fixed or self-adaption(default)				
Maximum Admissible Pressure	1.0MPa				
Pressure Loss Range	<63kPa、<40kPa				
Flow data storage	Accumulation flow(90 days)				

GP30/GP31 solution:

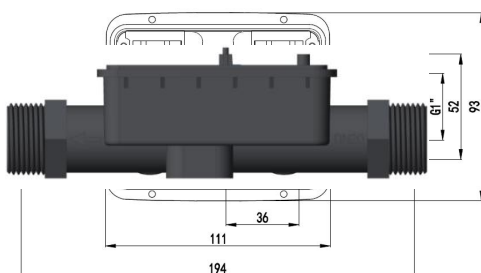
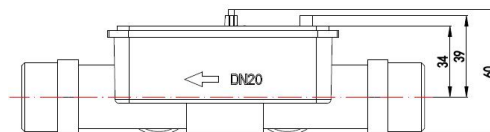
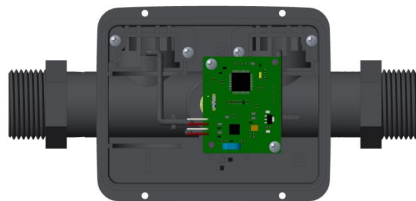
Nominal Diameter (DN)	15	20	25	32	40
Starting Flow (m ³ /h)	0.002	0.003	0.003	0.005	0.005
Minimum Flow Rate Q ₁ (m ³ /h)	0.010	0.016	0.025	0.040	0.064
Transitional Flow Rate Q ₂ (m ³ /h)	0.016	0.025	0.040	0.064	0.100
Permanent Flow Rate Q ₃ (m ³ /h)	2.5	4.0	6.3	10.0	16.0
Overload Flow Rate Q ₄ (m ³ /h)	3.125	5.0	7.875	12.5	20.0
Flow Range Ratio (Q ₃ /Q ₁)	400、250 (default)				
Accuracy Class	Class 2				
Temperature Classes	T50 [®] 、T30(default)				
Sample Rate	8Hz~32Hz, 8Hz (default)				
Maximum Admissible Pressure	1.0MPa				
Pressure Loss Range	<63kPa、<40kPa				
Flow data storage	Accumulation flow(90 days)				

3. Mechanical Assembly

Small diameter module(DN15 Brass Pipe)[®]



Small diameter module(DN20 Composite Material)



Assembly Importance: Make sure the spool piece is

full of water, avoid bubble generating

Water metering module needs to be combined with the user's entire

structure^④ to realize waterproof.

Interface wires^⑤:

Four core shielded lines	Wire 4*0.12mm ² ,
	External diameter 3.4mm, length 100mm
	Power positive: (Red)
	Power negative: (Black)
	UART TX: (Yellow)
	UART RX:(White)

4. Electrical and Communication Interface

Power: Regulated power supply, in the range of 3.4V ~ 5.5V, can provide 20mA peak current.
The higher power is recommended.

Communication Interface: UART, 3.3V, Baud Rate: 2400bps、 Even parity check、 Data bit: 8bit、 Stop bit: 1bit.
UART TX can be used to wake up the user's board, falling edge active(water flow every 1L @ normal mode, water flow every 1s@test mode, abnormalities). After UART TX wakes up the user's board, UART communication can be performed after 100us.

Communication Command^⑥: information read、 setup and etc.

Power consumption:

30uA minimum	Self-adaptation sample rate, 4Hz~0.5H @ GP22 solution
	Sample rate, 8Hz @GP30/GP31 solution

5. Ordering information

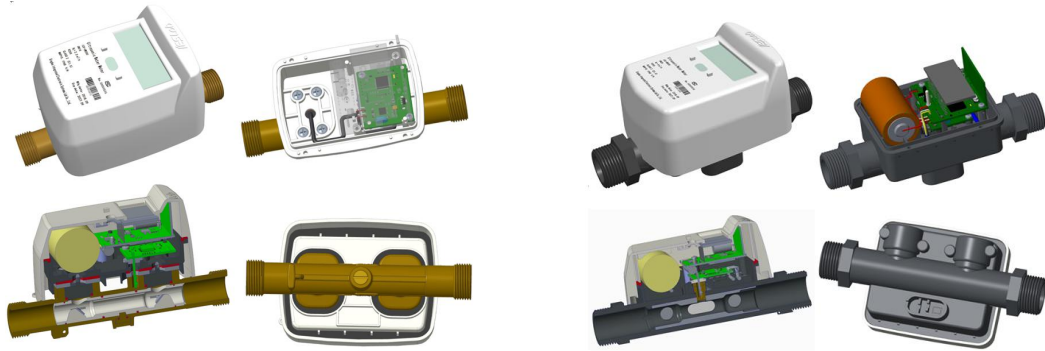
Water metering module	Part number	Markup information
With brass pipeline (with calibration parameter)	IA-UWM-1-GPxx-DNxx	IA-UWM-1-GPxx-DNxx-YYYYMMDD-SSSSSS
With brass pipeline (without calibration parameter) ^⑦	IA-UWM-2-GPxx-DNxx	IA-UWM-2-GPxx-DNxx-YYYYMMDD-SSSSSS
With Composite Material (with calibration parameter)	IA-UWM-3-GPxx-DNxx	IA-UWM-3-GPxx-DNxx-YYYYMMDD-SSSSSS
With Composite Material (without calibration parameter)	IA-UWM-4-GPxx-DNxx	IA-UWM-4-GPxx-DNxx-YYYYMMDD-SSSSSS

GPxx = **GP22/GP30/GP31 solution**, DNxx = **nominal diameter**, YYYY = **year**, MM = **month**, DD = **day**, SSSSSS = **product serial number that day**

For example: IA-UWM-1-GP30-DN15-20180913-123456

Remarks

- ① Please contact iESLab if you select other flow range ratio.
- ② Please contact iESLab if you select T50 temperature class.
- ③ DN15 shares most design with small diameter water metering module(DN20-DN40), more details please contact iESLab.
- ④ For the reference design of the entire structure, please contact iESLab.
- ⑤ Please contact iESLab for wiring method of other interface.
- ⑥ Regarding the detail communication command, please contact iESLab.
- ⑦ Water metering module without calibration parameter needs to be calibrated by the matching ultrasonic water meter calibration table. Please contact iESLab.
- ⑧ Sample Applications as below.



- ⑨ Ultrasonic water meter calibration table as below.

