

T3-1-2-K Sandwich-type Ultrasonic Water Meter

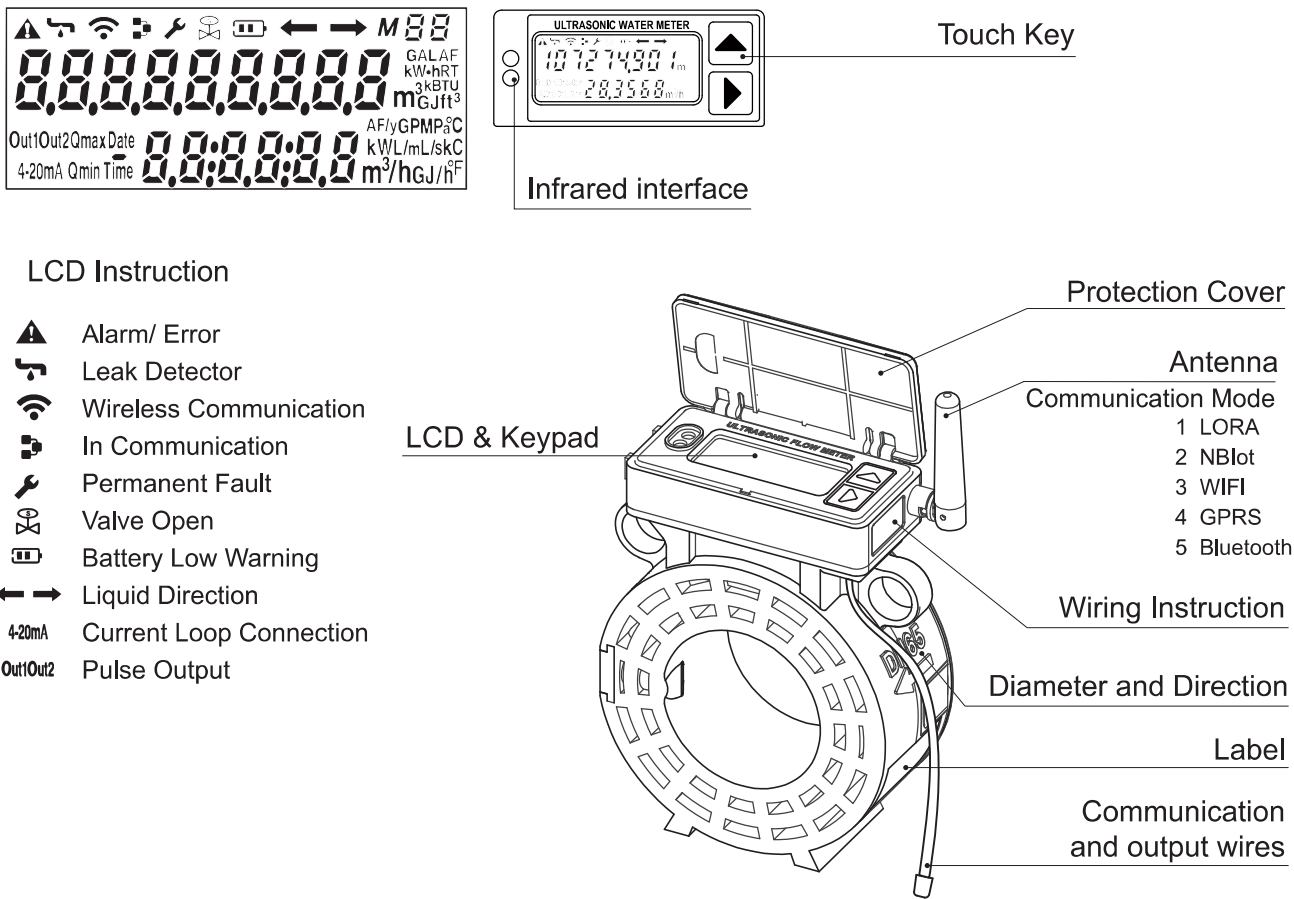
Quick Installation and Operation

Welcome to use T3-1-2-K ultrasonic water meter.

The highly integrated T3-1-2-K sandwich-type ultrasonic water meter is designed and manufactured strictly according to GB/T778.1-2007, ISO4064-1:2005 etc., based on ultrasound transit-time measurement technology.

1.Parts Description

T3-1-2-K ultrasonic water meter has wired type as standard configuration, wireless type need to be customized.



Parts Description

Wiring Instructions

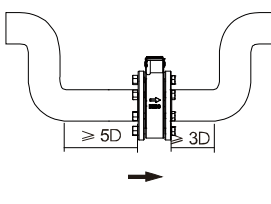
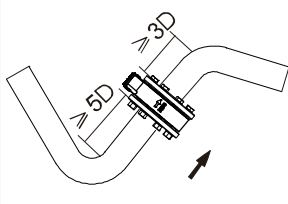
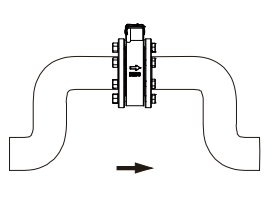
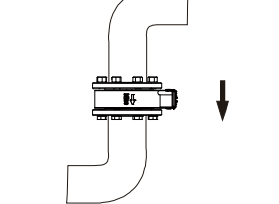
► RS485 Black Two-core cable Brown 485+ Blue 485-	► MBUS Grey Two-core cable Brown MBUS+ Blue MBUS-	► RS485 & MBUS Black Four-core cable Red MBUS+ Black MBUS- Yellow 485+ Green 485-	► TTL Black Three-core cable Brown GND Yellow TXD Blue RXD	► RS485 & MBUS & Two way OCT Black Eight-core cable Red MBUS+ Black MBUS- Yellow 485+ Green 485- Brown OCT1+ Blue OCT1- White OCT2+ Grey OCT2-
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► PS: MBUS does not need to distinguish between positive and negative.

2.Installation Instructions

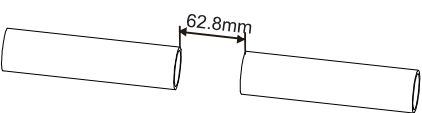
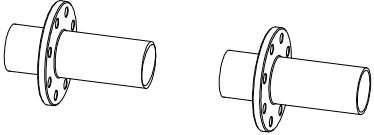
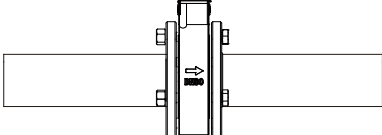
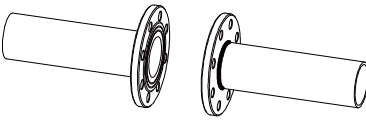
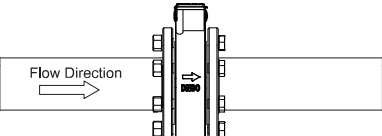
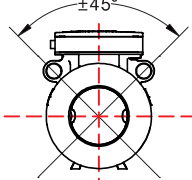
2. 1 Choose the installation point

When install the water meter, the upstream straight pipe line should be $\geq 5D$, downstream straight pipe line should be $\geq 3D$, 20D from the pump(D is the pipe diameter), and the water should be full of pipe lines.

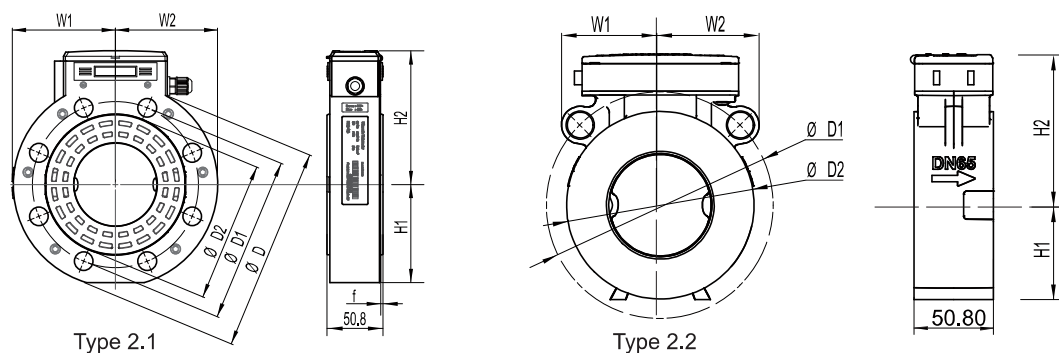
Correct installation point		Wrong installation point	
			
Lowest point of the pipe line, water will be full of pipe. Flow is vertically or obliquely upward. Upstream straight pipe line $\geq 5D$.		Highest point of the pipe line, water would be not full of pipe. Flow is vertically or obliquely downward. Upstream straight pipe line $\leq 3D$.	

► Note: Arrow direction is the flow direction.

2. 2 Installation Method

1.Confirm installation size Cut 62.8mm of the pipeline { water meter thickness is 50.8mm 2 pcs seal gasket thickness is 6mm reserve space is 6mm 	2. Install companion flange 
3.Fixed flange Install water meter with 3 screws to fix the flange properly, then spot welding. 	4.Weld flange Take out water meter and weld flange. 
5.Install water meter with seal gasket after cooling, tighten the screws ► Make sure direction sign on water meter is same with the real flow direction. 	6.Installation angle Top of the pipe line may be not full of water, suggest to install the water meter on vertical direction of pipe line within a $\pm 45^\circ$ angle, pls refer to below picture. 

2.3 Water Meter Dimension



► Note: Below is theoretical value, pls refer to actual received product. to be customized

Unit: mm

Nominal Diameter	Flow Meter Dimension					Flange Dimension					Weight (Kg)
	L	H1	H2	W1	W2	Outside Diameter D	Diameter of Bolt Circle D1	Bore Diameter x Quantity φ×n	Ralsed Face		
									Outside Diameter D2	Height f	
DN50	50.8	52	91	58	58	102	125	16.5×2	102	2	0.7
DN65-1	50.8	86	124	92	92	182	145	17×4	118	1	1.2
DN65-2	50.8	60.5	97	63.5	63.5	120	145	16.5×2	120	2	0.7
DN80-1	50.8	95	129	100	99	197	160	18×8	135	1	1.3
DN80-2	50.8	70	132	68	68	135	160	16.5×2	135	2	0.8
DN100-1	50.8	105	141	110	110	220	180	17×8	158	1	1.5
DN100-2	50.8	80	140	79	79	158	180	16.5×2	158	2	1.0
DN125	50.8	95	145	94	94	188	210	16.5×2	188	2	1.2
DN150	50.8	107	157	106	106	212	240	20.5×2	212	2	1.4

3. Menu Instruction

3.1 Operation Method

Water meter is equipped with two touch keys “▲” and “▶”, slide from “▲” to “▶” is “▲▶” key to edit, slide from “▶” to “▲” is the key to quit.

Formula: up click “▲” is up; down click “▶” is down;

Slide from up to down “▲▶” is modification ; Slide from down to up “▶▲” is quit.

3.2 Windows Display Instruction

Windows	No.	Windows Functions
Main Menu	M01	Display net cumulative and instantaneous flow
	M02	Display supply and return water temperature and temperature difference.
	M03	Calendar, display date and week on first line, display hour and minute on second line.
	M04	Display signal strength and error code on first line, display voltage and temperature on second line.
	M05	Calibration Menu
	M06	Batch Controller(Irrigation controller)
	M07	Display ESN and software version

Water meter includes 5 kinds of menus: main menu, secondary menu 1, secondary menu 2, batch control menu and time-accumulated menu. You can enter any menus by the modification key “▲▶”.

Example:

On M01, press “▲▶” to access month cumulative flow.

On M03, press “▲▶” to access secondary menu 1 (M10~M19).

On M19 of secondary menu 1, press “▲▶” to access secondary menu 2 (M20~M2A).

On M04, press “▲▶” to access day cumulative flow.

On M05(start-stop calibration state), press “▲▶” to access constant-current method calibration state.

On M06, press “▲▶” to access batch control and time-accumulative menu (M30~M3C).

► Note: Pls refer to ultrasonic water meter user manual for details of the menus.

4. Technical Parameter

4. 1 Flow Rate

Nominal Diameter (mm)	Measurement Range Ratio R	Flow Rate (m ³ /h)				
		Starting Flowrate	Minimum Flowrate Q1	Transitional Flowrate Q2	Permanent Flowrate Q3	Overload Flowrate Q4
DN50	63	0.10	0.63	1.00	40.00	50.00
DN65	63	0.16	1.00	1.60	63.00	78.75
DN80	63	0.25	1.60	2.50	100.00	125.00
DN100	63	0.40	2.50	4.00	160.00	200.00
DN125	63	0.60	3.20	5.00	200.00	250.00
DN150	63	0.80	4.00	6.40	250.00	312.50

4. 2 Technical Parameter

Performance	Parameters
Measurement Range Ratio	63 : 1
Working Pressure	< 1.6 MPa
Temperature	T30
Working Environment	-25°C~55°C, IP68 Protection
Pressure Loss	ΔP10
Display Range	Multi-lines show 9-bit cumulative flow, 6-bit instantaneous flow, signal strength
	flow direction, error, communication status
Unit	m ³ , USG, Liter, cubic foot, Acre Feet
Operating Mode	Two capacitive touch keys support sliding operation.
Communication Interface	Physically independent RS485 and infrared interface. LORA/ NB-IOT, WIFI, USART are optional.
Output	2 way of OCT output is optional, can simulate dipulse output of mechanical water meter.
Communication Protocol	MBUS, MODBUS, ASCII, CJ188
Power Supply	3.6V 4Ah lithium battery (battery life>10 years). It will operate power save functions when there is no water and flow in pipe
Other	DC12~30V external power supply through MBUS interface; data will be permanently saved after power off.
Power consumption	<0.1mW
Material	Pipe body: modified nylon; others: PC/ABS

5. Calibration Method

Our water meter is calibrated via constant-current method.

Constant-current method is to make the calibration device (standard water meter) and tested water meter into stable flow state at a set flow point, calibrate the water meter by measuring accumulative flow at the same time.

Different calibration methods may cause the error. If you use start-stop method to calibrate our water meter, it may cause error. Pls try to extend the calibrate time when you use start-stop method to calibrate our water meter, make sure the duration of each turn on time should be more than 60 seconds at least. The less time you calibrate, then bigger error you will get.

6. Other

Pls refer to ultrasonic water meter user manual for details of the menu instruction.
