Gflow+ IF600
Electromagnetic Flowmeter

Operation and Maintenance Manual

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1 About this document

1.1 Symbols

|	
⚠ DANGER	Danger hazard severity panels indicate a high level of risk that can result in serious injury or death. The signal word "Danger" is to be limited to the most extreme situation. Danger panels are not to be used for property damage hazards unless personal injury risk appropriate to this level is also involved.
⚠ WARNING	Warning hazard severity panels indicate a moderate level of risk that if ignored, could result in death or serious injury. Warning panels should not be used for property damage unless personal injury risk appropriate to this level is also involved.
⚠ CAUTION	Caution hazard severity panels indicate a low level of risk that if not avoided, minor or moderate injury could result. Caution panels without the alert symbol may be used to alert against unsafe practices that can result in property damage only.
NOTICE	Notice severity panels are used to address practices not related to personal injury. The alert symbol is never used with Notice panels. As an alternative to the signal "Notice", the word "Caution" without the alert symbol may be used to indicate a message not related to personal injury.

1.2 Type of information symbols

|	
✔	Permitted
✔ ✔	Preferred
✘	Forbidden
ℹ	Tip or note

2 Installation

2.1 Mounting location

An accurate flow measurement always comes from careful installation of flowmeter. The meters are designed to give an empty pipe alarm should one or more electrodes become exposed. Air bubbles, sediment and other solids in the pipe can also cause false or instable readings.
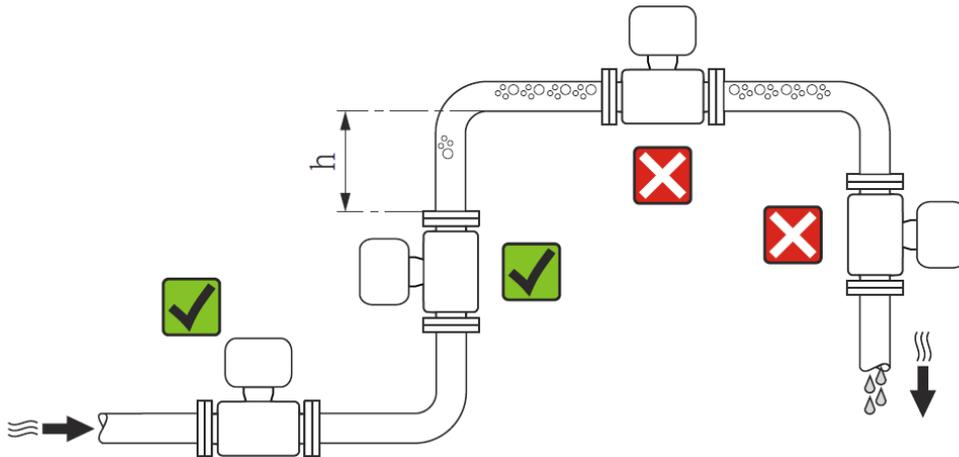
For partially filled pipes, installation of flowmeter should set up as following guideline:
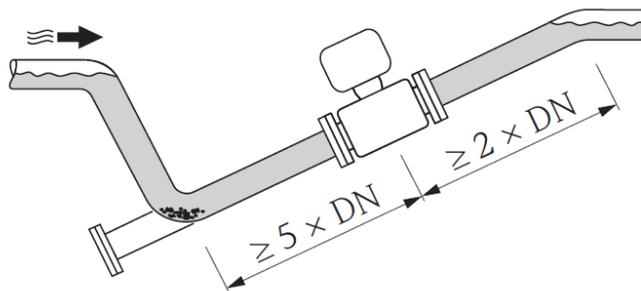
The empty pipe detection (EPD) function offers additional protection by detecting empty or partially filled pipes.

2.2 Mounting conditions

As best practice, minimum length of straight pipe at the meter inlet must be 2 times the pipe diameter and 1 times the pipe diameter at the meter outlet; this includes pipe lengths for control valves. Expansion joints can be installed in the pipeline after the meter.
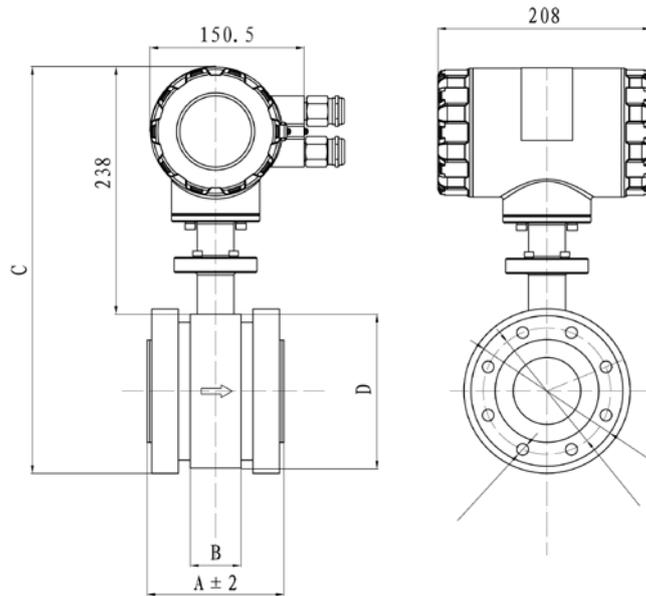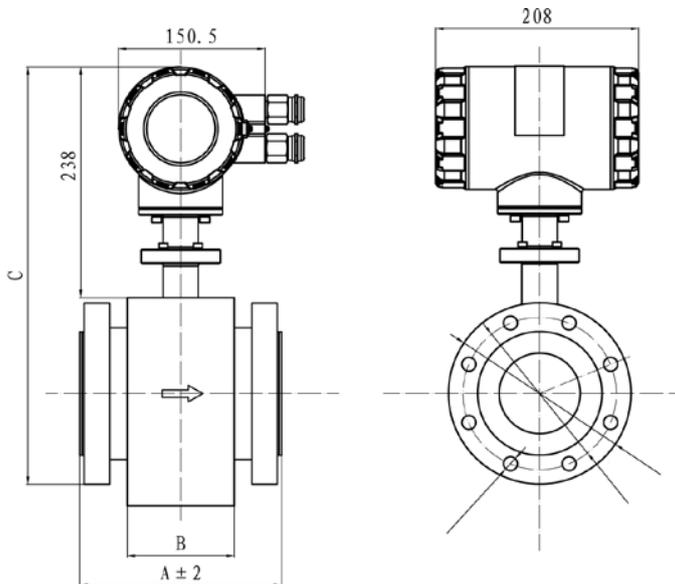
If operating outdoors:

- Install the measuring device in a shady location.
- Avoid direct sunlight, particularly in warm climatic regions.
- Avoid direct exposure to weather conditions.
- Protect the display against impact.
- Protect the display from abrasion by sand in desert areas.

2.3 Installation dimensions

Integrate type

DN	Inch	B	D1	A±2	C
10	3/8				
15	1/2	68	110	150	349
20	3/4				

DN	Inch	B(mm)	A±2(mm)	C(mm)
25	1			352
32	1 1/4	66	150	369
40	1 1/2			379
50	2	102	200	397
65	2 1/2			416
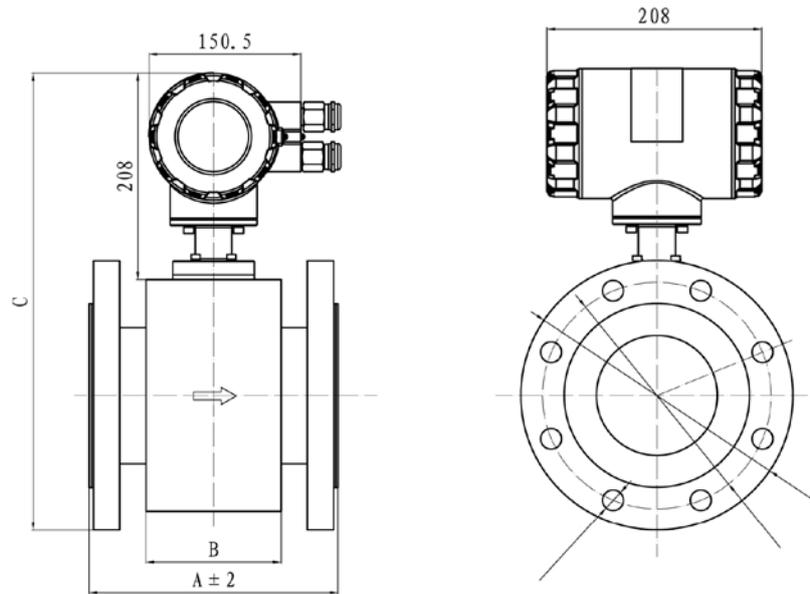
DN	Inch	B(mm)	A±2(mm)	C(mm)
80	3	102	200	398
100	4	122	250	419
125	5	138	250	446
150	6	176	300	480
200	8	202	350	528
250	10	222	400	585
300	12	312	500	638
350	14	312	500	694
400	16	392	600	749
450	18	402	600	805
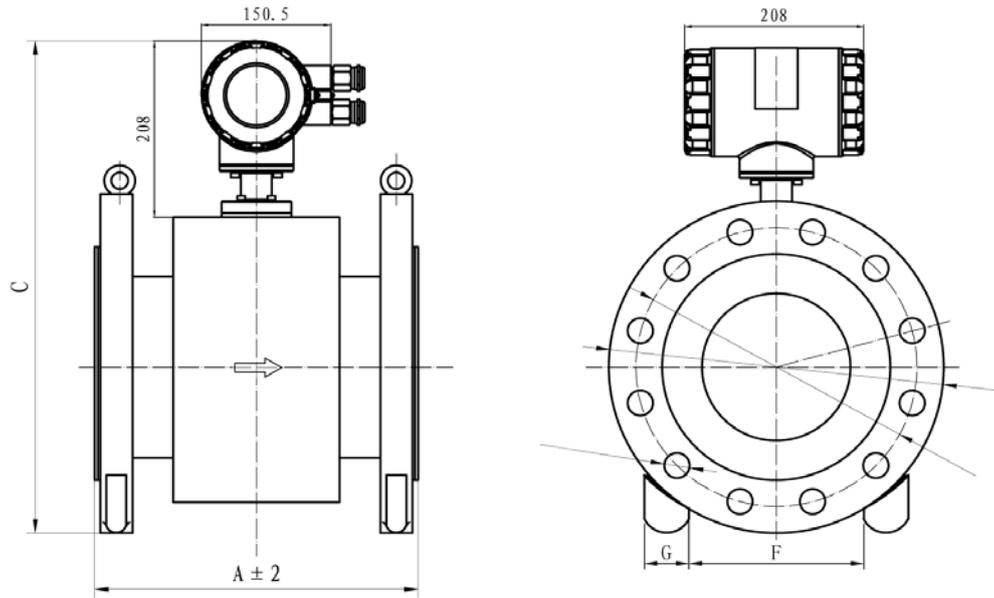
DN	Inch	A±2(mm)	C(mm)	F(mm)	G(mm)
500	20	600	922	367.8	120
600	24	600	1027	399.4	
700	28	700	1142	436.0	
800	32	800	1239	466.2	150
900	36	900	1349	549.5	
1000	40	1000	1437	579.0	
1100	44	1100	1541	592.6	
1200	48	1200	1647	621.2	
1400	56	1400	1860	539.9	
1500	60	1500	1961	555.8	
1600	64	1600	2060	572.9	
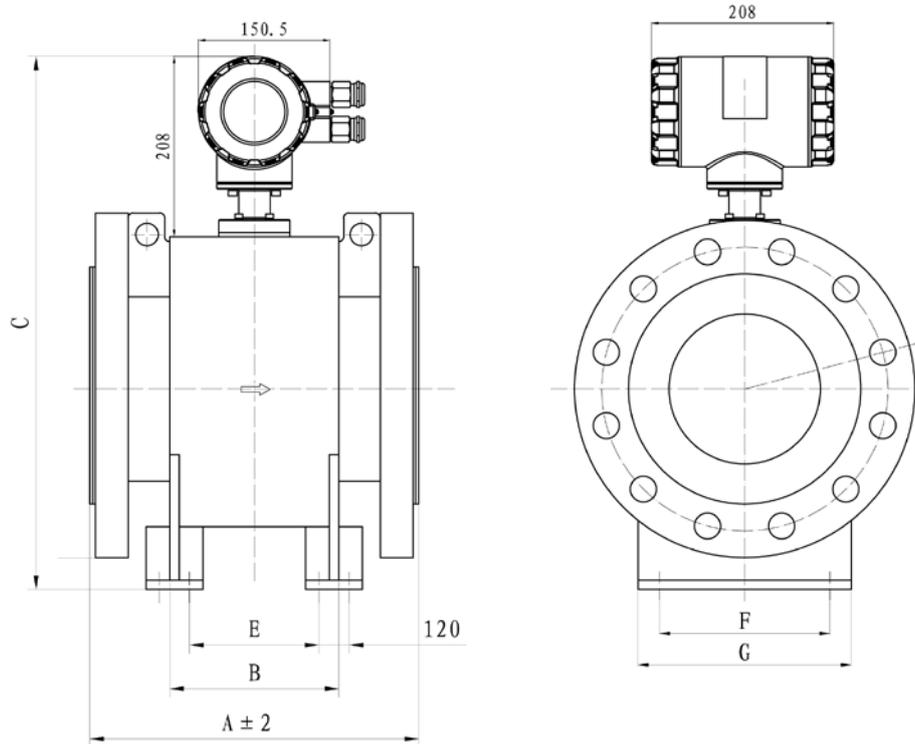
DN	Inch	A±2(mm)	B(mm)	C(mm)	E(mm)	F(mm)	G(mm)
1800	72	1800	1340	2331	1224	800	900
2000	80	2000	1510	2547	1382	1100	1200
2200	88	2200	1720	2757	1592	1100	1200
2400	96	2400	1872	2977	1742	1300	1400
2600	104	2600	2022	3183	1892	1300	1400
2800	114	2800	2172	3387	2042	1500	1600
3000	120	3000	2362	3593	2232	1500	1600

Remote type
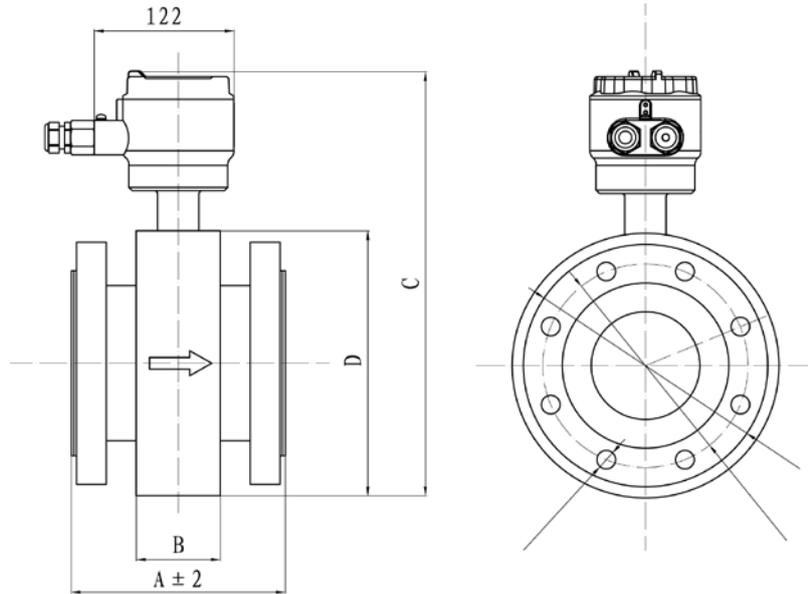
DN	Inch	B(mm)	A±2(mm)	C(mm)
10	3/8	68	150	250
15	1/2			
20	3/4			
25	1	66	150	254
32	1 1/4			271
40	1 1/2			281
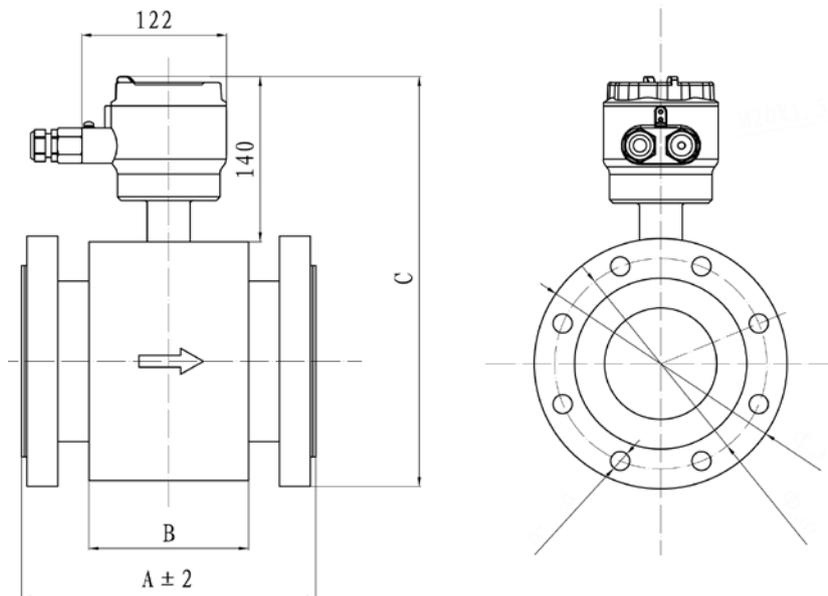
DN	Inch	B(mm)	A±2(mm)	C(mm)
50	2	102	200	299
65	2 1/2			318
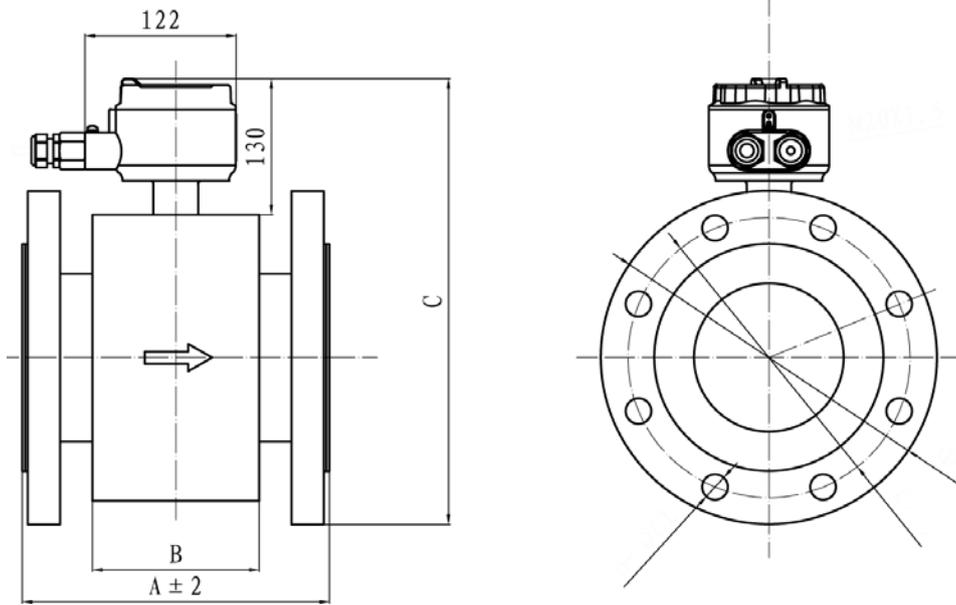
DN	Inch	B(mm)	A±2(mm)	C(mm)
80	3	102	200	320
100	4	122	250	341
125	5	138	250	368
150	6	176	300	402
200	8	202	350	453
250	10	222	400	505
300	12	312	500	560
350	14	312	500	610
400	16	392	600	674
450	18	402	600	724
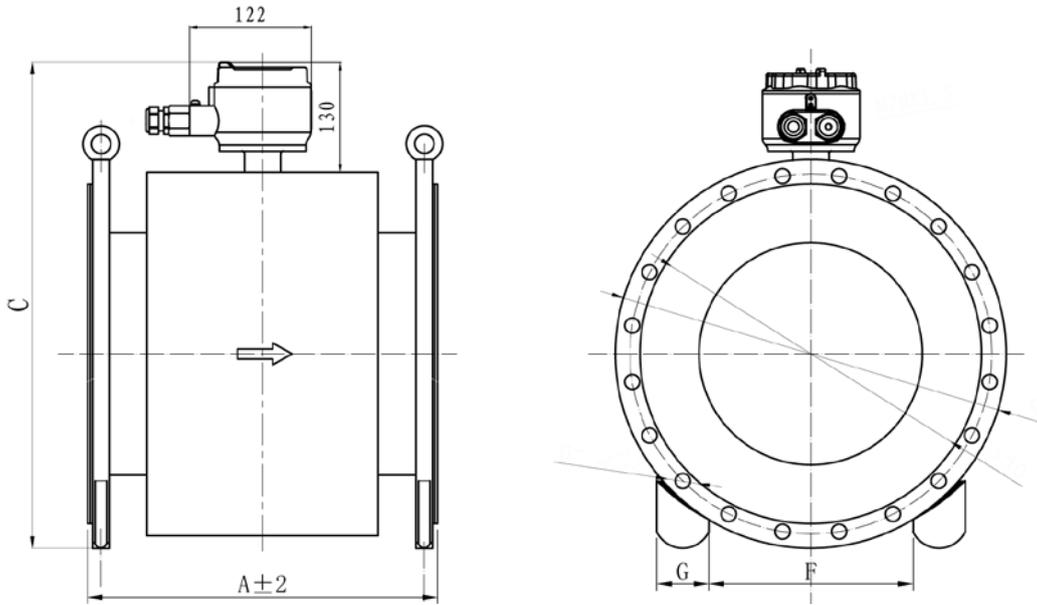
DN	Inch	A±2(mm)	C(mm)	F(mm)	G(mm)
500	20	600	844	367.8	120
600	24	600	949	399.4	
700	28	700	1064	436.0	
800	32	800	1161	466.2	150
900	36	900	1271	549.5	
1000	40	1000	1359	579.0	
1100	44	1100	1463	592.6	
1200	48	1200	1569	621.2	
1400	56	1400	1782	539.9	
1500	60	1500	1883	555.8	
1600	64	1600	1982	572.9	
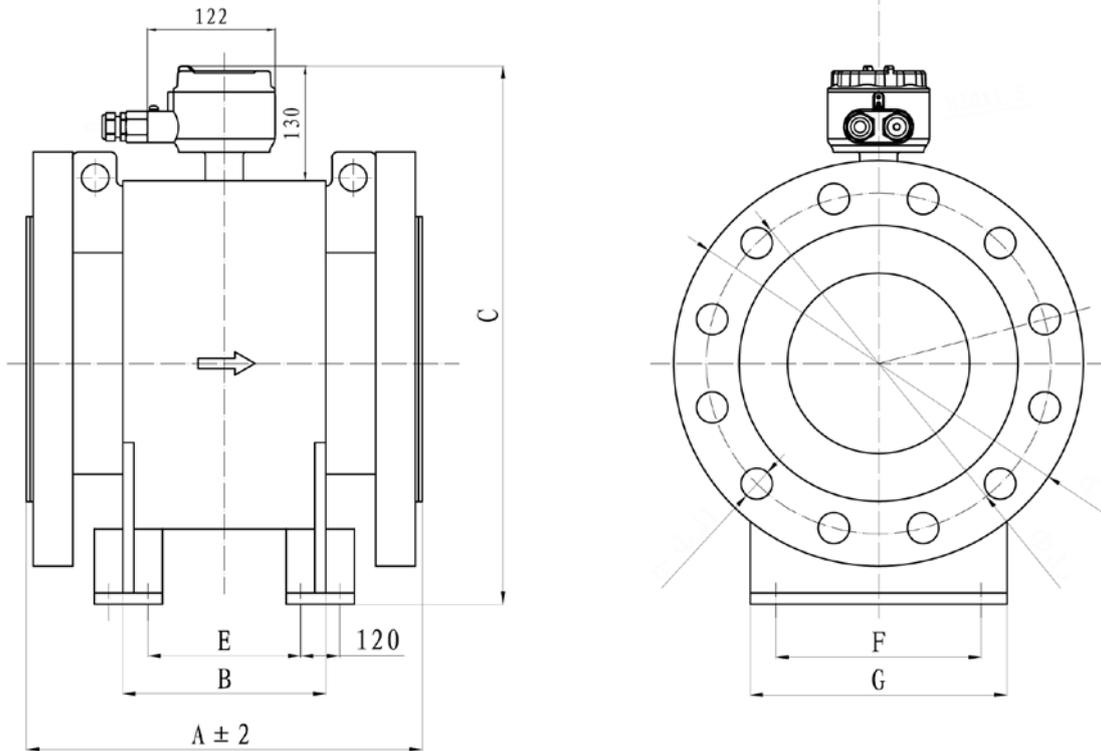
DN	Inch	A±2(mm)	B(mm)	C(mm)	E(mm)	F(mm)	G(mm)
1800	72	1800	1340	2253	1224	800	900
2000	80	2000	1510	2469	1382	1100	1200
2200	88	2200	1720	2679	1592	1100	1200
2400	96	2400	1872	2899	1742	1300	1400
2600	104	2600	2022	3105	1892	1300	1400
2800	114	2800	2172	3309	2042	1500	1600
3000	120	3000	2362	3515	2232	1500	1600

3 Electrical wiring

3.1 Wiring diagram for remote type transmitter
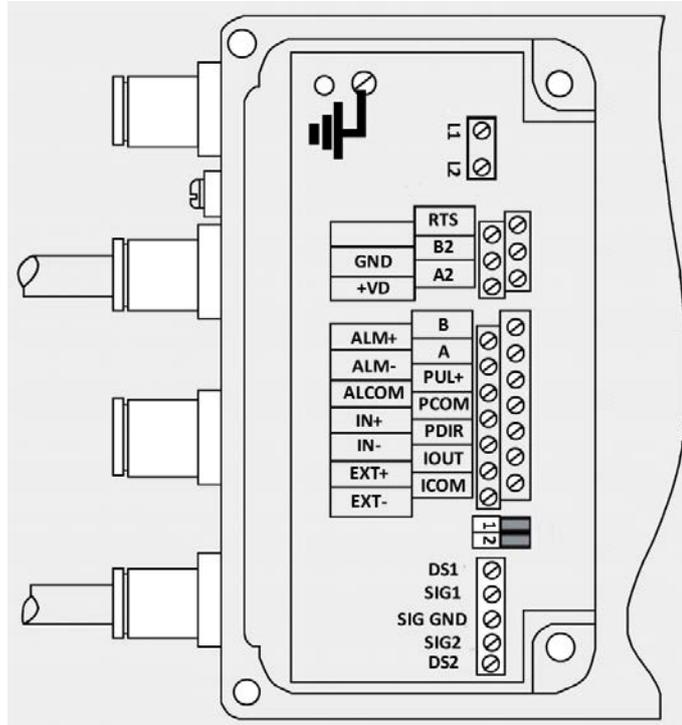
Function group	Terminal name	Terminal description
Power Supply	L1	Line terminal (for AC version) Power supply + (for DC version)
	L2	Neutral terminal (for AC version) Power supply – (for DC version)
Signal Input	DS1	Shield for input #1
	SIG1	Signal input #1
	SIG GND	Signal input ground
	SIG2	Signal input #2
	DS2	Shield for input #2
Coil excitation	EXT+	Coil excitation positive
	EXT-	Coil excitation negative
4~20mA Output	IOUT	4~20mA output
	ICOM	4~20mA output common
Digital output	PUL+	Pulse (frequency) output positive
	PCOM	Pulse(frequency) output common
Status output	ALM+	High flowrate alarm
	ALM-	Low flowrate alarm
	PDIR	Flow direction status
	ALCOM	Alarm common
Control input	IN+	Contact control input positive
	IN-	Contact control input negative
RS-485(MODBUS) communication	A	RS-485 terminal A
	B	RS-485 terminal B

ℹ️ For remote version transmitter, signal shielding terminals have to be connected for installation with signal cable of 15 meters or more.
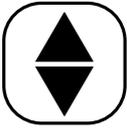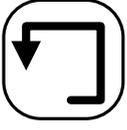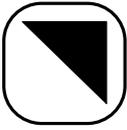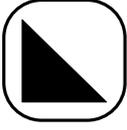
3.2 Wiring diagram for compact type transmitter
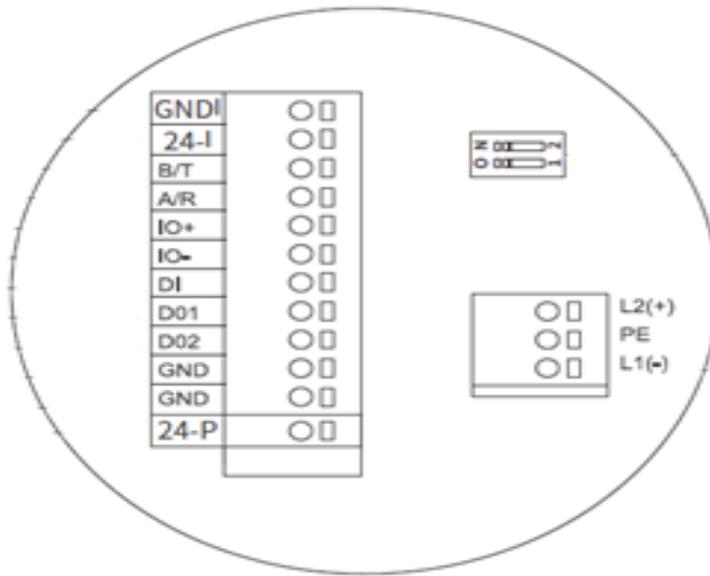
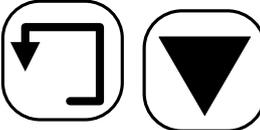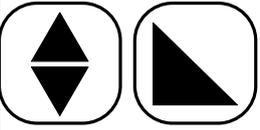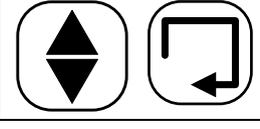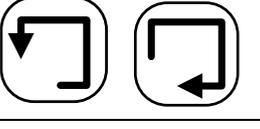| Function group	Terminal name	Terminal description
Power Supply	L1	Line terminal (for AC version) Power supply + (for DC version)
	L2	Neutral terminal (for AC version) Power supply – (for DC version)
4~20mA Output	IO+	4~20mA output
	IO-	4~20mA output common
Reserved	DI	
Digital output	D01	Pulse (frequency) output positive
	GND	Pulse (frequency) output common (lower row COM) sharing with alarm
Reserved	D02	
	GND	
RS-485(MODBUS) communication	B/T	RS-485 terminal A
	A/R	RS-485 terminal B
Reserved	24-I	
	GNDI	
Reserved	24-P	

4 User menu operation

4.1 Basic operation

4.1.1 Keypad definition

Compact version	Remote version	Description
		Compound Key This key cannot be used independently. User must press this key first and then any other keys when it is used with any other keys. See 4.1.2 for detail operation
		Left/Down Key In main screen, press this key to scroll down the line of screen circularly. In setting mode, enter number and press this key, cursor digit will be subtracted by 1 (circularly); press compound key then this key, cursor will move to left; press this key repeatedly to scroll the menu down circularly.
		Right/Up Key In display mode, press this key to scroll up the line of screen circularly. In setting mode, enter number and press this key, cursor digit will add by 1 (circularly); press compound key then this key, cursor will move to right; press this key repeatedly to scroll the menu down circularly.
		Enter Key In menu mode, press this key to enter submenu and press and hold this key for 3 seconds to get back to main screen.
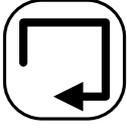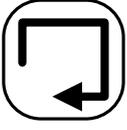
4.1.2 Keypad combination operation

Keypad action		Operation description
For compact version	**For remote version**	
		In number editing mode, shift cursor to left.
		In number editing mode, shift cursor to right.
		Enter menu mode from main screen
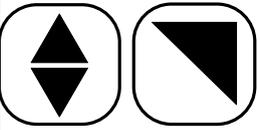
4.1.3 Main screen

Upper line of main screen

Main screen setup	Operation description
Q +002.30 $\frac{m^3}{h}$ **Σ+ 00015.905m^3**	In IF600's main display screen, user could choose the preferred flow information to be displayed in the main display screen. Flow measurement is displayed on the upper line of LCD display. User can use ▲ or ▼ key to switch the display content check process information. Q: Flowrate V: Flow speed P: Output span percentage R: Resistance measured between electrodes
V +000.300 $\frac{m}{s}$ **Σ+ 00015.905m^3**	
P +007.3% **Σ+ 00015.905m^3**	
R 007.3 KΩ **Σ+ 00015.905m^3**	

Lower line for main screen

Main screen setup	Operation description
Q +002.30 $\frac{m^3}{h}$ **Σ+ 00015.905m^3**	Flow total and meter status are shown on the lower line of screen. User can use ▼ or ◣ key to switch the display content to check different totalizer and meter diagnosis information. IF600 support 3 totalizer:
Q +002.30 $\frac{m^3}{h}$ **Σ− 00000.305m^3**	

Q　　+002.30 $\frac{m^3}{h}$ $\Delta +$　00000.305m^3	**Σ+:** Totalizer of forward flow **Σ-:** Totalizer of reverse flow **Δ:**　　Mathematical sum of forward flow and reverse flow
Q　　+002.30 $\frac{m^3}{h}$ Coil Alm	Meter warning message: **Coil Alm:** This alarm will be trigger when any of 2 excitation coils is in open status. Check the connection of excitation cable from sensor to the transmitter terminal first when coil alarm is triggered.
Q　　+002.30 $\frac{m^3}{h}$ Pipe OK	**Pipe OK:** This is showing sensor is currently in full pipe status.
Q　　+002.30 $\frac{m^3}{h}$ Flow OK	**Flow OK:** This is showing user currently flowrate is between the high and low limit of the flowrate. No high or low limit is triggered.
Q　　+002.30 $\frac{m^3}{h}$ Probe OK	**Probe OK:** This means fluid in the sensor have acceptable conductivity.

Meter will automatically go back to display menu in 3 minutes without any key press for 2 seconds in setting mode. Meter will automatically go back to display menu by press for 3 seconds in any modes.

4.2 Menu functions

4.2.1 Enter function menu

Menu	Operation description
$Q \quad +002.30 \, \frac{m^3}{h}$ $\Sigma + \quad 00015.905 m^3$ Entry code 000<u>0</u> Language	From main screen, use combination key or to enter the user menu. Before entering the user menu, meter will ask for the authorization passcode, use **7206** as default entry code, user can change this code in the password menu. Once enter the password, press to confirm, first menu is language selection.
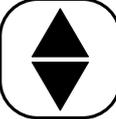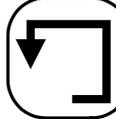
4.2.2 Set Language

Menu	Operation description
Language Language English	From language menu screen, press to enter the language sub-menu. Use or to switch to wanted language package. When finish, press to enter the choice. System language will then be selected.

4.2.3 Set communication address

Menu	Operation description
Language	From language menu screen, press ▼▼ to scroll to communication address setup menu. Press ↵ to enter the address editing menu, enter the wanted address number,
Comm Address	
Comm Address 01	When finish, press ↵ to enter the number and confirm the setup. ℹ️ RS-485 address can be any number from 0 to 99; the factory default setting is 01.
Comm Address 02	

4.2.4 Set communication baudrate

Menu	Operation description
Comm Address	From communication address screen, press ▼▼ to scroll to baudrate setup menu. Press ↵ to enter the editing menu, select the wanted baudrate number. ℹ️ IF600 support following baudrate: 600 1200 2400 4800
Baudrate 14400	

9600

Baudrate
9600

9600
14400
Factory default baudrate is 14400.

When finish, press [⏎] to enter and save the new baudrate.

4.2.5 Set sensor size

Menu	Operation description
Baudrate 14400 **Sensor size** **Sensor size** 0050	From baudrate setup screen, press [▼][▼] to scroll down to sensor size setup menu. Press [⏎] to enter the sensor size selection menu, select the sensor size to match with the current sensor. [ℹ️] IF600 support selection of pipe size from3mm (1/8 inch) to 3000 mm (120 inch) following ISO standard and AMSE standard. When finish, press [⏎] to enter and save the new sensor size.

4.2.6 Set flow range

Menu	Operation description
Sensor size 0050 **Flow range** **Flow range** 050.00 $\frac{m^3}{h}$ **Flow range** 060.00 $\frac{m^3}{h}$	From sensor size setup screen, press ▼▼ to scroll down to flow range setup menu. Press ↵ to enter editing menu, edit number to get wanted flow range and unit. Flow range represents the corresponding value to full span of 4~20mA output and 100% of displayed flow percentage. ℹ️ When set parameters like low flow cut-off and high/low flow limit, set number is also referring to the percentage of flow range set here. ℹ️ User can choose the unit of flow rate by using ▼▼ and ◣▲ key to select the flowrate unit in this menu. IF600 supports following flow rate unit: L/s: Liter per second L/m: Liter per minute L/h: Liter per hour gpm: Gallon per minute gph: Gallon per hour m3/s: Cubic meter per second m3/m: Cubic meter per minute m3/h: Cubic meter per hour When finish, press ↵ to enter and save new flow range.

4.2.7 Set flow measurement damping time

Menu	Operation description
Flow range 050.00 $\frac{m^3}{h}$	From flow range setup screen, press ▼▼ to scroll down to measurement damping setup menu.

Menu	Operation description
Damping	Press ⤶ to enter the damping time selection menu, use ◣▼ or ◥▲ key to select needed measurement damping time
Damping 006.0 s	ℹ️ Damping time is used when flow measurement reading is bumpy which is generated from air bubble, solids in fluid or other reasons. The damping time is in unit of second, meter's digital filtering software will average the measurement reading in user defined time window to stabilize the readings.
Damping 010.0 s	IF600 provide a selectable time window table of 0.2s, 0.5s, 0.8s, 1s, 2s, 3s, 4s, 5s, 6s, 8s, 10s, 20s, 30s, 50s, and 100s. The factory default setting is 2s. When finish, press ⤶ to enter and save new damping time.

4.2.8 Set flow measurement direction

Menu	Operation description
Damping 006.0 s	From damping time setup screen, press ◣▼ to scroll to measurement direction menu.
Flow Dir.	Press ⤶ to enter measurement direction selection menu, use ◣▼ or ◥▲ key to select forward or reverse of measurement direction.
Flow Dir. Fwd	When finish, press ⤶ to enter and save the setting.

Flow Dir.
Rev

4.2.9 Set zero point

Menu	Operation description
Flow Dir. Fwd **Flow zero** **FS=+00.000m/s** +0.007 **Flow zero**	From measurement direction setup screen, press ◣ ▼ to scroll to measurement zero set up menu. Press ↵ to enter measurement zero set up menu, trim the number on lower line to maintain FS=0.000 m/s reading. When FS reading because stable zero, press ↵ again to save the setting. ℹ **Only trained technical specialists are allowed to modify the zero point setup of this instrument, once meter zero point changed, factory calibration certificate is void.**

4.2.10 Set low flow cut off

4.2.10.1 Set low flow cut-off threshold value

Menu	Operation description
Flow zero	From zero point setup screen, press ▼▼ to scroll to low flow cut-off menu.
L.F Cutoff	Press ↵ to enter low flow cut-off menu, enter the percentage of flow range need to be cut off, press ↵ again to save the setting. See section 4.2.6 for flow range definition.
L.F. Cutoff **00.6%**	ℹ️ Low flowrate cutoff is represented by percentage. User can cut off display of flowrate, velocity and percentage at the same time in low flowrate cutoff function.
L.F Cutoff	User can also just cut off current output signal and frequency (pulse) output signal and maintain the display of flowrate, velocity and percentage at higher sensitivity. See section 4.2.11 for further information.

4.2.10.2 Enable low flow cutoff for display

Menu	Operation description
L.F Cutoff	From low flow cut-off screen, press ▼▼ to scroll to cut-off display enable menu.
Cutoff Disp	

Cutoff Disp On	Press [⤶] to enter display cut off enable menu, turn on or off the display cut off enable function and press [⤶] again to save the setting.
Cutoff Disp	

4.2.11 Set flow totalizer unit m³

Menu	Operation description
Cutoff Disp	From low flow cut-off menu, press [▼][▼] to scroll to totalizer unit setup menu.
Total Unit	Press [⤶] to enter, use [▼][▼] or [▲][▲] key to select needed totalizer unit. Unit can be chosen from following: 1.0 m³, 0.1m³, 0.01 m³, 0.001m³, 1.0L, 0.1L, 0.01L, 0.001L, 1.0gal, 0.1gal, 0.01gal, 0.001gal.
Total Unit 0.001m³	When finish, press [⤶] to save.
Total Unit	

4.2.12 Advanced filtering

4.2.12.1 Set flow changing rate limitation

Menu	Operation description
Total Unit **Rate-of-Chng** **Rate-of-Chng** **00.0%** **Rate-of-Chng**	From total unit setup screen, press ▼ ▼ to scroll to rate of change setup menu. Press ↵ to enter the sensor size selection menu, select the sensor size to match with the current sensor. ℹ️ The function is widely implemented for pulp measurement and other mining slurry measurement application where signal noise is high and in peak/burst pattern. This function is used to set the limit of changing rate. It should be combining with time limit function (described in section 4.2.12.2) to form a 1st order signal filter to achieve better performance. The rate of change can range from 0 to 29% of flow range. Measurement samples change quicker than this defined rate will be cut off by software filter. When finish, press ↵ to save.

4.2.12.2 Set limit time

Menu	Operation description
Rate-of-Chng **Limit Time**	From rate of change setup screen, press ▼ ▼ to scroll to limit time setup menu. Press ↵ to enter the limit time menu, edit the number from 0 to 19 second.

Limit Time
00s

| Limit Time |

When finish, press ⮐ to save.

4.2.13 Output setup

4.2.13.1 Configure pulse output type

Menu	Operation description
Limit Time	From limit time setup screen, press ▼ ▼ to scroll to pulse output setup menu.
Pulse Output	Press ⮐ to enter the output type selection menu, select the output type to match with the application
Pulse Output Frq	ℹ️ Frequency output is usually used when measuring of instantaneous flowrate as main purpose. For example, flow regulator etc. Pulse output is usually used when measuring volumetric total flow as main application, for example metering of water or energy.
Pulse Output Pls	When finish, press ⮐ to save.

Pulse Output

4.2.13.2 Set pulse factor

Menu	Operation description
Pulse Output	From pulse output setup screen, press ◣ ▼ to scroll to pulse factor setup menu.
Pulse Factor	Press ⏎ to enter the pulse factor selection menu, select the needed pulse factor to match with application.
Pulse Factor **1 m³/p**	ℹ️ Available pulse factor: 1m³/p, 10m³/p, 100m³/p, 1000m³/p, 0.001L/p, 0.01L/p, 0.1L/p, 1L/p, 2L/p, 5L/p, 10L/p, 100L/p.
Pulse Factor	When finish, press ⏎ to save.

4.2.13.3 Set frequency output span

Menu	Operation description
Pulse Factor **Freq. Max** **Freq. Max** **1000 Hz** **Freq. Max**	From pulse factor setup screen, press ▼▼ to scroll to maximum frequency setup menu. Press ↵ to enter the editing menu, enter desired maximum frequency output. ℹ️ Frequency output range is corresponding to 100% flow range; frequency output can be set from 1Hz to 5999Hz arbitrarily. When finish, press ↵ to save.

4.2.14 Empty pipe detection

4.2.14.1 Enable EPD

Menu	Operation description
Freq. Max **EmpPipe Det.**	From frequency setup screen, press ▼▼ to scroll to EPD enable setup menu. Press ↵ to enter the empty pipe detection enable menu, select On or Off to enable or disable the empty pipe detection menu.

EmpPipe Det.
On

EmpPipe Det.

When finish, press ⏎ to save.

ℹ️

When EPD is enabled, the analog and digital output will be hold to zero when pipe is detected to be empty, meanwhile, flowrate display will be zero.

4.2.14.2 Set EPD threshold

Menu	Operation description
EmpPipe Det. **Emp Pipe Alm** **Emp Pipe Alm** 300 k Ω **Emp Pipe Alm**	From EPD enable setup screen, press ◀▼ to scroll to EPD threshold value setup menu. Press ⏎ to enter menu, edit the number in range from 0 to 999.9 kΩ the current sensor. ℹ️ This EPD threshold is used for meter software to judge to the empty pipe condition. This resistance value is related to fluid conductivity and diameter of electrodes and other factors and user should choose carefully considering the actual meter working condition. The factory default setting is 300 kΩ. When finish, press ⏎ to save.

4.2.15 Enable reverse flow measurement

Menu	Operation description
Emp Pipe Alm **RevMeas. Enbl** **RevMeas. Enbl** Off **RevMeas. Enbl**	From EPD threshold value setup screen, press ◣ ▼ to scroll to reverse flow measurement enable menu. Press ↵ to enter the reverse flow measurement enable menu, select On or Off to enable or disable the reverse flow measurement. When finish, press ↵ to save.

4.2.16 Flowrate alarm

4.2.16.1 Enable high/low flow rate alarm

Menu	Operation description
RevMeas. Enbl **Hi Alm Enbl**	From reverse flow measurement enable menu, press ◣ ▼ to scroll to flowrate over range alarm menu.

| Hi Alm Enbl

Off | Press [enter] to enter the menu, select On or Off to enable or disable the High/Low over range alarm |
| Hi Alm Enbl | When finish, press [enter] to save.

ℹ This section covers the setup for higher over range limit, to enable the lower over range limit use the same operation. |

4.2.16.2 Set high/low flow rata alarm limit

Menu	Operation description
Hi Alm Enbl	From alarm enable screen, press [▼][▼] to scroll to alarm threshold value setup menu.
Hi Alm Limit	Press [enter] to enter menu, edit the number in range from 0 to 199% of the flow range.
Hi Alm Limit

090.0% | When finish, press [enter] to save.

ℹ This section covers the setup for high over range limit threshold, to set this parameter for lower over range limit, user can use the same operation procedure. |
| Hi Alm Limit | |

4.2.17 Clear flow totalizer

Menu	Operation description
Lo Alm Limit **Clr Totalizer** **Clr Tot. Key** **Clr Tot. Key** 00000	From alarm threshold setup screen, press ◣▼ to scroll to totalizer clearing menu. Press ↵ to enter menu, enter the clearing password to clear the totalizer. When finish, press ↵ to exit.

4.2.18 Set sensor serial number

Menu	Operation description
Sensor S/N **Sensor S/N** 000022300001	From totalizer clearing screen, press ◣▼ to scroll to sensor serial number entry menu. Press ↵ to enter menu, edit the 12 digitnumber as sensor serial number. When finish, press ↵ to save.

Sensor S/N	ℹ️ This function should be used in factory only, unless in certain necessary case.

4.2.19 Set sensor factor

Menu	Operation description
Sensor Fact. **Sensor Fact.** 0.5200 **Sensor Fact.**	From sensor serial number screen, press ⬛⬛ to scroll to sensor factory entry menu. Press ⬛ to enter menu, edit the number to enter the sensor factor ℹ️ Sensor factor is the calibration factor of meter from factory. This factor can only be obtained from factory calibrating facility. **Change this factor will void factory calibration certificate!** When finish, press ⬛ to save.

4.2.20 Set coil excitation mode

Menu	Operation description
Field mode **Field mode** Mode 1	From sensor factor screen, press ⬛⬛ to scroll to excitation mode setup menu. Press ⬛ to enter menu, select excitation mode to match with sensor. When finish, press ⬛ to save.

Field mode	

4.2.21 Set meter user factor

Menu	Operation description
Multiplying **Multiplying** **1.0000**	From excitation mode setup screen, press ▼ ▼ to scroll to user factor setup menu. Press ↵ to enter menu, edit number to entry user factor to match with application. When finish, press ↵ to save.

4.2.22 Set transmitter serial number

Menu	Operation description
Convtr S/N **Convtr S/N** **1000000221**	Press ↵ to enter menu, edit the 10 digit number as transmitter serial number. When finish, press ↵ to save. ℹ This function should be used in factory only, unless in certain necessary case.

4.2.23 Set flow totalizer value

Menu	Operation description
F. Total Set **F. Total Set** 000000001 **R. Total Set** **R. Total Set** 000000002	Press ⮐ to enter menu, edit the 9-digit number as desired totalizer number. When finish, press ⮐ to save. ℹ️ Operation is same for both forward and reverse flow totalizer.

4.2.24 Set meter date and time

Menu	Operation description
Date – y/m/d **Date – y/m/d** 05/03/09	Press ⮐ to enter menu, year/month/day as date. When finish, press ⮐ to save.

Time – h/m/s	Press ⏎ to enter menu, hour/minute/second as clock.
Time – h/m/s 08/00/00	When finish, press ⏎ to save.

4.2.25 Password management

Menu	Operation description
Password L1	Press ⏎ to enter menu, edit the 4-digit number as desired password to each security level.
Password L1 <u>0</u>000	When finish, press ⏎ to save.
Password L2 <u>0</u>000	
Password L3 <u>0</u>000	

4.2.26 System reset

Menu	Operation description
Sys. Reset Sys. Reset 00000	Press [icon] to enter menu, enter the 5 digit password to reset the parameter to original value. [info icon] By reset the system parameters, all meter configuration and calibration information will be lost and not recoverable. User should be very cautious before performing this operation.

Fault handing

Fault	Reason	Treatment
Flowrate fluctuates largely	Fluid contains excess bubbles or particles	Vertical installation
	Fluid comductivity is uneven or near to threshold value	Change installation or re-select model
	Transducer grounding is bad	Improve grounding
	Straight length is not enough	Lengthen the straight length
	Problem of remote wire	Check the remote wire
	Transducer insulativity decreases	Return to factory for repair
	Disturbance of frequency changer	Change installation location or add shield
	Electrode covered by dirty or eroded	Check and clean electrode or return to factory for repair
	Pulse flow	Increase damping time
	Wiring problem	Check and rectify
	Model selection problem	Check and rectify
Flowrate displays less	Electrode has fouling	Descaling
	Excitation problem	Change converter
	Damp inside the meter body	Dry process or return to factory for repair
	Pipe block	Check the pipe
Flowrate displays bigger	A few bubbles in the pipe	Install the releaser
	No reliable frounding for non-metal pipe	Separate and reliable grounding
	Fouling in pipe has conductivity	Check the pipe
No flowrate display	Setting problem	Check and rectify
	Wiring problem	Check and rectify
	Converter problem	Change converter
	Lower conductivity	Confirm whether electromagnetic measurement applicable or not
	Fluid not reaching the electrode	Check the valve or change installation location
	Electrode covered by dirty insulator	Check and clean electrode
Zero unstable	Fluid not full of pipe	Set empty pipe alarm
	Valve not closed fully	Check the valve
	Pipe shake	Fix the pipe
	Outside electromagnetic disturbance	Good grounding or install shield
	Severe electrode fouling	Clean electrode or descaling
Blank screen of converter	Power problem or caused by lighting strike	Install power protection or lightning arrestor
	Converter problem	Change converter
	LCD exposed to sunlight or high temperature	Improve installing condition
	Strong vibration in the pipe of compact converter	Change to remote type

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