

MAG



ALIA TECHNOLOGY LLC

Electromagnetic Flowmeter

Operation Manual

AMC3200E Series



CE

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1. Sensor

EM Flowmeter is composed by sensor and converter, be compact version and separate version, there are several specifications of sensor:

1.1 AMF900 Flange Type

Size: 10Amm ~ 2000mm (3/8" A~ 80")

Liner: Neoprene

Polyurethane

FEP

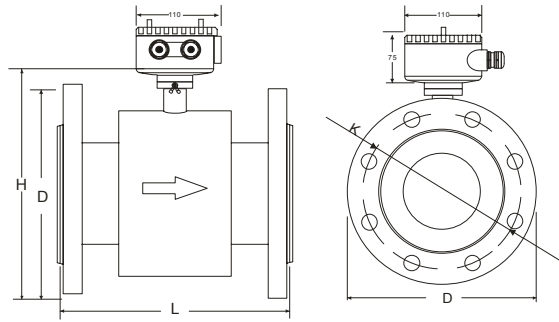
PTFE

PFA

Protection: IP68

Max. Temp: 180 °C

Installation: Flange End



Size (mm)	Standard Pressure Kg/cm2	Liner Material				Dimensions (mm)		
		FEP / PFA	Neoprene	Polyurethane	PTFE	L	D	H
10A	40	⊙			⊙	120	90	145
10		⊙			⊙	120		
15		⊙			⊙	150	95	155
20		⊙			⊙		105	160
25		⊙		⊙	⊙		115	166
32		⊙		⊙	⊙		140	180
40		⊙		⊙	⊙	150	190	
50		⊙	⊙	⊙	⊙	200	165	201
65		⊙	⊙	⊙	⊙		185	220
80		⊙	⊙	⊙	⊙		200	235
100	16	⊙	⊙	⊙	⊙	250	220	254
125		⊙	⊙	⊙	⊙		250	284
150		⊙	⊙	⊙	⊙	300	285	314
200	10	⊙	⊙	⊙	⊙	350	340	369
250		⊙	⊙	⊙	⊙	400	395	430
300		⊙	⊙	⊙	⊙	450	445	480
350			⊙	⊙	⊙		505	540
400			⊙	⊙	⊙	500	565	600
450			⊙	⊙	⊙	550	615	640
500			⊙	⊙	⊙	600	670	700
600			⊙	⊙	⊙		780	800
700			⊙	⊙	⊙	700	895	910
800			⊙	⊙	⊙	800	1015	1020
900		⊙	⊙	⊙	900	1115	1120	
1000		⊙	⊙	⊙	1000	1230	1230	
1200	6		⊙		⊙	1200	1405	1450
1400			⊙		⊙	1400	1630	1560
1600			⊙		⊙	1600	1830	1770
1800			⊙		⊙	1800	2045	2040
2000			⊙		⊙	2000	2265	2250

1.2 AMF500 Wafer Type

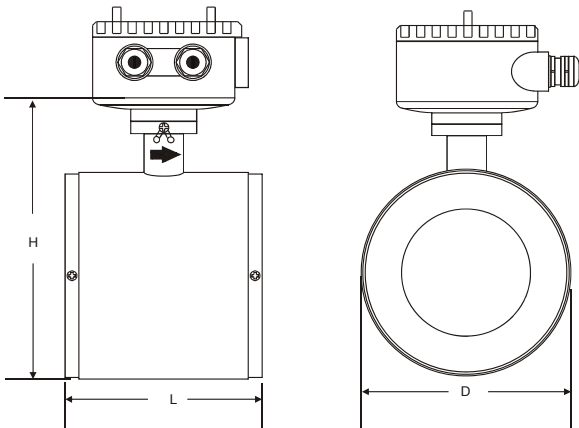
Size: 25mm ~ 200mm (1" ~ 8")

Liner: FEP

Protection: IP68

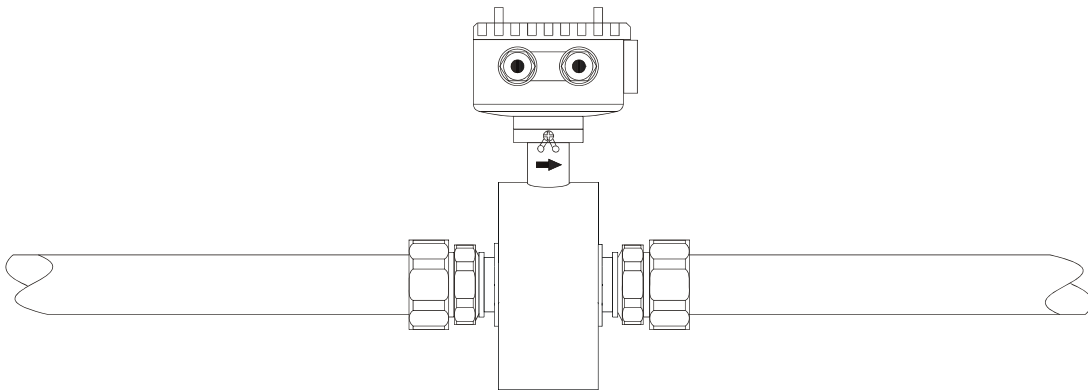
Max. Temp: 180 °C

Installation: Wafer

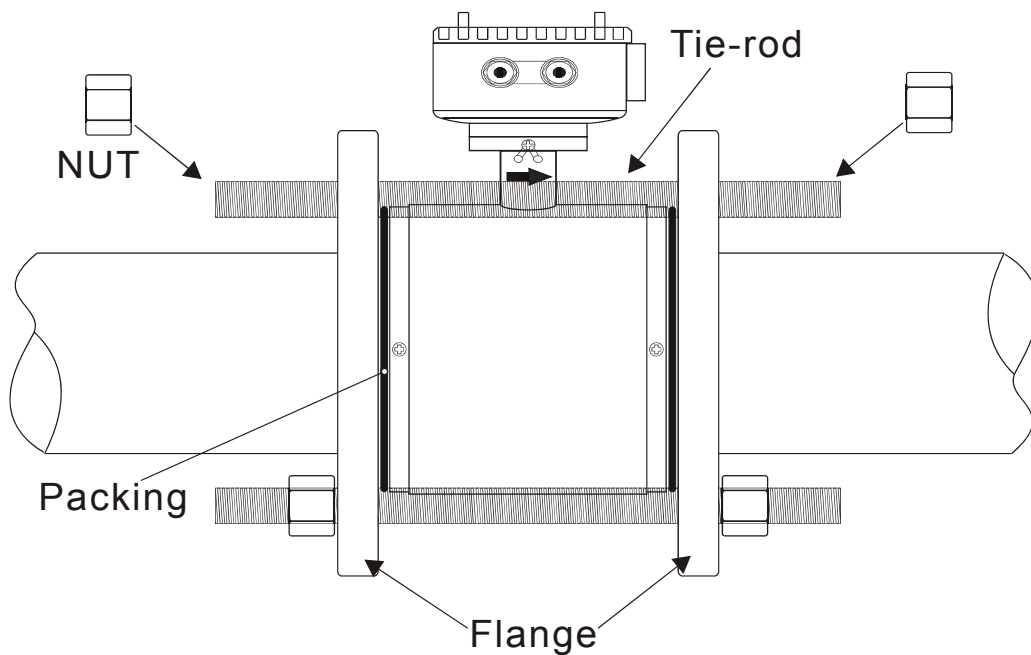


Size		Dimensions (mm)		
mm	Inch	L	D	H
25	1"	90	71	138
32	1-1/4"	100	80	147
40	1-1/2"		86	153
50	2"	115	100	167
65	2-1/2"	115	120	187
80	3"	130	131	198
100	4"	155	151	218
125	5"	155	181	248
150	6"	185	206	273
200	8"	215	261	328

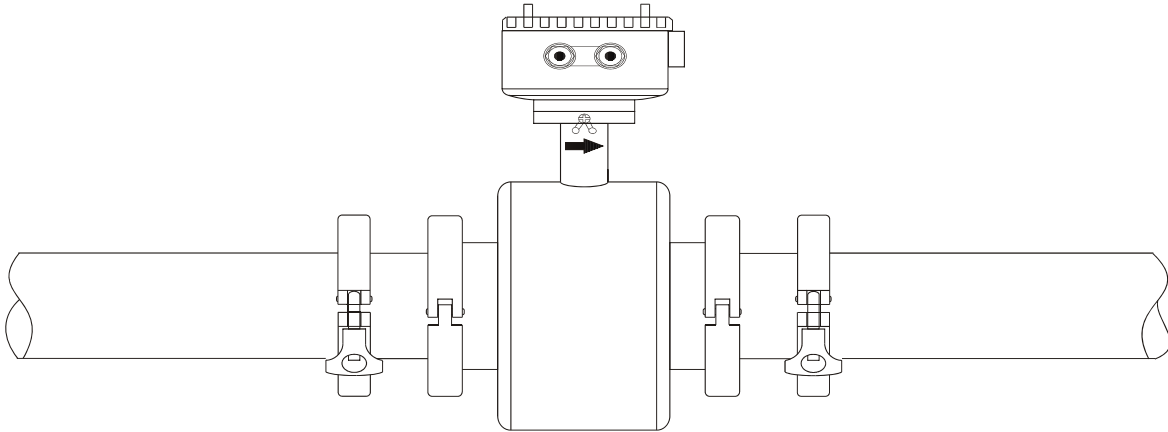
1.3 AMF301 Installation



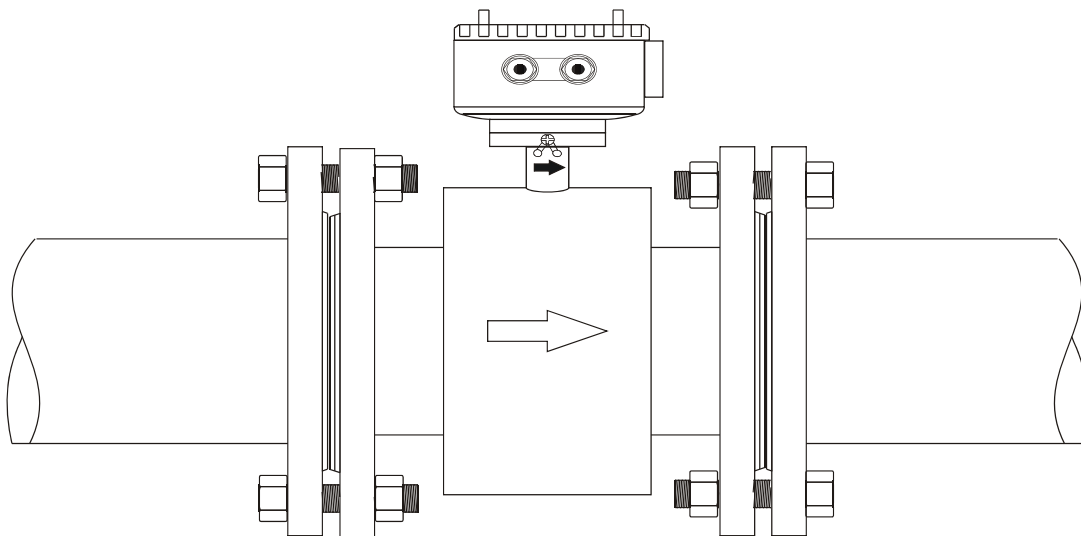
1.4 AMF500 Installation



1.5 AMF601 Installation



1.6 AMF900 Installation



Note:

- 1) Pipe flange should be welded before flowmeter's installation. Welding after flowmeter's installation is prohibited. And the welding part of pipe flange should be flat, having no sharp residue. Otherwise liner will be damaged. After flowmeter is installed, if other place in pipe needs to be welded, flowmeter's power must be shut down. .
- 2) Usually there will be weld residues in newly installed pipe. Before installing sensor, those residues should be cleaned off so as to avoid liner damage.
- 3) If pipe is not aligned well or sloped, there will be leakage or liner damage.

2. Installation Considerations

Before tube design, please take the following situations into consideration:

2.1 Installation location

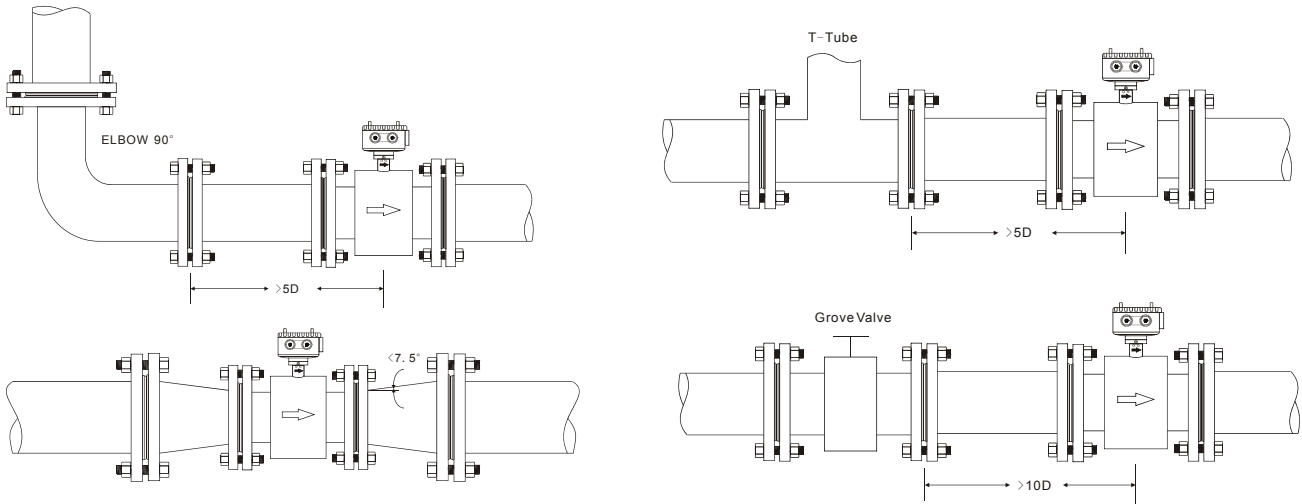
Please avoid sunlight when installing flowmeter; ambient temperature should be between -25 and 60 Deg.C.

2.2 Avoid Magnetic Field interference

Please DO NOT install flowmeter near electric appliances such as motor-driven machine, transformer, and frequency transformer for that will cause magnetic field interference.

2.3 Straight Pipe Distance

In order to guarantee EM Flowmeter's accuracy, upstream and downstream should meet below requirements (as shown).

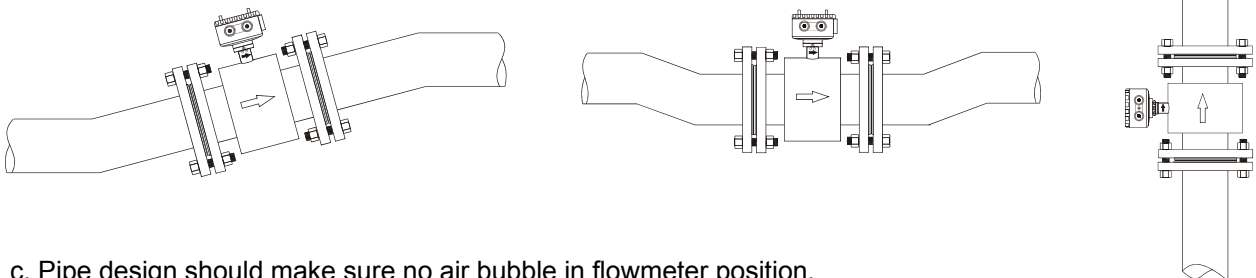


When the upside and downside is shrink tube, the degree θ should be smaller than 15° .

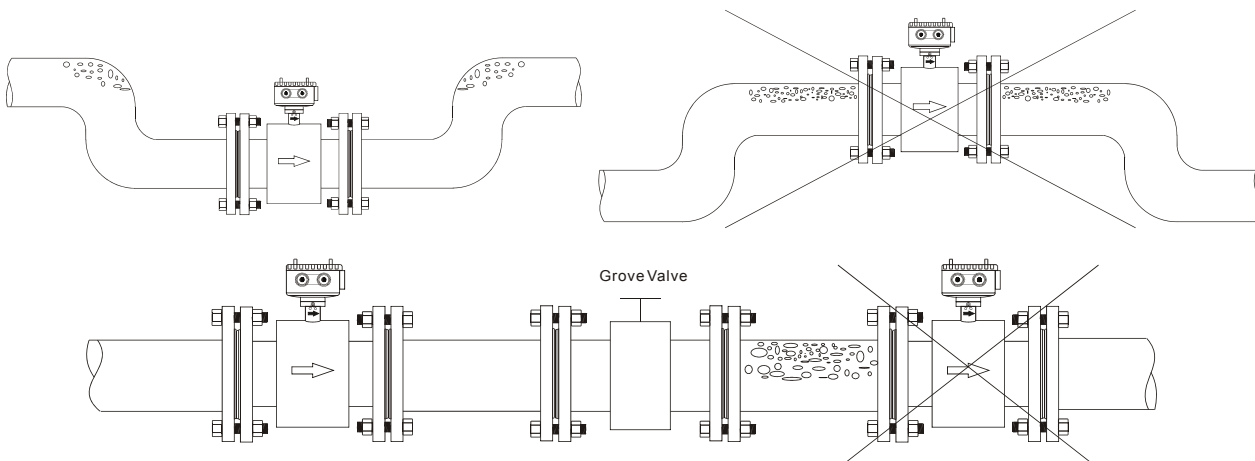
Upstream distance should be 5D-10D while downstream 2D-5D.

2.4 Installation method

- Flowmeter can be horizontal, vertical or slant. Please make sure pipe is full either fluid is running or not.
- If there are particles inside fluid, it's suggested to try vertical installation (bottom to top) so as to avoid particles deposit inside pipe.

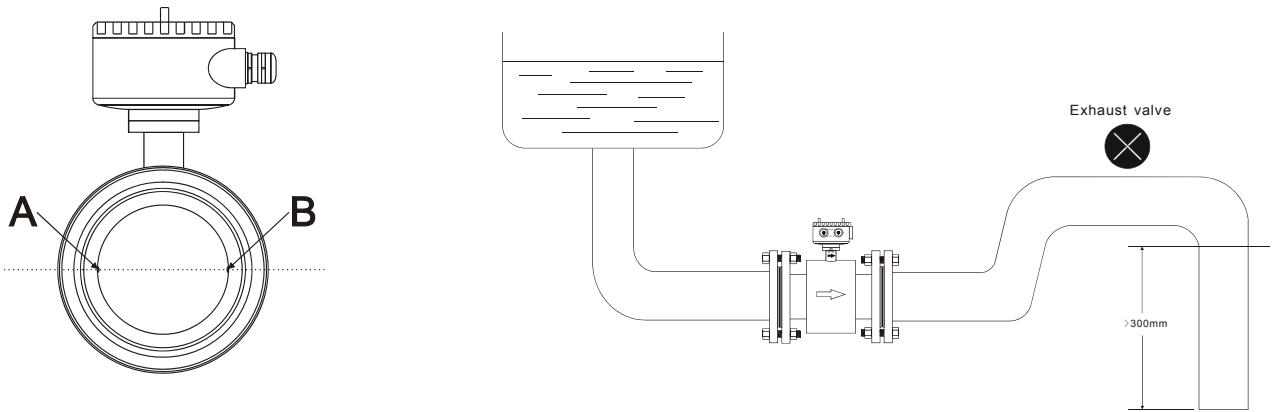


- Pipe design should make sure no air bubble in flowmeter position.



d. Electrode position should parallel with ground

The electrode position (A.B) of EM Flowmeter which is horizontally-installed or slant-installed installed should match the 2 sides (right/left) of tube, and converter (wiring box) should be on the top of tube.

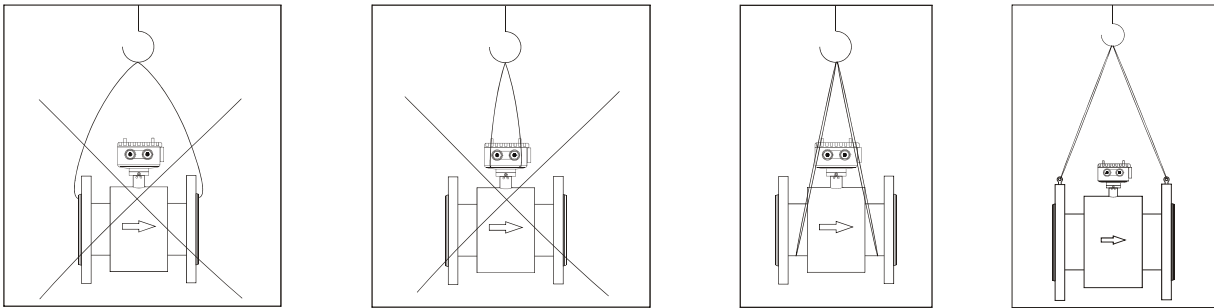


In horizontal installations, the electrode position A.B should on the right and left side.

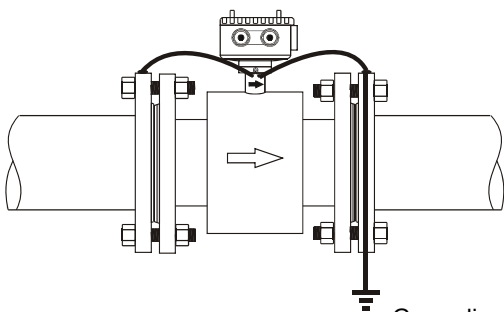
e. Transportation

DO NOT use rope to hang flowmeter through its tube as it may cause inside Liner broken.

DO NOT use your hand or rope to hang converter or junction box. As their material is tender aluminum, if flowmeter size is bigger than 80mm, they can not stand such huge weight.

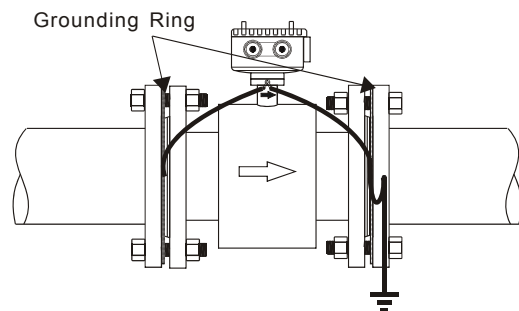


f. Grounding method



Grounding resistance <math>< 10 \Omega</math>

General metal tube



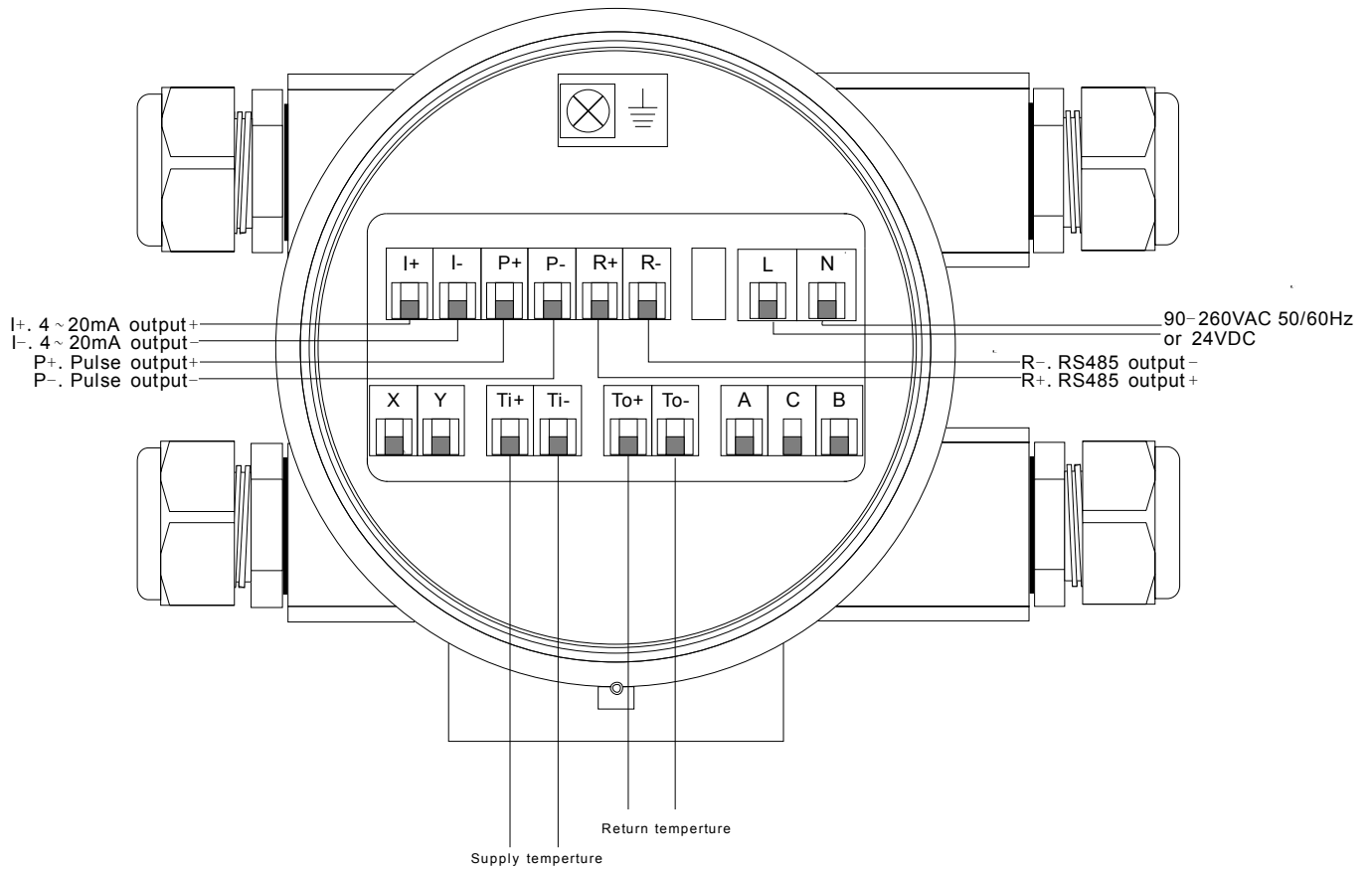
Grounding resistance <math>< 10 \Omega</math>

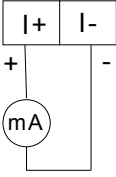
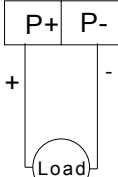
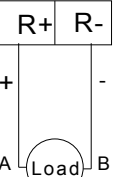
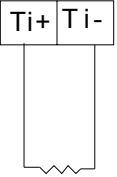
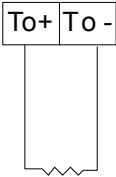
Non-metal tube (plastic tube liner)

3. AMC3200E Operation

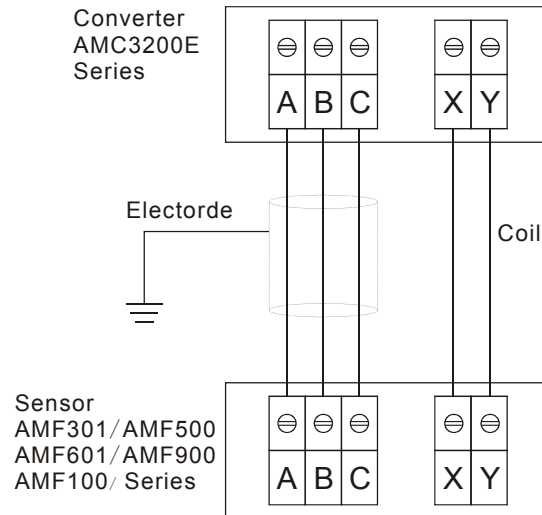
3.1 Wiring Diagram of Power and Signal Output

Connect terminals one by one when back cover is opened.

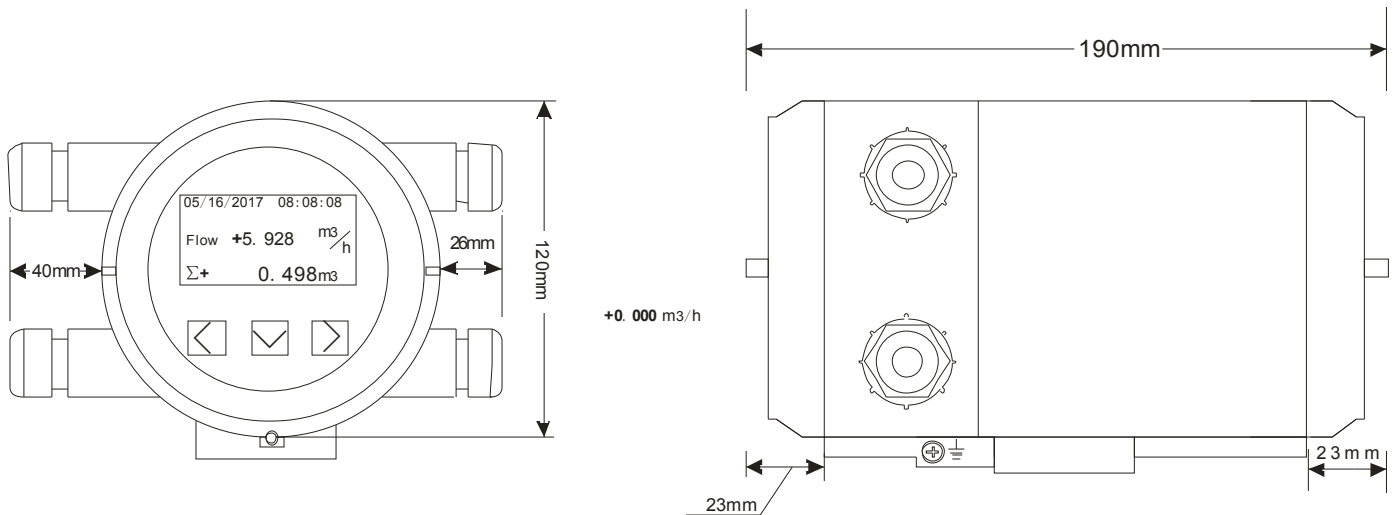


 <p>Max. Output load: 600ohm</p>	 <p>Max. Supply Voltage: 30VDC</p>	 <p>Modbus/BACnet</p>	 <p>PT1000 RTD (PT1000)</p>	 <p>PT1000 RTD (PT1000)</p>
4~20mA Output (Hart protocol)	Pulse (Frequency) Output	RS485/ BACnet Output	Supply Temperature	Return Temperature

3.2 Wiring Diagram for Separate type



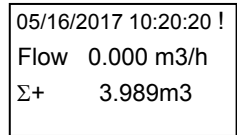
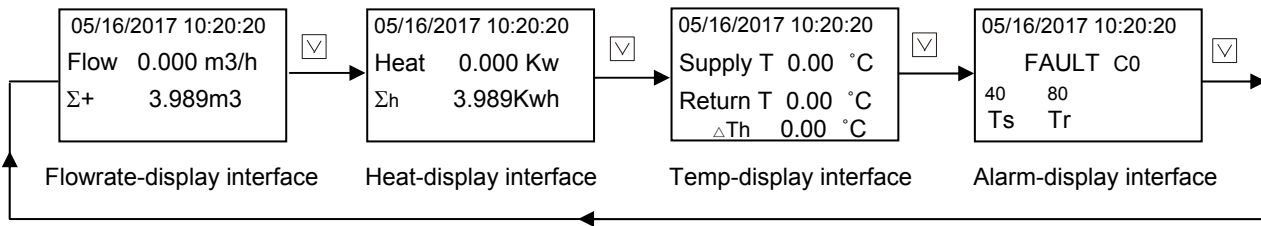
3.3 AMC3200E Panel & Dimensions



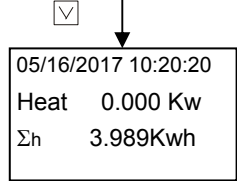
Key Name	Button Sign	Functions Under Measurement	Functions Under Parameter Settings
Left		<ol style="list-style-type: none"> Return to operating Save changes 	<ol style="list-style-type: none"> Return to operating Save changes
Down		<ol style="list-style-type: none"> Switch chosen content Change value 	<ol style="list-style-type: none"> Switch menu Change value
Right		<ol style="list-style-type: none"> Enter parameter setting Cancel parameter setting 	<ol style="list-style-type: none"> Enter parameter setting Cancel parameter setting Move right

3.4 Measurement Mode

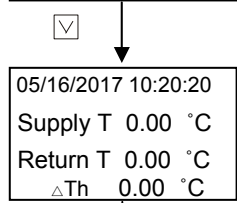
Converter will be in normal display after power on. There are 4 interfaces. Press to switch.



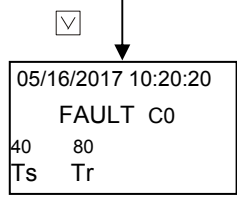
Flowrate-display interface
 Line 1: display date & time (Note: "!" means alarm info.& it's viewable in Alarm-display interface)
 Line 2: display flow rate
 Line 3: display totalizer. (Press to switch display of positive totalizer or negative totalizer)
 Press to switch display mode.



Heat-display interface
 Line 1: display date & time
 Line 2: display heat
 Line 3: display totalizer (Press to switch display of total heat or total cold)
 Press to switch display mode.



Temp-display interface
 Line 1: display date & time
 Line 2: display inlet temperature
 Line 3: display output temp
 Line 4: display temp difference
 Press to switch display mode.



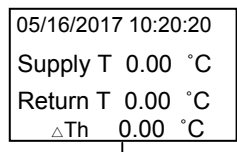
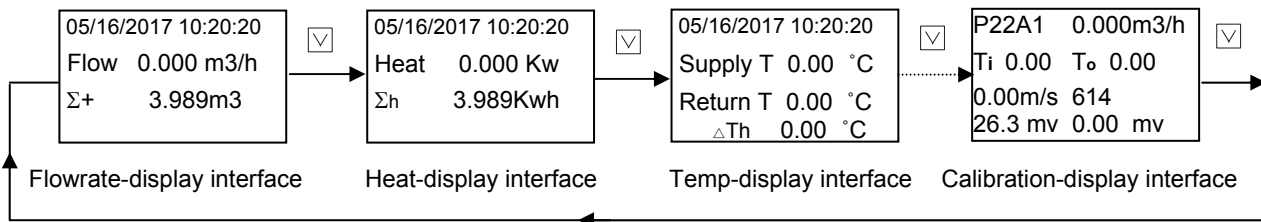
Alarm-display interface
 Line 1: display date & time
 Line 2: fault code
 Line 3: display specific fault code
 Line 4: display the meaning of fault code
 Press / to switch display mode.

3.5 Calibration Mode

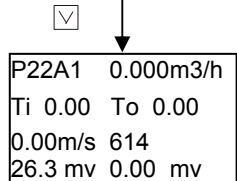
Enter calibration mode if you want to calibrate converter or modify its calibration parameters.

Steps: Press for 6S in Temp-display interface to enter calibration mode. And press for 6S in calibration mode to exit.

When enter calibration, press to find Detail to modify calibration parameters.



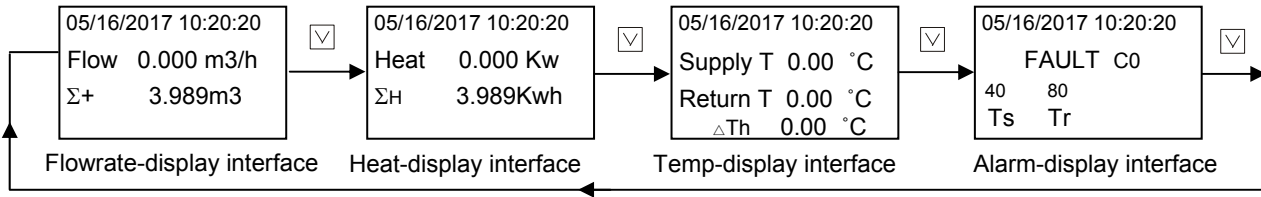
In temp-display interface, press for 6s to enter calibration mode.
 In calibration mode, press for 6s to exit calibration and enter temp display.
 Line 1: display date & time
 Line 2: display inlet temp
 Line 3: display output temp
 Line 4: display temp difference.
 Press to switch display mode.



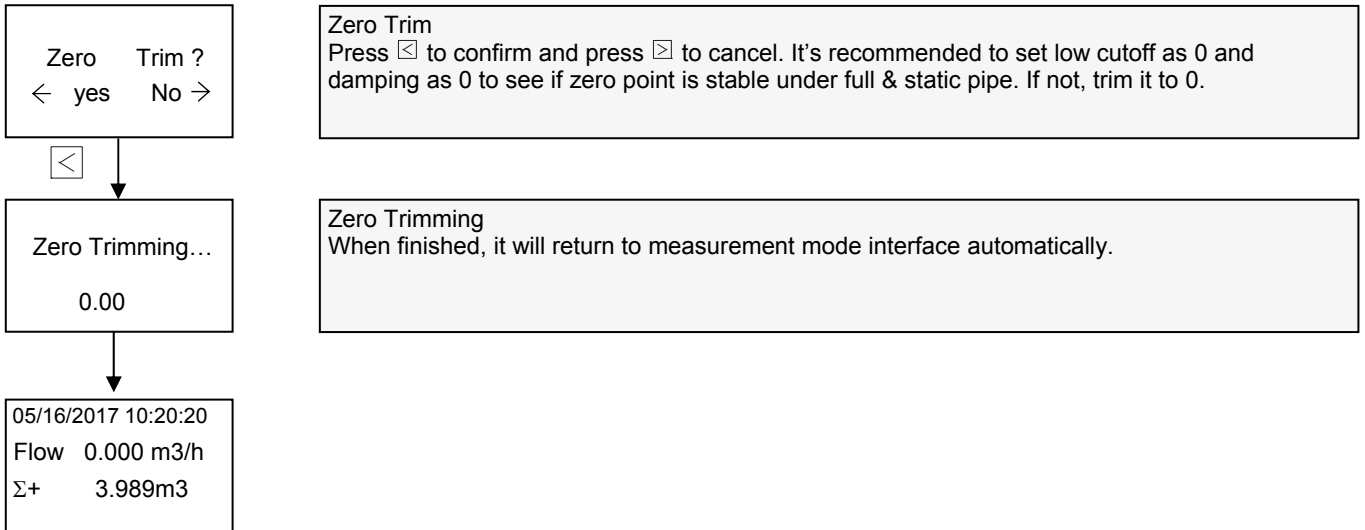
Calibration-display interface
 Line 1: display software version No. and flow rate
 Line 2: display inlet and outlet temp
 Line 3: display flow velocity and measurement of full/empty pipe
 Line 4: display signal and zero mv value
 Press to switch display mode.

3.7 Auto Zero Trim

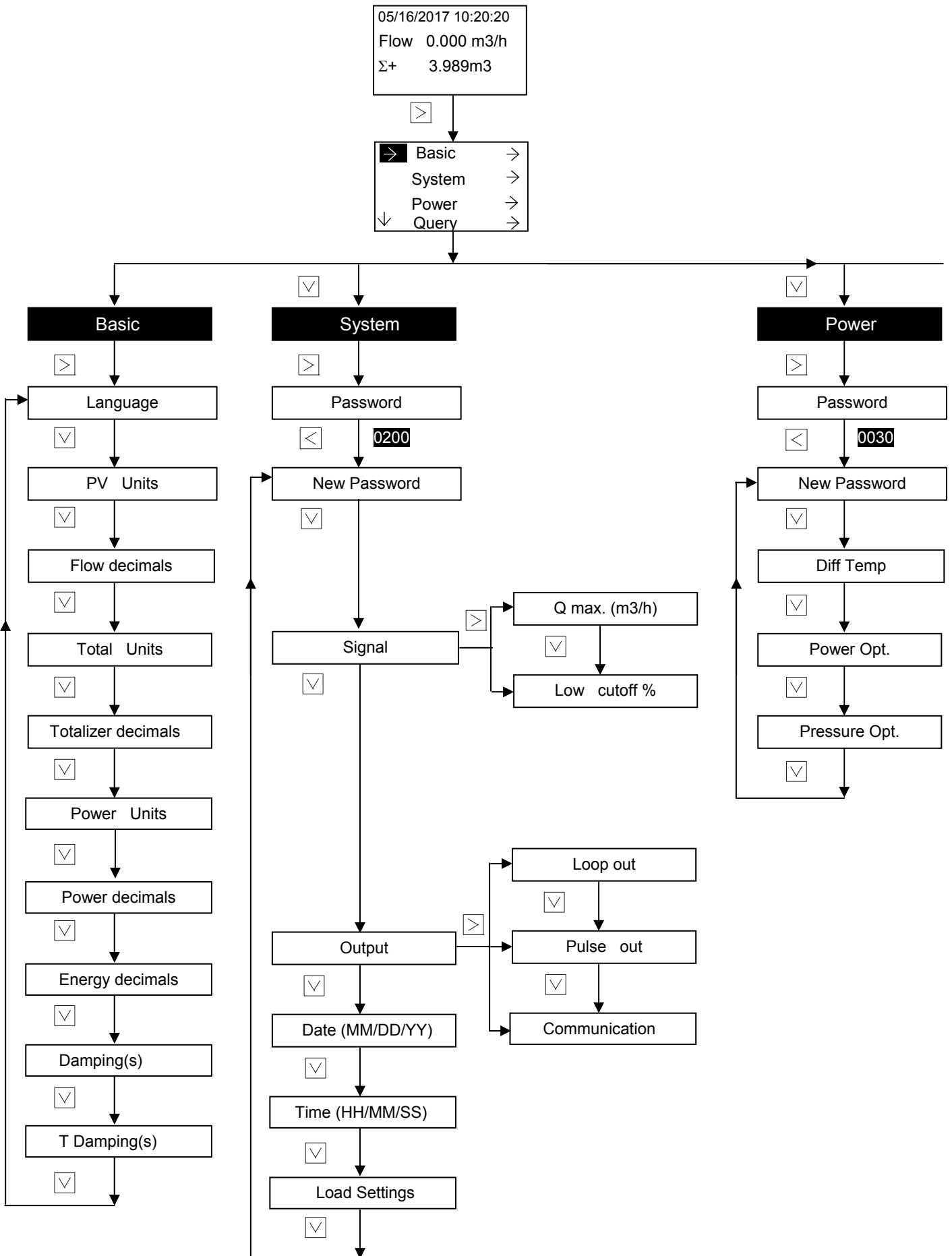
When pipe is full and fluid in pipe is stagnant, flowmeter may appear value due to bad grounding; you can adjust zero point to zero with auto zero trim.



In any interface of measurement mode, press and at the same time, the following Zero Trim interface will appear:



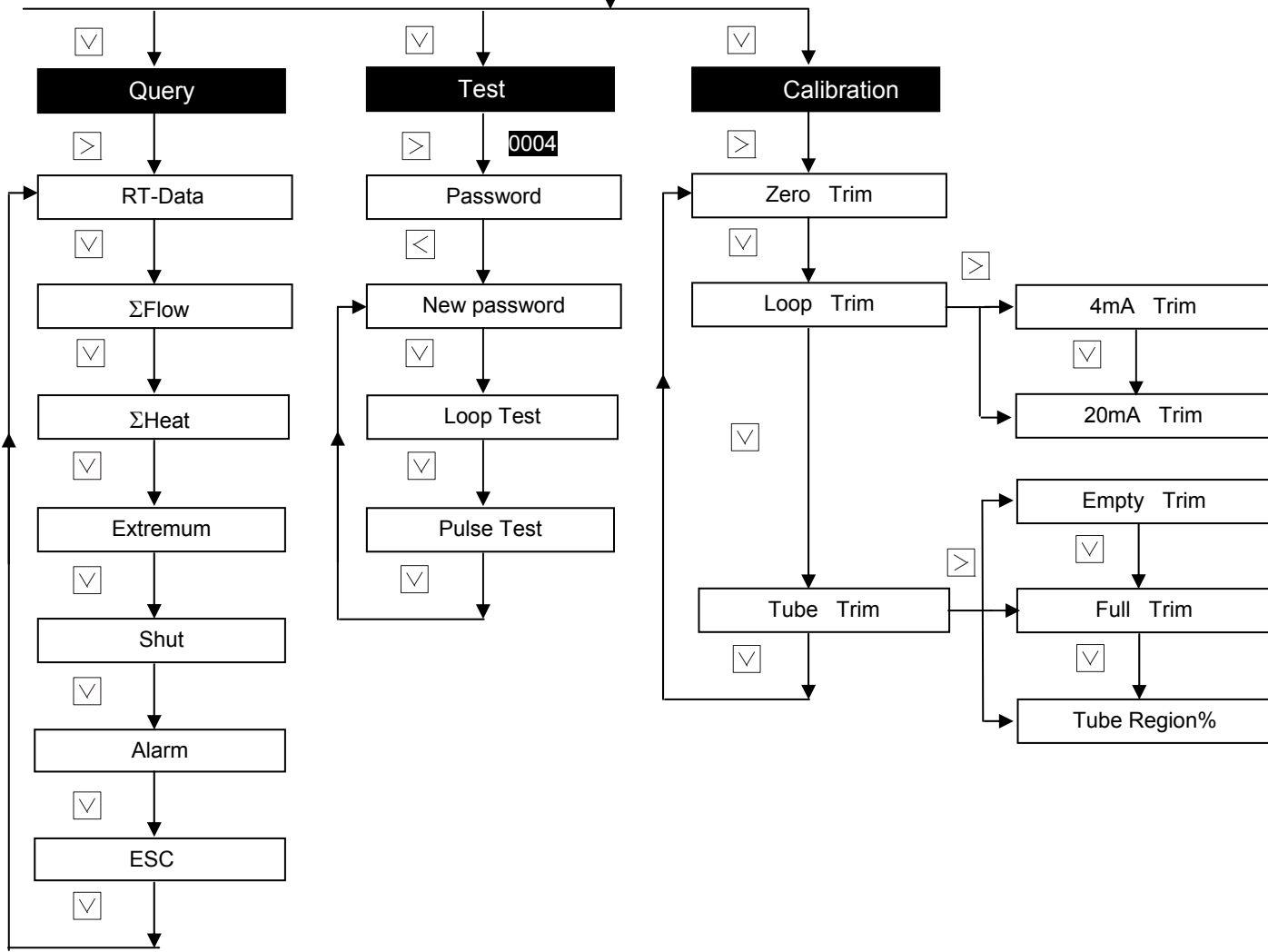
3.9 Operation Flowchart of Measurement Mode



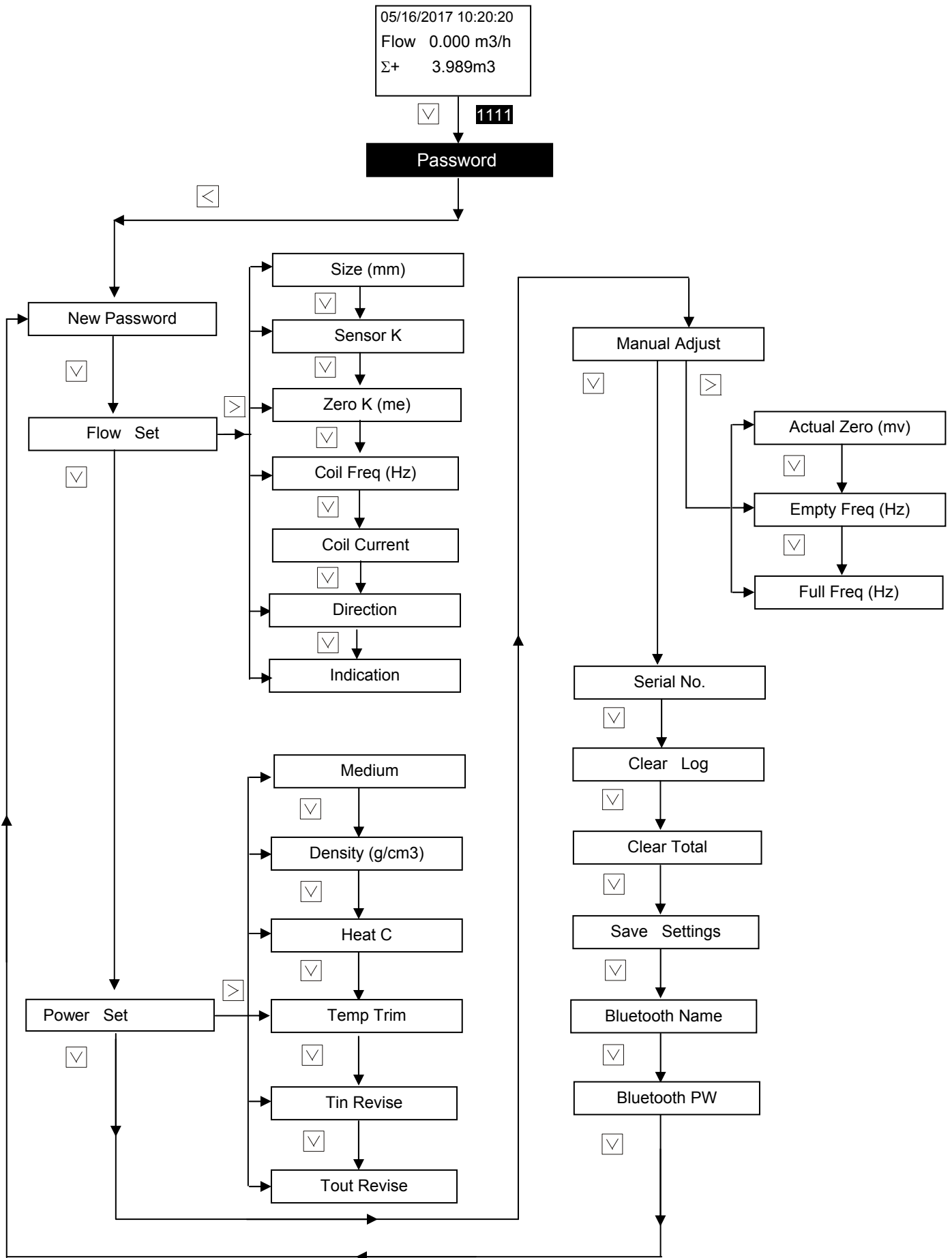
05/16/2017 10:20:20
Flow 0.000 m3/h
 $\Sigma+$ 3.989m3



↑ Query →
Test →
Calibration →
➤ Detail →



3.10 Operation Flowchart of Calibration Mode



3.11 Operating Instructions

Parameter settings in Basic menu

05/16/2017 10:20:20
Flow 0.000 m3/h
Σ+ 3.989m3



➤ Basic ➔
System ➔
Power ➔
↓ Query ➔



➤ Language
PV Units
Flow decimals
↓ Total Units



Language English
English



Language
➤ PV Units
Flow decimals
↓ Total Units



PV Units m3/h
m3/h



Language
PV Units
➤ Flow decimals
↓ Total Units



Flow decimals 3
3



Language
PV Units
Flow decimals
↓ ➤ Total Units



Total Units m3
m3



In any interface of measurement mode, press to enter "menu-selection".
Press to choose "Basic".

Main-menu
Choose "Basic" and press to enter "parameter setting".

Basic
Choose "Language" and press to enter.

Language
Press / to choose language.
1. English 2.Chinese
Press to confirm and press to cancel.

Basic
Press to choose "PV Units" and press to enter.

PV Units
Press / to choose unit
1. m3/h 2. L/s 3. L/m 4. L/h 5. m3/s 6. m3/m 7. ml/h 8. ml/m 9.ml/s
Press to confirm and press to cancel.

Basic
Press to choose "Flow decimals" and press to enter.

Flow decimals
Press / to choose decimal place.
1 digit 2 digit 3 digit
Press to confirm and press to cancel.

Basic
Choose "Total Units" and press to enter.

Total Units
Press / to choose total units.
1. m3 2. L 3. mL
Press to confirm and press to cancel.

↑ PV Units
 PV Accuracy
 Total Units
 Totalizer decimals

Basic
 Press to choose "Totalizer decimals" and press to enter.

Totalizer decimals
 3

Totalizer decimals
 Press / to choose Flow totalizer decimals.
 1 digit 2 digit 3 digit
 Press to confirm and press to cancel.

↑ PV Accuracy
 Total Units
 Totalizer decimals
 Power Units

Basic
 Press to choose "Power Units" and press to enter.

Power Unit
 KW

Power Unit
 Press / to choose power unit.
 1. KW 2. MW 3. KJ/h 4. MJ/h 5. GJ/h 6. cal/h 7. Kcal/h 8. Mcal/h
 Press to confirm and press to cancel.

↑ Total Units
 Total Accuracy
 Power Units
 Power decimals

Basic
 Press to choose "Power decimals" and press to enter.

Power decimals
 3

Power decimals
 Press / to choose Power decimals.
 1 digit 2 digit 3 digit
 Press to confirm and press to cancel.

↑ Total Accuracy
 Power Units
 Power decimals
 Energy decimals

Basic
 Press to choose "Energy decimals" and press to enter.

Energy decimals
 3

Energy decimals
 Press / to choose energy decimals.
 1 digit 2 digit 3 digit
 Press to confirm and press to cancel.

↑ PV Units
 Total Units
 Power Units
 Damping(s)

Basic
 Press to choose "Damping(s)" and press to enter.

Damping (s)
 max: 99
 min: 0

Damping(s)
 Press to set damping and press to move digit place.
 Setting range: 0~ 99. You can set damping here when flow rate has a large fluctuation, the greater the damping sets, the slower the flow rate changes.
 Press to confirm and press to cancel.

↑ Total Decimal
Power Units
Damping(s)
→ T Damping(s)



T Damping (s)
max: 99 05
min: 0 05



Basic
→ System
Power
Query

Basic

Press to choose "T Damping(s)" and press to enter.

T Damping(s)

Press to set T damping and press to move digit place.

Setting range: 0.0~ 99. You can set damping here when energy value has a large fluctuation, the greater the T damping sets, the slower the energy value changes.

Press to confirm and press to cancel.

Main-menu

Press to choose "System" and press to enter parameter settings in System menu.

Parameter Settings in System Menu

1. Signal Parameter settings

Basic	→
➤ System	→
Power	→
Query	→

Password input

Press to choose "System" and press to enter parameter settings in System menu.

↓

Password
0200

Password input

Press to move cursor and press to change value.
Input password: 0200
Press to confirm.

↓

➤ New Password	
Signal	→
Output	→
↓ Date (MM/DD/YY)	

System

Choose "New Password" and press to enter.

DO NOT modify password unless necessary to avoid forgetting password.

↓

New Password	
➤ Signal	→
Output	→
↓ Date (MM/DD/YY)	

System

Press to choose "Signal" and press to enter.

↓

➤ Qmax.(m3/h)
Low cut

Signal

Choose "Qmax. (m3/h)" and press to enter.

↓

Q max. (m3/h)	
25mm	3.49999
Max:26.5071	
Min:0.35343	3.49999

Q max.

Press to move cursor and press to change value.
Q.max corresponds to 20mA in 4-20mA output.
Flowrate setting range depends on size
Press to confirm.

↓

Q max. (m3/h)
➤ Low cutoff %

Signal

Press to choose "Low cutoff %" and press to enter.

↓

Low cutoff	
max: 9.9	1.0
min: 0.0	1.0

Low cutoff %

Press to change value and press to confirm.
Setting range: 0.0~ 9.9% Suppose range is set to 100m3/h, low cutoff is 1%. Flow rate will be cutoff if it is lower than -1m3/h~+1m3/h., converter shows 0.
Press to confirm.

↓

Q max. (m3/h)
➤ Low cutoff %

Signal

Press again to return to signal interface.

↓

New Password	
➤ Signal	→
Output	→
↓ Date (MM/DD/YY)	

2. Output parameter settings

New Password
Signal
➤ Output
⏏ Date (MM/DD/YY)



➤ Loop Out ➤
Pulse Out ➤
Communication ➤



➤ Loop - Flow



Loop-Flow
Flow
Power



Loop - Power
➤ Power Max.



Power Max. KW
max:9999999 10.0000
min: 0.00100 10.0000



➤ Loop - Power
Power Max.



➤ Loop Out ➤
Pulse Out ➤
Communication ➤



Loop Out ➤
➤ Pulse Out ➤
Communication ➤



➤ Pulse - Flow
Freq Max(Hz)
Liter/Pulse
Pulse Width (ms)



Pulse-Flow
Flow
Flow

System

Press to choose "Output" and press to enter.

Output

Press to choose "Loop Out" and press to enter.

Loop Output

Press to enter corresponding output option of 4-20mA.
1. Loop-Flow 2. Loop-Power

Loop Output

Press / to choose corresponding flowrate/power output of 4-20mA.
1. Flow 2. Power
Press to confirm and press to cancel.

Loop - Power

If choose power which corresponds to 4-20mA output, you need to set power Max value.

Power Max.

Press to change value. Power range: 0.00100~9999999
This value corresponds to 20mA in 4-20mA.
Press to confirm and press to cancel.

Loop - Power

Press again to confirm and return to Output.

Output

Press to choose "Pulse Out" and press to enter.

Output

Press to confirm and enter "Pulse Output".

Pulse Out

Press to choose "Pulse -Flow", press to confirm, you can set "Pulse -Flow" or "Pulse - Power".

Pulse - Flow

Press / to choose "Pulse -Flow" or "Pulse -Power".
1. FLOW 2. ENERGY
Press to confirm and press to cancel.

↓
 Pulse – Flow
 Freq Max(Hz)
 Liter/Pulse
 Pulse – Flow

Pulse Out
 Press to choose “Freq Max (Hz)” and press to enter.

↓
 Freq max. (Hz)
 Max:5000.0
 Min:100.0
 2000.0

Freq Max(Hz)
 Press to change value.
 Frequency range: 100Hz~5000Hz This value corresponds to Max.Flow.
 Press to confirm and press to cancel.

↓
 Pulse – Flow
 Freq Max(Hz)
 Liter/Pulse
 Pulse Width (ms)

Pulse Out
 Press to choose “Liter/Pulse” and press to enter.

↓
 Liter/Pulse
 Max:9999999
 Min:0.00100
 20.0000

Liter/Pulse
 Press to set the corresponding (Liter/Pulse) of each pulse, min. value: 0.00100.
 If choose Freq output, this value should be set to 0.
 Press to confirm and press to cancel.

↓
 Pulse – Flow
 Freq Max(Hz)
 Liter/Pulse
 Pulse Width

Pulse Out
 Press to choose “Pulse Width (ms)” and press to enter.

↓
 Pulse Width(ms)
 50%

Pulse Width(ms)
 Press / to change value. Pulse width should be set to match appropriate Liter/Pulse to ensure pulse output cycle is not less than 2 times of chosen pulse width.
 Setting range: 1. 200ms 2. 100ms 3. 50ms 4. 20ms 5. 10ms 6. 50%
 It's recommended to choose 50%. Press to confirm and press to cancel.

↓
 Pulse – Flow
 Freq Max(Hz)
 Liter/Pulse
 Pulse Width

Pulse Out
 Press to exit and return to Pulse Out.

↓
 Loop Out →
 Pulse Out →
 Communication →

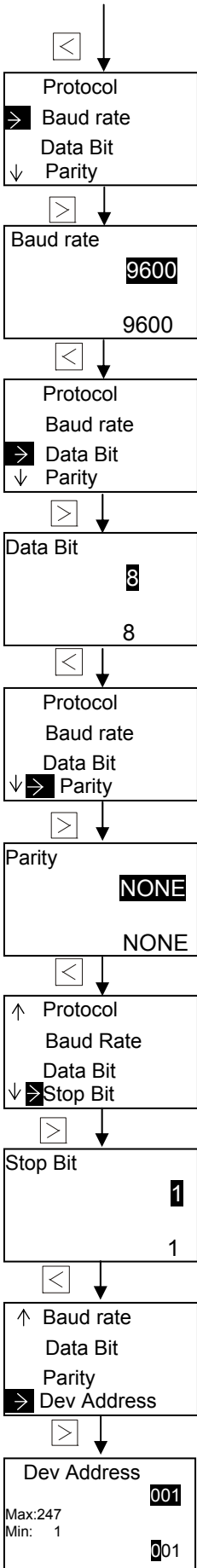
Output
 Press to choose “Communication” and press to enter.

↓
 Protocol
 Baud rate
 Data Bit
 Parity

Communication
 Press to choose “Protocol” and press to enter.

↓
 Protocol
 Modbus
 Modbus

Protocol
 Press / to choose “Protocol”.
 1. Modbus 2.BACnet
 Press to confirm and press to cancel.



Communication
 Press to choose "Baud rate" and press to enter.

Baud rate
 Press to choose "Baud rate".
 1200 , 2400 , 4800 , 9600 , 19200 , 38400 Default value:9600
 Press to confirm and press to cancel.

Communication
 Press to choose "Data Bit" and press to enter.

Data Bit
 Data Bit: 8 bits.
 Press to return.

Communication
 Press to choose "Parity" and press to enter.

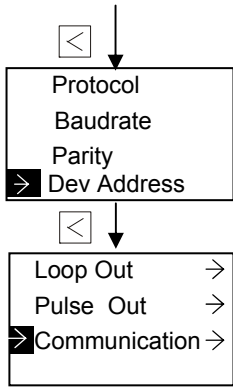
Parity
 Press to choose "Parity".
 1. NONE 2. ODD 3.EVEN Default value: NONE
 Press to confirm, press to cancel and return to Communication.

Communication
 Press to choose "Stop Bit" and press to enter.

Stop Bit
 Press to choose "Stop Bit".
 1. 1 2. 2 Default value: 1
 Press to confirm and press to cancel and return to Communication.

Communication
 Press to choose "Dev Address" and press to enter.

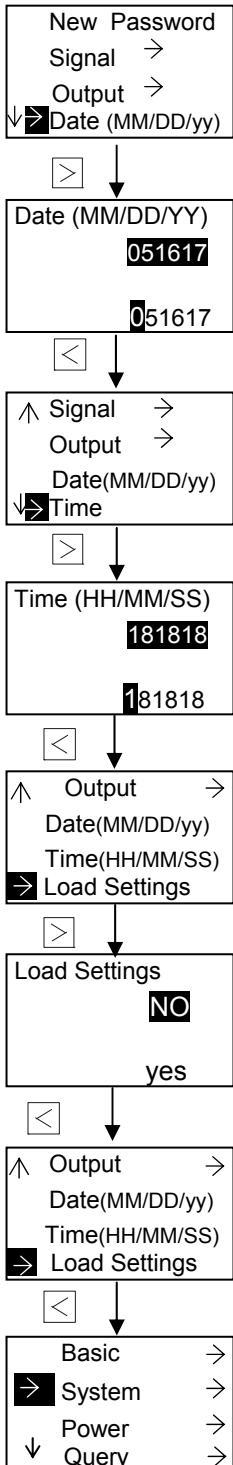
Dev Address
 Set appropriate address.
 Press to change value.
 Press to confirm and press to cancel.



Communication
Press again to confirm and return to Output.

Output
Press again to confirm and return to System.

3. Date settings



System
Press to choose "Date" and press to enter.

Date
Press to change value to set date.
Press to confirm and press to cancel.

System
Press again to confirm and return to System.
Press to choose "Time", press to confirm and enter "Time" setting.

Time
Press to change value to set time.
Press to confirm and press cancel.

System
Press to choose "Load Settings" and press to enter.

Load Settings
Press / to choose to restore factory setting or not.
When select load settings, all parameters will be restored to factory settings.
Press to confirm and return to System.

System
Press again to confirm and return to main-menu.

Main-menu
Press to choose "Power" and press to enter.

Parameter Settings in Power Menu

Basic →
System →
➔ Power →
Query ↓



Password
0030



➔ New Password
Diff Temp
Power Opt.
Pressure Opt.



New Password
➔ Diff Temp
Power Opt.
Pressure Opt.



Diff Temp
Max: 3.0 2.00
Min: 0.0 2.00



New Password
Diff Temp
➔ Power Opt.
Pressure Opt.



Power Opt
AUTO
HEAT



New Password
Diff Temp
Power Opt.
➔ Pressure Opt.



Pressure Opt.
0.6MPa
1.6MPa

Main-menu

Press to choose "Power" and press to enter.
Press to confirm and press to cancel.

Password

Press to move cursor and press to change value.
Input password: 0030
Press to confirm and press to cancel.

Power

"New Password"
Do not modify password randomly to avoid forgetting it.
Press to choose "Diff Temp".

Power

Press to choose "Diff Temp" and press to enter.

Temp difference

Press to change value.
Setting range: 0.0~3.0
When temp difference is less than the value you set, it does not calculate heat; it starts to calculate heat when temp difference is greater than the value you set.
Press to confirm and press to cancel.

Power

Press to choose "Power Opt" and press to enter.

Energy

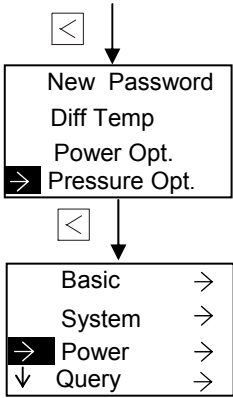
Press / to choose the following options. 1.AUTO 2.COLD 3.HEAT
You should choose HEAT when measuring heat and choose COLD when measuring cold.
Wrong option will lead to 0 energy and alarm. Default option: AUTO
If you choose AUTO, water supply temperature should be less than or equal to 18°C when measuring cold, while it should be greater than or equal to 30°C when measuring heat, otherwise energy will be displayed as 0.
Press to confirm and press to cancel.

Power

Press to choose "Pressure Opt" and press to enter.

Pressure

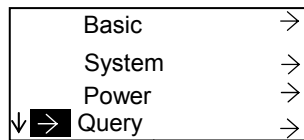
Press / to choose pressure.
1. 0.6 Mpa 2. 1.6 MPa
This parameter doesn't participate in operation, but acts as sensor identification. (Note: Most of sensor's applications are lower than 1.6Mpa, so you can only choose 0.6MPa and 1.6MPa.)
Press to confirm and press to cancel.



Power
Press again to return to "main-menu".

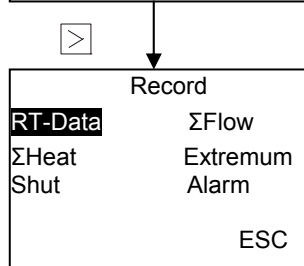
Main-menu
Press to choose "Query" and press to enter.

Parameter settings in Query menu



Main-menu

Press to confirm and enter "Query".

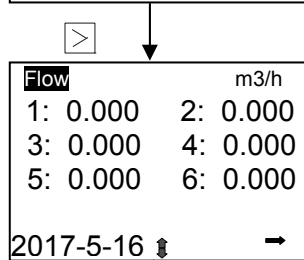


Query-menu

Press to choose object, press to confirm and enter "Query".

Queryable item: real-time data, ΣFlow (total flow), ΣHeat (total heat), Extremum, Shut, Alarm.

Press to choose "RT-Data" and press to enter.



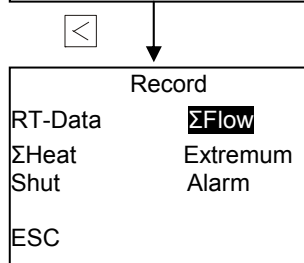
RT-Data query

Black part is selected.

Press to check flow, heat, inlet/outlet temp and temp difference.

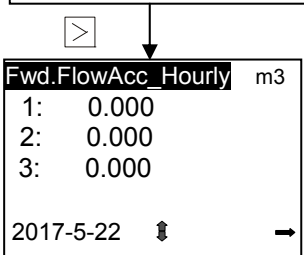
Press to confirm.

Move cursor to → and press again to exit.



Query-menu

Press to choose "ΣFlow" and press to enter.

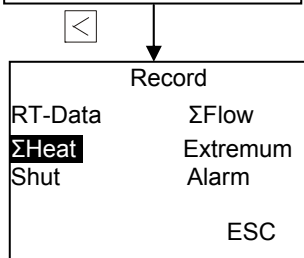


ΣFlow

Black part is selected. Press to check forward flow accumulative hourly/ daily /monthly/ yearly report and reverse flow accumulative hourly/ daily /monthly/ yearly report.

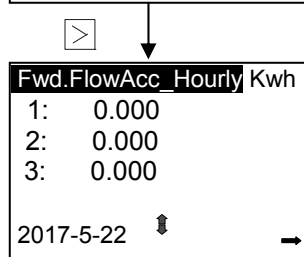
Press to change object.

Move cursor to "→" and press again to exit.



Query-menu

Press to choose "Σ Heat" and press to enter "Σ Heat".



ΣHeat

Black part is selected. Press to check Heat accumulative hourly/ daily/ monthly/ yearly report and Cold accumulative hourly/ daily/ monthly/ yearly report.

Press to move cursor.

When move cursor to "→" and press again to exit.

Record
 RT-Data ΣFlow
 ΣHeat Extremum
 Shut Alarm
 ESC



Statistics Day
 FL+:
 Data not exist!
 2017-5-22 ↓ →



Record
 RT-Data ΣFlow
 ΣHeat Extremum
 Shut Alarm
 ESC



Power Down Log
 01:PowerOn
 2017-05-24 14:52:12
 Total PowerOn :27H
 Total powerOn:264H



Record
 RT-Data ΣFlow
 ΣHeat Extremum
 Shut Alarm
 ESC



Alarm Log
 01: Ts OFF
 2017-05-24 11:34:24
 02:Tr OFF
 2017-05-24 11:34:25



Record
 RT-Data ΣFlow
 ΣHeat Extremum
 Shut Alarm
 ESC



Query-menu

Press to choose "Extremum" and press to enter "Extremum".

Extremum

Black part is selected. Press to check daily/ monthly/ yearly statistics of FL+ and FL- (forward/ reverse flow rate), PwH and PwC (heat/ cold flow rate) and Δ TH and Δ TC (heat/ cold temperature difference).
 Press to select an object.
 Move cursor to "→" and press "" to exit.

Query-menu

Press to choose "Shut" and press to enter.

Shut query

Press to check Power on/off log. 99 logs are queryable.
 Press to exit.

Query-menu

Press to choose "Alarm" and press to enter.

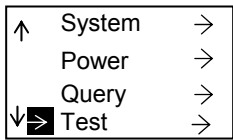
Alarm Log

Press to check alarm log. 99 logs are queryable.
 Press to exit.

Query-menu

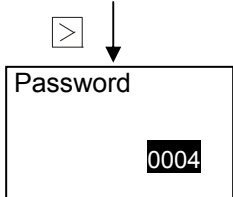
Press to choose "ESC" and press to exit.

Parameter Settings in Test Menu



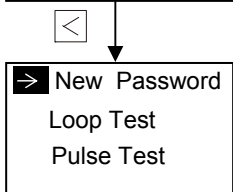
Main-menu

Press to choose "Query" and press to enter.
Press to confirm and press to cancel.



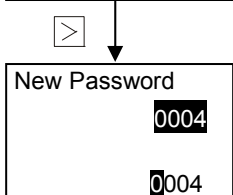
Password

Press to change value.
Input password: 0004
Press to confirm and press to cancel.



Test

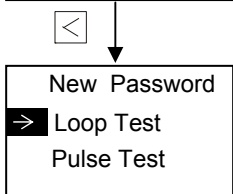
Press to choose "New Password" and press to enter.



Password modification

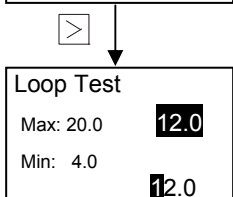
Press to change value and press to move cursor.

Press to confirm.



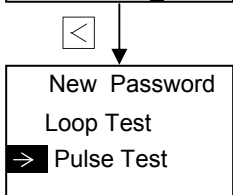
Test

Press to choose "Loop Test" and press to enter.



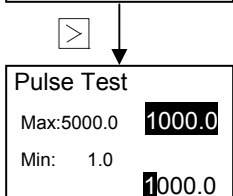
Loop Test

Press to change value.
Setting range: 4.0~20.0 Perform simulation test for 4-20mA output to see if it's correct.
Press to return to previous menu.



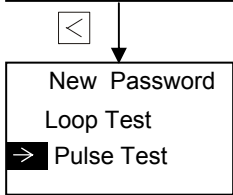
Test parameter selection

Press to choose "Pulse Test" and press to enter.



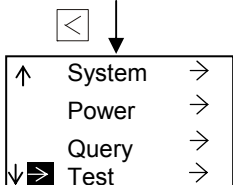
Pulse Test

Press to change value.
Setting range: 1.0 ~ 5000.0 Perform analog test for frequency output to see if it's correct.
Press to return to previous menu.



Test

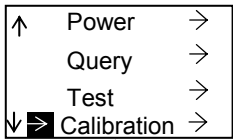
Press again to return to main-menu.



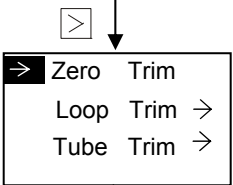
Main-menu

Press to choose "Calibration" and press to enter.

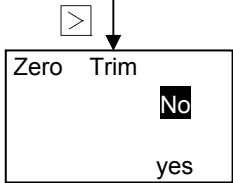
Parameter settings in Calibration menu



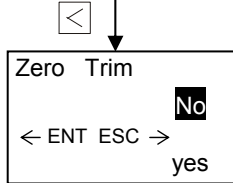
Main-menu
Press to choose “Calibration” and press to enter.



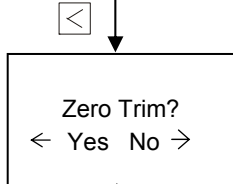
Calibration
Press to choose “Zero Trim” and press to enter.



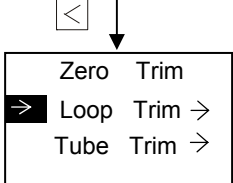
Zero Trim
Press / to choose zero trim or not and press to confirm.



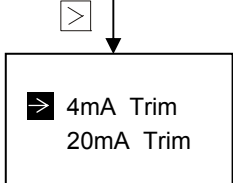
Zero Trim
Press to confirm “Zero Trim” and press to cancel. It’s recommended to set low cutoff as 0, damping as 0 to see whether zero point is stable under full and static pipe. If not, trim it to 0. Note: Do not operate this function when fluid is flowing.



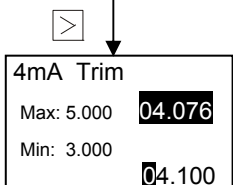
Zero Trim
Press to enter “Zero Trim”, it will auto return to Calibration after trimmed. Press to cancel.



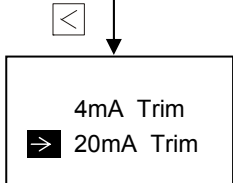
Calibration
Press to choose “Loop Trim” and press to enter.



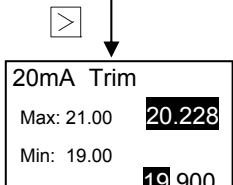
Loop Trim
Press to enter “Loop Trim”.
Press to choose “4mA Trim” and press to enter.



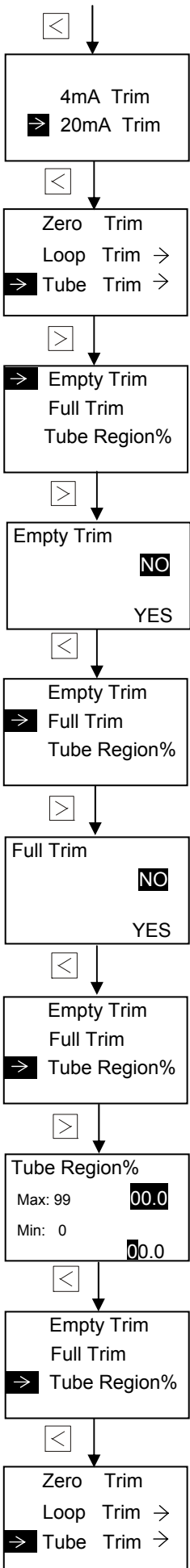
4mA Trim
Setting range: 3~5mA. Connect a standard ammeter in series in 4~20mA loop. Suppose the actual current is 4.1mA, enter it here and press confirm, the output current value will be 4mA. Press to confirm and press to cancel.



Loop Trim
Press to choose “20mA Trim” and press to enter.



20mA Trim test
Setting range: 19~21mA
Connect a standard ammeter in series in 4-20mA loop. Suppose the actual current is 19.9mA, enter it here and press confirm, the output current value will be 20mA. Press to confirm and press to cancel.



Loop Trim
Press again to return to Calibration.

Calibration
Press to choose "Tube Trim" and press to enter.

Tube Trim
Press to choose "Empty Trim" and press to enter.

Empty Trim
Press / to choose empty trim or not. .
1. NO 2. YES Empty trim can be set when pipe is empty.
Press to confirm.

Tube Trim
Press to choose "Full Trim" and press to enter.

Full Trim
Press / to choose full trim or not.
1. NO 2. YES Full trim can be set when pipe is full and fluid is still.
Press to confirm.

Tube Trim
Press to choose "Tube Region%" and press to enter.

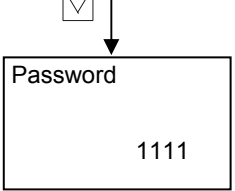
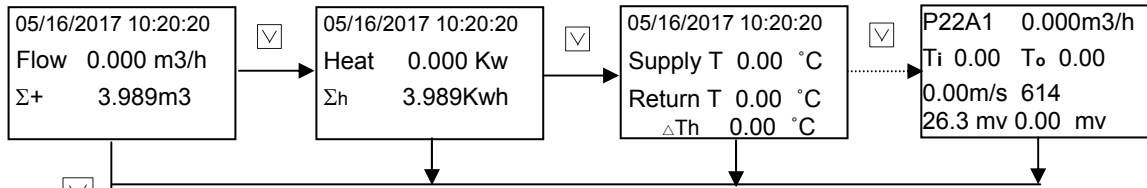
Tube Region%
Press to change value of tube region%.
Setting range: 00 ~ 99%
The greater Tube region% sets, the more sensitive to detect empty pipe. Default value: 50%
Press to confirm and press to cancel.

Tube Trim
Press again to return to Calibration.

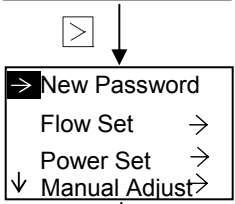
Calibration
Press again to return to main menu.

3.12 Operation Instruction of Calibration Mode

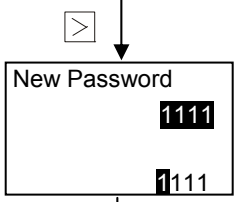
In any interface of calibration mode, press to enter parameter settings.



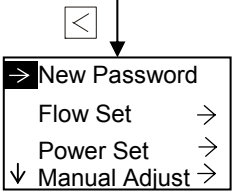
Password
Press to change value and press to move.
Press to confirm.



Detail
Press to choose "New Password" and press to enter.
Press to confirm and press to cancel.

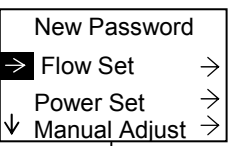


New Password
Press to change value and press to move.
Note: Please DO NOT modify randomly.
Press to confirm.

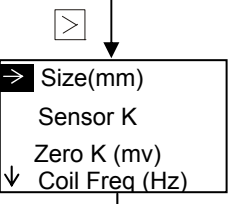


Detail
Press to choose "Flow Set" and press to enter.

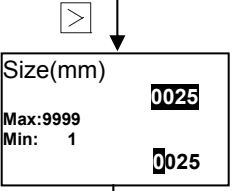
Parameter Settings in Flow Set Menu



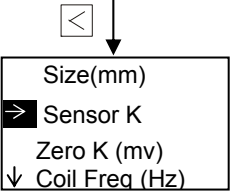
Detail
Press to choose "Flow Set" and press to enter.



Flow Set
Press to choose "Size" and press to enter.



Size
Press to change size and press to move. It should be set according to actual pipe size.
Press to set.



Flow Set
Press to choose "Sensor K" and press to enter.

Sensor K
 Max:99.99999
 Min: 0.01000
 01.00000
 01.00000

Sensor K setting
 Press to change value, press to move cursor and input corresponding sensor factor.
 Setting range: 0.01000 ~ 99.99999
 Sensor factor should be set according to matching sensor.
 Press to confirm and press to cancel.
 Note: It has been calibrated before leave the factory, please DO NOT modify.

Size(mm)
 Sensor K
 Zero K (mv)
 Coil Freq (Hz)

Flow Set
 Press to choose "Zero K" and press to enter.

Zero K
 Max:29.999
 Min:-29.999
 +00.000
 00.000

Zero K
 Press to change value, press to move cursor and input zero value.
 Setting range: -29.999 ~ +29.999 (Default setting: 0) If sensor zero point exceeds converter processing range, zero point modification is required. If enter "+" here, the displayed flow rate will become smaller and if "-", flow rate will become larger.
 DO NOT modify unless you are representative / original technician.

Size(mm)
 Sensor K
 Zero K (mv)
 Coil Freq (Hz)

Flow Set
 Press to choose "Coil Freq" and press to enter.

Coil Freq(Hz)
 6.25
 6.25

Coil Frequency
 Press / to choose coil frequency.
 3.125 6.25 12.5 25
 If flow velocity is faster and has large fluctuation, try to set coil frequency a litter larger so that signal acquisition will be faster.
 Press to confirm and press to cancel.

Sensor K
 Zero K (mv)
 Coil Freq(Hz)
 Coil Current

Flow Set
 Press to choose "Coil Current" and press to enter.

Coil Current
 Max:9.9999
 Min:0.0000
 0.1830
 0.1830

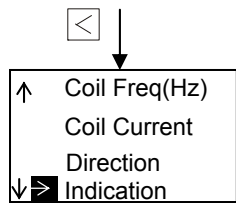
Coil Current
 Press to change value and press to move cursor.
 Note: Coil current is default current.
 Do not change it unless you are representative / original technician.
 Press to confirm and press to cancel.

Zero K(mV)
 Coil Freq(Hz)
 Coil Current
 Direction

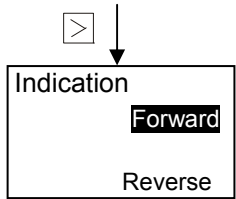
Flow Set
 Press to choose "Direction" and press to enter.

Direction
 Bid.
 Bid.

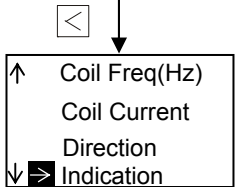
Direction
 Press / to confirm bi-direction or not.
 1. Bid. 2. Fwd. Default setting: Bid
 Press to confirm and press to cancel.



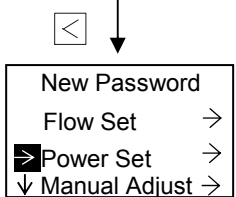
Flow Set
 Press / to choose "Indication" and press to enter.



Indication
 Press / to choose "Indication".
 1. Forward 2. Reverse Default setting: Forward
 Press to confirm and press to cancel.

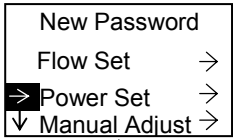


Flow Set
 Press again to return to Detail.

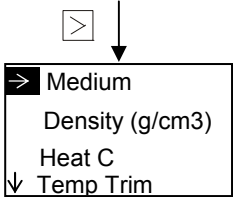


Detail
 Press to choose "Power Set" and press to enter.

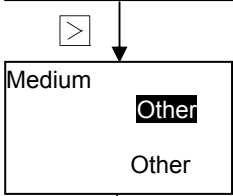
Parameter Settings in Power Set Menu



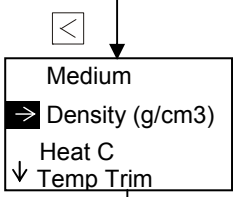
Detail
Press to choose "Power Set" and press to enter.



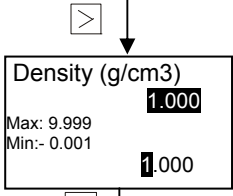
Detail
Press to choose "Medium" and press to enter.



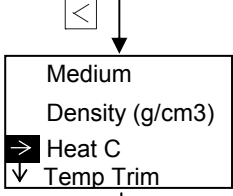
Medium
Press / to choose medium. 1. water 2.other
Note: if choose water, it will calculate density automatically based on temperature, and then calculate heat according to density. If choose other, you need to input fluid density and enthalpy. Press to confirm and press to cancel.



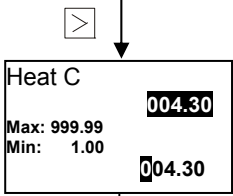
Power Set
Press to choose "Density (g/cm3)" and press to enter.



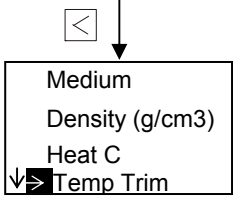
Density (g/cm3) setting
Press to change value, press to move cursor. (Note: set fluid density correctly.)
Setting range: 0.001 ~ 9.999
Press to confirm



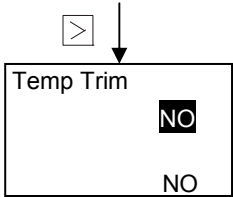
Power Set
Press to choose "Heat C" and press to enter enthalpy setting.



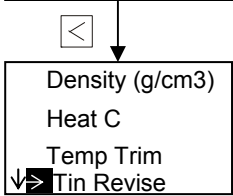
Density
Press to change value, press to move cursor and input fluid enthalpy.
Heat value will change when enthalpy changes.
Setting range: 1.00 ~ 999.99
Press to confirm and press to cancel.



Power Set
Press to choose "Temp Trim" and press to enter.



Temp Trim
Press / to choose options as following.
1. NO 2. Tin -1000 ohm 3. Tin -1500 ohm 4. Tout -1000 ohm 5. Tout -1500 ohm
6. Tio -1000 ohm 7. Tio -1500 ohm
When trim outlet/inlet temperature, 1000Ω and 1500Ω these two resistances must be calibrated.
Press to confirm and press to cancel.
Note: Do not change it randomly, or temperature measurement will be affected.



Power Set
Press to choose "Tin Revise" and press to enter.

Tin Revise
 Max: 3.0
 Min: -3.0
 +0.0
 +0.0



↑ Heat C
 Temp Trim
 Tin Revise
 ➔ Tout Revise



Tout Revise
 Max: 3.0
 Min: -3.0
 +0.0
 +0.0



↑ Heat C
 Temp Trim
 Tin Revise
 ➔ Tout Revise



New Password
 Flow Set ➔
 ➔ Power Set ➔
 ↓ Manual Adjust ➔

Tin Revise Setting

Press to change value, press to move cursor and input value.
 Setting range: -3.000 ~ +3.000
 Suppose Ti is 32°C, if set +1, Ti will be 31°C. If -1, Ti will be 33°C.
 Press to confirm and press to cancel.

Power Set

Press to choose "Tout Revise" and press to enter.

Tout Revise Setting

Press to change value, press to move cursor and enter value.
 Setting range: -3.000 ~ +3.000
 Suppose To is 32°C. If set +1, To will be 31°C. If -1, To will be 33°C.
 Press to confirm and press to cancel.

Power Set

Press again to return to Detail.

Detail

Press to choose "Manual Adjust" and press to enter.
 Press to confirm and press to cancel.

Parameter Settings in Manual Adjust Menu

New Password
 Flow Set →
 Power Set →
 ↓> Manual Adjust →

Detail
 Press to choose "Manual Adjust" and press to enter.

>
 → Actual Zero(mv)
 Empty Freq(Hz)
 Full Freq(Hz)

Manual Adjust
 Press to choose "Actual Zero" and press to enter.

>
 Actual Zero(mV) **+00.00**
 Max: 99.99
 Min: -99.99
00.00

Actual Zero Setting
 Press to change value. Press to move cursor and input value.
 Setting range: -99.999 ~ +99.999 Zero mV will also change if Input zero value here.
 Press to confirm, and press to cancel.
 Note: DO NOT modify it randomly, or measurement accuracy will be affected.

<
 Actual Zero(mv)
 → Empty Freq(Hz)
 Full Freq(Hz)

Manual Adjust
 Press to choose "Empty Freq" and press to enter.

>
 Empty Freq(Hz) **0617**
 Max: 9999
 Min: 0
0617

Empty Freq setting
 Press to change value. Press to move cursor and input value.
 Setting range: 0.0 ~ 9999.0 Empty frequency value should be set according to actual situation.
 Note: Press to confirm and press to cancel.
 Note: Please do not modify it randomly, or empty detect will be affected.

<
 Actual Zero(mv)
 Empty Freq(Hz)
 → Full Freq(Hz)

Manual Adjust window
 Press to choose "Full Freq" and press to enter.

>
 Full Freq(Hz) **0617**
 Max: 9999
 Min: 0
0617

Full Frequency
 Press to change value and press to move cursor and input full frequency value.
 Setting range: 0.0 ~ 9999.0 Full frequency should be set according to actual situation.
 Press to confirm and press to cancel.
 Note: Do not modify it randomly, or full judgment will be affected.

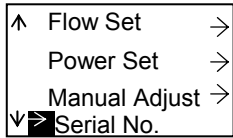
<
 Actual Zero(mv)
 Empty Freq(Hz)
 → Full Freq(Hz)

Manual Adjust
 Press again to return to Detail.

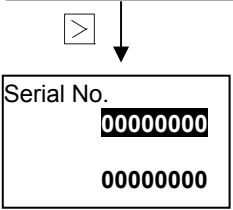
>
 New Password
 Flow Set →
 Power Set →
 ↓> Manual Adjust →

Detail
 Press to choose "Manual Adjust" and press to enter.

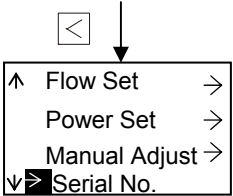
Parameter Settings in Serial No. Menu



Detail
Press to choose "Serial No." and press to enter.

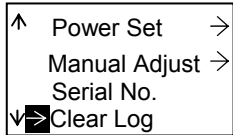


Serial No.
Press to change value, press to set sensor number.
Press to confirm and press to cancel.

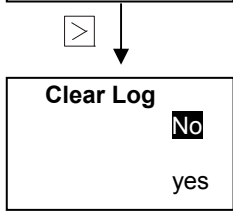


Detail
Press to choose "Clear Log" and press to enter.

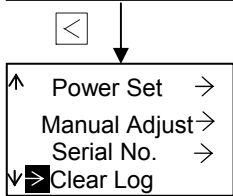
Parameter Settings in Clear Log Menu



Detail
Press to choose "Clear Log" and press to enter.

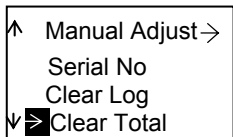


Clear Log
Press / to choose clear or not.
1. No 2. yes
Press to confirm and press to cancel.

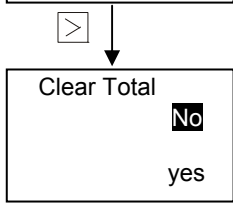


Detail
Press to choose "Clear Total" and press to enter.

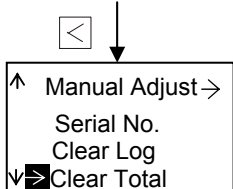
Parameter Settings in Clear Total Menu



Detail
Press to choose "Clear Total" and press to enter.



Clear Total
Press / to choose clear or not.
1. No 1. yes
Press to confirm and press to cancel.



Detail
Press to choose "Save Settings" and press to enter.

Parameter Settings in Save Settings Menu

↑ Serial No.
 Clear Log
 Clear Total
 ➤ Save Settings

Detail

Press to choose "Save Settings" and press to enter. If save settings, factory settings will be overwritten.
 Note: DO NOT set it randomly, or you can not retrieve the original parameters.



Save Settings
 No
 yes

Save Settings

Press / to choose save settings or not.
 1. No 2. yes
 Press to confirm and press to cancel.



↑ Serial No.
 Clear Log
 Clear Total
 ➤ Save Settings

Detail

Press to choose "Bluetooth Name" and press to enter.

Parameter Settings in Bluetooth Name Menu

↑ Clear Log.
 Clear Total
 Save Settings
 ➤ Bluetooth Name

Detail

Press to choose "Bluetooth Name" and press to enter "Bluetooth Name".



Bluetooth Name
 ALIA00000000
 ALIA00000000

Save Settings

Press to change value, press to move cursor and set Bluetooth name.
 Press to confirm.



↑ Clear Log.
 Clear Total
 Save Settings
 ➤ Bluetooth Name

Detail

Press to choose "Bluetooth PW" and press to enter.

Parameter Setting in Bluetooth PW Menu

↑ Clear Total
 Save Settings
 Bluetooth Name
 ➤ Bluetooth PW

Detail

Press to choose "Bluetooth PW" and press to enter.



Bluetooth PW
 0000
 0000

Bluetooth PW

Press to change value. Press to move cursor and set Bluetooth password.
 Press to confirm.



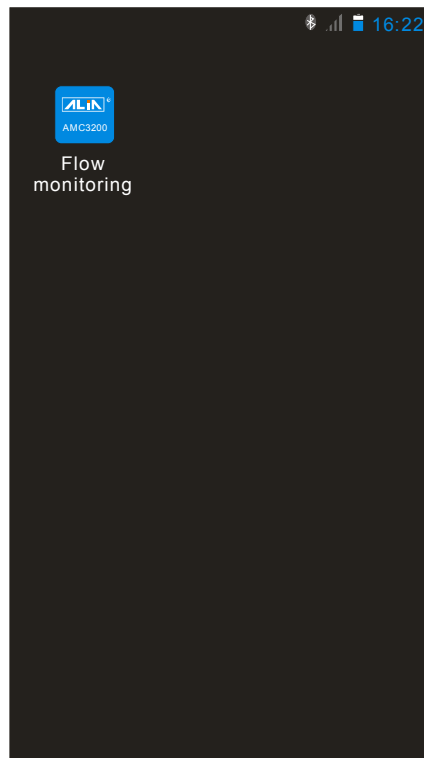
↑ Clear Total
 Save Settings
 Bluetooth Name
 ➤ Bluetooth PW

Detail

Press again to exit.

4. AMC3200E APP Software

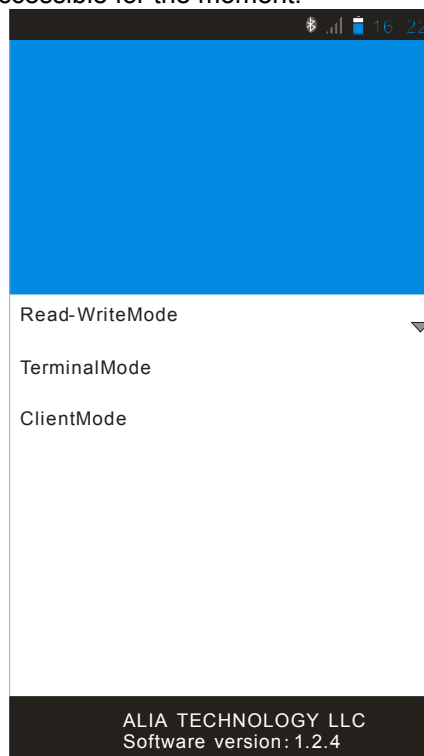
1. AMC3200E converter and android phone (should be android system)
2. Operation procedures
 - ① Install the app on cell phone (android)
 - ② Enable Bluetooth after app is successfully installed.
 - ③ Enter the app as shown below:



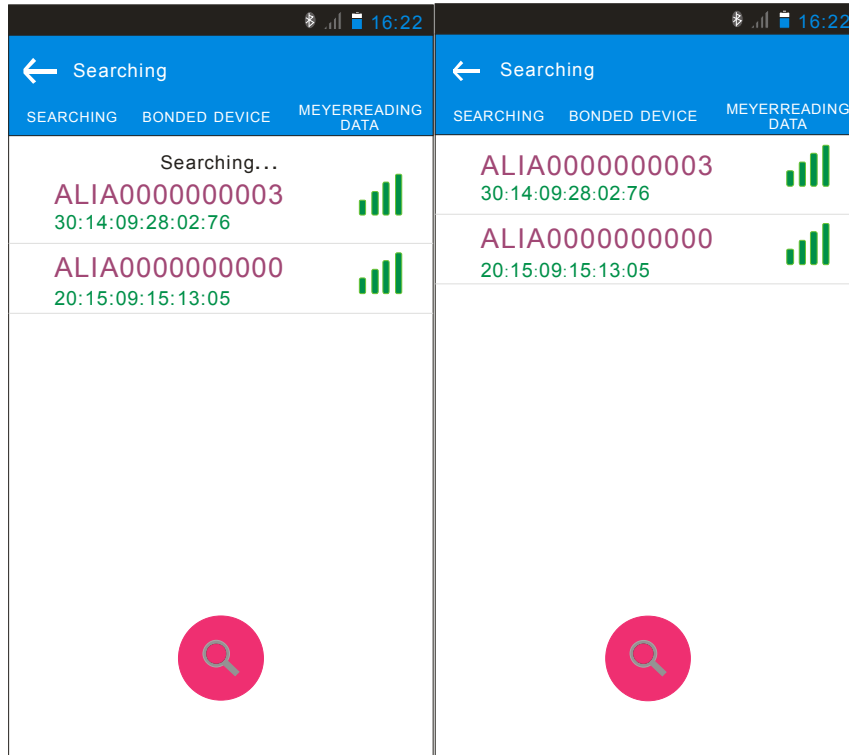
- ④ Three modes available:

Read-write mode: read and write any parameters in converter (default mode). If enter the wrong Bluetooth password, you will be prompted to enter in read-only mode.

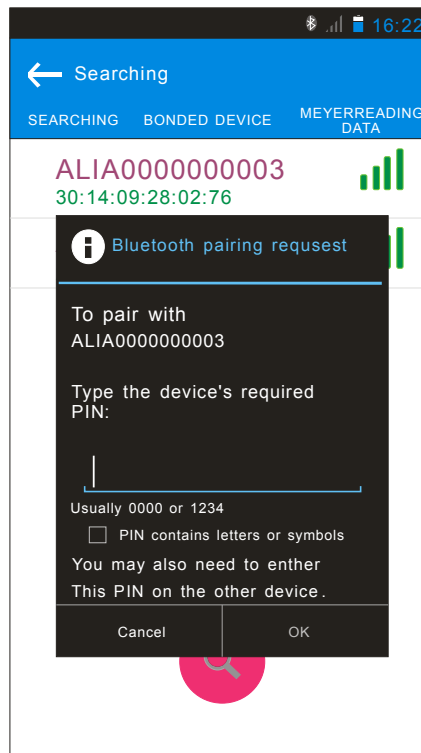
Terminal mode and client mode are not accessible for the moment.



- ⑤ If parameters are to be changed, please choose read-write mode and then choose login. Cell phone will search device automatically. See pictures below.

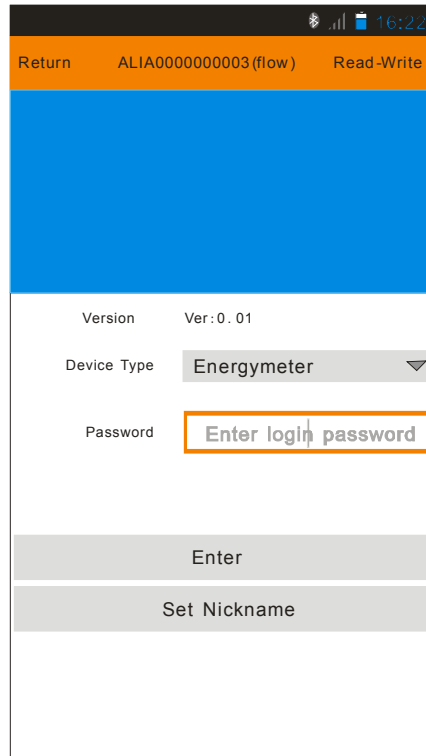


- ⑥ After converter's name is searched (such as ALIA0000000003), press it and enter PIN code 1234. This code is the Bluetooth identification between cell phone and converter and needs to be entered every time they connect. You don't have to enter the code if this interface does not appear. See picture below.

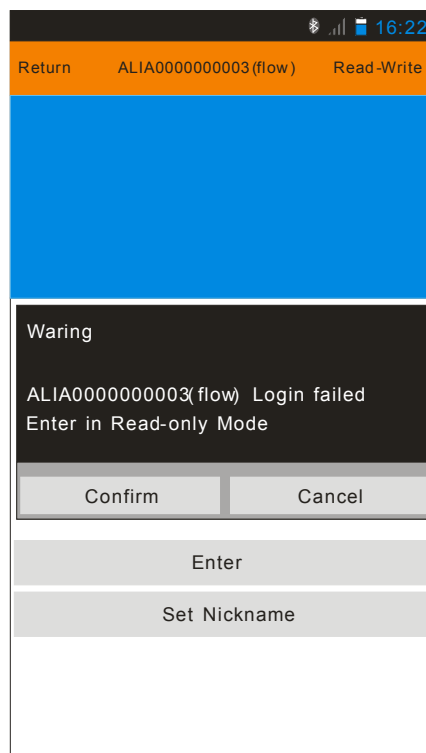


⑦ After entering system, you will see Bluetooth name in the middle of upper interface, mode in upper right interface, flowmeter version, password and nickname in bottom interface.

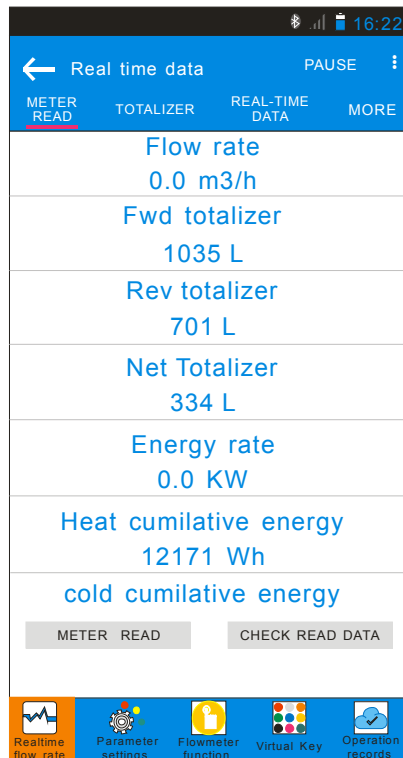
Set Nickname: you can set a nickname for AMC3200E, and this won't change the Bluetooth name. The nickname will be displayed only after Bluetooth name. For example, if you set AMC2100E's nickname as "flow", the Bluetooth name will become ALIA0000000003 (flow). See picture below:



⑧ Only the input password is conformed to Bluetooth password can parameters be changed. Password is defaulted to be 0000. If you forget your password, please enter Bluetooth option of advanced settings in converter to check the Bluetooth password. If password is input wrong in APP, it will give a warning to enter read-only mode. See picture below:

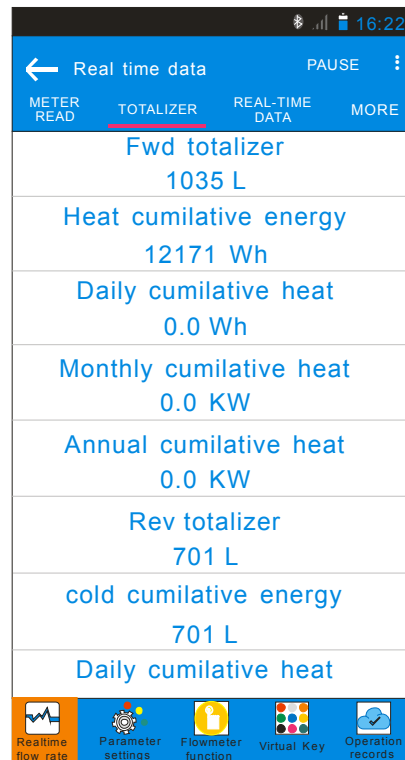
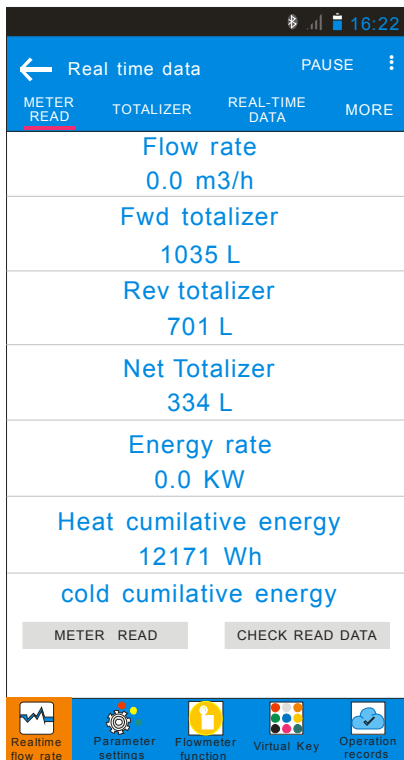


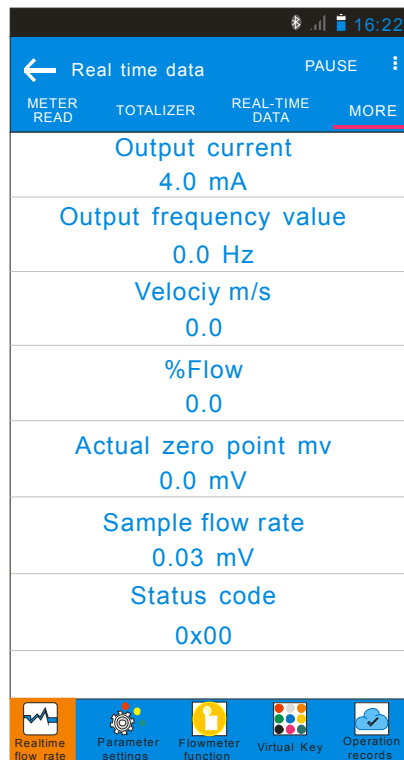
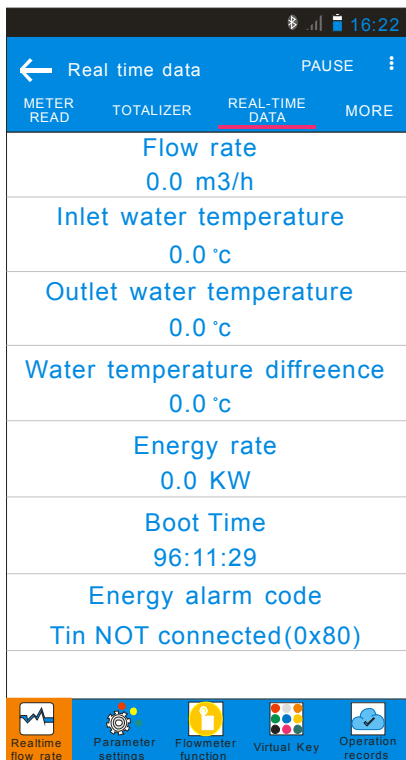
⑨ Once Bluetooth password is conformed, system will be as below:



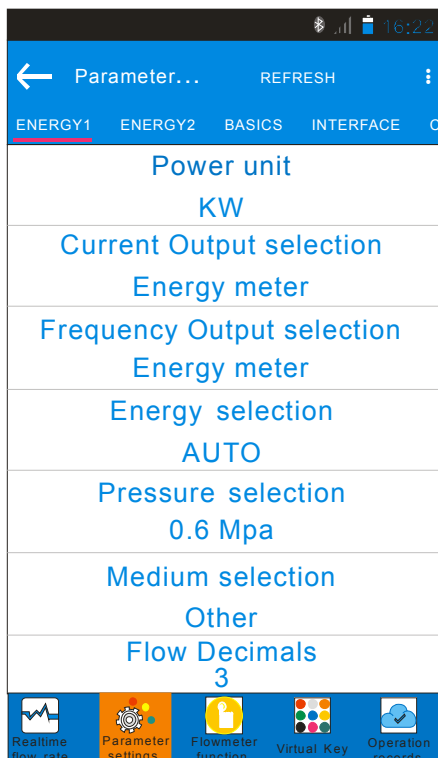
⑩ Menu (6 functions in bottom screen)

Fist function: Real-time flow rate. Slide to the left/right to shift interface so as to check real-time flow rate such as totalizer, flow rate, output current and output frequency. Data can be shared to your email or software through its billing function.

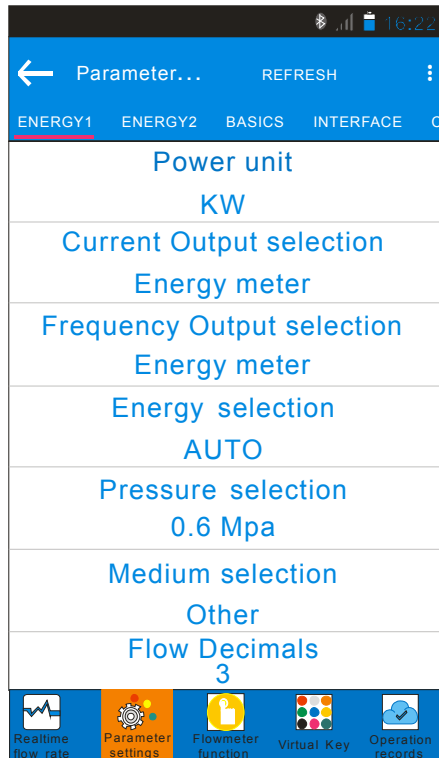




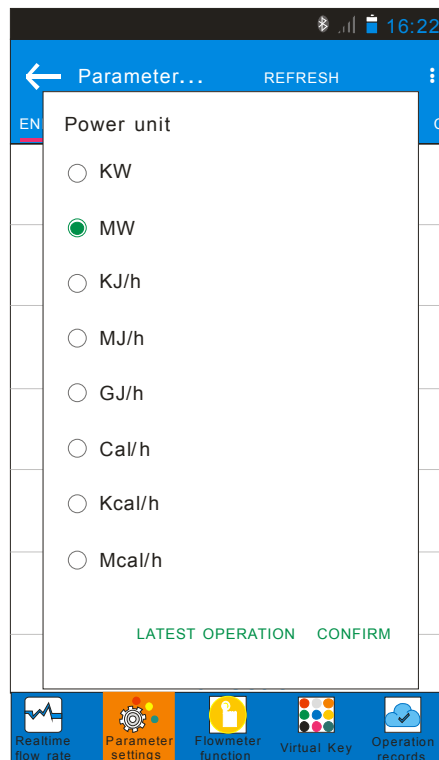
Second function: Parameter settings. 7 options inside: energy 1, energy 2, basics, interface, communication, sensor and converter. Or user can slide the screen to left/right to shift these options.



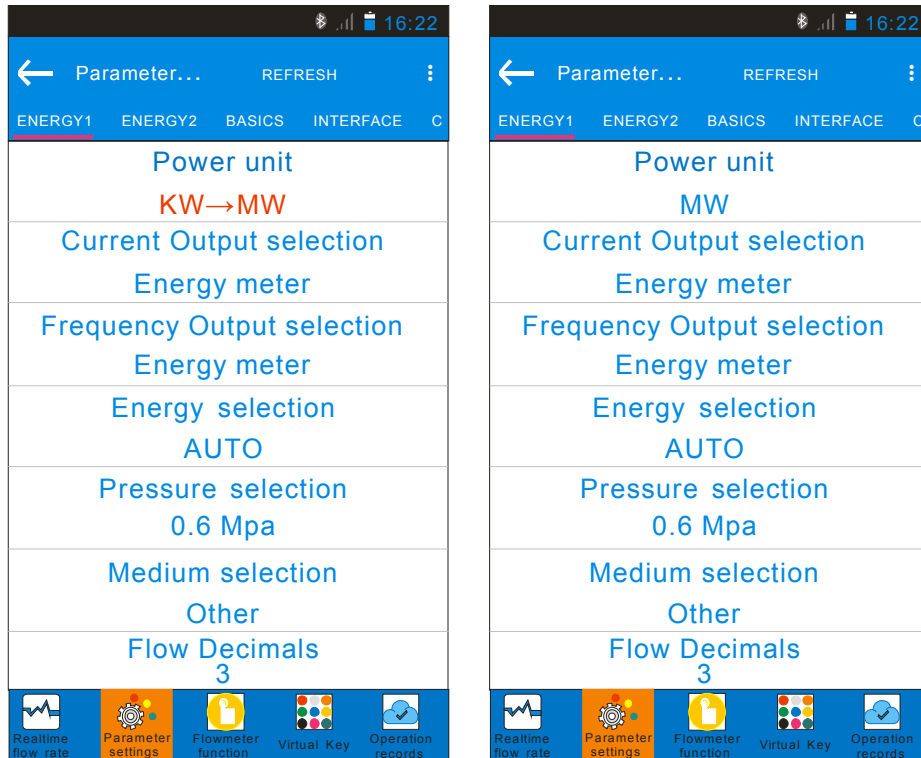
A. For example, if power unit KW is changed to MW:



B. Press the column of "Power unit" and change unit to MW:



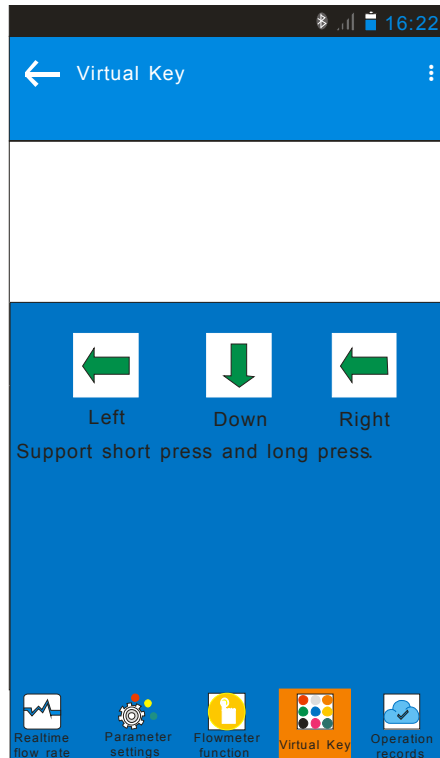
C. After pressing "confirm", screen will be shown as below. The unit before arrow is current unit while after is the changed MW. Click "set" to finish settings.



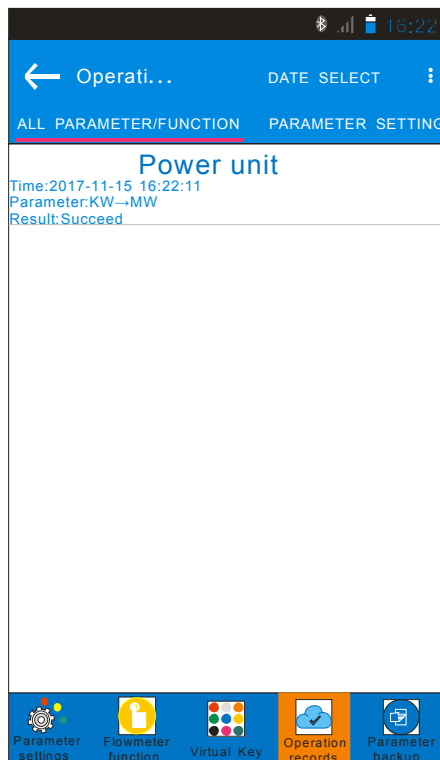
Third function: Flowmeter function. 3 options inside: Basics, Empty Pipe and Calibration. You can slide screen to the left/right to shift interface.



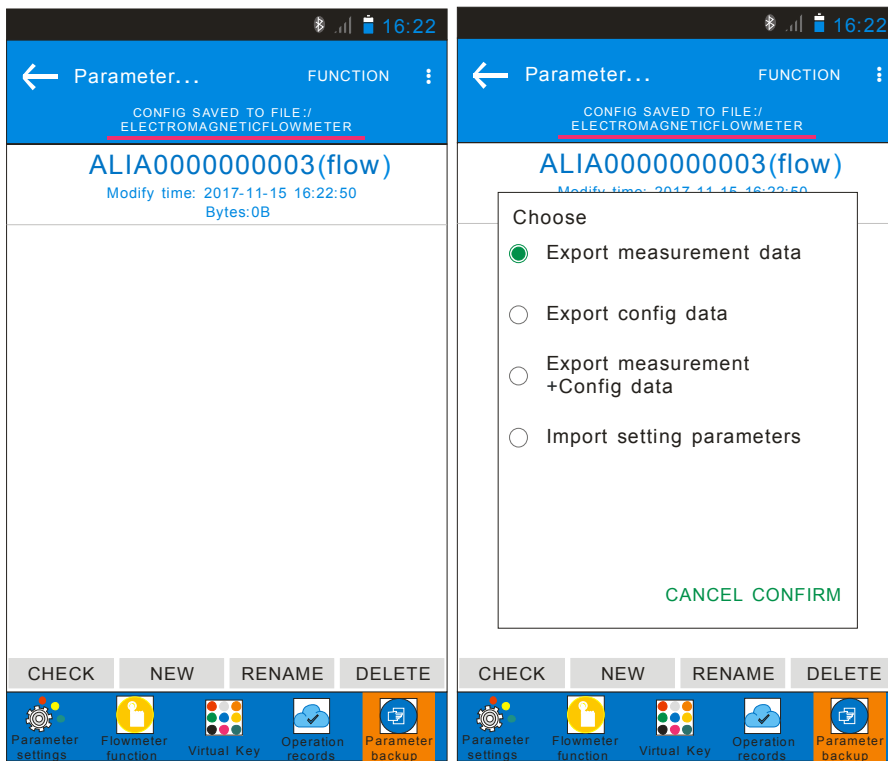
Fourth function: Virtual keys. 3 Virtual keys and 3 keys on converter have the same functionality.



Fifth function: Operation records.



Sixth function: Parameter backup. Recreate a file and rename it. Press "Function" in upper part to choose: export measurement data, export config data, export measurement config data and import setting parameters.



5. Common Alarm Code Indication

AMC3200E Alarm Table			
Code	Content	Meaning	Solution
02	Empty	Empty alarm	Check pipe and make sure it's full
04	Coil	Coil alarm	Check XY wiring and circuit board are normal or not.
08	Zero	Zero alarm	Make sure there is correct zero, full pipe and good grouding.
40	Ts	PT_H Alarm	Check PT-H connect or not
80	Tr	PT_L Alarm	Check PT-L connect or not
00			Normal

6. APP Download Link

Link 1: scan QR code to download.



Link 2: enter the following link to download:


http://www.alia-inc.net/download/alia/amc3200/alia_AMC3200.apk



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