MAG

ALIA TECHNOLOGY LLC

Electromagnetic Flowmeter

Operation Manual

AMC2100 Series

CE

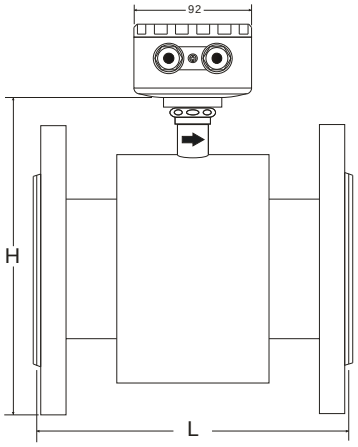
Index

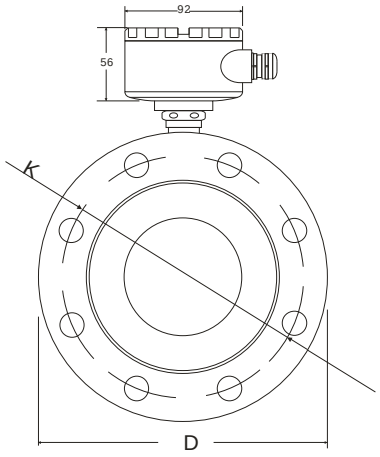
1. Sensor

EM Flowmeter composed by sensor and Converter, be compact version or separate version, there are several specification of sensor as follow:

1.1 AMF900 Flange Type

Size: 10Amm ~ 2000mm (3/8A" ~ 80")
Liner : Neoprene
Polyurethane
FEP
PTFE
PFA
Protection : IP68
Max.Temp.:180 Deg. C
Installation : Flange End

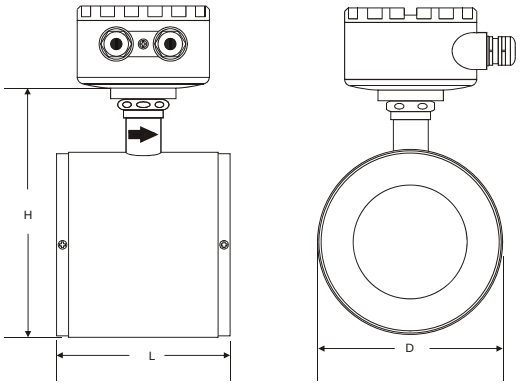




Size	Standard Pressure	Liner Material				Dimensions (mm)			Weight
(mm)	Kg/cm2	FEP / PFA	Neoprene	Polyurethane	PTFE	L	D	H	Kg
10A	40	◎			◎	120	90	145	3.5
10		◎			◎	120			3.5
15		◎			◎	150	95	155	3.5
20		◎			◎		105	160	4.5
25		◎		◎	◎		115	166	4.5
32		◎		◎	◎		140	180	6.5
40		◎		◎	◎		150	190	7.0
50		◎	◎	◎	◎	200	165	201	9.5
65		◎	◎	◎	◎		185	220	12
80		◎	◎	◎	◎		200	235	15
100	16	◎	◎	◎	◎	250	220	254	17
125		◎	◎	◎	◎		250	284	21
150		◎	◎	◎	◎	300	285	314	28
200	10	◎	◎	◎	◎	350	340	369	36
250		◎	◎	◎	◎	400	395	430	49
300		◎	◎	◎	◎	450	445	480	61
350			◎	◎	◎		505	540	79
400			◎	◎	◎	500	565	600	99
450			◎		◎	600	615	640	121
500			◎		◎		670	700	143
600			◎		◎		780	800	187
700			◎		◎	700	895	910	260
800			◎		◎	800	1015	1020	342
900			◎		◎	900	1115	1120	420
1000			◎		◎	1000	1230	1230	503
1200	6		◎		◎	1200	1405	1405	666
1400			◎		◎	1400	1630	1630	1036
1600			◎		◎	1600	1830	1830	1333
1800			◎		◎	1800	2045	2045	1720
2000			◎		◎	2000	2265	2265	2190

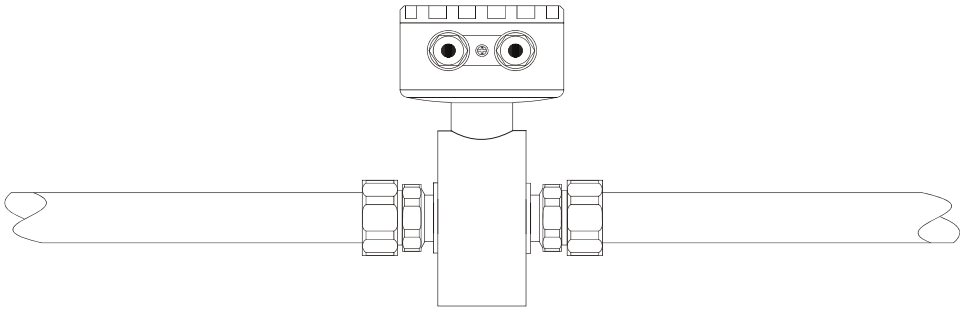
1.2 AMF500 Wafer Type

Size: 25mm ~ 200mm (1” ~ 8”)
Liner: FEP/PTFE
Protection: IP68
Max.Temp.: 180 Deg. C
Installation: Wafer

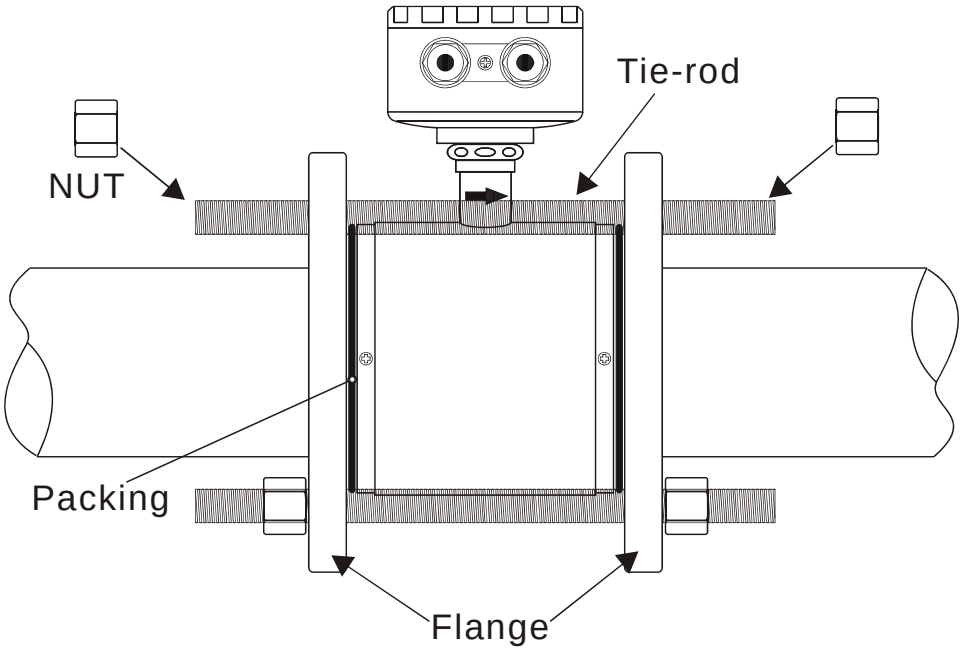


Size		Dimensions (mm)		
mm	Inch	L	D	H
25	1"	90	71	138
32	1-1/4"	100	80	147
40	1-1/2"		86	153
50	2"	115	100	167
65	2-1/2"	115	120	187
80	3"	130	131	198
100	4"	155	151	218
125	5"	155	181	248
150	6"	185	206	273
200	8"	215	261	328

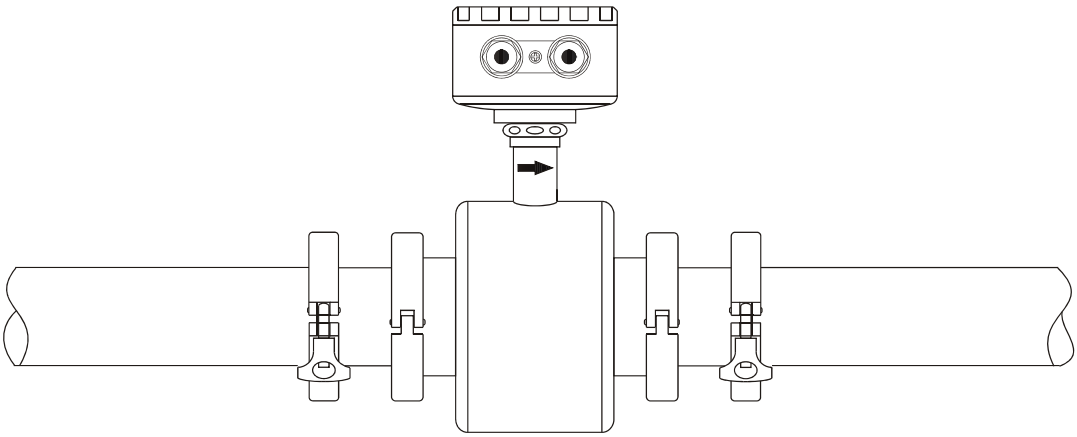
1.3 AMF301 Installation



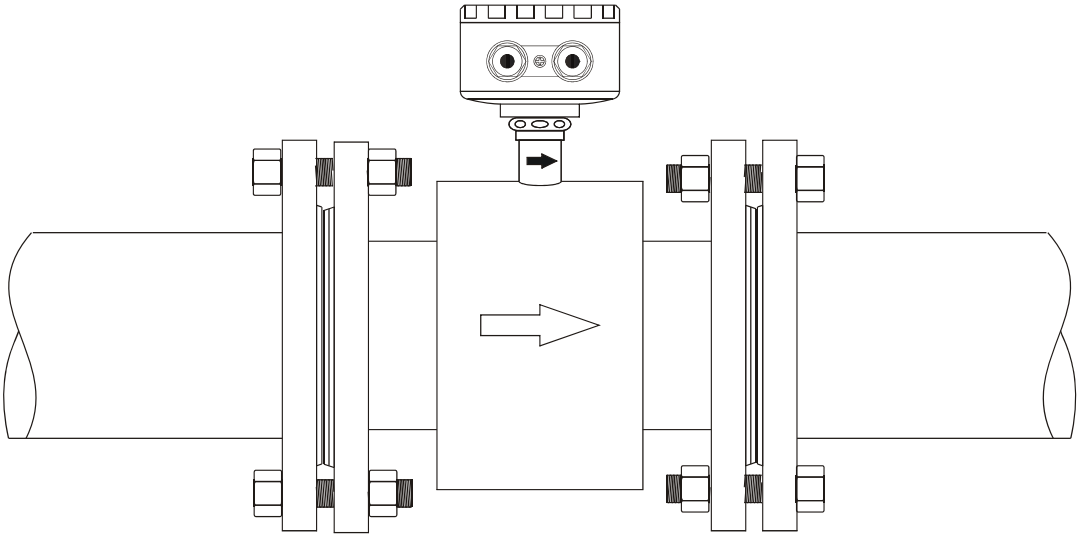
1.4 AMF500 Installation



1.5 AMF601 Installation



1.6 AMF900 Installation



Installation Note:

1) The pipe flange should be welded well before installing flowmeter. It's not allowed to weld flange after flowmeter is installed. And welding part of pipe flange should be flat, having no sharp residue. Otherwise liner will be damaged. After flowmeter is installed, if other places 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 the sensor, those residues should be cleaned off so as to avoid liner damage

3) If pipe is not alligned well or sloped, there will be leakage problem or liner damage.

2. Installation

When you design the tube, please consider following items:

2.1 Install position

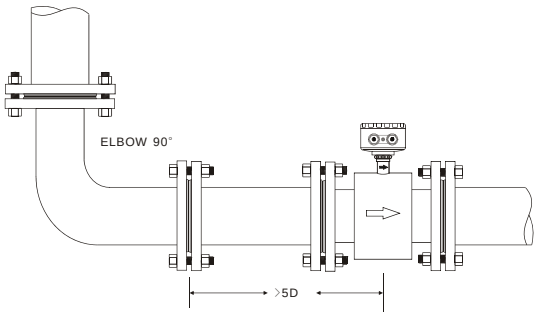
Please avoid the sunlight when you install the flowmeter, the ambient temperature between-25~60 Deg.C will be great.

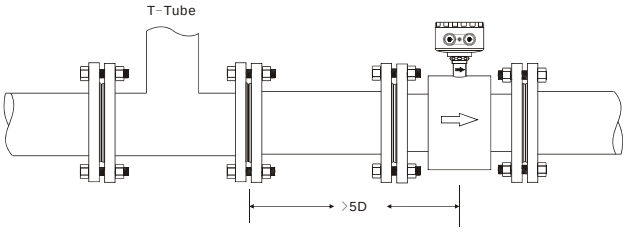
2.2 Remove the interference of magnetic field

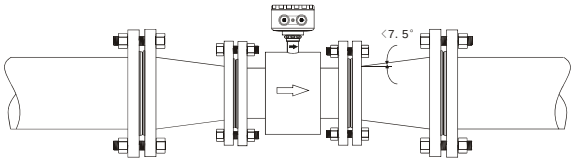
Please DO NOT install flowmeter near motor-driven machine, transformer, frequency transformer etc. for it will cause interference of magnetic field..

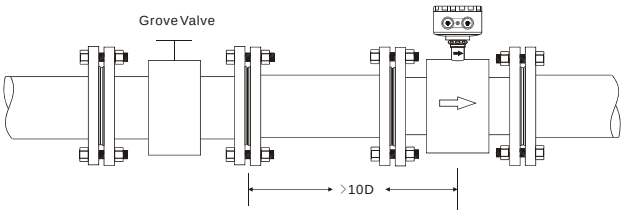
2.3 Straight tube length

In order to guarantee the EM Flowmeter accuracy, upstream and downstream of the installation should satisfied the following conditions(Picture).









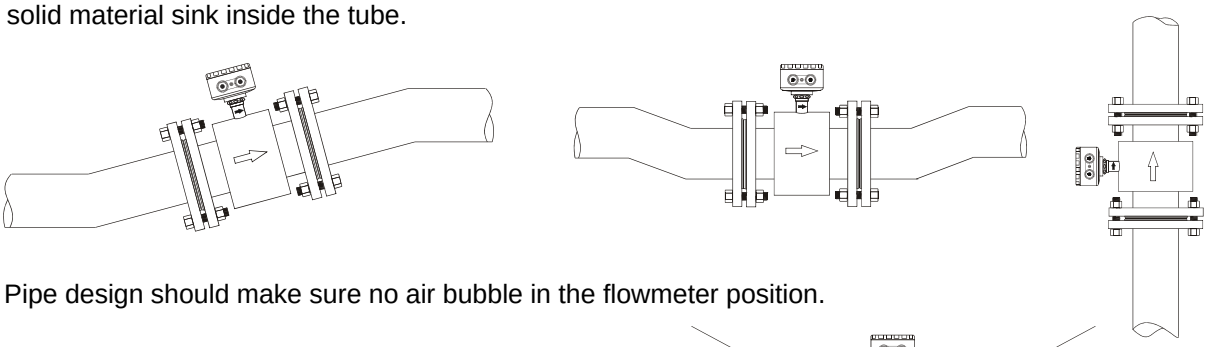
When the upside and downside is shrink tube, the degree θ should be smaller then 15°

Generally tube installation, the flowmeter Upstream could try to stay 5D-10D ,Downstream 2D-5D.

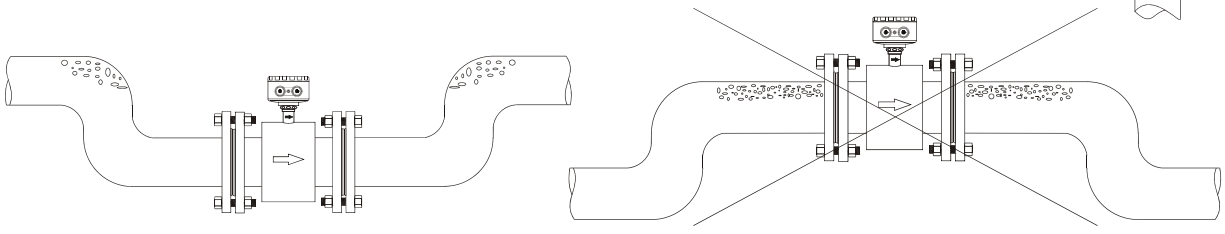
2.4 Install method

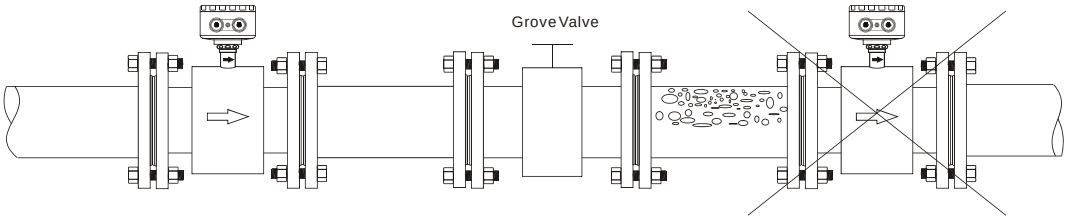
a. Flowmeter can be horizontal, vertical or slanting, please make sure the tube is full of fluid no matter if it is moving or not.

b. When fluid contained solid material, It's suggested to try vertical installation(bottom to top), which can avoid the solid material sink inside the tube.



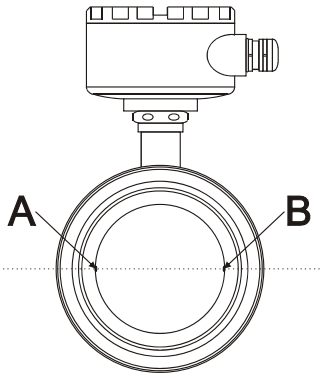
c. Pipe design should make sure no air bubble in the flowmeter position.

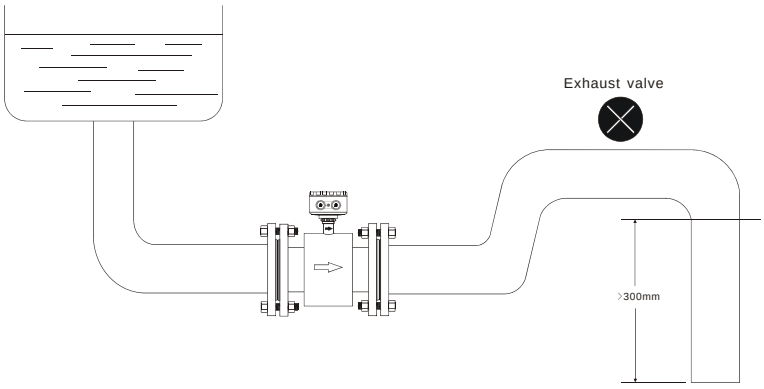




d. Electrode position should parallel with ground

EM Flowmeter installed by horizontal or slanting the electrode position(A.B) should match the 2 side(right/left)of tube, converter(wiring box)should be top of the tube.



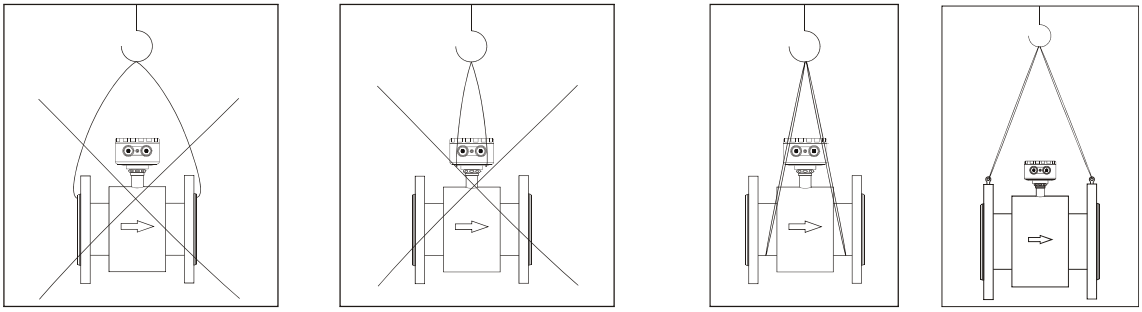


Horizontal install, the electrode position A.B should on the right and left side.

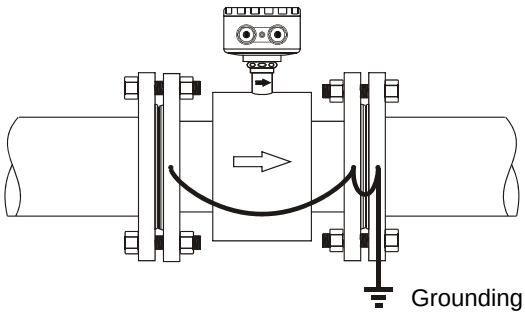
e. Transportation

When you moving, please remember DO NOT use rope through the flowmeter tube, it may cause Liner inside broken.

Please DO NOT use your hand or rope to hang on Converter or wiring box, if Flowmeter size is bigger than 80mm, because the material of converter and wiring box is tender aluminum, it can't stand huge weight.

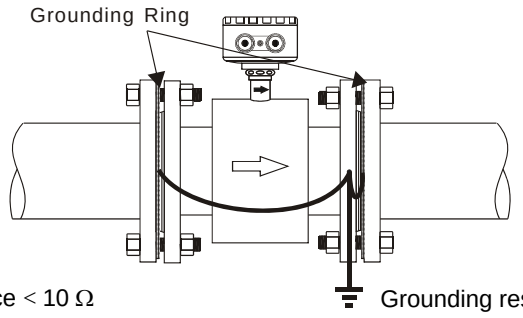


f. Grounding measure



Grounding resistance < 10 Ω

General metal tube



Grounding resistance < 10 Ω

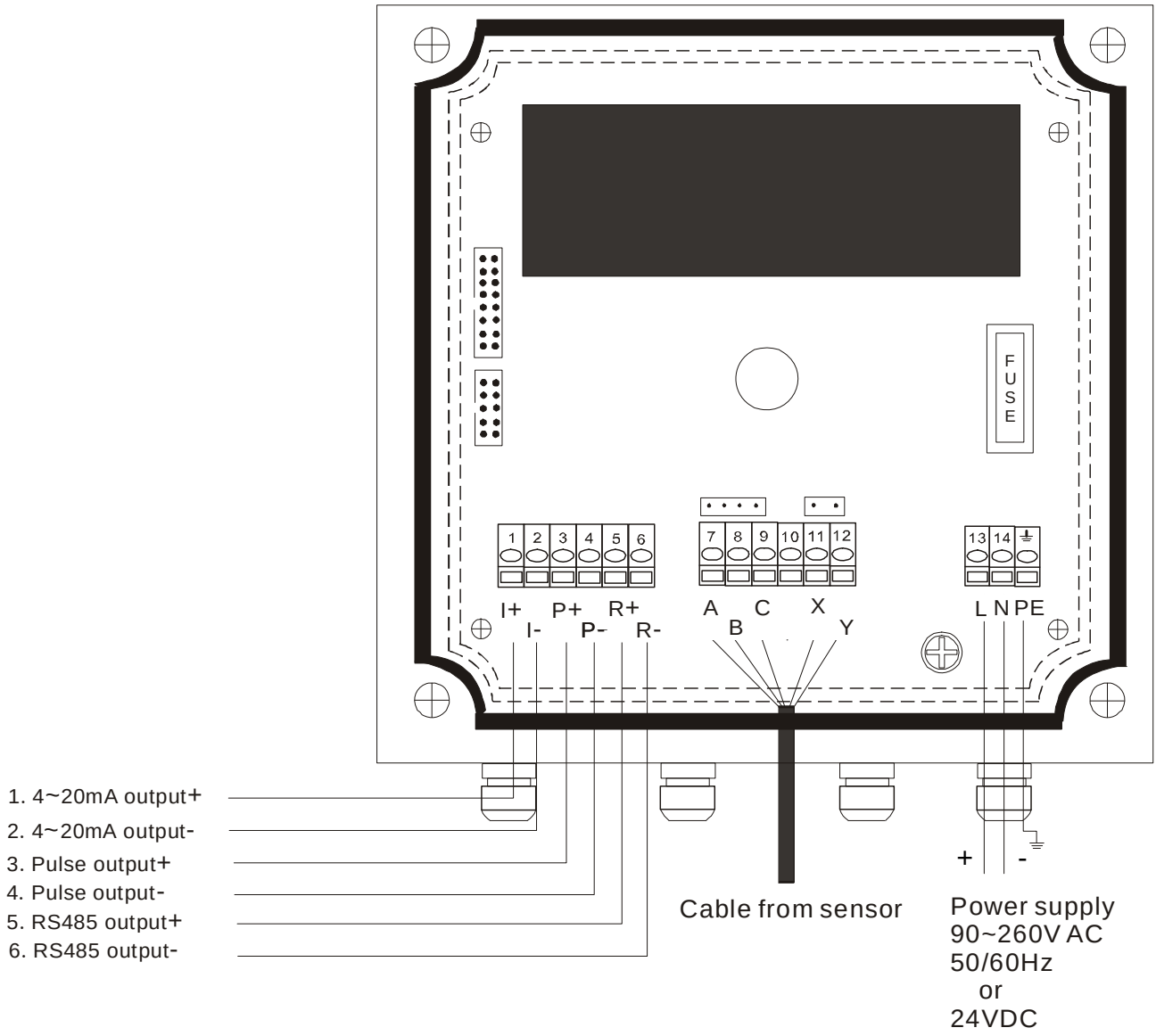
Non-metal tube (plastic tube Liner)

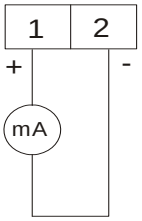
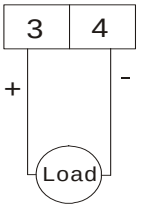
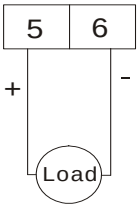
3. Converter AMC2100 Operate Manual

3.1 Converter AMC2100 Operate Manual

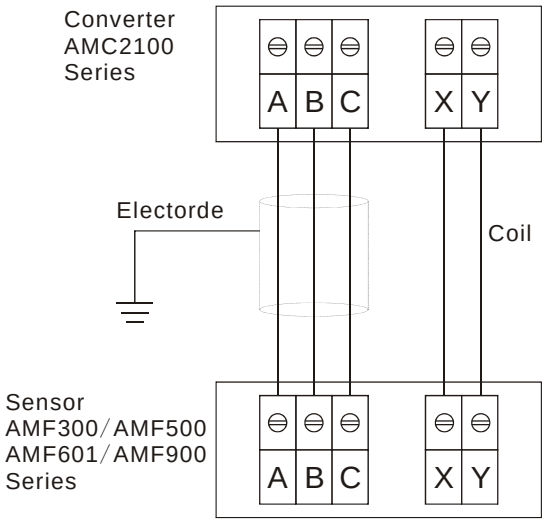
3.1.1 Power and signal output connected line(compact and separate model)

Open the 4 screws of the converter, and you can see terminal, decide if you need to connect according to your needs.

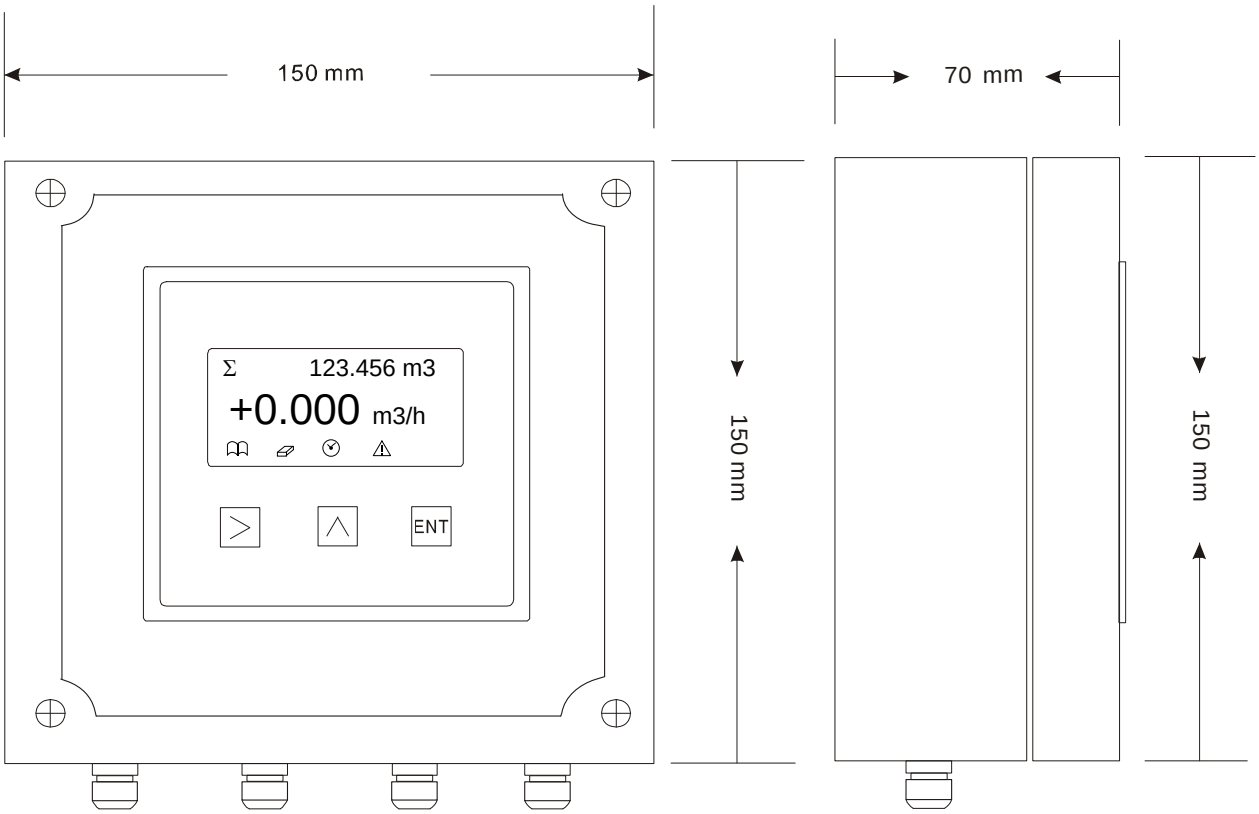


 Output a load: 600Ω	 Max. Outer Voltage: 30VDC	 Modbus protocol
4~20mA Output (Hart protocol)	1.Pulse (Frequency)Output 2.Batch Control	RS485 Output

3.1.2 Separate Wiring



3.1.3 AMC2100 Panel deploy



Key Name	Button Sign	Normal status function	Parameter setting status function
Setting	ENT	Login parameter setting level	Save presently settled parameter. Jump to next parameter setting
Up	∧	Selected one of 4 display line	Change present digit, dot and survey unit. Up/Down movement
Right	>	Change the selected line on the display	Move

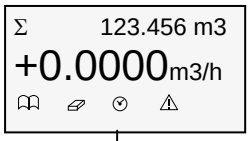
3.2 Survey mode setting

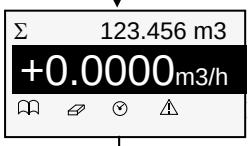
Flowmeter will enter to normal mode when electrified, every line has several choice as follow:

Position	Display	Unit sign	Unit	Description
Line 1	Totalizer	Σ	L, M3, G , kg, T,ml	Σ = Σ+ (–) Σ–
	Totalizer+	Σ+		
	Totalizer-	Σ–		
Line 2	Velocity		m/s	When reverse flow, it will show"- "
	Flowrate		m3/h	When reverse flow, it will show"- "
	% of Full Scale		%FS	Actual flowrate should match flowrate%
	mA output value		mA	Actual mA output Value
	Frequency		Hz	Full scale output : 5000Hz

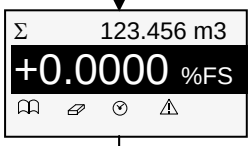
3.3 Example

If you need Line 1 display from m3/h turn to %

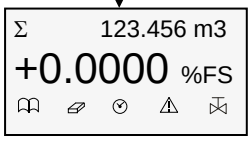




In normal display press ^ button until Line 2 is selected.

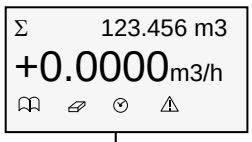


Press ENT button to change m3/h to %FS



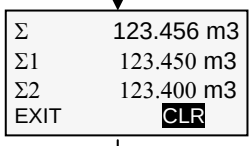
When alarm select" batch control",It will display" ⋈"

3.4 Totalizer Reset



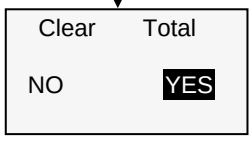
In general display, Press > or ^ button and select ▱ ,make sure enter zero window

ENT



Zero window.
Σ current totalizer value Σ1 last totalizer value Σ2 the time before last time totalizer value
Please selected CLR and press enter,doing the zero operation

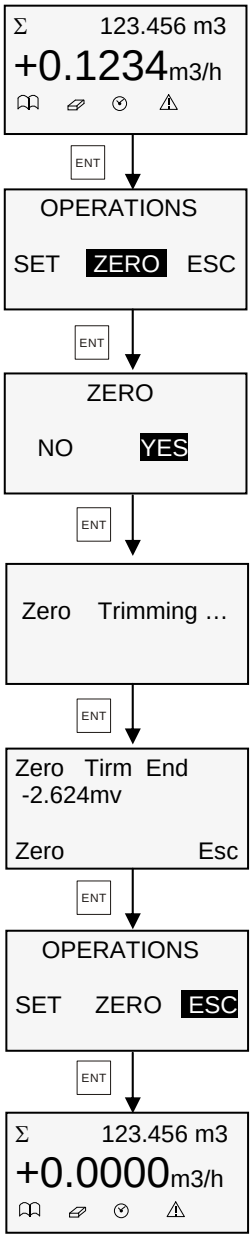
ENT



Select YES for making zero operation and press ENT to confirm

3.5 Auto zero Adjustment

When the tube are full pipe, and no flow, flowmeter still show the flowrate, then you could use Auto Zero adjustment to adjust your flowmeter to Zero, the method as follow:



In the normal display, press ENT button for 5 seconds, then it will go to next setting

In this setting, Press > or ^ button till you selected ZERO and press ENT to confirm

Select YES, and press ENT to confirm .

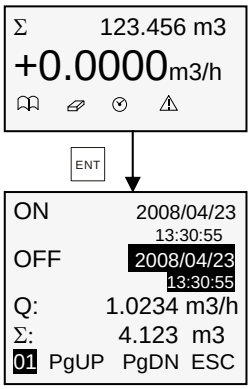
Zero Adjustment.

Zero Adjustment end. Select ESC, press ENT to turn back to the operations select
(If you want to do Zero Adjustment again, Pls select ZERO)

Select ESC, press ENT to confirm and turn back to the normal display

the normal display

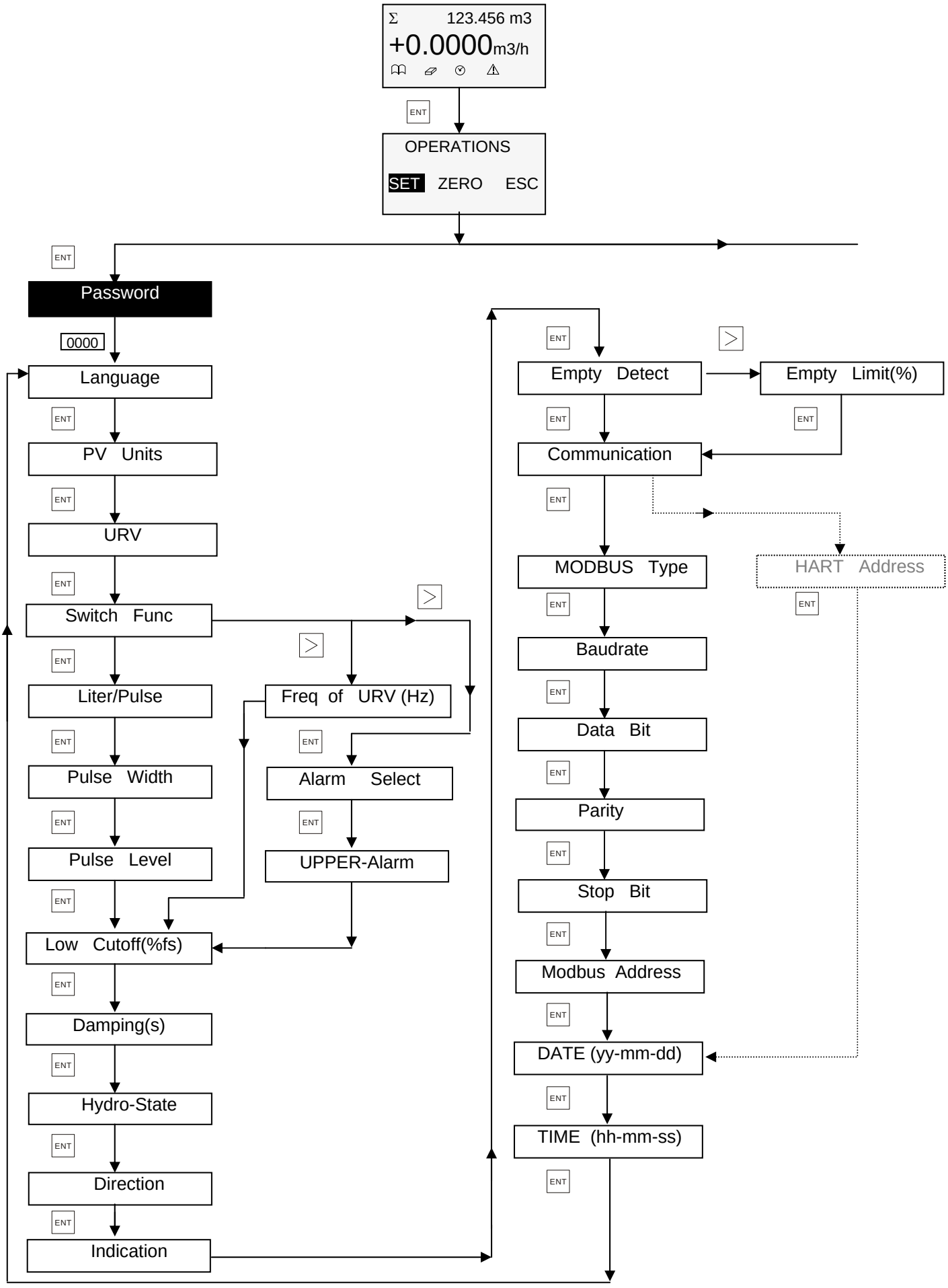
3.6 Check for power off message

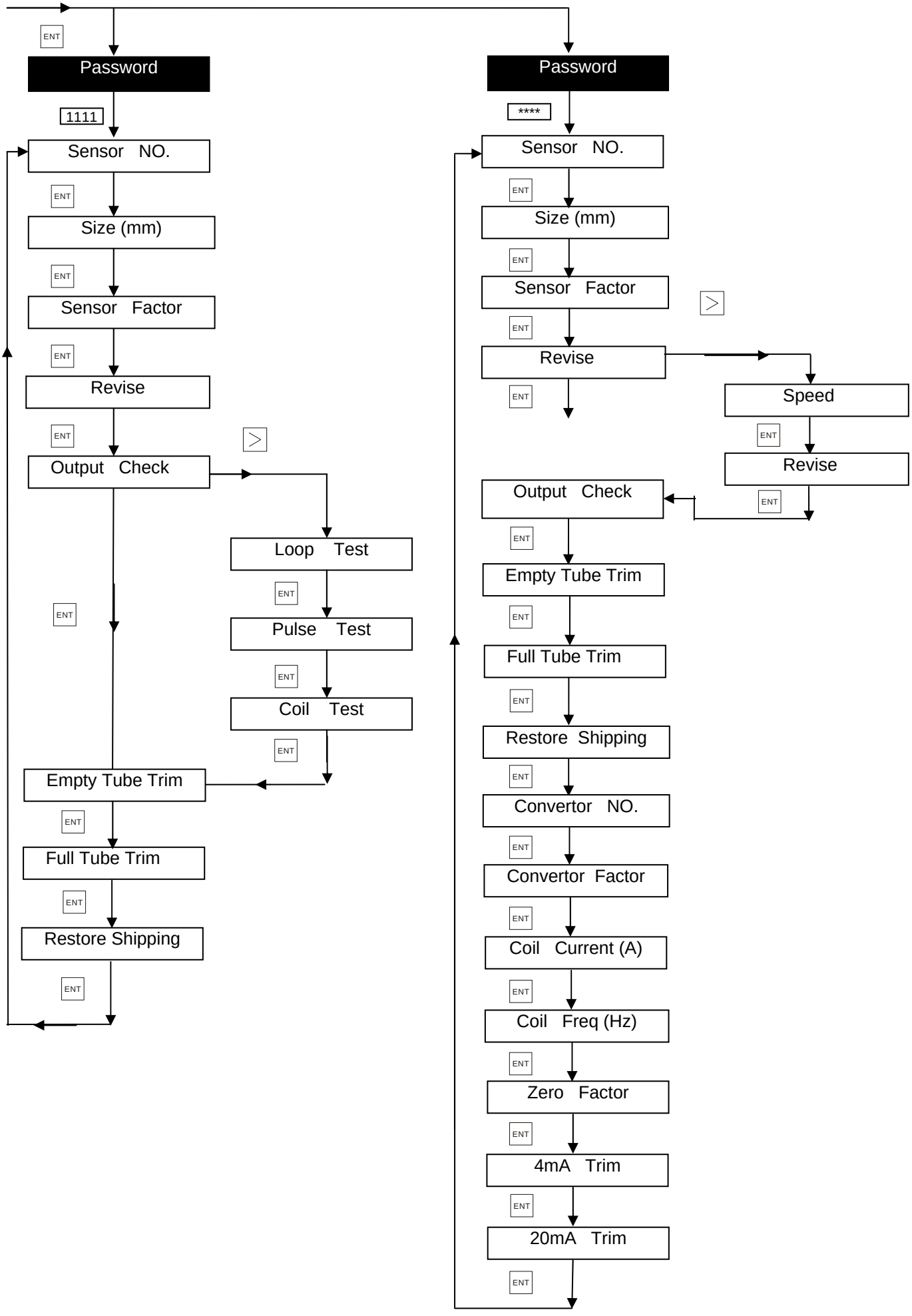


In general display, Press > or ^ button to select ⏲ , Press ENT to confirm, then check for the power off message window

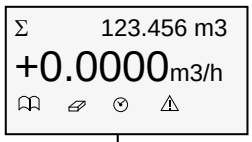
Power off message window
ON: date & time when power on OFF: date & time when power off
Q: the flowrate when power off Σ: the totalizer when power off
Example: 01 means the power off recored series No.(It could record 99 times of power off)
Press PgUP or PgDN check the history record of power off.
Ps: Press PgDN till the last page, OFF option means current date, time, and flowrate.

3.7 Operate flow chart



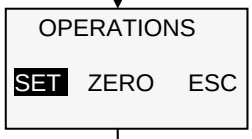

ENT
Password
1111
Sensor NO.
ENT
Size (mm)
ENT
Sensor Factor
ENT
Revise
ENT
Output Check
>
Loop Test
ENT
Pulse Test
ENT
Coil Test
ENT
ENT
Empty Tube Trim
ENT
Full Tube Trim
ENT
Restore Shipping
ENT
Password
****
Sensor NO.
ENT
Size (mm)
ENT
Sensor Factor
>
ENT
Revise
ENT
Speed
ENT
Revise
ENT
Output Check
ENT
Empty Tube Trim
ENT
Full Tube Trim
ENT
Restore Shipping
ENT
Convertor NO.
ENT
Convertor Factor
ENT
Coil Current (A)
ENT
Coil Freq (Hz)
ENT
Zero Factor
ENT
4mA Trim
ENT
20mA Trim
ENT

3.8 User operate description



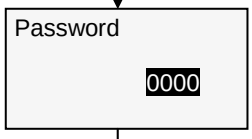
In the normal display, press ENT button for 5 seconds, then it will go to next setting

ENT



In this setting, Press > or ^ button till you selected SET

ENT

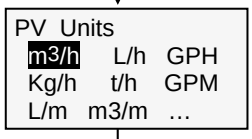


Password login window
Input the password
Password: 0000

ENT

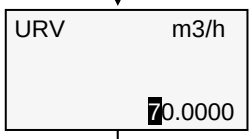
Language
Press > or ^ to selected the language

ENT



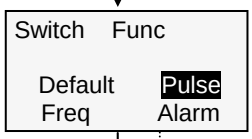
Select Flow Engineer unit
Press > or ^ to select the Engineer unit
0: m3/h 1: L/h 2: GPH 3: Kg/h 4: t/h 5: GPM
6: L/m 7: m3/m 8: ml/h 9: ml/m 10: ml/s

ENT



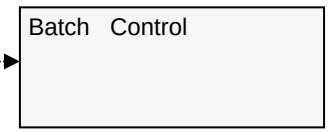
Flow Range
Setting Flow Range, that's mean 4-20mA and Pulse, frequency output max. Value
Press > button to move, Press^ to change the Value

ENT

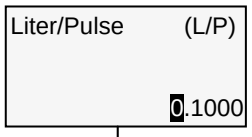


Contact output
Press > or ^ button to selected the output
1. Default 2. Pulse 3. Frequency 4. Alarm

ENT

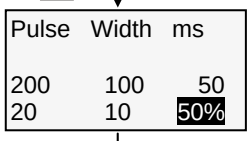


When selected "Alarm", It will display " Batch Control"
Please read page 21



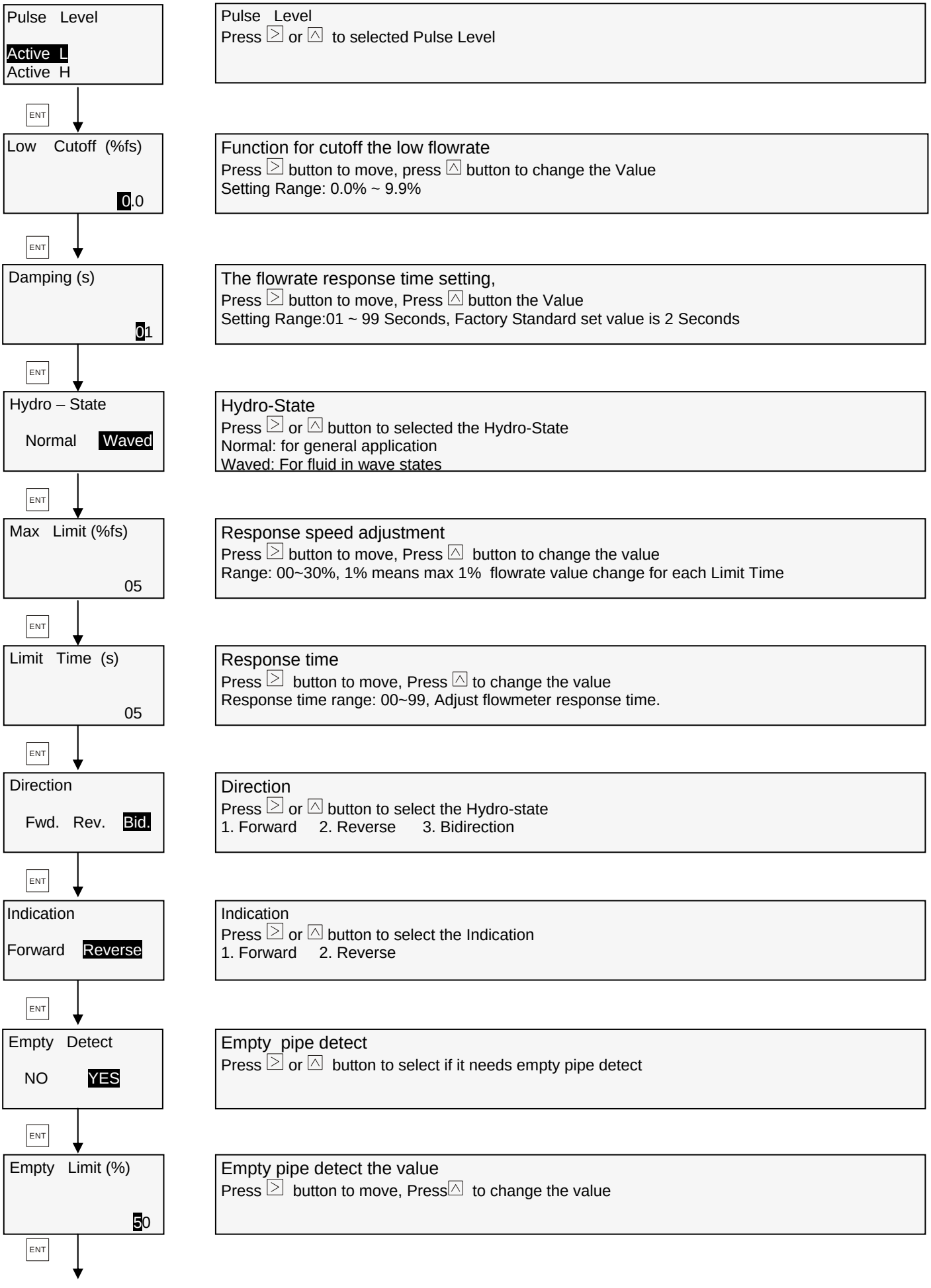
Pulse output
Each pulse match the Liter value (Liter/Pulse)
Press > button to move, Press^ to changed the Value

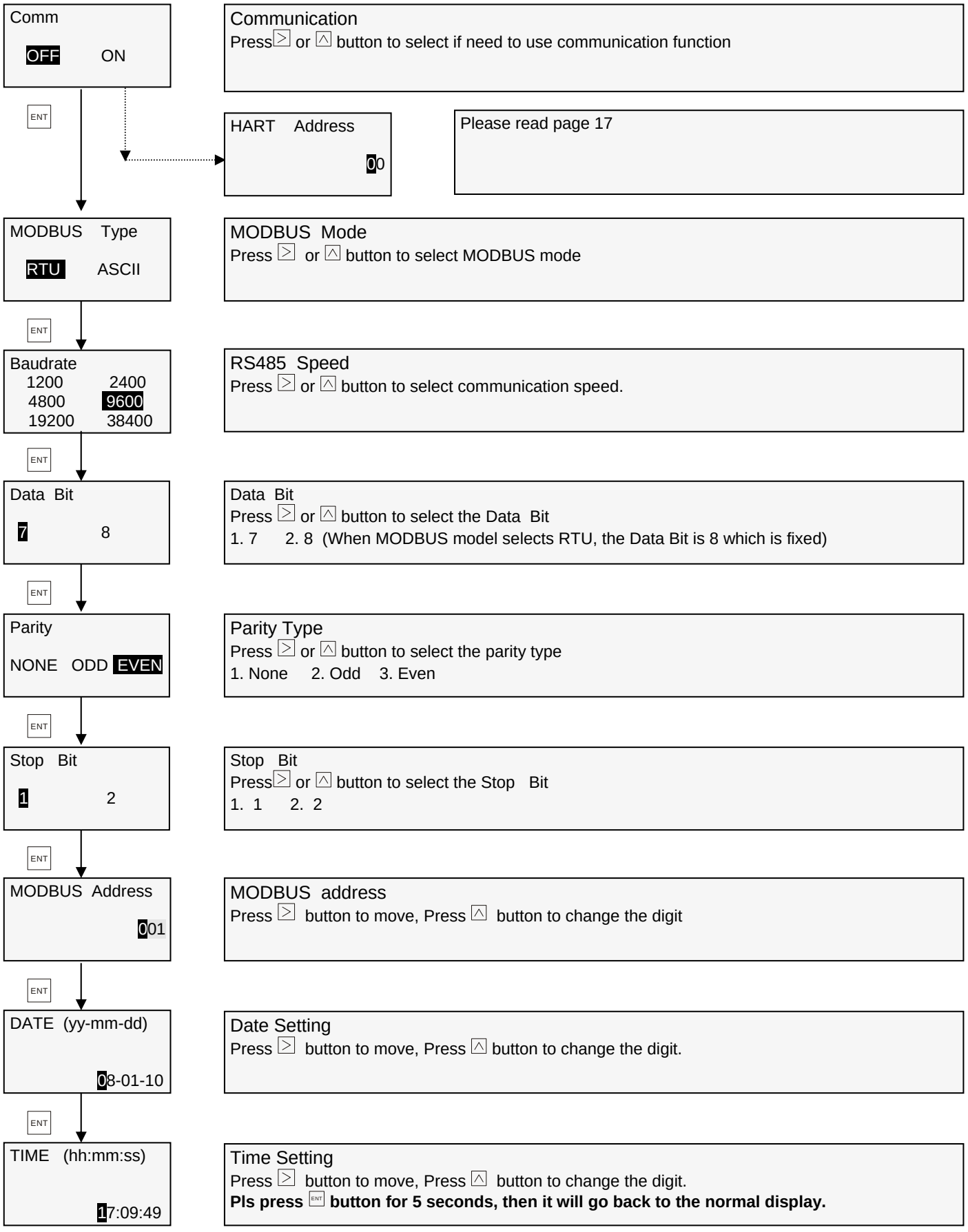
ENT



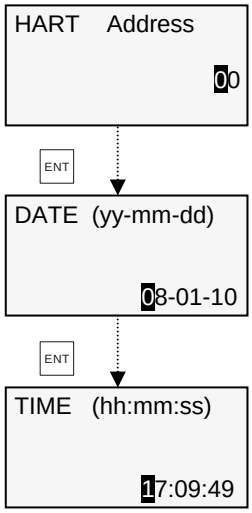
Pulse width
Press > or ^ to selected Pulse width

ENT


Pulse Level
Active L
Active H
ENT
Pulse Level
Press > or ^ to selected Pulse Level
Low Cutoff (%fs)
0.0
ENT
Function for cutoff the low flowrate
Press > button to move, press ^ button to change the Value
Setting Range: 0.0% ~ 9.9%
Damping (s)
01
ENT
The flowrate response time setting,
Press > button to move, Press ^ button the Value
Setting Range:01 ~ 99 Seconds, Factory Standard set value is 2 Seconds
Hydro – State
Normal Waved
ENT
Hydro-State
Press > or ^ button to selected the Hydro-State
Normal: for general application
Waved: For fluid in wave states
Max Limit (%fs)
05
ENT
Response speed adjustment
Press > button to move, Press ^ button to change the value
Range: 00~30%, 1% means max 1% flowrate value change for each Limit Time
Limit Time (s)
05
ENT
Response time
Press > button to move, Press ^ to change the value
Response time range: 00~99, Adjust flowmeter response time.
Direction
Fwd. Rev. Bid.
ENT
Direction
Press > or ^ button to select the Hydro-state
1. Forward 2. Reverse 3. Bidirection
Indication
Forward Reverse
ENT
Indication
Press > or ^ button to select the Indication
1. Forward 2. Reverse
Empty Detect
NO YES
ENT
Empty pipe detect
Press > or ^ button to select if it needs empty pipe detect
Empty Limit (%)
50
ENT
Empty pipe detect the value
Press > button to move, Press^ to change the value


Comm
OFF ON
ENT
Communication
Press > or ^ button to select if need to use communication function
HART Address
00
Please read page 17
MODBUS Type
RTU ASCII
MODBUS Mode
Press > or ^ button to select MODBUS mode
ENT
Baudrate
1200 2400
4800 9600
19200 38400
RS485 Speed
Press > or ^ button to select communication speed.
ENT
Data Bit
7 8
Data Bit
Press > or ^ button to select the Data Bit
1. 7 2. 8 (When MODBUS model selects RTU, the Data Bit is 8 which is fixed)
ENT
Parity
NONE ODD EVEN
Parity Type
Press > or ^ button to select the parity type
1. None 2. Odd 3. Even
ENT
Stop Bit
1 2
Stop Bit
Press > or ^ button to select the Stop Bit
1. 1 2. 2
ENT
MODBUS Address
001
MODBUS address
Press > button to move, Press ^ button to change the digit
ENT
DATE (yy-mm-dd)
08-01-10
Date Setting
Press > button to move, Press ^ button to change the digit.
ENT
TIME (hh:mm:ss)
17:09:49
Time Setting
Press > button to move, Press ^ button to change the digit.
Pls press ENT button for 5 seconds, then it will go back to the normal display.

HART operate description



HART Address

Press ▷ or △ button to select HART Address

Date Setting

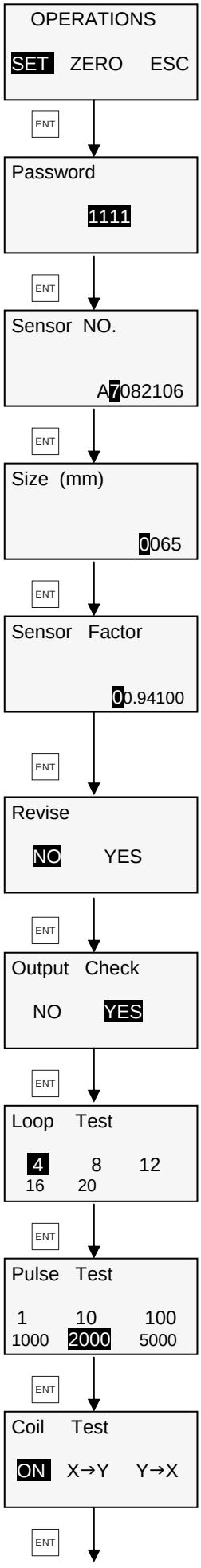
Press ▷ button to move, Press △ button to change the digit.

Time Setting

Press ▷ button to move, Press △ button to change the digit.

Pls press ENT button for 5 seconds, then it will go back to the normal display.

3.9 System Mode



In the normal display, press ENT button for 5 seconds, then it will go to next setting
In this setting, Press > or ^ button till you selected SET

Password login window
Input the system password:
Password: 1111

Sensor No.
Press > button to move, Press^ button to change the digit.

Diameter
Press > button to move, Press^ button to change the diameter

Sensor Factor KS
KS is the original factory rectified factor, please don't change it unless professional or technical staff Press > button to move, Press ^ button to change the value

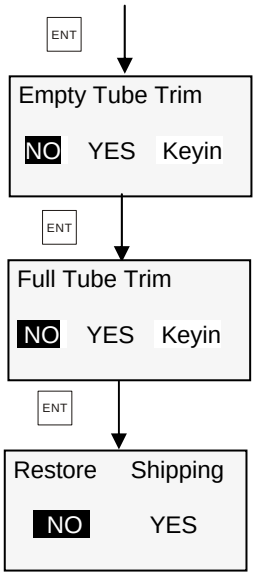
Revise
If choose YES, 11 points liner revision will be started, please see page 22-23 for details.
Choose **NO** jump to Output Calibration.

Output Calibration
Press > or ^ button to choose **YES** select if needs calibration
Choose **NO** jump to Empty Tube Trim

4-20 mA simulated output
Press > or ^ button to select the simulated output value
4 . 8 . 12 . 16 . 20

Pulse Simulated output
Press > or ^ button to select the calibration type
1 . 10 . 100 . 1000 . 2000 . 5000

Excit voltage calibration
Check the coil X to Y or Y to X excit signal are correct or have fail
Press > or ^ button to select the calibration type
Choose X->Y, the Voltage will be 24VDC, Choose Y->X, then Y to X will be 24 VDC



Empty Tube Trim

Press > or ^ to choose whether to Empty Tube Trim or not, or input empty tube frequency value.
Choose NO to skip to Full Tube Trim, choose YES to conduct Empty Tube Trim.
If there is empty tube empirical value, you can choose Keyin to modify empty tube frequency value.
Otherwise it is not recommended to modify empty tube frequency value.

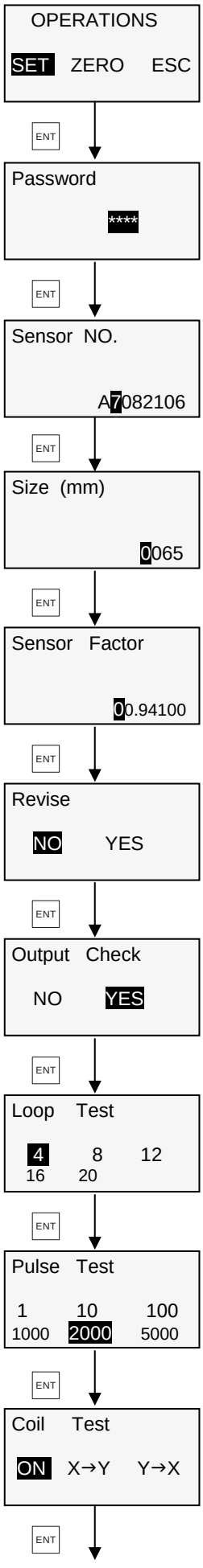
Full Tube Trim

Press > or ^ to choose whether to Full Tube Trim or not, or input full tube frequency value.
Choose NO to skip to Restore Factory Settings, choose YES to conduct Full Tube Trim.
If there is full tube empirical value, you can choose Keyin to modify full tube frequency value.
Otherwise it is not recommended to modify full tube frequency value.

Restore the parameter to second memory

Press > or ^ button to select if it needs to restore the factory setting
Pls press ENT button for 5 seconds, then it will go back to the normal display.

3.10 Advance Mode



In the normal display, press ENT button for 5 seconds, then it will go to next setting
In this setting, Press > or ^ button till you selected SET

Password login window
Input the system password:
Password: * * * *

Sensor No.
Press > button to move, Press ^ button to change the value

Diameter
Press > button to move, Press ^ button to change the diameter

Sensor Factor KS
KS is the original factory rectified factor, please don't change it unless professional or technical staff
Press > button to move, Press ^ button to change the value

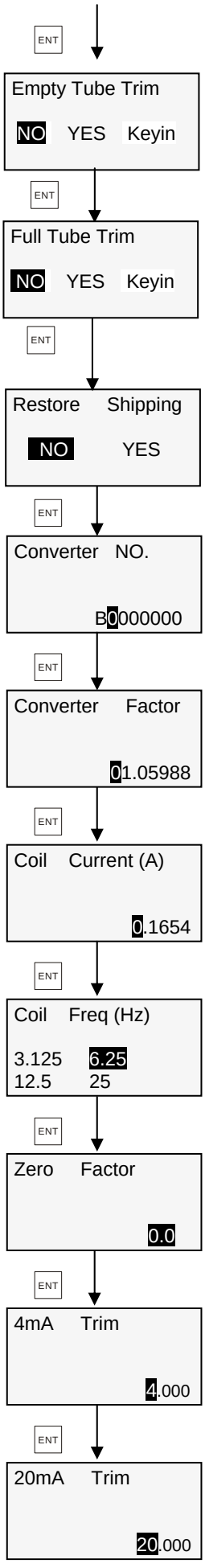
Revise
If choose YES, 11 points liner revision will be started, please see page 22-23 for details.
Choose **NO** jump to Output Calibration

Output Calibration
Press > or ^ button to choose **YES** select if needs calibration
Choose **NO** jump to Empty Tube Trim

4-20 mA simulated output
Press > or ^ button to select the calibration type
4 . 8 . 12 . 16 . 20

Pulse Simulated output
Press > or ^ button to select the calibration type
1 . 10 . 100 . 1000 . 2000 . 5000

Excit voltage calibration
Check the coil X to Y or Y to X excit signal are correct or have fail
Press > or ^ button to select the calibration type
Choose X->Y, the Voltage will be 24VDC, Choose Y->X, then Y to X will be 24 VDC



Empty Tube Trim
Press ▷ or △ to choose whether to Empty Tube Trim or not, or input empty tube frequency value.
Choose NO to skip to Full Tube Trim, choose YES to conduct Empty Tube Trim.
If there is empty tube empirical value, you can choose Keyin to modify empty tube frequency value.
Otherwise it is not recommended to modify empty tube frequency value.

Full Tube Trim
Press ▷ or △ to choose whether to Full Tube Trim or not, or input full tube frequency value.
Choose NO to skip to Restore Factory Settings, choose YES to conduct Full Tube Trim.
If there is full tube empirical value, you can choose Keyin to modify full tube frequency value.
Otherwise it is not recommended to modify full tube frequency value.

Restore the parameter to second memory
Press ▷ or △ button to select if it needs to restore the factory setting

Converter No.
Press ▷ button to move, Press △ button to change the value

Converter Factor KC

Press ▷ button to move, Press △ button to change the value

Coil Current IC(A)
Ic is the tested current of the converter when out of factory, please don't change it unless agent or professional technical staff.
Press ▷ button to move, Press△ button to change the value

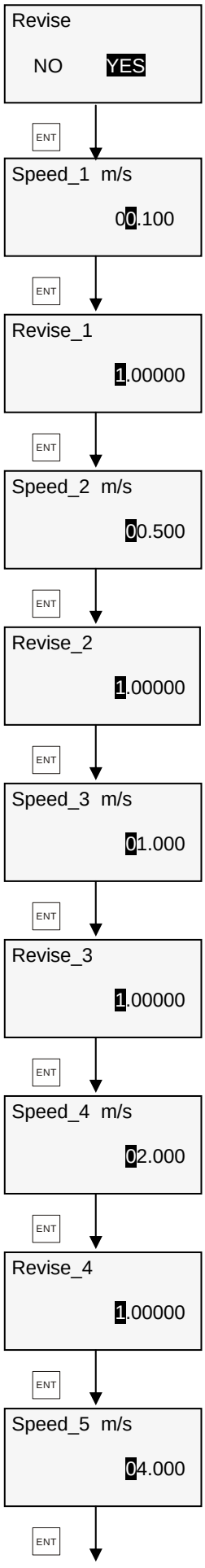
Coil Frequency (Hz)
Press ▷ or △ button to select the coil frequency
Original setting Value: 6.25

Zero Factor manual setting
Press ▷ button to move, Press △ to change the value

4mA output calibration
Press ▷ button to move, Press △ to change the Value

20mA output calibration
Press ▷ button to move, Press △ to change the value
Pls press ENT button for 5 seconds, then it will go back to the normal display.

3.11 Points Reviseion



Revise
Flow accuracy curve correct Factor,11 points
Choose **YES** and shift to 11points revision.

Revise
Flow accuracy curve correctFactor,11 points
Speed_1 ~ Speed_11 presents the flow velocity, you can set 11 point single flow velocity
Revise_1 ~ Revise_11 separately to corresponding Speed_1 ~ Speed_11, it use on amend the inaccuracy by the flow velocity amend.
Use ▷ button to move, △ button to change the value, Any related setting sample please see below.
ps: normally flowmeter accuracy it's during standard accuracy, only if it's necessary, please do not adjust any accuracy curve or you can ask Alia professional engineer to adjust with you

Example 1: size :50 mm(2"), Calibration flowrate are:0.5 M3/Hr, 1 M3/hr, 2 M3/Hr, 4 M3/hr,
totally 4 points, first calibration result as follow:

	Measure point 1	Measure point 2	Measure point 3	Measure point 4
Actual flowrate	0.5 m^3/h	1 m^3/h	2 m^3/h	4 m^3/h
Actual Velocity	0.071 m/s	0.142 m/s	0.283 m/s	0.566 m/s
Flowmeter flowrate	0.530 m^3/h	0.983 m^3/h	2.046 m^3/h	4.176 m^3/h
Flowmeter Velocity	0.075 m/s	0.139 m/s	0.289 m/s	0.591 m/s

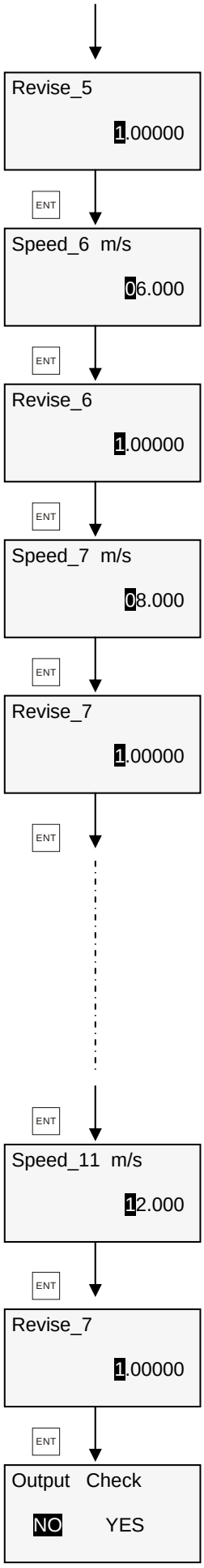
4point flowrate, its inaccuracy calculation as follow:
Point 1: 0.5/ 0.530 = 0.943 , new Revise valve = 0.943
Point 2: 1 / 0.983 = 1.017, new Revise valve= 1.017
Point 3: 2 / 2.046 = 0.978, new Revise valve= 0.978
Point 4: 4 / 4.176 = 0.958, new Revise valve= 0.958

Filled the 4 points Revise valve in order to the new flow Velocity adjust parameter as follow:

	1	2	3	4
Speed	0.071	0.142	0.283	0.566
Revise	0.943	1.017	0.978	0.958

You will get the digit :
Speed_1= 0.071, Revise_1=0.943, Speed_2=0.142, Revise _2=1.017
Speed_3= 0.283, Revise_3=0.978, Speed_2=0.566, Revise _4 =0.958

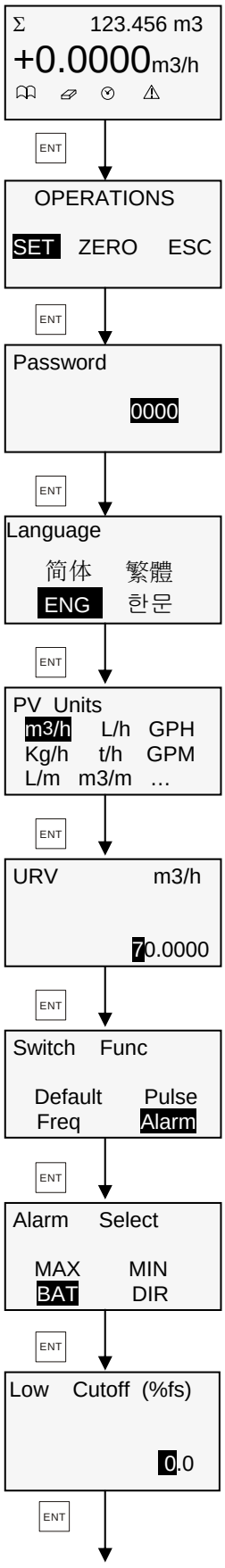
Separately filled the converter related parameter,then the adjustment finished, that times Revise_5, Revise _6, Revise _7 , Revise _8 , Revise_9, Revise _10, Revise _11, Speed_5, speed_6 , Speed_7, speed_8 , Speed_9, speed_10 speed_11 doesn't need to change



Example 2: Size :500 mm (20"), Calibration one point flowrate to 4000 m^3/h
Supposed the actual flowrate was 4000 m^3/h,the actual speed was 5.66 m/s, display 4012 m^3/h, Velocity 5.677 m/s.
New Revise=4000/4012=0.997
Flow Velocity 5.66 m/s during Revise_5 (4 m/s) and Revise_6 (6 m/s),so you can set as follow:

Speed_5=5.66, Revise_5=0.997, Speed_6 and Revise_6 not change
or Speed_6=5.66, Revise_6=0.997, Speed_5 and Revise_5 not change

3.12 Batch Control



In the normal display, press ENT button for 5 seconds, then it will go to next setting

In this setting, Press > or ^ button till you selected SET

Password login window
Input the password
Password: 0000

Language
Press > or ^ to selected the language

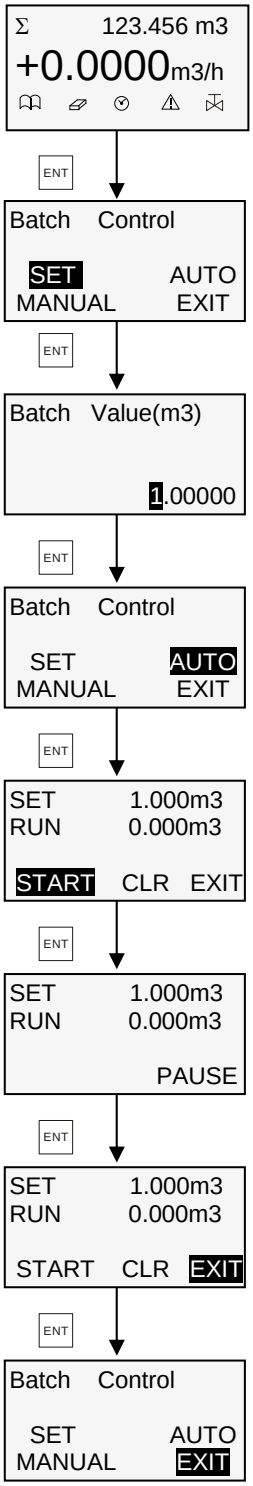
Select Flow Engineer unit
Press > or ^ to select the Engineer unit
0: m3/h 1: L/h 2: GPH 3: Kg/h 4: t/h 5: GPM
6: L/m 7: m3/m 8: ml/h 9: ml/m 10: ml /s

Flow Range
Setting Flow Range, that's mean 4-20mA and Pulse, frequency output max. Value
Press > button to move, Press ^ to change the Value

Contact output
Press > or ^ button to selected the output, Please choose the "Alarm"
1. Default 2. Pulse 3. Frequency 4. Alarm

Alarm Select
Press > or ^ button to "BAT"
1. Max(Upper-Alarm) 2. Min(Lower-Alarm) 3. Batch 4. Direction

Function for cutoff the low flowrate
Press > button to move, press ^ button to change the Value
Setting Range: 0.0% ~ 9.9%
Pls press ENT button for 5 seconds, then it will go back to the normal display.



In general display, Press > or ^ button and select ⋈ ,make sure enter batch control window

Batch Control
Press > or ^ button to SET

Batch Value(m3)
Press > button to move, press ^ button to change the Value

Batch Control
Press > or ^ button to AUTO or MANUAL

Press > or ^ button to START ,To start batch control
If choose CLR ,The actual flow value will be zero

In this setting, Press ENT button , The flow metering will be pause

At this time, If choose START,It will continue the next flow
If choose EXIT, It will quit the batch control

Batch Control
Press > or ^ button to EXIT
Press ENT button. then it will go back to the normal display.

4. Common Alarm Code Indication

AMC2100 Alarm Table			
Code	Contents	Meaning	Solution
8	OV. Flow	Over range	Increase range
16	OV. Flow	Exceeding AD value of flowrate	Slow fluid velocity
24	OV. Flow	Over range Exceeding AD value of flowrate	Increase range Slow fluid velocity
32	OV. Freq	Exceeding Fmax range	Increase the frequency setting range
64	UPPER	Exceeding the upper limit value of alarm settings	Turn off alarm output or raise alarm upper limit value
72	OV. Flow ; UPPER	Exceeding the upper limit value of alarm settings Over range	Increase range Turn off alarm output or raise alarm upper limit value
128	LOWER	Under the lower limit value of alarm setting	Turn off alarm output or decrease the alarm lower limit value
136	OV. Flow ; LOWER	Over range Under the lower limit value of alarm setting	Increase range Turn off alarm output or decrease the alarm lower limit value
256	EMPTY	Empty pipe alarm	Check the pipe & full the pipe
512	Zero	Zero mv value>99mv	Re-zero when fluid is static.
1024	Coil	Exciting Current<40%	Check the XY wiring fall off or not
1032	OV. Flow ; Coil	Over range Exciting Current <40%	Increase range Check the XY wiring fall off or not
1088	UPPER ; Coil	Exceeding the upper limit value of alarm settings Exciting Current <40%	Turn off alarm output or raise alarm upper limit value Check the XY wiring fall off or not
1152	LOWER ; Coil	Under the lower limit value of alarm setting Exciting Current <40%	Turn off alarm output or decrease the alarm lower limit value Check the XY wiring fall off or not
1280	EMPTY ; Coil	Empty pipe alarm Exciting Current <40%	Check the pipe to full the pipe Check the XY wiring fall off or not
1536	Zero; Coil	Zero mv value>99mv Exciting Current <40%	Re-zero when fluid is static. Check the XY wiring fall off or not

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