

JAINTECHNOLOGY

Industrial & Defense Instruments

XONIC[®] 100P

CLAMP-ON

ULTRASONIC PORTABLE FLOWMETER



User's Manual

2021

www.jain.co.kr

Tel. 82-2-856-4114 Fax. 82-2-856-9503

Table of Contents

Delivery Items

Preview

Introduction

Safety Consideration

Installation Steps

Specifications

Key Functions

Understanding Display

Best Transducer Installation Place

Section 1. General

SYSTEM LOCK

SITE NAME

APPLICATION

FLANGE SET

Section 2. CH SELECT

Section 3. PIPE Data

Section 4. LIQUID Type

Section 5. INSTALL

Section 6. OPERATE

Section 7. FLOW

Section 8. IN/OUTPUT

Section 9. DATA LOGGER

Section 10. DIAGNOSTICS

DRAWINGS

Delivery Items

Flow Computer



Transducer



Mounting Track



Cable, etc



Preview

Introduction

Xonic 100P Portable Ultrasonic Flowmeter is fully digitalized, the state-of-art flowmeter that use DSP (Digital Signal Processing) technology to measure the time difference of ultrasonic signals. Please read this manual carefully before installation and operation to ensure the best performance. Contents in this manual is subject to change by the manufacturer without any prior notice to the user.

Safety Consideration

Xonic 100 uses lithium-ion batteries and AC 110~220V power. Follow all electrical and electronic safety rules to prevent any safety accident or damage of the flow computer during installation. Most applications are near to moisture, thus, be careful of any electric shock.

Installation Steps

Select best pipe installation point for transducer installation.







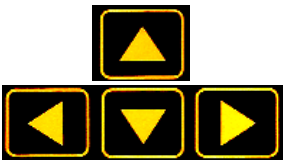

1. Input PIPE DATA.
2. Check the SENSOR DISTANCE displayed in flow computer.
3. Select the sensor INSTALLATION PLACE.
4. Mount the SENSOR horizontally to the pipe.
5. Install FLOW COMPUTER.
6. Connect the sensor and the flow computer via cable.
7. Input necessary DATA such as output and relay.

Specifications

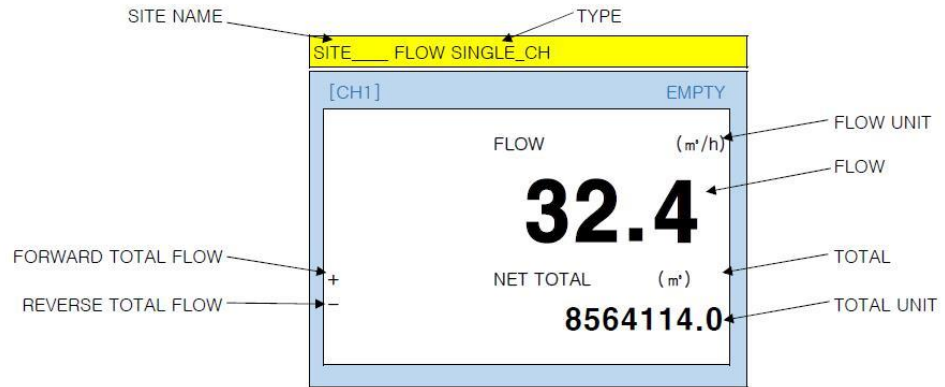
Type	Clamp-On Ultrasonic Portable Flowmeter
Principle	Transit-Time
Measuring Pipe Size	12 ~ 6000 mm
Accuracy	±1.0 % (single path), ±0.5 % (dual path)
Flow Velocity	±0.02 ~ 12.0 m/s
Turn-Down Ratio	1000:1
Repeatability	0.25%
Required Straight Run	Upstream 10D, Down stream 5D (single path) Upstream 5D, Down stream 3D (dual path)
Data OUTPUT	One 4~20mA (Two as option) for flow rate One Relay (Two as option) for Total or Alarm RS-232C
Data Logger	32 Mbytes (above 1,000,000 times)
Display	Graphic Color LCD (Flow, Total, Velocity, Delta T, Oscilloscope Shape)
Temperature	Flow Computer -20 ~ +75 °C Transducer -40 ~ +120 °C
Power	24hours operation with rechargeable battery (power adapter is AC85-264V)
Enclosure	IP67, Rain Proof
Transducer	IP68, Waterproof

Key Functions

Note : Touch keys do not have alphabet table, so user must select alphabet by pressing numeric keys several times.

Keys	Functions
	Press to enter the menu or back to the main display.
	Press to enter the selected menu or save the input data.
	Press to delete the text or number.
	Use to input numbers.
	Use to input decimal point.
	Special function key.
	Press to select the choice in menu.
	Press to change positive or negative number of numeric data.

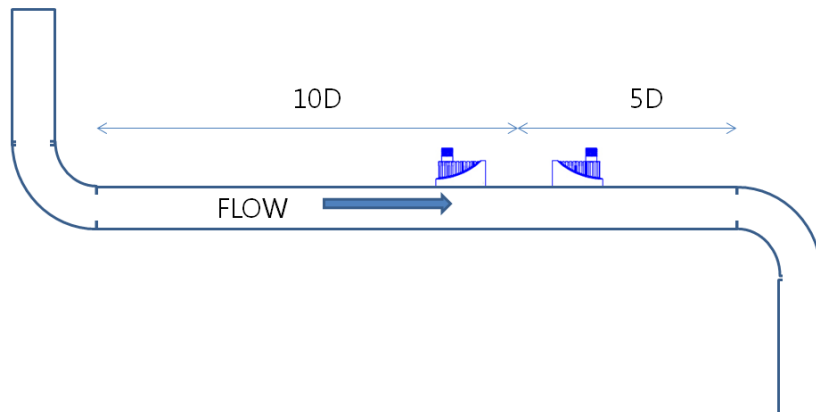
Understanding Display



- Site Name : user must input site name for communication
- Type : single ch means single path/channel
- Flow Unit : user selected flow unit
- Flow : measured flow
- Total : total flow
- Total Unit : total flow unit

Best Transducer Installation Place

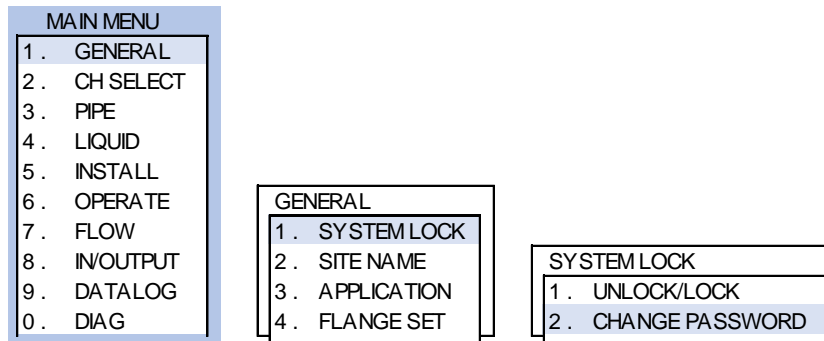
Choose an installation location that has enough straight pipe runs, 10D for upstream and 5D for downstream. For example, if pipe diameter is 1000mm, then please find 10 meters straight run for upstream and 5 meters straight run for down stream.



Section 1. Input GENERAL data

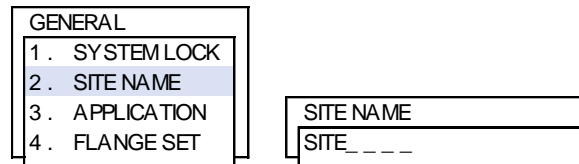
System Lock

User can set password to prevent unauthorized access to the flow computer. Input number and alphabet using keypad.



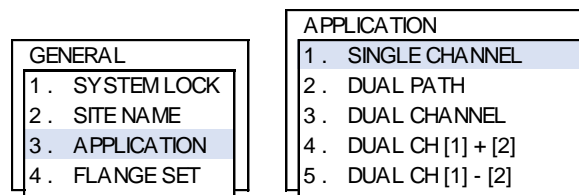
Site Name

User must input SITE MENU for initial setup. SITE NAME can be used as an ID of flowmeters when communicate remotely with many flowmeters.



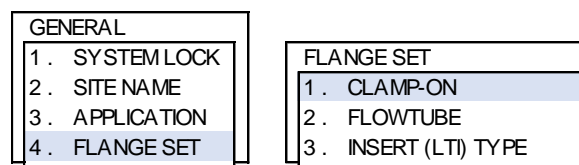
Application

User can select single or dual channel.
 SINGLE CHANNEL is general mode that use only 1 pair of transducers for one pipe.
 DUAL PATH is precision mode that use 2 pairs of transducers for one pipe to increase accuracy.
 DUAL CHANNEL mode is used to measure two independent pipes simultaneously using 1 flow computer and 2 pairs of transducers.
 DUAL CH[1]+[2] mode is used to measure two independent pipes separately and shows total flow by summing up CH[1] and CH[2].
 DUAL CH[1]-[2] mode is used to measure two independent pipes separately and shows flow difference of CH[1] and CH[2].



Flange Set

Select CLAMP-ON to use clamp-on transducer.

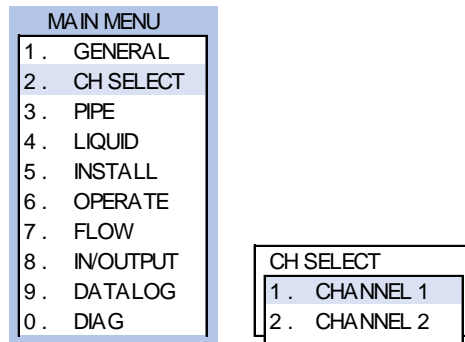


Section 2. CH SELECT

User should select channel first to setup the data in other menus.

In case of single channel, select CHANNEL 1.

In case of dual channel, user have to setup the data of each channel separately.



Section 3. input PIPE DATA

Pipe Unit

Select pipe unit: METRIC or US units (inch)

MAIN MENU

1. GENERAL
2. CH SELECT
3. PIPE
4. LIQUID
5. INSTALL
6. OPERATE
7. FLOW
8. IN/OUTPUT
9. DATALOG
0. DIAG

PIPE

1. PIPE UNIT
2. PIPE MATERIAL
3. PIPE SONIC Vs
4. PIPE DIAMETER
5. PIPE THICKNESS
6. LINING MATERIAL
7. LINING SONIC Vs
8. LINING THICKNESS

PIPE UNIT

1. Metric(mm)
2. US units(inch)

Pipe Material

Select pipe material from list

PIPE

1. PIPE UNIT
2. PIPE MATERIAL
3. PIPE SONIC Vs
4. PIPE DIAMETER
5. PIPE THICKNESS
6. LINING MATERIAL
7. LINING SONIC Vs
8. LINING THICKNESS

PIPE MATERIAL

1. CARBON STEEL
2. DUCTILE_IRON
3. CAST_IRON
4. SUS
5. ALUMINUM
6. COPPER
7. BRASS
8. PVC
9. FRP
0. POLYETHYLENE

Pipe Sonic

N/A

Pipe Diameter

Input pipe diameter using numeric keys.

PIPE

1. PIPE UNIT
2. PIPE MATERIAL
3. PIPE SONIC Vs
4. PIPE DIAMETER
5. PIPE THICKNESS
6. LINING MATERIAL
7. LINING SONIC Vs
8. LINING THICKNESS

PIPE DIAMETER

UNIT: mm

._.---

Pipe Thickness

Input pipe wall thickness using numeric keys.

PIPE

1. PIPE UNIT
2. PIPE MATERIAL
3. PIPE SONIC Vs
4. PIPE DIAMETER
5. PIPE THICKNESS
6. LINING MATERIAL
7. LINING SONIC Vs
8. LINING THICKNESS

PIPE THICKNESS

UNIT: mm

._.---

Lining Material

If pipe has lining, select lining material.

- PIPE
- 1. PIPE UNIT
 - 2. PIPE MATERIAL
 - 3. PIPE SONIC Vs
 - 4. PIPE DIAMETER
 - 5. PIPE THICKNESS
 - 6. Lining Material
 - 7. Lining Sonic Vs
 - 8. Lining Thickness

- LINING MATERIAL
- 1. NONE
 - 2. MORTAR
 - 3. TAR_EPOXY
 - 4. TEFLON
 - 5. POLYETHYLENE
 - 6. ENAMEL
 - 7. GLASS
 - 8. PLASTIC
 - 9. RUBBER
 - 0. ASBESTOS CEMENT

Lining Sonic Vs

N/A

Lining Thickness

If pipe has lining, input lining thickness using numeric keys.

- PIPE
- 1. PIPE UNIT
 - 2. PIPE MATERIAL
 - 3. PIPE SONIC Vs
 - 4. PIPE DIAMETER
 - 5. PIPE THICKNESS
 - 6. Lining Material
 - 7. Lining Sonic Vs
 - 8. Lining Thickness

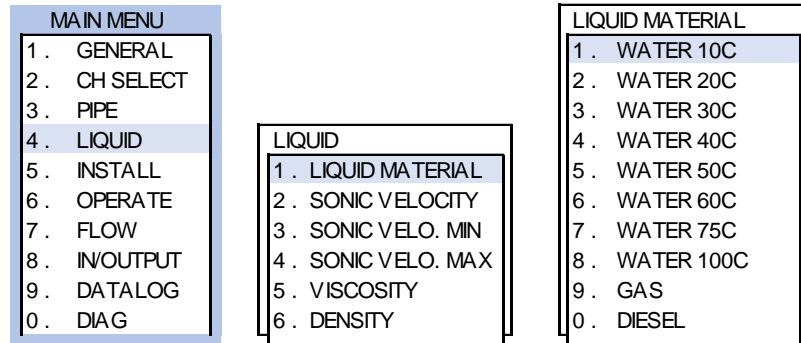
LINING THICKNESS

UNIT : mm

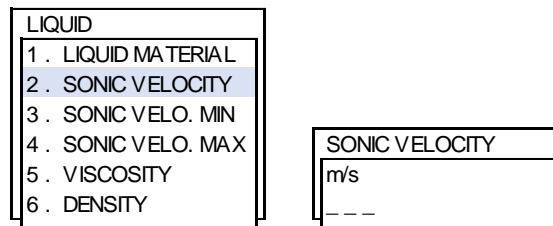
Section 4. Select LIQUID TYPE

User can select liquid type from list. Sonic velocity, viscosity and density are automatically selected by flowmeter. If liquid type is unknown, user must input **3.VISCOSITY** and **4.DENSITY** manually.

Liquid Material Select liquid type from Material list.



Sonic Velocity Flowmeter automatically displays sound speed of selected liquid.



Sonic Velo. Min. N/A

Sonic Velo. Max. N/A

Viscosity User does not need to set; flowmeter automatically displays viscosity of the selected liquid.

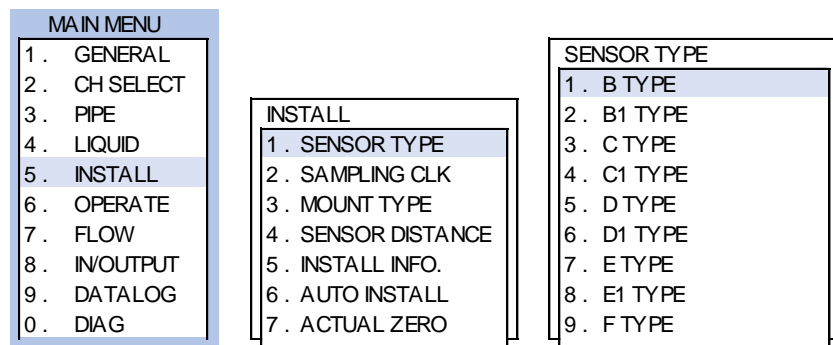
Density User does not need to set; flowmeter automatically displays density of the selected liquid.

Section 5. INSTALL

For proper installation, read this section carefully. After you input pipe and liquid data, you can install quickly and easily.

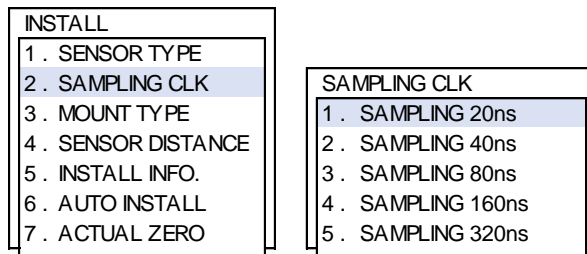
Sensor Type

User must have correct transducer for the pipe.
 Xonic 100 has 5 types of transducers and Xonic 100 will automatically recommend proper transducers for the site.
 If the Xonic 100 recommends size D type, then user must have D type transducers.
 If the Xonic 100 recommends size D1 type, then user must have D1 type transducers.
 Choose the transducer according to the sensor type displayed in the list.

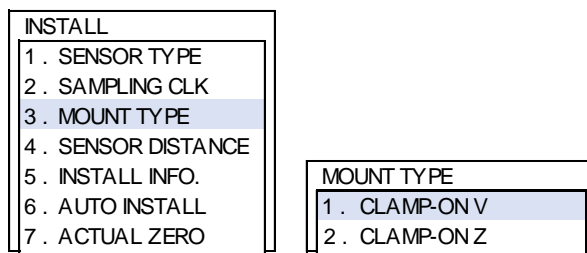


Sampling Clock

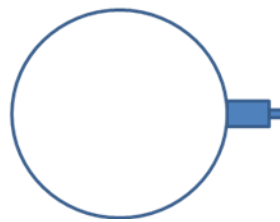
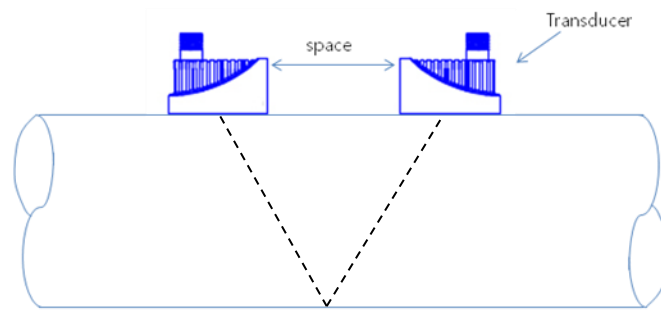
Xonic 100 automatically select SAMPLING CLOCK, so user does not need to change.



Mounting Type

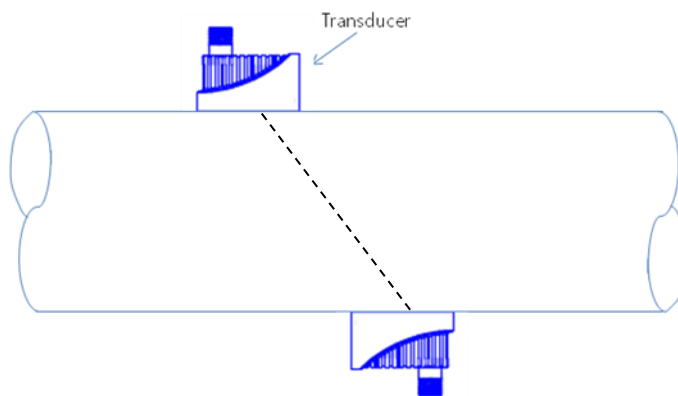


Normally, CLAMP ON V is better for most applications. V method is more accurate, and easy to install. V method means installation mode which mount two transducers onto one pipe side as per below:



<V mode installation>

If pipe is large in diameter (over 1000mm) or very old (scale or corrosion inside), use Z MODE installation. These pipes can sometimes make the ultrasonic signal very weak, so flowmeter cannot work in V mode. Also, in the case that liquid is not clean, for example wastewater, use Z MODE.

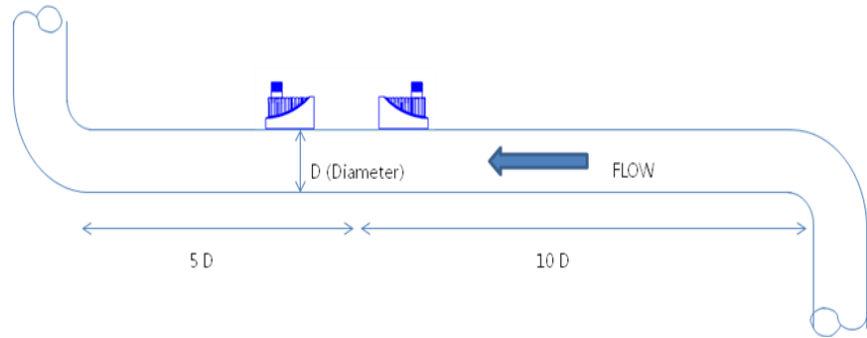


<V mode installation>

The Z MODE make ultrasonic signal stronger than V MODE.

Finding Installation Position

Please find enough straight run pipe position. Normally, clamp-on ultrasonic flowmeter need 1Fi0 Upstream and 5 Downstream diameters straight pipe run. Ensure adequate straight pipe to ensure smooth laminar flow. Accuracy will be affected if not enough straight pipe can be found.

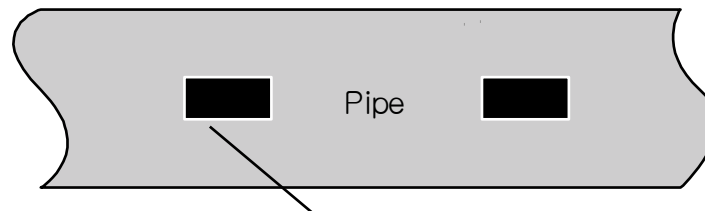


Sensor Distance

INSTALL	
1 .	SENSOR TYPE
2 .	SAMPLING CLK
3 .	MOUNT TYPE
4 .	SENSOR DISTANCE
5 .	INSTALL INFO.
6 .	AUTO INSTALL
7 .	ACTUAL ZERO

SENSOR DISTANCE	
UNIT :	mm
	238.693

Using the Sensor distance, measure the installation area on the pipe using ruler. Remember that the area must be large enough for Mounting Track installation with the sensor placement approximately in the center of the track.



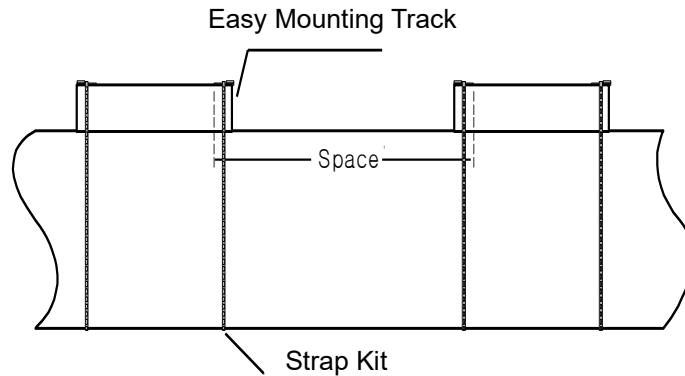
Remove any coatings, and make this area clean and flat for transducer mounting.

Remove Pipe Coating and make install position flat and clean

Remove all pipe coatings and use an abrasive to thoroughly clean the area. This is essential for good Ultrasonic coupling.

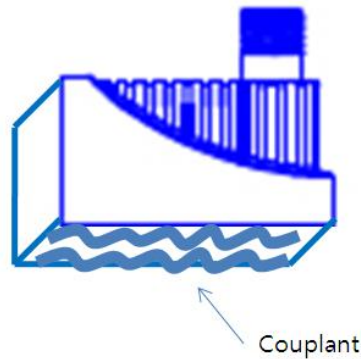
Install Mounting Track

Install mounting track onto the pipe with stainless steel strap. Fix it tightly.



Install Transducers onto PIPE

Apply couplant gel onto bottom of transducers and locate transducer into mounting track. Make transducers clamp-on pipe by tightening a clamp screw.

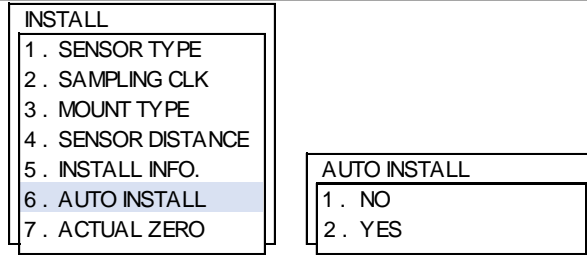


Install Info

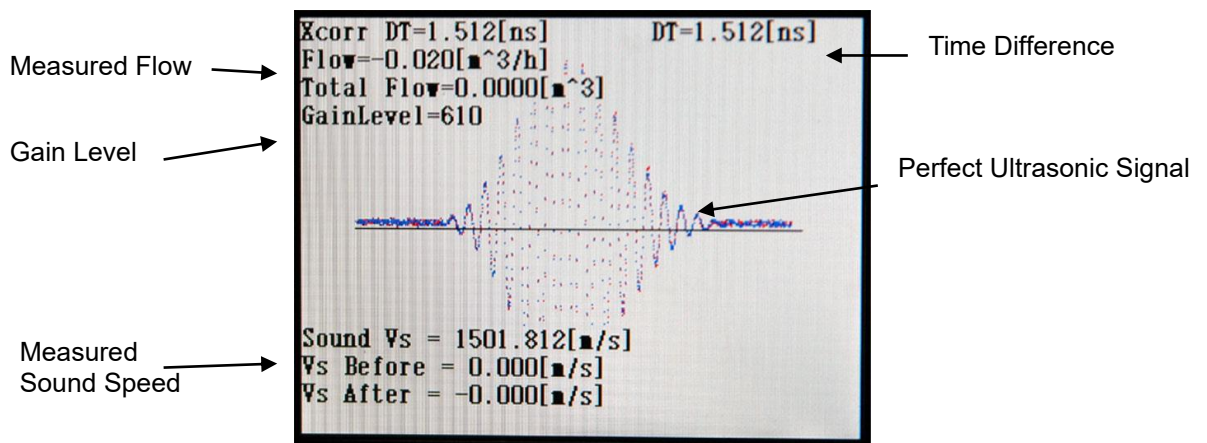
INSTALL		INSTALL INFO.	
1 . SENSOR TYPE		Pipe: CARBON STEEL	
2 . SAMPLING CLK		-OD: 0.00mm	
3 . MOUNT TYPE		-T: 0.00mm	
4 . SENSOR DISTANCE		Liner: NONE	
5 . INSTALL INFO.		-T: 0.00mm	
6 . AUTO INSTALL		Sensor: B(B)	
7 . ACTUAL ZERO		-Clk: 20nS	
		Mnt: CLAMP-ON V	
		Space: 0.0mm	
		(E: 7.0mm)	

Auto Install

Xonic 100 uses its patented AR mode ultrasonic signal for flow measurement. User simply select YES, then Xonic 100 start AR mode automatic installation procedure. User can see how AR mode find best signal.



After auto installation, Xonic 100 shows the below ultrasonic signals. The signal shape must be similar to the below picture.



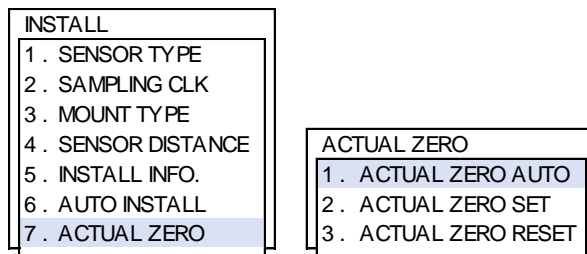
Sound Vs : In case of water 20°C, the sound speed must be around 1480 m/s. If sound speed is not around 1480, please check pipe size again.

Gain Level : Gain Level must be below 1500. High gain means low ultrasonic signal. So, if gain is over 1500, please check pipe size again and re-install transducers after clean pipe.

Signal Shape must be high in the middle area. If signal shape is not high in the middle area, please check pipe size, pipe material, etc.

Actual Zero

This menu is useful when user can stop the flow. Look flow after stop. If flow is not zero after stop the flow, press ACTUAL ZERO. Then, Xonic 100 makes flow real zero "0". Be sure flow is 0, and open valve.



Section 6. OPERATE

Upper Flow Limit

This menu means the site flow cannot exceed flow limitation.

<p>MAIN MENU</p> <ol style="list-style-type: none"> 1. GENERAL 2. CH SELECT 3. PIPE 4. LIQUID 5. INSTALL <li style="background-color: #e0e0e0;">6. OPERATE 7. FLOW 8. IN/OUTPUT 9. DATALOG 0. DIAG 	<p>OPERATE</p> <ol style="list-style-type: none"> <li style="background-color: #e0e0e0;">1. UPPER FLOW LIMIT 2. LOWER FLOW LIMIT 3. DEAD ZONE 4. FLOW AVERAGE TIME 5. TOTAL FLOW SET 6. ALARM 7. CALIBRATION 8. ENABLE AGC 9. DAMPING 0. FIX RISC. 	<p>UPPER FLOW LIMIT</p> <p>Unit : m³/hour</p> <p>20000.160</p>
---	---	--

The value is determined by flowmeter automatically. Normally, the value is about double value than measured flow. If the user wants another value, it can be changed by keypad.

Lower Flow Limit

Normally, this value is 0.

<p>OPERATE</p> <ol style="list-style-type: none"> 1. UPPER FLOW LIMIT <li style="background-color: #e0e0e0;">2. LOWER FLOW LIMIT 3. DEAD ZONE 4. FLOW AVERAGE TIME 5. TOTAL FLOW SET 6. ALARM 7. CALIBRATION 8. ENABLE AGC 9. DAMPING 0. FIX RISC. 	<p>LOWER FLOW LIMIT</p> <p>Unit : m³/hour</p> <p>- 20000.160</p>
---	--

Dead Zone

DEAD ZONE means the flow than can be disregarded. If pipe is big, so very small flow in meaningless, then use this menu. Normally, flowmeter makes the value automatically.

<p>OPERATE</p> <ol style="list-style-type: none"> 1. UPPER FLOW LIMIT 2. LOWER FLOW LIMIT <li style="background-color: #e0e0e0;">3. DEAD ZONE 4. FLOW AVERAGE TIME 5. TOTAL FLOW SET 6. ALARM 7. CALIBRATION 8. ENABLE AGC 9. DAMPING 0. FIX RISC. 	<p>DEAD ZONE</p> <p>n/s</p> <p>0.000</p>
---	---

Flow Average Time

Default value is 5 seconds. This means display flow is average flow for 5 seconds.

- OPERATE
1. UPPER FLOW LIMIT
 2. LOWER FLOW LIMIT
 3. DEAD ZONE
 4. FLOW AVERAGE TIME
 5. TOTAL FLOW SET
 6. ALARM
 7. CALIBRATION
 8. ENABLE AGC
 9. DAMPING
 0. FIX RISC.

FLOW AVERAGE TIME
sec
10

Total Flow Set

If user need to change flow total, can change by keypad.

- OPERATE
1. UPPER FLOW LIMIT
 2. LOWER FLOW LIMIT
 3. DEAD ZONE
 4. FLOW AVERAGE TIME
 5. TOTAL FLOW SET
 6. ALARM
 7. CALIBRATION
 8. ENABLE AGC
 9. DAMPING
 0. FIX RISC.

TOTAL FLOW SET
1. POSITIVE SET
2. NEGATIVE SET

TOTAL FLOW SET
Unit: m³
0

Alarm

Xonic 100 has alarm functions. User can set HIGH FLOW, LOW FLOW alarms.

- OPERATE
1. UPPER FLOW LIMIT
 2. LOWER FLOW LIMIT
 3. DEAD ZONE
 4. FLOW AVERAGE TIME
 5. TOTAL FLOW SET
 6. ALARM
 7. CALIBRATION
 8. ENABLE AGC
 9. DAMPING
 0. FIX RISC.

ALARM
1. LOW FLOW
2. HIGH FLOW

LOW FLOW
Unit : m³ /hour
- . - - -

Calibration

In case the user has a calibration instrument or other laboratory instrument to test the Xonic 100, then they can use this menu to calibrate for best accuracy, user can select calibration menu.

- OPERATE
1. UPPER FLOW LIMIT
 2. LOWER FLOW LIMIT
 3. DEAD ZONE
 4. FLOW AVERAGE TIME
 5. TOTAL FLOW SET
 6. ALARM
 7. CALIBRATION
 8. ENABLE AGC
 9. DAMPING
 0. FIX RISC.

CALIBRATION
1. METHOD
2. MULTI-POINT SET
3. Kc SET

METHOD
1. NO CALIBRATION
2. MULTI-POINTS
3. Kc CALIBRATION
4. Kc and MULTI

Move cursor to CALIBRATION METHOD.

- 1) NO CALIBRATION is no calibration. It does not affect any calibration to the flow.
- 2) MULTI-POINTS is multi-point calibration menu. User can test flow from minimum to max flow. And can input each test points to flowmeter.

VIEW user can see each input points

CALIBRATION

1. METHOD
2. MULTI-POINT SET
3. Kc SET

MULTI-POINT SET

1. VIEW
2. ADD
3. DELETE

UNIT : m³/hour

0.0000	: 0.000
0.0000	: 0.000
0.0000	: 0.000
0.0000	: 0.000
0.0000	: 0.000
0.0000	: 0.000
0.0000	: 0.000
0.0000	: 0.000
0.0000	: 0.000
0.0000	: 0.000

BEFORE AFTER

ADD user can add test points

CALIBRATION

1. METHOD
2. MULTI-POINT SET
3. Kc SET

MULTI-POINT SET

1. VIEW
2. ADD
3. DELETE

ADD

POINT :

VALUE :

DELETE user can delete test points

CALIBRATION

1. METHOD
2. MULTI-POINT SET
3. Kc SET

MULTI-POINT SET

1. VIEW
2. ADD
3. DELETE

UNIT : m³/hour

0.0000	: 0.000
0.0000	: 0.000
0.0000	: 0.000
0.0000	: 0.000
0.0000	: 0.000
0.0000	: 0.000
0.0000	: 0.000
0.0000	: 0.000
0.0000	: 0.000
0.0000	: 0.000

BEFORE AFTER

*Kc SET is flow calibration with calibration factor.
 If flow is 100 and Kc is 1.0, then flow became 100
 If flow is 100 and Kc is 1.01, then flow became 101
 If flow is 100 and Kc is 0.09, then flow became 99.9*

CALIBRATION

1. METHOD
2. MULTI-POINT SET
3. Kc SET

Kc SET

Unit : None

1.000

Enable Agc

AGC is Automatic Gain Control function. Enable is default.

Damping

- OPERATE
- 1. UPPER FLOW LIMIT
 - 2. LOWER FLOW LIMIT
 - 3. DEAD ZONE
 - 4. FLOW AVERAGE TIME
 - 5. TOTAL FLOW SET
 - 6. ALARM
 - 7. CALIBRATION
 - 8. ENABLE AGC
 - 9. DAMPING
 - 0. FIX RISC.

- ENABLE AGC
- 1. DISABLE
 - 2. ENABLE

- OPERATE
- 1. UPPER FLOW LIMIT
 - 2. LOWER FLOW LIMIT
 - 3. DEAD ZONE
 - 4. FLOW AVERAGE TIME
 - 5. TOTAL FLOW SET
 - 6. ALARM
 - 7. CALIBRATION
 - 8. ENABLE AGC
 - 9. DAMPING
 - 0. FIX RISC.

- DAMPING
- 1. DISABLE
 - 2. 30 SEC.
 - 3. 1 MIN.
 - 4. 5 MIN.
 - 5. 10 MIN.
 - 6. 30 MIN.
 - 7. UNLIMITED

Fix Risc.

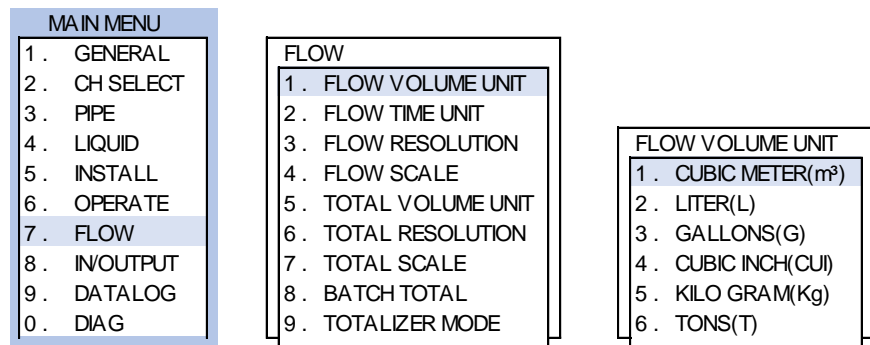
- OPERATE
- 1. UPPER FLOW LIMIT
 - 2. LOWER FLOW LIMIT
 - 3. DEAD ZONE
 - 4. FLOW AVERAGE TIME
 - 5. TOTAL FLOW SET
 - 6. ALARM
 - 7. CALIBRATION
 - 8. ENABLE AGC
 - 9. DAMPING
 - 0. FIX RISC.

- FIX RISC.
- 1. DISABLE
 - 2. ENABLE

Section 7. FLOW

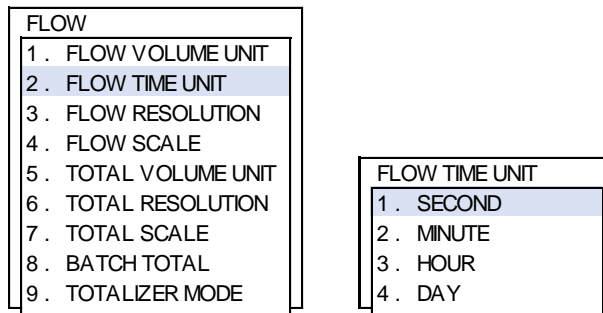
Flow Volume Unit

User can select any unit from list.



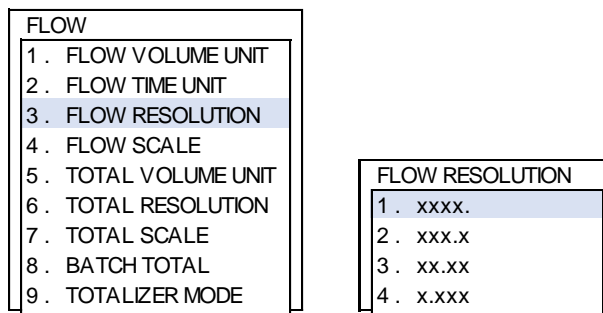
Flow Time Unit

User can select time unit from list.



Flow Resolution

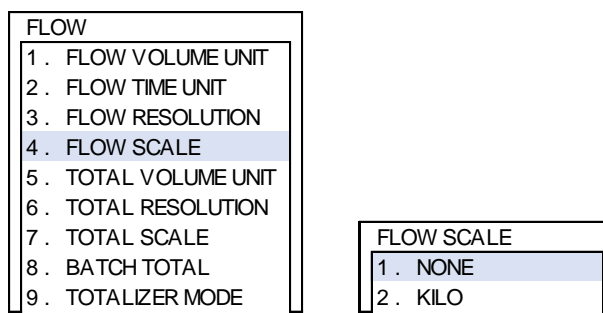
User can select decimal points from list.



XXXX. means 10 for flow
XXX.X means 10.1 for flow
XX.XX means 10.12 for flow
X.XXX means 10.123 for flow

Flow Scale

In case of big flow, user can select KILO menu.



Total Volume Unit

User can select total unit. In most case, total unit is same with flow unit.

- | FLOW | |
|------|-------------------|
| 1. | FLOW VOLUME UNIT |
| 2. | FLOW TIME UNIT |
| 3. | FLOW RESOLUTION |
| 4. | FLOW SCALE |
| 5. | TOTAL VOLUME UNIT |
| 6. | TOTAL RESOLUTION |
| 7. | TOTAL SCALE |
| 8. | BATCH TOTAL |
| 9. | TOTALIZER MODE |

- | TOTAL VOLUME UNIT | |
|-------------------|-----------------|
| 1. | CUBIC METER(m³) |
| 2. | LITER(l) |
| 3. | GALLONS(g) |
| 4. | CUBIC INCH(cui) |
| 5. | KILO GRAM(Kg) |
| 6. | TONS(t) |

Total Resolution

Choose from the list.

- | FLOW | |
|------|-------------------|
| 1. | FLOW VOLUME UNIT |
| 2. | FLOW TIME UNIT |
| 3. | FLOW RESOLUTION |
| 4. | FLOW SCALE |
| 5. | TOTAL VOLUME UNIT |
| 6. | TOTAL RESOLUTION |
| 7. | TOTAL SCALE |
| 8. | BATCH TOTAL |
| 9. | TOTALIZER MODE |

- | TOTAL RESOLUTION | |
|------------------|-------|
| 1. | xxxx. |
| 2. | xxx.x |
| 3. | xx.xx |
| 4. | x.xxx |

Total Scale

User can select KILO for big flow total.

- | FLOW | |
|------|-------------------|
| 1. | FLOW VOLUME UNIT |
| 2. | FLOW TIME UNIT |
| 3. | FLOW RESOLUTION |
| 4. | FLOW SCALE |
| 5. | TOTAL VOLUME UNIT |
| 6. | TOTAL RESOLUTION |
| 7. | TOTAL SCALE |
| 8. | BATCH TOTAL |
| 9. | TOTALIZER MODE |

- | TOTAL SCALE | |
|-------------|------|
| 1. | NONE |
| 2. | KILO |

Batch Total

Batch total means relay will be on per each batch total. If flow unit is CUBIC METER, then 1.0 means 1 pulse per 1 CUBIC METER. If 0.1 batch total, it means 1 pulse per 0.1 CUBIC METER.

- | FLOW | |
|------|-------------------|
| 1. | FLOW VOLUME UNIT |
| 2. | FLOW TIME UNIT |
| 3. | FLOW RESOLUTION |
| 4. | FLOW SCALE |
| 5. | TOTAL VOLUME UNIT |
| 6. | TOTAL RESOLUTION |
| 7. | TOTAL SCALE |
| 8. | BATCH TOTAL |
| 9. | TOTALIZER MODE |

- | BATCH TOTAL | |
|---------------|--|
| Vol Unit : m³ | |
| - . - - - - - | |

Totalizer Mode

User can select totalizer mode.

- | |
|-----------------------|
| FLOW |
| 1 . FLOW VOLUME UNIT |
| 2 . FLOW TIME UNIT |
| 3 . FLOW RESOLUTION |
| 4 . FLOW SCALE |
| 5 . TOTAL VOLUME UNIT |
| 6 . TOTAL RESOLUTION |
| 7 . TOTAL SCALE |
| 8 . BATCH TOTAL |
| 9 . TOTALIZER MODE |

- | |
|--------------------|
| TOTALIZER MODE |
| 1 . NET TOTAL |
| 2 . POSITIVE TOTAL |
| 3 . NEGATIVE TOTAL |

If positive flow is 100 and negative flow is 10, then total is 90.

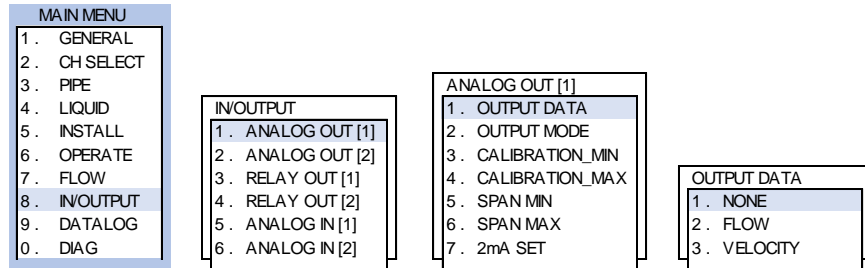
POSITIVE TOTAL means flowmeter will only totalize positive flow. If positive flow is 100 and negative flow is 10, then total is 100.

NEGATIVE TOTAL means flowmeter will only totalizer negative flow. If positive flow is 100 and negative flow is 10, then total is 10.

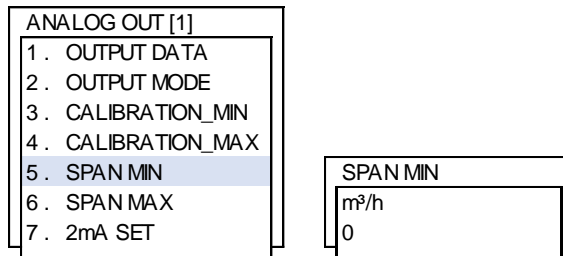
Section 8. IN / OUTPUT

Analog Out [1]

Xonic 100P has one analog output function for 4-20mADC output. User can assign output data and set range.



User can assign FLOW or VELOCITY to ANALOG OUT 1. In most \ case, flow is assign to ANALOG OUT 1.



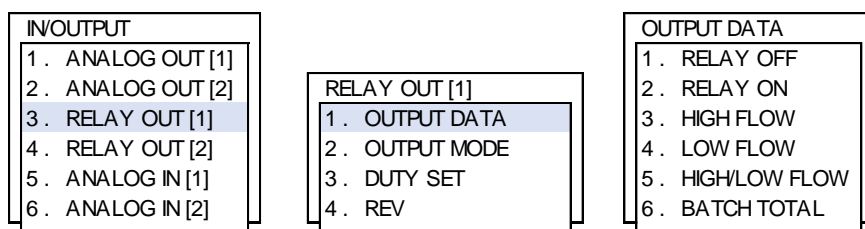
User can set ANALOG OUT 1 min and max span value. If flow max is 1000, SPAN MAX is 1000. If flow min is 0, SPAN MIN is 0.

Analog Out [2]

Same as ANALOG OUT [1] above.

Relay Out [1]

Xonic 100 has two relays and user can assign to each function. Relay is normally used for totalizer function. User can assign RELAY OUT [1] to BATCH TOTAL.



Relay Out [2]

Same as RELAY OUT [1].

Analog In [1]

In case the user wants to see pressure, temperature, user can use this function. Just set MIN and MAX input SPAN, the flowmeter sends the ANALOG INPUT data through RS-232C.

IN/OUTPUT
1 . ANALOG OUT [1]
2 . ANALOG OUT [2]
3 . RELAY OUT [1]
4 . RELAY OUT [2]
5 . ANALOG IN [1]
6 . ANALOG IN [2]

ANALOG IN [1]
1 . SET ENABLE
2 . CALIBRATION_MIN
3 . CALIBRATION_MAX
4 . MIN INPUT SPAN
5 . MAX INPUT SPAN
6 . UNIT
7 . CHECK INPUT DATA

SET ENABLE
1 . DISABLE
2 . ENABLE

If pressure transmitter range is from 0 to 10Kg/cm², then
MIN INPUT SPAN is 0.
MAX INPUT SPAN is 10.

Analog In[2]

Same as ANALOG IN [1].

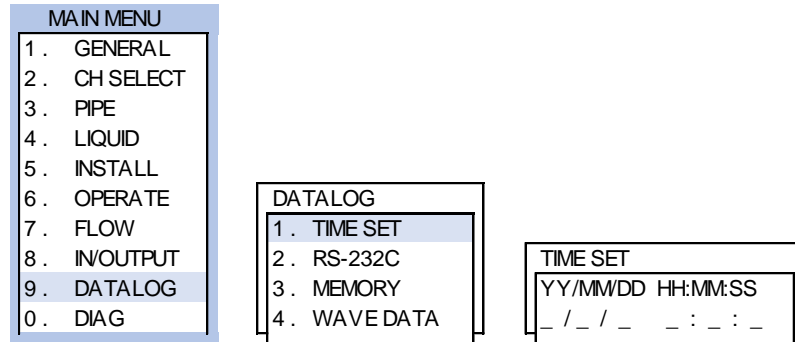
Section 9. DATALOGGER

The flowmeter provides RS-232C for the communication.

Caution) Before user start logging data, user should review this section carefully.

Time Set

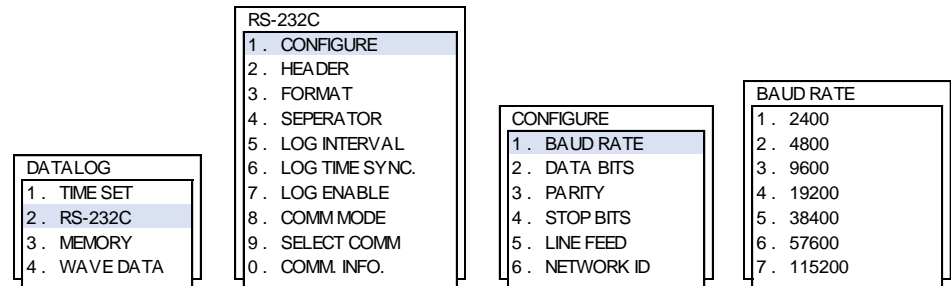
User must setup the correct date and time for recording the measurement.



Configure Baud Rate

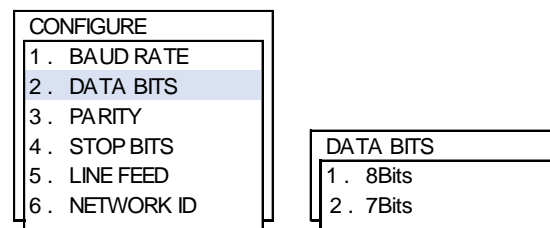
User should complete the Configure Setting for data logger. User can select the baud rate of the flow.

Caution) The value must be same with the value of user's PC or Laptop.

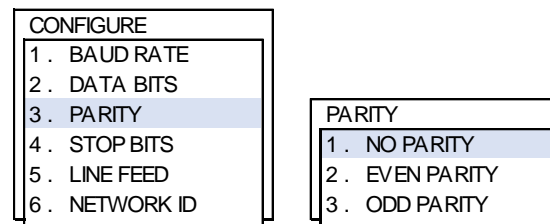


Data Bits

Set the Databits for data logger.

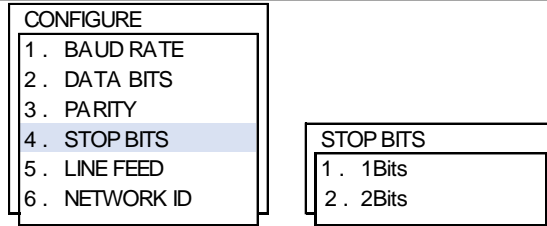


Parity

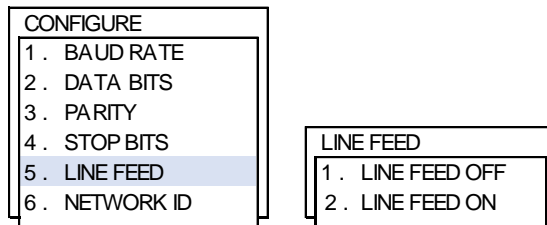


Stop Bits

Set the Stopbits for data logger.

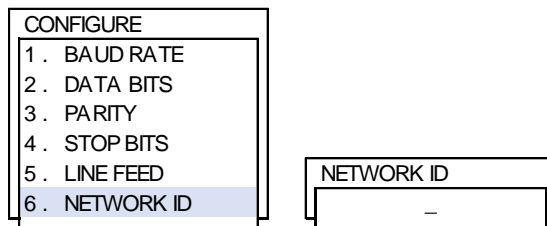


Line Feed



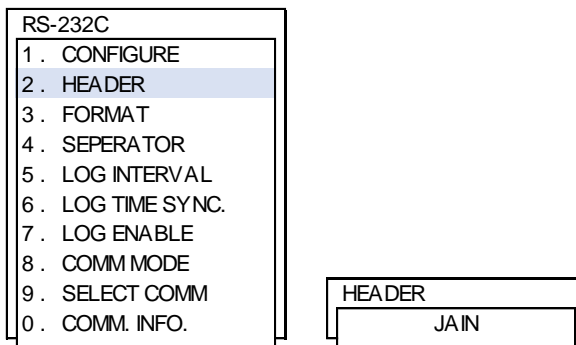
Network ID

User can set a ID in order to identify
 Move cursor by [**◀**] [**▶**].
 Input alphabet characters by [**F1**].
 Delete characters by [**CLR**].
 Leave the edit mode by pressing [**ENT**].



Header

User can set a Header as a Network ID for the communication.
 Move cursor by [**◀**] [**▶**].
 Input alphabet characters by [**F1**].
 Delete characters by [**CLR**].
 Leave the edit mode by pressing [**ENT**].



Format

User can add and list the data here so the data will be downloaded sequentially.

<p>RS-232C</p> <ol style="list-style-type: none"> 1. CONFIGURE 2. HEADER <li style="background-color: #e0e0e0;">3. FORMAT 4. SEPERATOR 5. LOG INTERVAL 6. LOG TIME SYNC. 7. LOG ENABLE 8. COMM MODE 9. SELECT COMM 0. COMM. INFO. 	<p>FORMAT</p> <p style="text-align: center;">HFTA</p> <p>H:Header S:Site name N:Channel No D:Date, C:Time F:Flow, T:Total I1-I2:AnalogIn1-2 U:Unit, A:Alarm V:Velocity</p>
---	--

Separator

User can select Space, Comma or Tab to separate the data.

<p>RS-232C</p> <ol style="list-style-type: none"> 1. CONFIGURE 2. HEADER 3. FORMAT <li style="background-color: #e0e0e0;">4. SEPERATOR 5. LOG INTERVAL 6. LOG TIME SYNC. 7. LOG ENABLE 8. COMM MODE 9. SELECT COMM 0. COMM. INFO. 	<p>SEPERATOR</p> <ol style="list-style-type: none"> <li style="background-color: #e0e0e0;">1. SPACE 2. COMMA 3. TAB
---	--

Log Interval

The Log Interval is the measurement period of time which are taken by the transducers. **Caution) If the flow value changes rapidly, then the log interval time needs to be rapidly as well.**

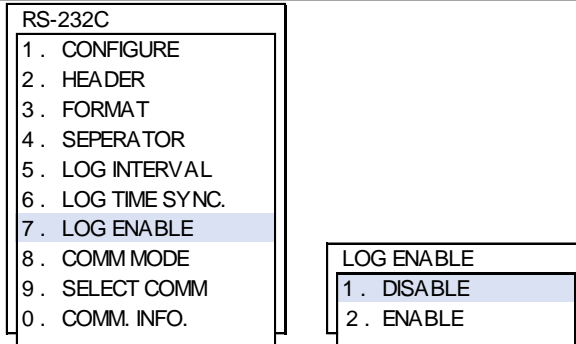
<p>RS-232C</p> <ol style="list-style-type: none"> 1. CONFIGURE 2. HEADER 3. FORMAT 4. SEPERATOR <li style="background-color: #e0e0e0;">5. LOG INTERVAL 6. LOG TIME SYNC. 7. LOG ENABLE 8. COMM MODE 9. SELECT COMM 0. COMM. INFO. 	<p>LOG INTERVAL</p> <ol style="list-style-type: none"> 1. 1 Sec 2. 5 Sec 3. 30 Sec 4. 1 Min 5. 5 Min 6. 15 Min 7. 30 Min 8. 1 Hour 9. 12 Hour 0. 24 Hour
---	--

Log Time Sync

<p>RS-232C</p> <ol style="list-style-type: none"> 1. CONFIGURE 2. HEADER 3. FORMAT 4. SEPERATOR 5. LOG INTERVAL <li style="background-color: #e0e0e0;">6. LOG TIME SYNC. 7. LOG ENABLE 8. COMM MODE 9. SELECT COMM 0. COMM. INFO. 	<p>LOG TIME SYNC.</p> <p>HH:MM:SS</p> <p>_ : _ : _</p>
---	--

Log Enable

User must enable the function for data logger.



Comm Mode

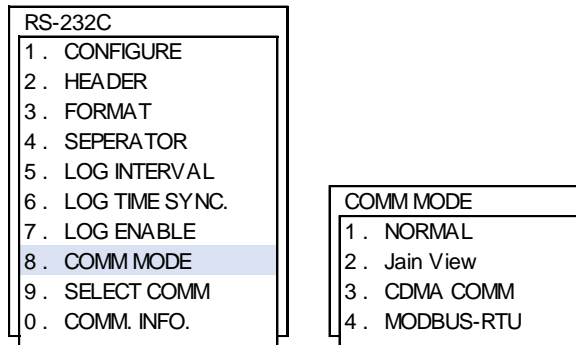
User must enable the function for data logger.

Normal – Default

Jain View

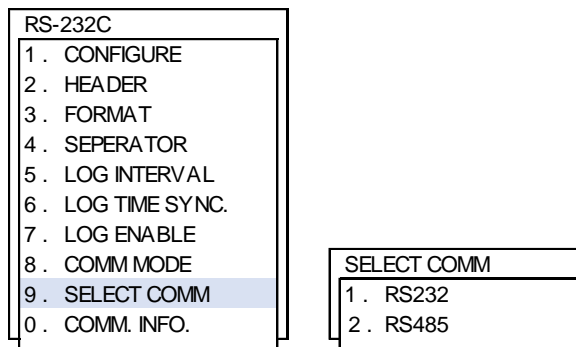
CDMA Comm – CDMA Communication

MODBUS RTU – MODBUS Communication

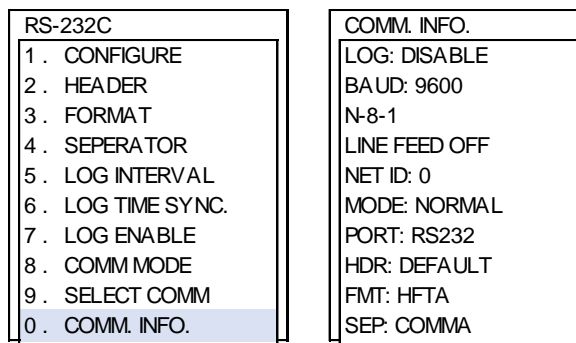


Select Comm

User can use both cable RS-232 and RS-485 to for the communication.



Comm. Info.

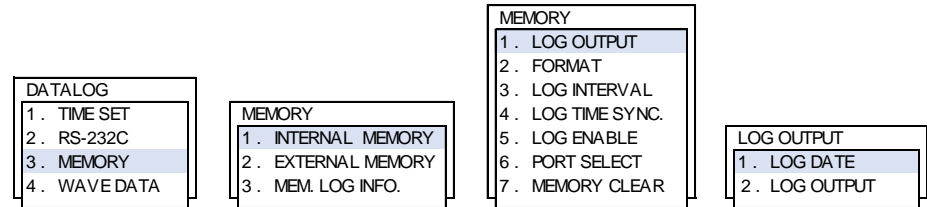


Memory of Datalogger

Internal Memory

User can see the records of First Log and Last Logger.

Log Output



Format

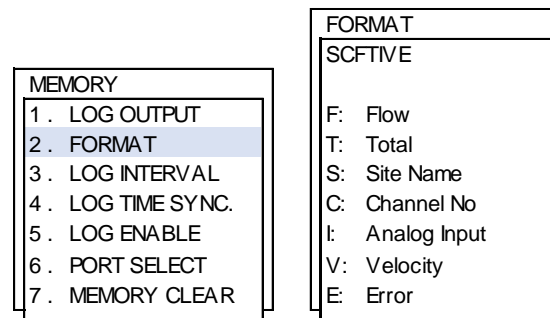
User can add and list the data here so th data will be download sequentially.

Move cursor by [◀] [▶].

Input alphabet characters by [F1].

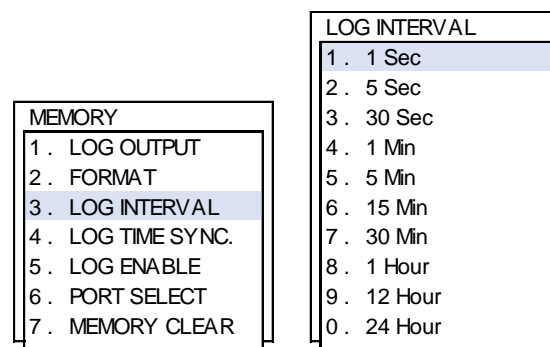
Delete characters by [CLR].

Leave the edit mode by pressing [ENT].

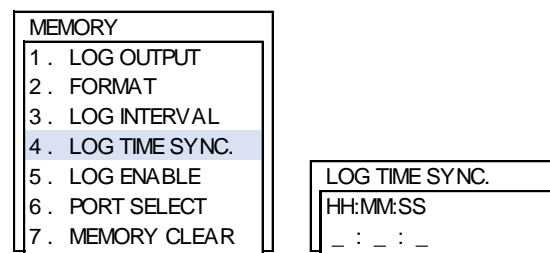


Log Interval

The Log Interval is the measurement period of time which are taken by the transducers. **Caution) If the flow value changes rapidly, then the log interval time needs to be rapidly as well.**

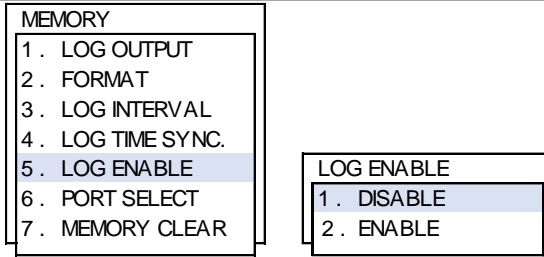


Log Time Sync



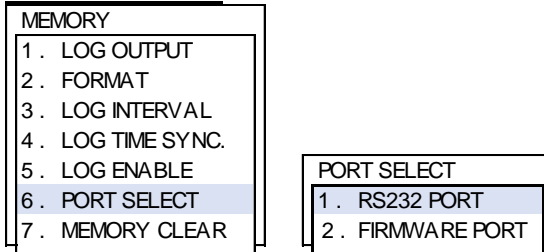
Log Enable

User must enable the function for data logger.

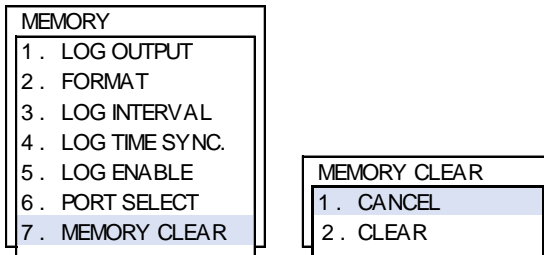


Port Select

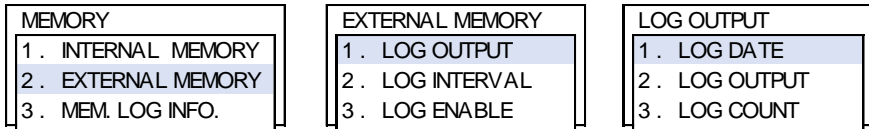
User can use both RS-232 port or Firmware port to connect flowmeter with user's laptops. **Caution) The setting must be correct otherwise use is unable to download the data.**



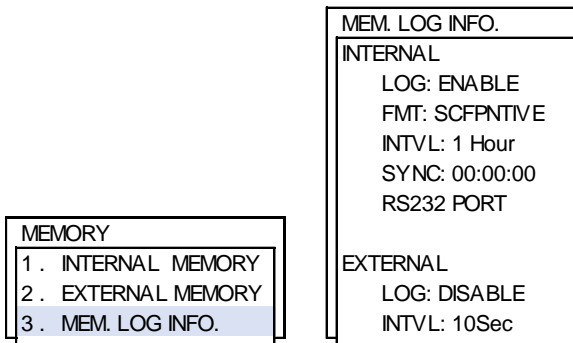
Memory Clear



External Memory

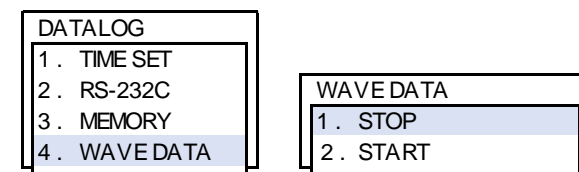


Mem. Log. Info.



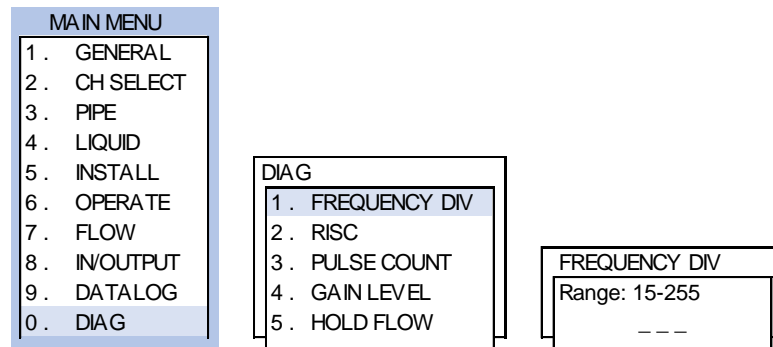
Wave Data

Download the Signal Wave Data.



Section 10. Diagnostics

User can see what happen in flowmeter through diagnostic functions.



FREQUENCY DIV is frequency functions

RISC is distance from impulse signal to receive signal

PULSE COUNT is numbers of pulse. 5 is default.

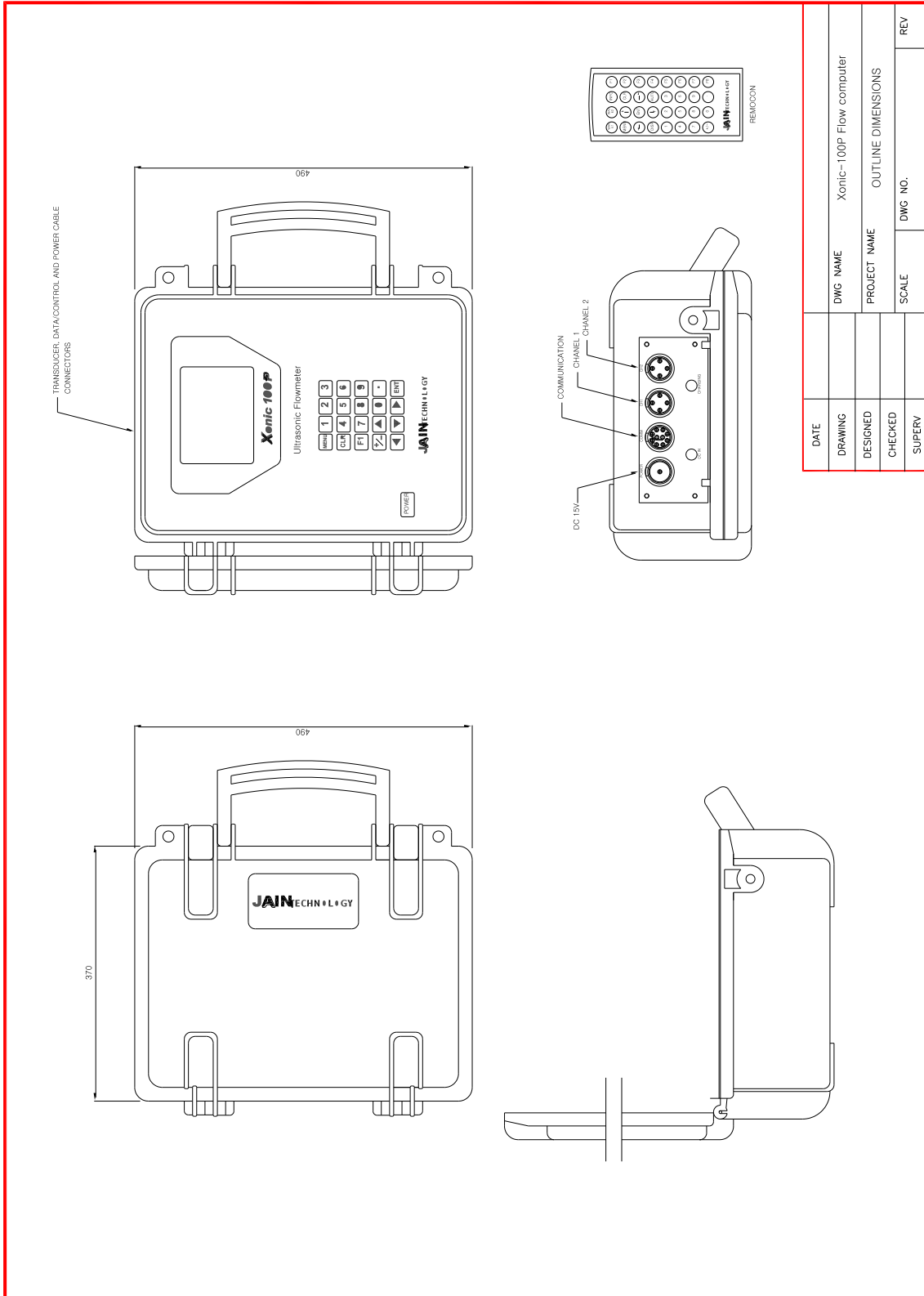
GAIN LEVEL is amplitude level of signal. The number is \ automatically set by flowmeter.

HOLD FLOW is functions to match with remote indicator.

When **HOLD FLOW** is 0, Xonic 100 send 4mA output.

When **HOLD FLOW** is 1000 (max span flow), Xonic 100 send 20mA output.

DRAWINGS

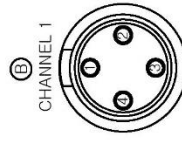


DATE	DWG NAME	Xonic-100P Flow computer
DRAWING	PROJECT NAME	OUTLINE DIMENSIONS
DESIGNED	SCALE	DWG NO.
CHECKED	SUPERY	REV

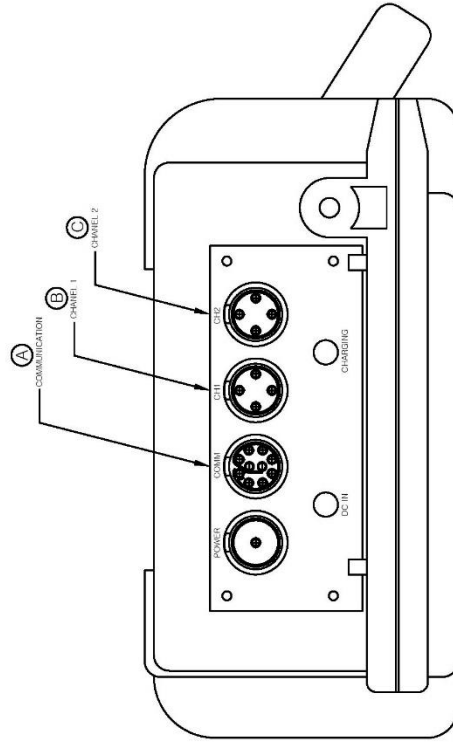
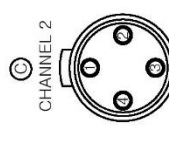
COMMUNICATION	PIN NO#	COLOR	DESCRIPTION
	1	BROWN	FIRMWARE RS232 TX
	2	RED	COMMUNICATION RS232 TX
	3	ORANGE	RELAY 1CH C
	4	YELLOW	FIRMWARE RS232 RX
	5	GREEN	COMMUNICATION RS232 RX
	6	BLUE	ANALOG OUT (+)
	7	VIOLET	ANALOG OUT (-)
	8	GRAY	COMMUNICATION RS232 GND
	9	WHITE	FIRMWARE RS232 GND
	10	BLACK	RELAY 1CH A



CHANNEL 1	PIN NO#	BOARD PIN	DESCRIPTION
	1	BNC 301.4	CH1 UP (+)
	2	BNC 301.2	CH1 UP (-)
	3	BNC 302.4	CH1 DOWN (+)
	4	BNC 302.2	CH1 DOWN (-)

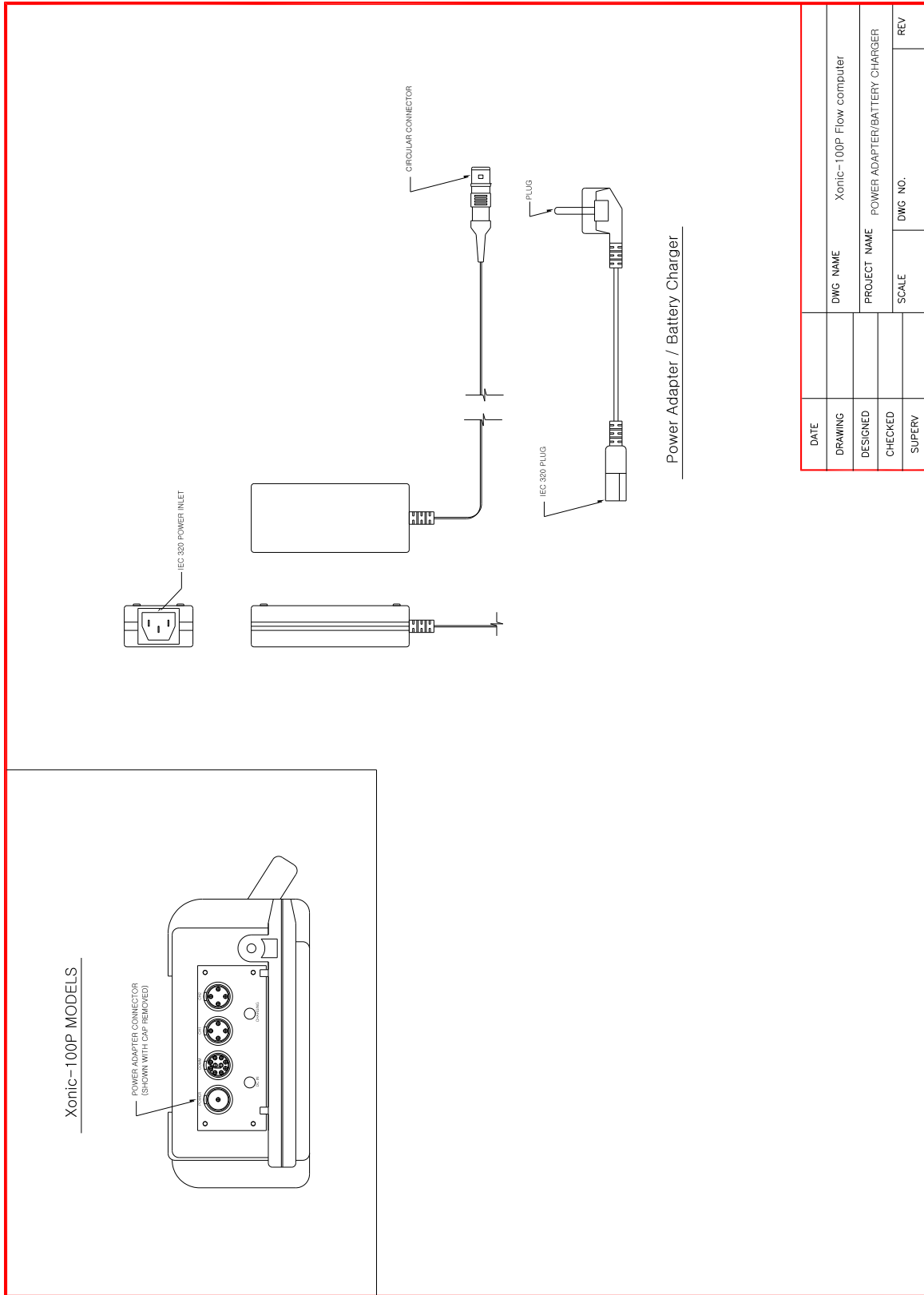


CHANNEL 2	PIN NO#	BOARD PIN	DESCRIPTION
	1	BNC 303.4	CH2 UP (+)
	2	BNC 303.2	CH2 UP (-)
	3	BNC 304.4	CH2 DOWN (+)
	4	BNC 304.2	CH2 DOWN (-)

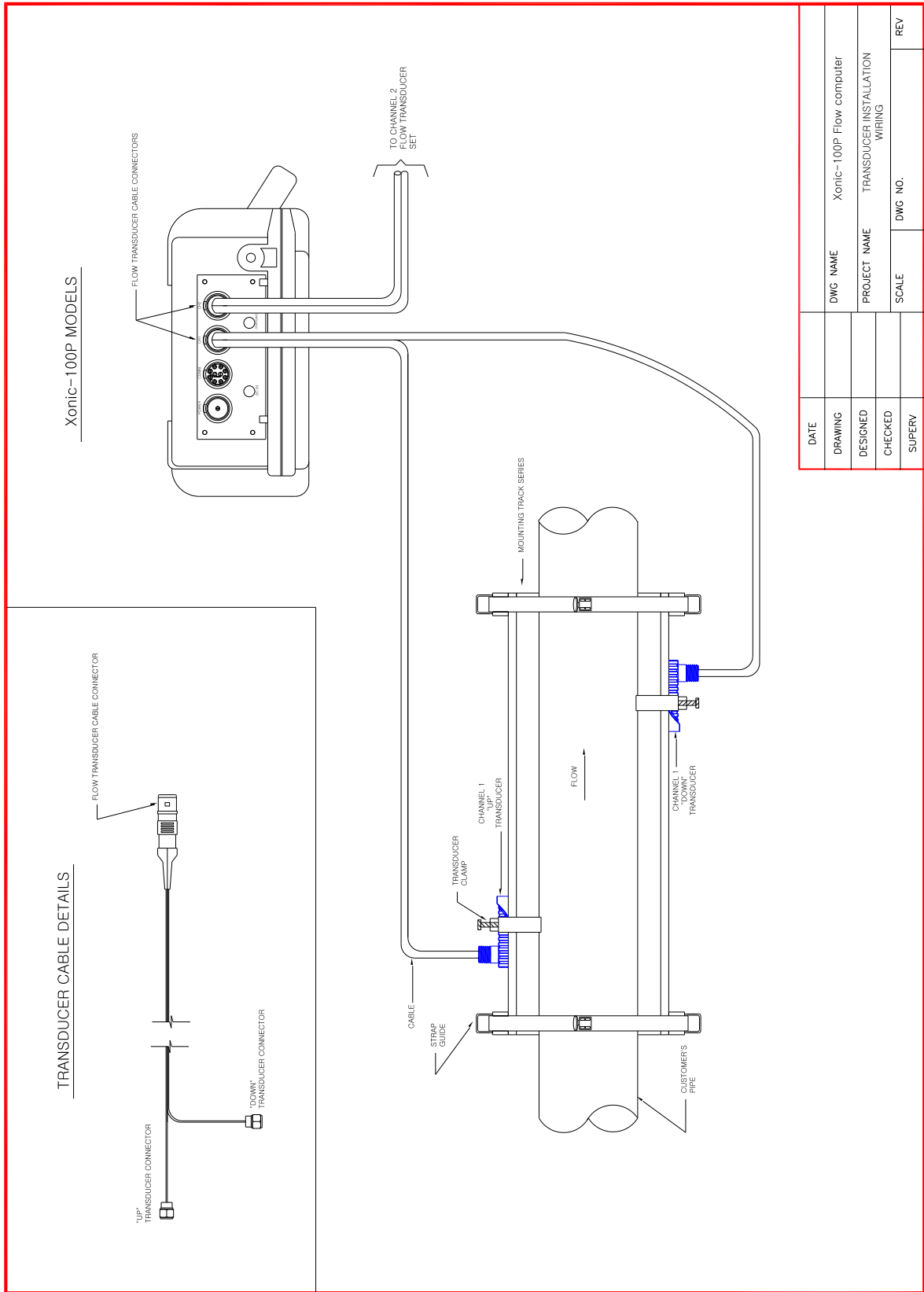


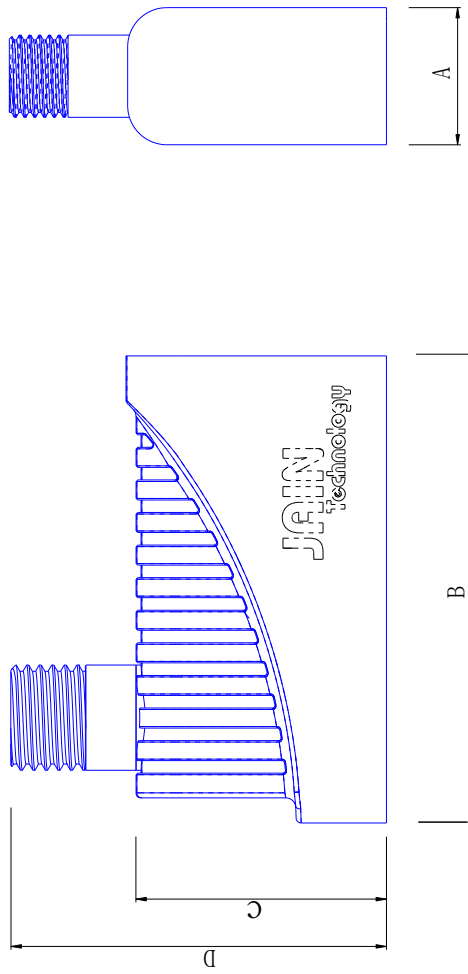
Xonic-100P Flow Computer

No.	①	Part Name	Material	JAINTECHNOLOGY	QTY
		DATE	2020/10/06		
		MATERIAL		INSULATOR	
		TOLERANCE			
		DWG. BY	K.H.S	PROJECT NAME	Xonic-100P
		CHG. BY		PROJECTION	3rd
		APP. BY		UNIT	mm
		REV. 02		SCALE	1:1
		REV. 02		DWG NO.	
		REV. 02			



DATE		DWG NAME	Xonic-100P Flow computer
DRAWING		PROJECT NAME	POWER ADAPTER/BATTERY CHARGER
DESIGNED		SCALE	DWG NO.
CHECKED			REV
SUPERY			





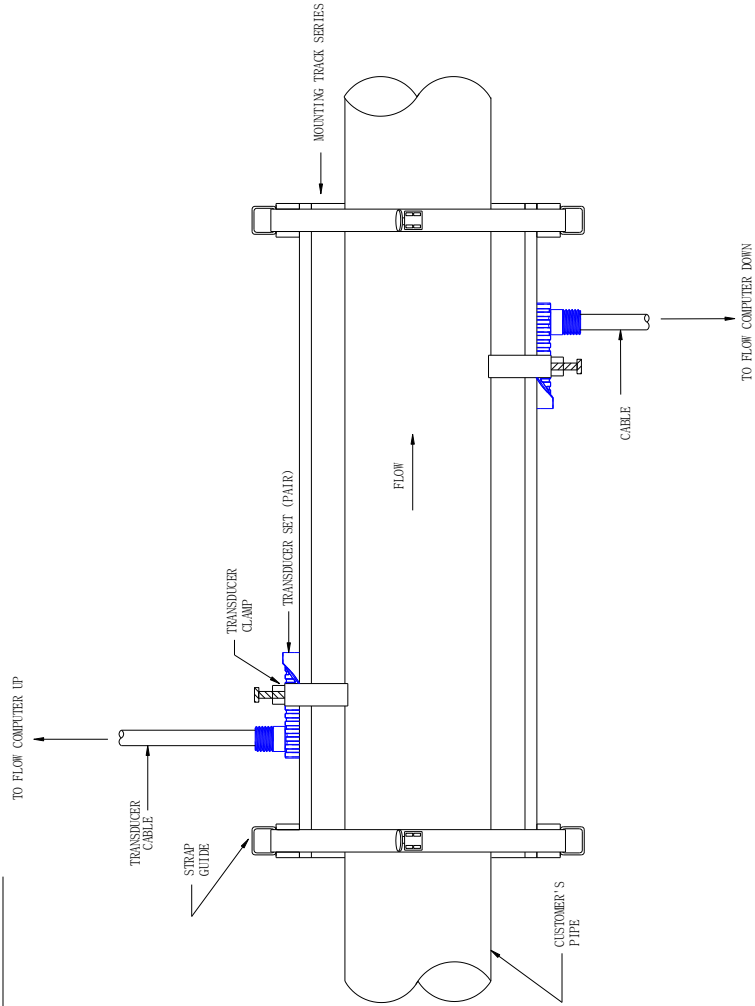
Dimension

단위: mm

P/N	A	B	C	D	측정구이프
LTB	23	42	37	63	15-80
LTC	35	65	40	72	50-250
LTD	35	93	50	86	200-500
LTE	50	145	76	111	500-6000

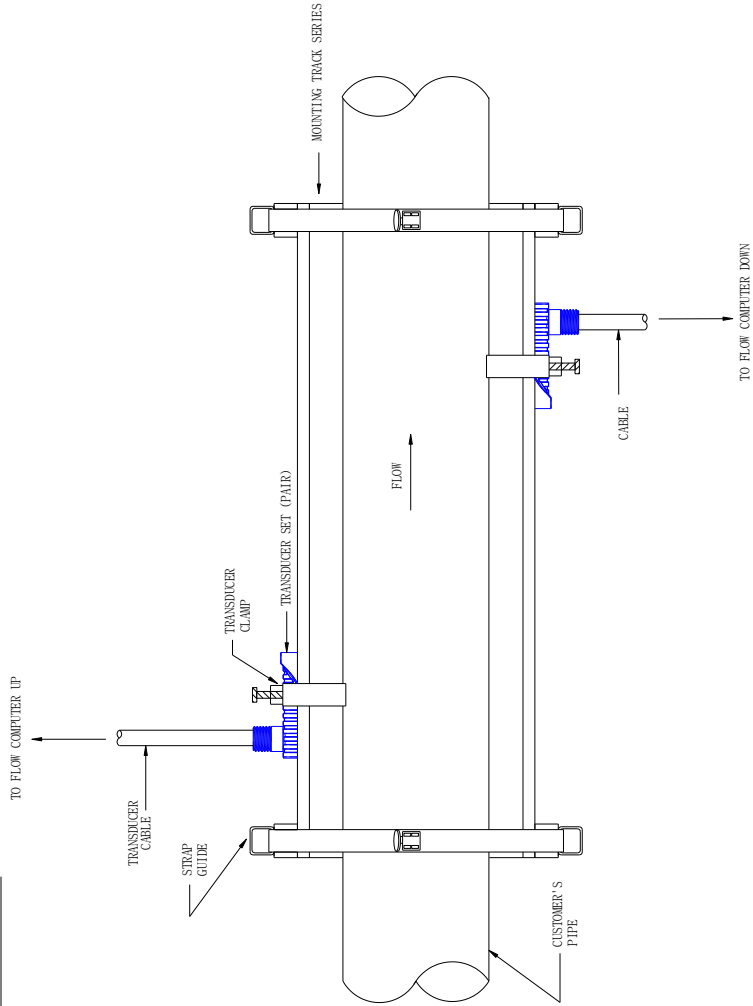
JAINTechnology			
DATE	DWG NAME	Xonic-100 호음파유량계 산시도	
DRAWING	DESIGNED	PROJECT NAME	
CHECKED	SUPERV	SCALE	DWG. NO.
			REV

DIRECT MODE INSTALLATION

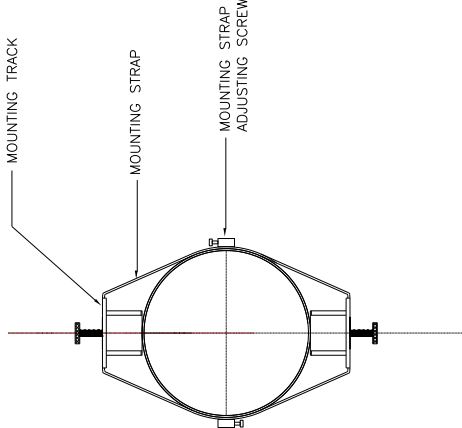
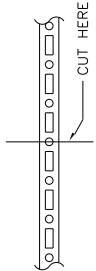
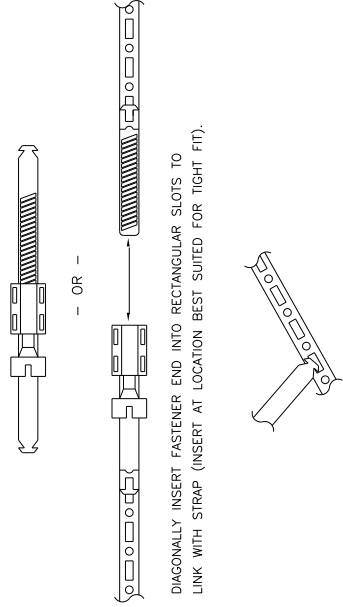
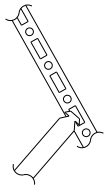


DATE	JAINTECHNOLOGY
DRAWING	TRANSDUCERS INSTALLATION AND MOUNTING TRACKS (DIRECT MODE)
DESIGNED	PROJECT NAME
CHECKED	SCALE
SUPERY	DWG NO.
	REV

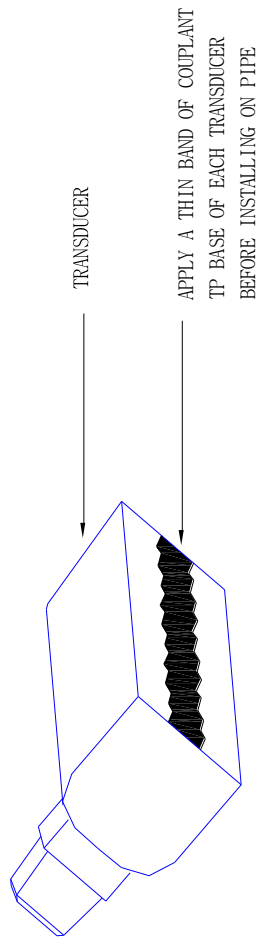
DIRECT MODE INSTALLATION



DATE	JAINTECHNOLOGY	DWG NO.	DWG NO.	REV
DRAWING	TRANSDUCERS INSTALLATION AND MOUNTING TRACKS(DIRECT MODE)			
DESIGNED	PROJECT NAME			
CHECKED	SCALE			
SUPREY				

<p>STEP-1</p> <p>DETERMINE PROPER BAND LENGTH ONE OF TWO WAYS: A) IF DIAMETER IS KNOWN, REFER TO BAND LENGTH TABLE OR CALCULATE MAXIMUM BAND LENGTH $3.14 \times \text{DIA.} + 18"$. TRIM TO FIT WHEN INSTALLING. B) IF DIAMETER IS NOT KNOWN, MEASURE CIRCUMFERENCE WITH STRING, TWINE, etc., AND ADD 18" (TO ENCIRCLE FRAMES). THIS DIMENSION IS APPROXIMATE. TRIM BAND TO FIT WHEN INSTALLING.</p>	
<p>STEP-2</p> <p>MEASURE BAND TO PROPER LENGTH AND CUT THROUGH CENTER OF NEAREST ROUND HOLE WITH SHEARS, SNIPS, HACKSAW etc.</p>	
<p>STEP-3</p> <p>EITHER MATE FASTENER HALVES AND THEN LINK TO STRAP ALREADY IN PLACE AROUND PIPE. OR LINK FASTENER HALVES INDEPENDENTLY TO STRAP ENDS (HOLD IN PLACE WITH TAPE IF NECESSARY) AND ENGAGE FASTENER AFTER WRAPPING STRAP AROUND PIPE.</p>	
<p>STEP-4</p> <p>USING STRAPS MADE TO SIZE REQUIRED, INSTALL MOUNTING TRACKS AND TRANSDUCERS IN ACCORDANCE WITH APPROPRIATE INSTALLATION DRAWING FOR SPECIFIC TRACK ASSEMBLIES.</p>	

DATE		DWG NAME	INSTALLATION / OUTLINE		REV
DRAWING		ADJUSTABLE MOUNTING STRAP			
DESIGNED		PROJECT NAME			
CHECKED		SCALE	DWG NO.	102-S/SF	
SUPERV					



USE OF COUPLANT COMPOUND

DATE		DWG NAME	TRANSDUCERS INSTALLATION COUPLANT
DRAWING		PROJECT NAME	
DESIGNED		SCALE	DWG NO. 102-C
CHECKED			REV
SUPERY			



#710, 55, Digital-ro 33-gil, Guro-gu, Seoul, Korea

TEL. 82-2-856-4114 | FAX. 82-2-856-9503 | www.jain.co.kr