Cover Panel

SINTEK

Energy Meter
Instruction Manual

Version: A
Date: Dec. 2020

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Product warranty

Products have been strictly tested before leaving factory.
If any malfunction occurs, please contact us or our agents immediately and provide details of the malfunction.

Warranty
The warranty is for one full year after the date that product is delivered at the designated place.

Scope of warranty
If any malfunction is caused by within the one-year warranty, we would repair the product free of charge.
The following situations are not covered by the warranty.
• If product is not used properly in accordance to the manual or technical requirements (including unsuitable conditions, unsuitable environment, etc.).
• If the malfunction is caused by purchasers or purchasers' software.
• If product is amended or fixed without permission.

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Setup Menu – Calibration

Press (↑) , Select 2.Calibration, and then (↵) display:

    Calibration
    0.Scale factor
    1.Set zero
    2. Low flow cut

0. Scale factor

    Scale factor
    1.000

Refers to the ratio between "actual value" and "reading value". For example, when the measurement is 2.00, and it is indicated at 1.98 on the instrument, the scale factor reading is 2/1.98. This means that the best scale factor constant is 1.01.

1. Set zero: Press (↓) ; reset "Zero Point" which was set by the user.

    Set zero   Set zero
    Ent To set zero   Waitting...
    Reset zero   SQ 88
                           Vel 0.035 m/s

2. Lowflow cut: Flow rate falls below the low flow cutoff value.

    Low flow cut
    0.030 m/s

The flow indication is driven to zero. This function can prevent the flow meter from reading flow after a pump as shut down but there is still liquid movement in the pipe, which will result in totalization error.
Generally, 0.03m/s is recommended to enter as the low flow cutoff point.
The low flow cutoff value has no relation to the measurement results once the velocity increases over the low flow cutoff value.

3.Manual zero

    Manual Zero
    0.000 m3/h

The seldom used calibration method is suitable for experienced operators to artificially input an offset superimposed on the measured value in order to obtain the true value when other calibration methods cannot be used well.
For example:
Actual measured value =250 m3/h
The offset value =10 m3/h
Meter display =240 m3/h
In general, this value should be set: "0" .

Page 9 (Output)

Setup Menu – Output

Press (↑) , Select 3.Output setting, and then (↵) display:

    Output setting
    0.RS485 Setup
    1.Alarm value

0. RS485 setup

    RS485 Setup
    0.Network addr
    1.RS458 Baudrate

The window used to set serial port. It connection with the equipment of its serial port set of parameters must match.
Move(↑) or (↓) can option baud rate: 2400, 4800, 9600, 19200.
Data length fixed: 8 ;Stop bit for: 1.
Factory serial port parameters for the default "9600, 8, None, 1".

1. Alarm value(Option)

    Alarm value
    0.Low value
    1.High value

Enter the low alarm value; any of the measured flow, which is lower than the low value, will activate the alarm in the OCT hardware or relay output signal.
Enter the high alarm value; any of the measured flow, which is higher than the high value, will activate the alarm in the OCT hardware or relay output signal.

Setup Menu – Energy setting

Press (↑) , Select 4.Energy Setting, and then (↵) display:

    Energy setting
    0.Energy unit
    1.Temp. unit
    2.Flow position

The following options are available (by(↑) or (↓) buttons)
0.Energy unit: Move(↑) or (↓) can option: GJ, MBtu, KWh, MWh.
1. Temp unit: Move(↑) or (↓) can option: C or F
2. Flow position: Move (↑) or (↓) can option: Inlet, Outlet
3. DT sensitivity: Move (↑) or (↓), You can change the value
4. RTD Calib: Temperature sensor calibration

    RTD Caliration   T1 K factor   T2 K factor
    0.T1 K factor   0.998   0.998
    1.T2 K factor

Page (History Data)

Setup Menu – History Data

Press (↑) , Select 5.History Data, and then (↵) display:

    Date history
    0.By Day
    1.By Month
    2.By Year

0. By Day
Diaplay: Daily heat totalizer (EHD), Daily cold totalizer(ECD),
Daily Flow totalizer (ETD)

    Day   00-20-08-18
    EHD   3.188
    ECD   6.889 KWh
    FTD   6.866   m3

1. By Month
Display: Monthly heat totalizer (EHM), Monthkt cold totalizer(ECM),
Monthly Flow totalizer (ETM)

    Month 00-20-08-18
    EHM   9.188
    ECM   9.889   KWh
   FTM   9.866   m3

2. By Year
Display: Year heat totalizer(EHM), Year cold totalizer(ECM),
Year Flow totalizer (ETM)

    Year   00-20-08-18
    EHY   88.196
    ECY   96.889 KWh
    FTY   89.866   m3

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Dimensions

Model	DN	OD size	A (mm) Max	B (mm)	C (mm)
- 9.53	DN6	9.5-12	60	58	106
- 12.7	DN8	12-14	60	58	106
- 15	DN10	14-17	60	58	106
- 20	DN15	17-20	66	58	106
- 25	DN20	22-28	66	58	106
- 32	DN25	30-35	71	58	106
- 40	DN32	38-45	81	68	106
- 50	DN50	48-54	90	78	106
- 63	DN50	58-68	106	91	130
- 75	DN65	68-78	119	105	136
- 90	DN80	88-96	134	119	150
- 110	DN100	108-116	157	143	174

Page 1
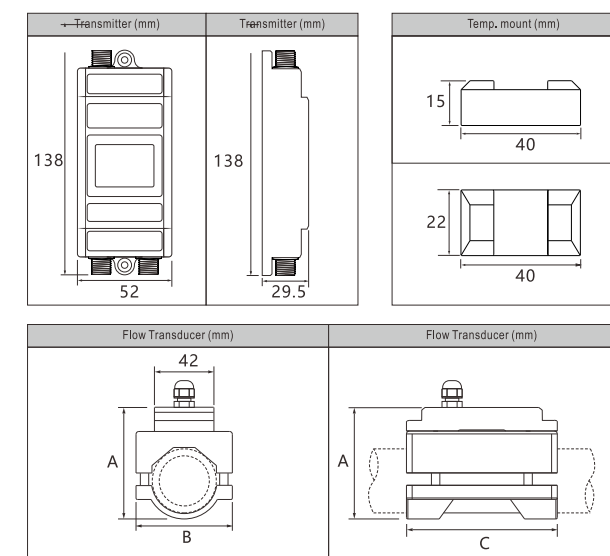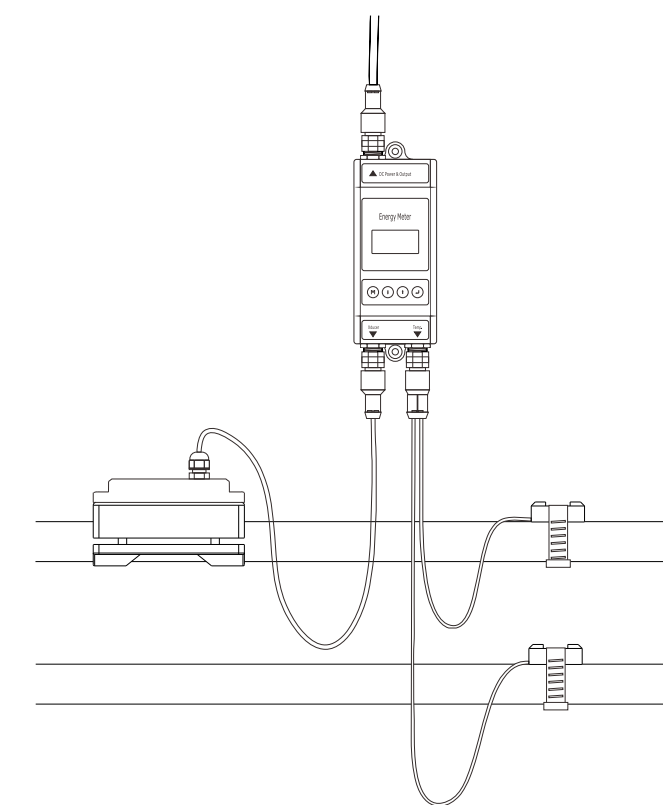
Notice

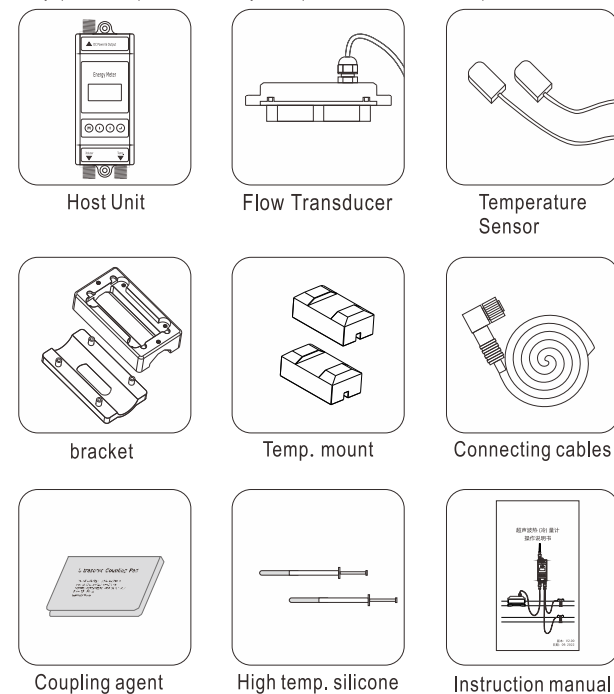Thank you for choosing Energy Meter.

This instruction manual contains the important using and operation information of the flow meter. Please read carefully the reference manual before operation to make your flow meter exert the best performance.

If you make a mistake there will be affected the meter's working and reduce the meter's life or cause some malfunctions.

Product component

Inspection should be made before installing the Flow meter. Check to see if the spare parts are in accordance with the packing list. Make sure that there is no potential damage to the enclosure due to a loose screw or loose wire, which occurred during transportation.
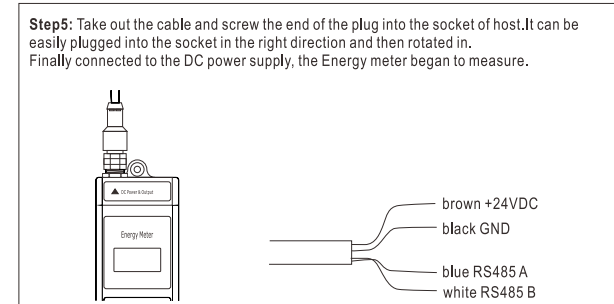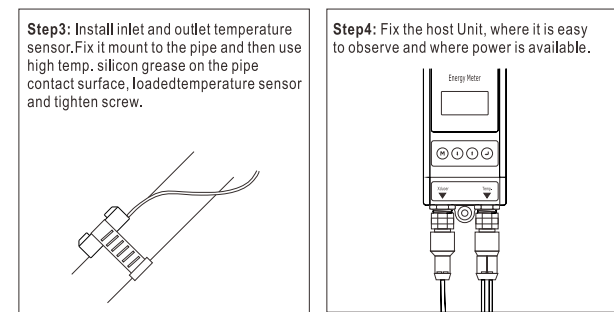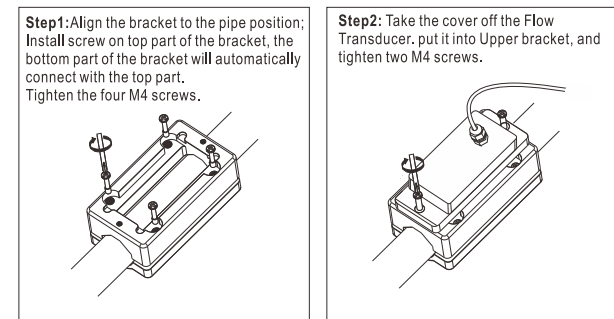Any questions, please contact your representative as soon as possible.

Host Unit   Flow Transducer   Temperature Sensor

bracket   Temp. mount   Connecting cables

Coupling agent   High temp. silicone   Instruction manual

Page 2
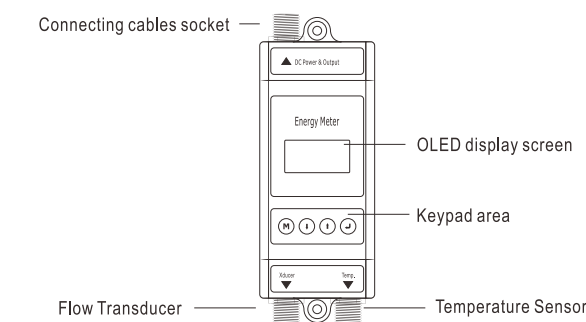
host Installation and connect

host need to install flow sensor and temperature sensor, clean the pipeline before installation.
Make sure no dirt, paint, or other stains on the surface of the tube. Then put the bottom parts on the side of the pipe.

Step1: Align the bracket to the pipe position; Install screw on top part of the bracket, the bottom part of the bracket will automatically connect with the top part. Tighten the four M4 screws.

Step2: Take the cover off the Flow Transducer, put it into Upper bracket, and tighten two M4 screws.

Step3: Install inlet and outlet temperature sensor,Fix it mount to the pipe and then use high temp. silicon grease on the pipe contact surface, loadedtemperature sensor and tighten screw.

Step4: Fix the host Unit, where it is easy to observe and where power is available.

Step5: Take out the cable and screw the end of the plug into the socket of host host,It can be easily plugged into the socket in the right direction and then rotated in. Finally connected to the DC power supply, the Energy meter began to measure.

    brown +24VDC
    black GND
    blue RS485 A
    white RS485 B

When the host is installed, the Energy meter is wired.
Connect the DC power and RS485 output.

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Panel function

Connecting cables socket
OLED display screen
Keypad area
Flow Transducer   Temperature Sensor

Powering on

As soon as the host Energy meter is switched on, the self-diagnosis program will start to run.

    SQ 88   12:30:29
    Eq 135.28   GJ/H
   EH 335.66   GJ
    EC 35487.53   GJ

Signal Quality (SQ value)

SQ value is short for Signal Quality. It indicates the level of the signal detected.
SQ value is indicated by numbers from 0~99 represents the minimum signal detected while 99 represent the maximum.

Normally, the transducer position should be adjusted repeatedly and coupling compound should be checked frequently until the signal quality detected is as strong as possible.

Keypad Functions

Follow these guidelines when using the Flow meter keypad:
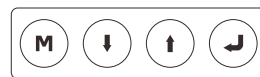
(M) Setting or display mode, when it is setting mode, that can return to the previous menu, (↓) and (↑) scroll up and down to select the menu, when press (↑) move to next digit, press (↑) and the numbers scroll from 0 to 9, you can select the number.
Press(↵) to confirm.

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Window descriptions

Display Menu

■ When the power on, the meter will display Velocity/Net Totalize.

    SQ 88   12:30:29
    Eq 135.28   GJ/H
    EH 335.66   GJ
    EC 35487.53   GJ

Display signal quality (SQ), time, heat power (Eq), heat totalizer (EH), cold totalizer (EC)

■ Press (↑) will display T1, T2, delta T, press (↑) will return to previous menu.

    19-06-22   12:30:29
    T1   11.38   C
    T2   5.55   C
    DT   5.832   K

Display date, time, outlet temp. (T1), inlet temp. (T2), Delta temp. (DT)

■ Press (↑) will display Eq, EH, press (↑) will return to previous menu.

    SQ 88   12:30:29
    12.933   GJ/H
    EH 354.53   GJ

Display signal quality (SQ), time, Heat power (GJ/h), Heat totalizer (EH)

■ Press (↑) will display Eq, EC, press (↑) will return to previous menu.

    SQ 88   12:30:29
    95.651   GJ/H
    EC 354.53   GJ

Display signal quality (SQ), time, heat power (Eq), cold totalizer (EC)

■ Press (↑) will display Flow rate, Net totalizer, press (↑) will return to previous menu.

    SQ 88   12:30:29
    11.651   m3/h
    Net 354.53   m3

Display signal quality (SQ), time, flow rate, Net totalizer

■ Press (↑) will display the Unit runtime, press (↑) will return to previous menu.

    Runtime   23 h
    EHM   5.543   Kwh
    ECM   7.248   Kwh
    ETM   9.539   m3

Display Unit runtime, monthly heat totalizer (EHM), monthly energy totalizer (ECM), monthly flow totalizer (ETM)

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Setup Menu

Press (M) will display Setup menu.

    Setup menu
    0.Pipe parameter
    1.System setting
    2.Calibration

The following options are available (by (↑) or (↓) buttons)
0. Pipe parameter
1. System setting
2. Calibration
3. Output setting
4. Energy setting
5. History Data

Setup Menu – Pipe parameter

Press (↑) , Select 0.Pipe parameter, then (↵) display:

    Pipe parameter
    0.Outer diameter
    1.Wall thickness
    2.Material

The following options are available (by (↑) or (↓) buttons)
0. Outer diameter
1. Wall thickness
2. Material: Move (↑) or (↓) can option PVC, Carbon steel, Steel, Copper pipe.
3. Fluid type: Move (↑) or (↓) can option Water, Sea Water, Oil…etc.

Setup Menu – System setting

Press (↑) , Select 1.System setting, then (↵) display:

    System setting
    0.System Unit
    1.Flow rate unit
    2.Total unit

The following options are available (by (↑) or (↓) buttons)
0. System unit : Move (↑) or (↓) can option Metric, English.
1. Flow rate unit : Move (↑) or (↓) can option m3h, LPM, GPM.
2. Total unit : Move (↑) or (↓) can m3, L, GAL.
3. Totalize RESET : All parameters are reset, Press (↵) , move (↑) or (↑) arrow to select "YES" or "NO". After "YES" is selected.

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4. Time set

    yy-mm-dd hh:mm
    19-06-20 12:30

Generally, it is unnecessary to modify date time as the system is provided with a highly reliable perpetual calendar chip.

5. System lock

    System lock   System lock   ENT key word   System lock
    System unlocked   ENT to lock   0000   System locked OK

    System lock   System lock   ENT key word   System lock
    System locked   ENT to unlock   0000   System unlockd OK

Once the system is locked, any modifications to the system are prohibited, but the parameter is readable. "Unlock" using your designated password.
The password is composed of 1 to 4 numbers.

6. System INFO

    System INFO   Manual Totalizer   Manual Totalizar   Manual Totalizer
    Engery meter   ENT To Start   ENT To Stop   ENT TO Restart
    SN:E0001356   SQ 88 1.056L   1.239 m3/h   1.239 m3/h
    V1.02   SQ 88 1.056L   SQ 88 1.056L

System INFO: Display serial number (SN) of the meter. This SN is the only one assigned to each flow meter ready to leave the factory.
The factory uses it for files setup and for management by the user.
Set zero: Press (↓) ; reset "Zero Point" which was set by the user.
Manual Totalizer: The manual totalize is a separate totalize,Press(↵) to start, and press(↵) to stop it. It is used for flow measurement and calculation.

7. Display dir

    Display dir
    0.Normal
    1.Inversion

Can choose the direction of display, convenient to observe the measurement data.