

# Portable flow meter

## FM-210V10

When you purchase this portable flow meter, you are taking a step forward in the field of precision measurement. This table is a computer - based testing tool, which can be used for many years if handled properly. Please read this manual carefully and keep it in an accessible place before using.

LCD: LIQUID crystal display

Measurement method: pole positioning measurement.

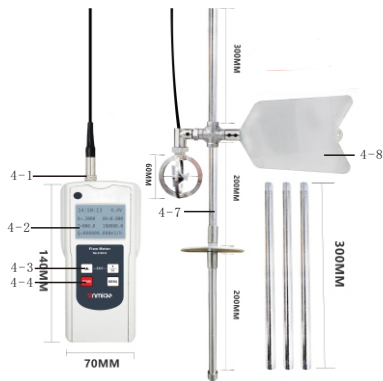
Temperature range: -10°C-50°C

Power :4x1.5vAAA Um-4 Battery

Backlight: LED backlight

Host size: 70mm\*140mm\*30mm

### 4、Instruments that



### 1、overview

FM - 210V10 portable flow rate meter (hereinafter referred to as portable flow meter) is designed for hydrological stations, factories and mines, environmental protection monitoring station, farmland irrigation and drainage, hydrogeology survey and other departments in the field of velocity of flow in open channel flow

The flow meter is equipped with Hall velocity rotation sensor, which can measure the polluted water flow

4-1: sensor cable

4-2: display screen

4-3: UP key

4-4: On/off button

4-5: Right/Start and Stop keys

4-6: Menu keys

4-7: Screw rod 4-8: Helical blade

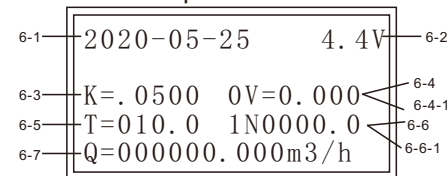
### 5、accessories

Standard: speedometer, probe rod paddle, signal line, package

Packing boxes and instructions

Optional: extension rod

### 6、Panel description



### 2、functional

\*Can be tested in sewage environment

\*Simple structure, light and convenient,

\* Power consumption, complete functions,

\* High degree of automation, stable and reliable,

\* In line with the national high temperature rotary slurry, is a new type of portable velocity measurement instrument.

6-1: date

6-2: battery voltage

6-3: blade hydraulic pitch

6-4: Automatic test interval time

6-4-1: V= Display flow rate

6-5: Automatic measuring time

6-6: 0=self-action

1 = manual operation

6-6-1: N- Shock pulse number

6-7: Instantaneous flow

### 7、test principle

The instrument is based on the principle of velocity area method of open channel flow measurement

Design, the flow rate can be measured  $Q=V \bullet S$  (S is broken Surface area)

1. Flow velocity measurement:

functions,

\* High degree of automation, stable and reliable,

\* In line with the national high temperature rotary slurry, is a new type of portable velocity measurement instrument.

### 3、Technical parameters

formula:  $V = \frac{KN}{T} + C(m/s)$  (automatic computer)

linstrument: K:0.0500、C0.0100

Speed range: FM-210V10 (0.01-10.00 m/s)

Current measurement error :≤1. 5%

External power supply: 5V

When measuring flow velocity, the flow velocity of rotary rotor is driven by water power

Instrument rotation, built-in signal device to generate revolution signal, By the following formula

Calculated flow rate:

$$V = \frac{KN}{T} + C(m/s)$$

Formula: V: Average flow velocity in flow measurement period (m/s)

K: blade hydraulic pitch C: current meter constant

T: flow measurement duration (unit: S) N: T period

The signal number

When the instrument is used, K, C are constant, flow measurement  
As long as T and N are measured, the flow rate can be calculated.

## 2. Flow calculation:

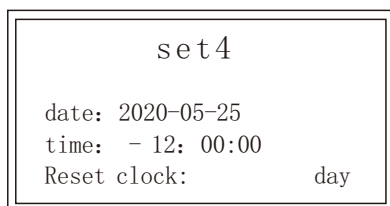
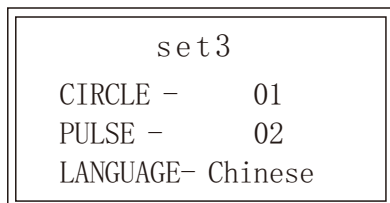
Flow measurement According to the flow rate area method of open channel flow measurement, the flow rate is measured first and then multiplied by the area of the fault

## 8、operation instructions

### 8-1 Parameter setting operations:

8-1.1 Parameter setting 1: Check whether the display screen is consistent with the current meter parameters. If not, press the MENU

Quantity, when the need to measure the output according to the section area: the unit is square meters can be set after the flow of the cross-sectional area, the formula  $Q=V \bullet S$  (S is the section Area)

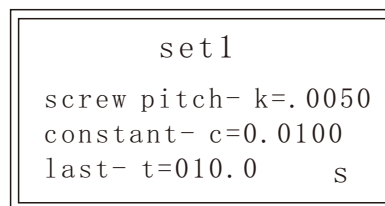


key to enter Setting 1, and modify the display screen by right move and up move. For example, if C is 0.0100, move the cursor to C=.0000 and press Press the move up key, add 1 for each press, and press it repeatedly until the value of the number at which the cursor is located is consistent with the required value, that is, C=0. 0100. The method of modifying K value and measuring time T is the same as above: first press the right shift key to shift, then press the up shift key to add, until it is correct. Repeat the above operation if you press the wrong button.

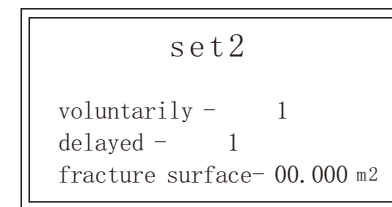
The measurement data  
After setting parameters correctly, press "Move right keyboard + Move up" at the same time to save parameters and return to the measurement state; Enter the measurement state, the display is as shown in the figure: If automatic measurement, after each measurement, the instrument will automatically calculate the flow rate value according to the male and display  $1V= 0.000m /S$ . After fixed display for 3-5 seconds, the automatic measurement will be repeated, but the flow rate value will

In the display screen, input K and C coefficients according to the parameters of the specification  
Input :T indicates the measurement time unit of automatic measurement in seconds

8-1.2 Press the menu key to enter Setting 2



remain displayed until the end of the next measurement. If manual measurement, after each measurement, after reading the number, press the start and stop button once, you can carry out the next measurement. Measurement, when the first signal coming, visible from the display timing starts to time T, N began to count, when time T arrived at the set time, to receive a signal, the instrument automatically shut down T, N, and automatically calculate the velocity V, to show delay 3-5 seconds, the instrument automatically start next time flow, repeat the above process, In this measurement, the V value on the display is the last flow rate value for easy reference and recording.



On the LCD, 0 indicates automatic measurement, and 0 indicates automatic measurement. If manual measurement is required, set this symbol to 1. Measurement interface, 3 seconds after the start of processing automatic measurement. If automatic measurement, the instrument will automatically repeat the measurement times (interval time

repeat the above process, In this measurement, the V value on the display is the last flow rate value for easy reference and recording.

## 9、instrument maintenance

After each use, rinse the current meter and rod with water, dry them with towel and store them.

## 10、Matters needing attention

1. Pay attention to the polarity of the battery. Alkaline battery is recommended.
2. Do not mix old and new batteries, different brands of batteries;
3. If the meter is not applicable within 7 days, take out the battery to avoid battery discharge and liquid leakage.
4. Battery leakage damages the instrument, which is not covered by warranty;