

# STS Prepaid Water Meter

## User's Manual

### DN15-25



## I .Overview

The water meter supports STS prepaid protocol, and can send Token to STS table through CIU, infrared unit or table end keyboard to realize prepaid recharge, switch valve and other functions. At the same time, the concentrator supports LORA wireless AD hoc network function between the meter and the meter, and the network level can be up to 3 levels, which greatly improves the receiving sensitivity. The water meter has the characteristics of accurate charging, easy use and efficient management.

## II .Characteristics

Ladder water price can be set (no less than 10 ladder), can store 50 TID for easy query, monthly water consumption data can be stored and recorded for 10 years, with holiday water consumption, overdraft, insufficient balance alarm, valve control, Token code can reset water meter and other functions;

CIU uses LoRa wireless to issue Token codes, and the communication distance in residential areas is not less than 300 meters. CIU and STS water meter can be paired one-to-one or changed. LCD function display, convenient for users to read the water meter data and recharge information.

## III.Electrical parameters of table end

- Working frequency: 868MHz frequency band, up and down can float  $\pm 10\text{MHz}$ .2, modulation mode: LoRa linear frequency modulation.

- Power consumption: static average current < 30uA, maximum power consumption < 2mA when reading meters (using ER26500 Li-ion battery a day meter reading life is not less than 10 years).
- Power supply voltage: 3.0V ~ 3.6V.
- LoRa communication distance: not less than 1000 meters transmission distance (open land), residential communication distance is not less than 300 meters.
- Electrical part operating temperature: -40°C ~ 85°C.
- Electrical part working humidity: 10% ~ 90%.7, valve switch timeout wait: 20 seconds.
- Valve blocking current:  $\geq 260\text{mA}$ .
- Valve instantaneous maximum driving current: > 800mA.10, pulse sampling period: 0.25 seconds.

## IV. Communication mode

1. Infrared communication: with infrared transceiver unit, the use of infrared serial tool to read and write the watch.

2. Handheld communication: special mobile phone software with LoRa antenna module to read and write the table.

3. STS CIU Communication:

3.1. The remote control sends short code instructions to read and write the water meter.

3.2. Send the token code and receive the return information.

4. LoRa concentrator communication: through the server to the table token code

delivery, the specified table read and write data.

## V. Basic application function

1.No magnetic/reluctance metering, use the command to switch.

2.The number of stairs can be set not less than 10.

3.Through the communication tool, the meter can be initialized (reset the meter), and the meter serial number, meter base number, working frequency point, network ID, recharge water, ladder water, overdraft, alarm information, storage amount, holiday water, flow information, valve control, pulse equivalent, date flipping, manufacturing or maintenance TID can be read and written.

4.Monthly water data (date, cumulative consumption, alarm information) can be stored for 10 years.

5.Sound alarm function: once the alarm function is triggered, the table body itself will issue an alarm sound.

6.The table has reserved upgrade port, can do firmware upgrade.

## VI. Alarm function

- Battery voltage alarm: When the voltage is lower than 3V, the low-voltage alarm function is triggered.
- Magnetic attack alarm: When the water meter senses that the magnetic induction intensity has affected the collection and measurement, the magnetic attack alarm is triggered.

- Anti-disassembly alarm: magnetic suction alarm function is adopted. When the magnetic field change is detected when the disassembly occurs, the alarm function is triggered.
- Insufficient Balance alarm: When the water consumption exceeds the set balance, the alarm is triggered.
- Overdraft alarm: An alarm is triggered when the water consumption exceeds the preset overdraft.
- Flow alarm: when the continuous water consumption for more than 24 hours, automatic alarm; Alarm when the maximum daily dosage exceeds the set dosage; Alarm when there is continuous reverse traffic.

## VII. Display function (LCD display)

1. Valve status indication: show the open and closed state of the valve.
2. Battery power indication: percentage is used to indicate battery power.
3. Communication indication: When the water meter is in communication state, the connection is indicated.
4. Anti-demolition indication: light the icon when the anti-demolition alarm is triggered.
5. Magnetic Attack indication: light the icon when the magnetic attack alarm is triggered.
6. Low allowance indicator: light the icon when the water consumption is greater than the set balance offline.
7. When the input error, magnetic attack, anti-disassembly, low voltage alarm has the corresponding fault code indication.
8. LCD real-time display of the current state of the water meter (communication,

connection state, waiting state, often display state).

10.regular display status: table serial number, remaining water, last recharge amount, total purchase, cumulative amount of display.

9.When entering the token code, the displays such as water meter receiving or rejecting, key expiration, input timeout, used, and overflow meet the requirements of STS531-4, STS531-5-0, and STS531-6-1-07 authentication files.

11.It can read and display the frequency of water meter, network ID, KEN (secret key expiration number), KT (secret key type), EA (decryption algorithm), T1 (rate number), version number, date and time.