

Rhino Smart Water Meter/ Rhino Leak Defense

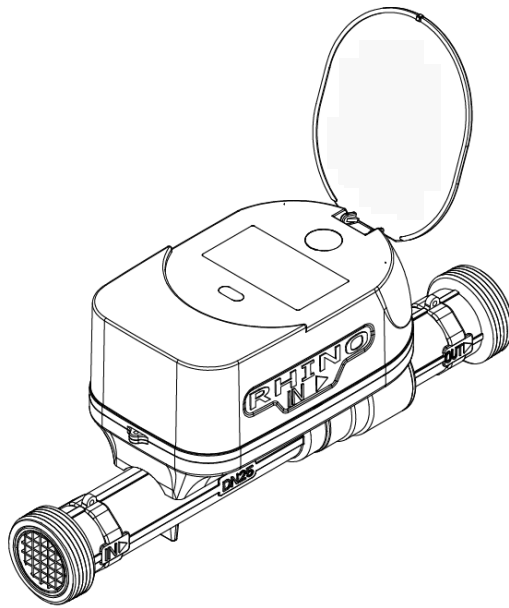


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1. Overview

The Rhino Smart Water Meter/Rhino Leak Defense is a high-precision intelligent instrument integrating ultrasonic flow measurement, valve control, data collection and processing, data communication, and leakage monitoring.

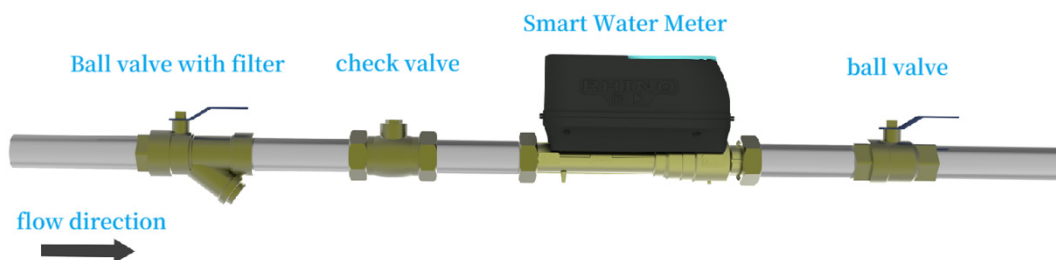
It is widely used in residential, commercial, and industrial water supply systems for accurate metering, energy-saving control, remote monitoring, and intelligent management.

2. Main Functions and Features

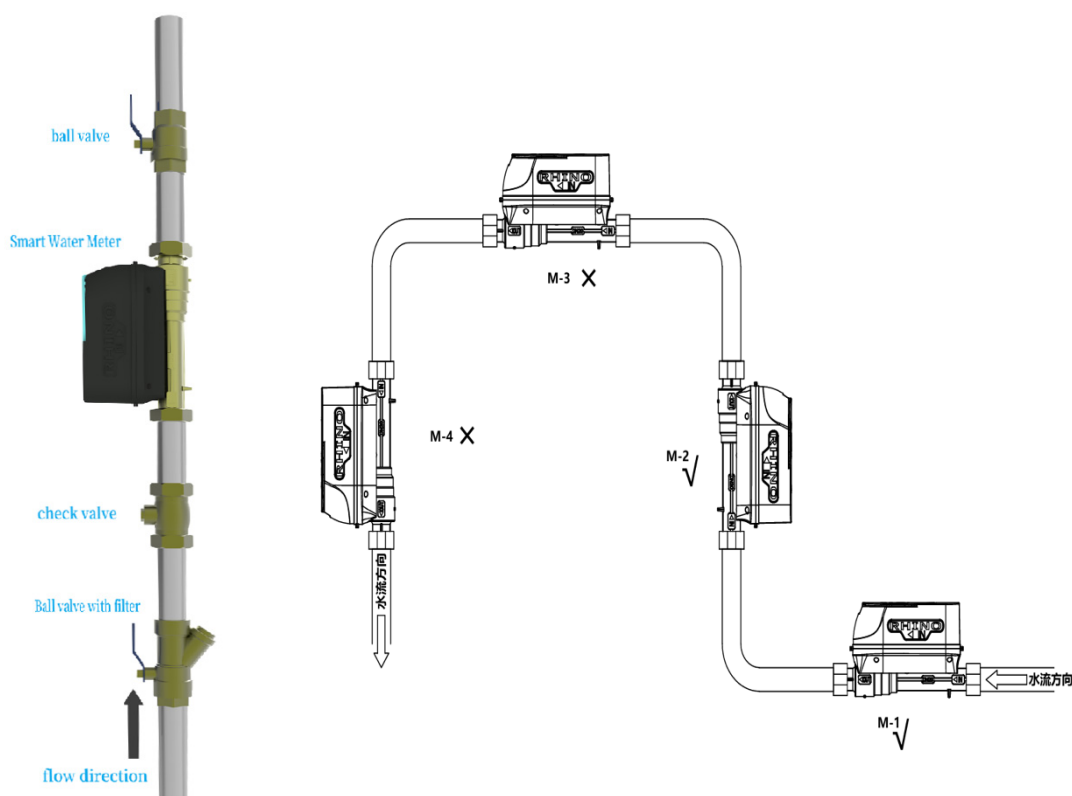
- Multiple menu interfaces: main interface, detection interface, data interface, error interface, and Wi-Fi interface.
- Displays forward/reverse accumulated flow, flow rate, water temperature, pressure, operating time, address, date, diameter, battery voltage, valve status, and alarms.
- One-button manual valve control; supports manual, automatic, and remote operation.
- Real-time monitoring of temperature and pressure during flow measurement.
- Self-diagnostic function with alarms for leakage, pipe burst, and low pressure.
- Data storage: supports at least 24 months and the latest 31 days of historical data.
- Supports remote meter reading, valve control, data statistics, status inquiry, temperature and pressure monitoring.

3. Installation

(1). Installation Methods



Horizontal installation



Vertical installation

Installation location

(2) Installation Requirements

1. Handle with care. Do not pull the meter head or cables.
2. Install in a dry and easily accessible location for maintenance.
3. Use dedicated installation tools.
4. Ensure flow direction matches the arrow on the meter body.
5. Install a filter, valve, and check valve upstream to avoid pulsation and turbulence.
6. Installation position:
 - M-1 and M-2: Correct installation (horizontal and vertical).
 - M-3 and M-4: Incorrect installation (may cause air accumulation or

cavitation).

7. Ensure sufficient straight pipe length upstream and downstream.
8. Keep pipeline direction as horizontal as possible.
9. When installed vertically in multiple floors, install partitions between meters.
10. Horizontal installation is recommended.
11. Install in a locked meter box to prevent damage.
12. Battery replacement must be done by professionals.

(3) Precautions

1. Avoid environments with mechanical wear or chemical corrosion.
2. Avoid strong vibration and electromagnetic interference.
3. For wireless meters, ensure good signal coverage; use external antennas in metal boxes or manholes.
4. Clean pipelines before installation.
5. During the installation of system pipes, fittings, and instruments, never use “hemp fiber” as a sealant for pipe thread connections. When tightening screws, the hemp fiber can be severed by the threads, and the broken fragments carried by water flow through the instruments can easily cause blockages.
6. Perform pressure testing after installation.
7. Read this manual carefully before installation.

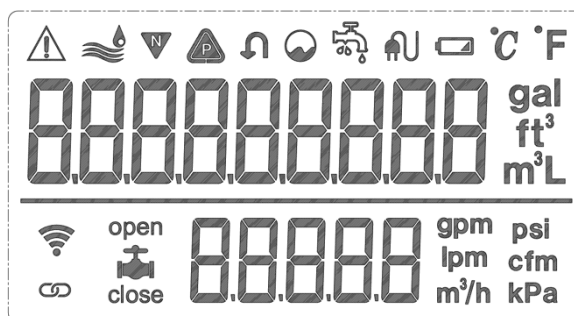
4. Indicator Components



No.	Name	Function
1	Manual Switch	Open/close valve manually
2	LCD Display	Shows real-time data and settings
3	Touch Button	Page turning and operation
4	Infrared Port	Optical data communication
5	Communication Cable	Wired communication

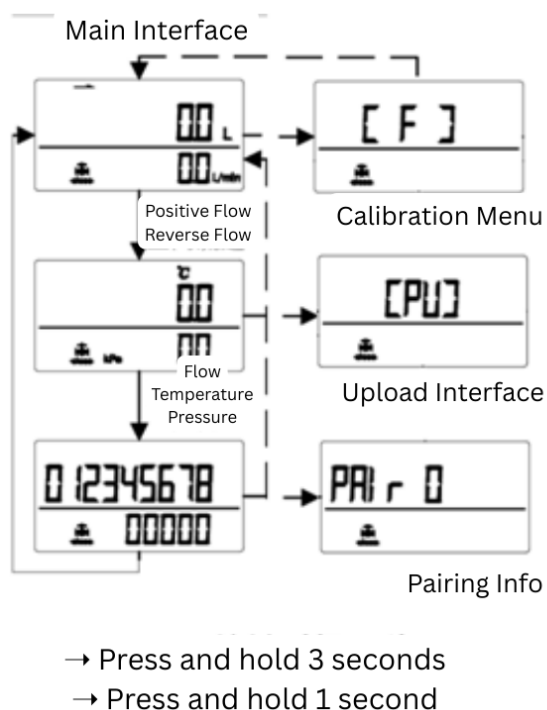
6	Power Socket	Connect external 5V DC power
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5. LCD Display Icons



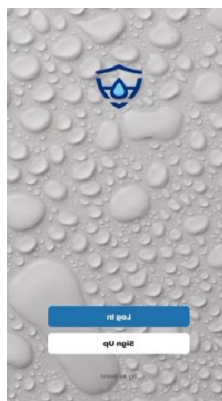
	Fault Alarm		Water Flowing
	Reverse Flow		Forward Flow
	Over-Flow Alarm		Backflow
	Empty Pipe/Air Bubble		Water Stopped
	Drip Leakage		Pipe Burst
	External Power		Low Voltage
	Wi-Fi Connected		Valve Open
	Valve Closed		LORA Connected

6. Menu Interface



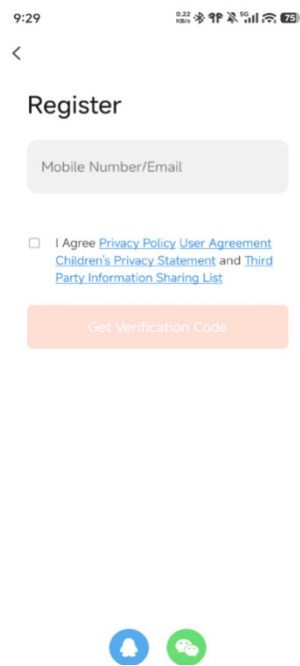
7. App Download

Search for “RhinoH” on Google Play or the App Store, or scan the QR code.



Steps:

1. Register a RhinoH account.
2. Open the app and select “Settings”.
3. Register using your email.
4. Ensure correct country/region information.
5. Allow location access if prompted (optional).



8. Wi-Fi Connection

Connect an external 5V DC power supply. When detected, the Wi-Fi icon  appears.

(1). Device Operation

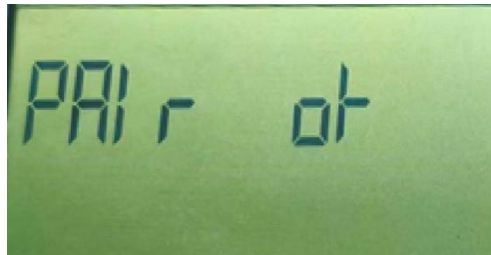
1. Press twice to enter address page.



2. Long press for 5 seconds to enter pairing mode (180 seconds).

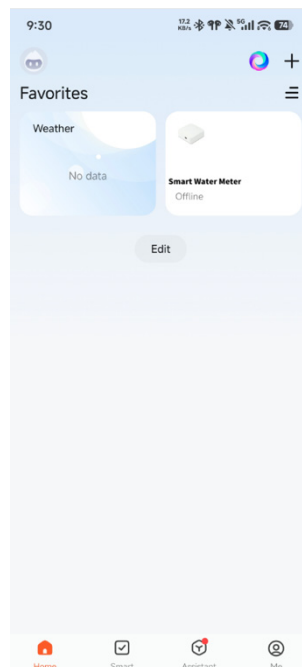


3. Successful pairing shows the pairing page.

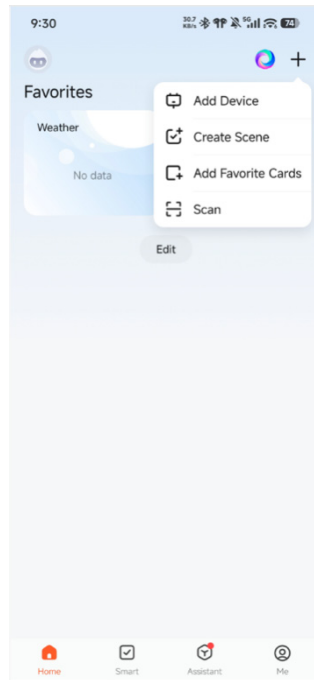


(2). Mobile Operation

1. Open RhinoH App after device enters pairing mode.

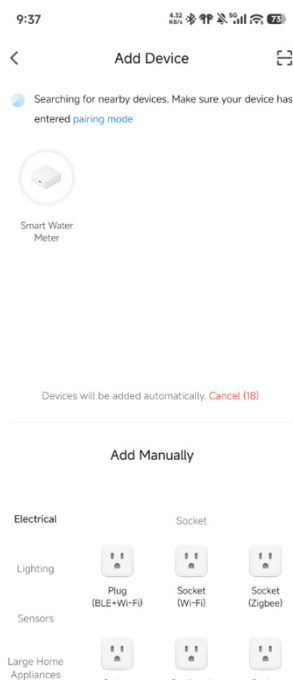


2. Tap “+” in the upper right corner.

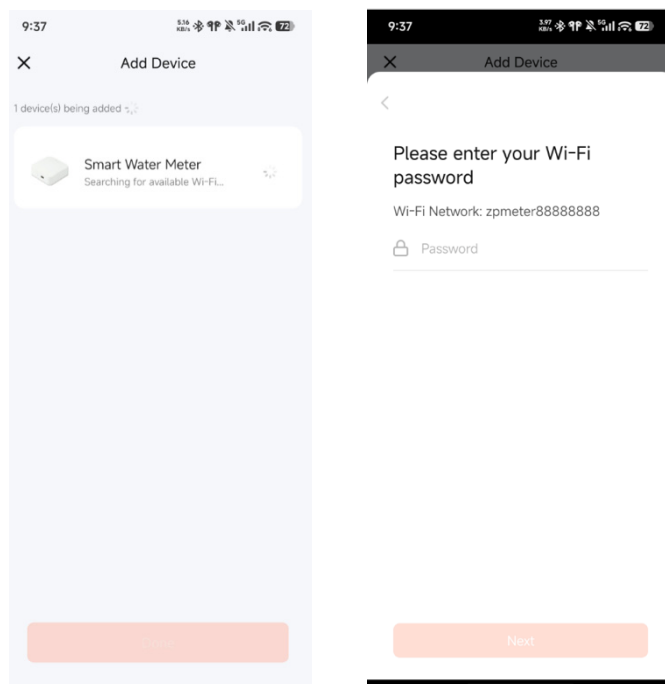


Right Upper Corner name: add device; create scene; add shortcut; scan; add devices

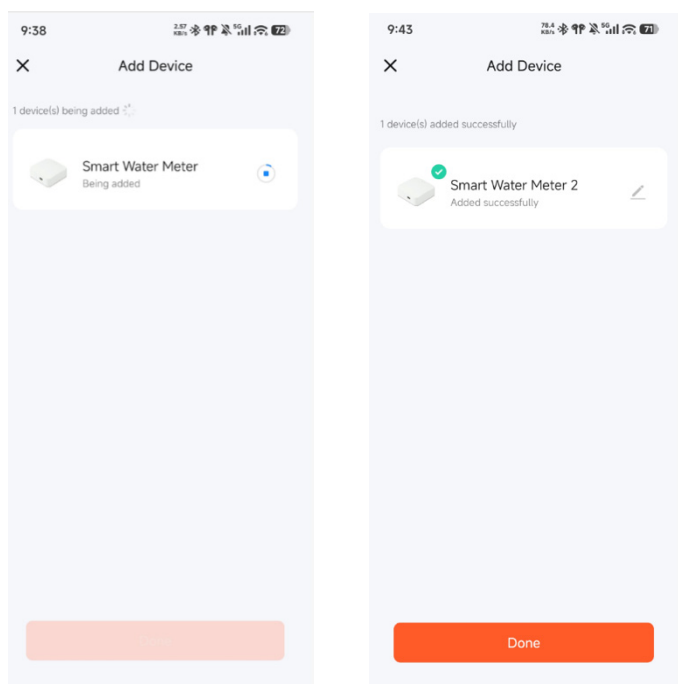
3. Select “Add Device”.



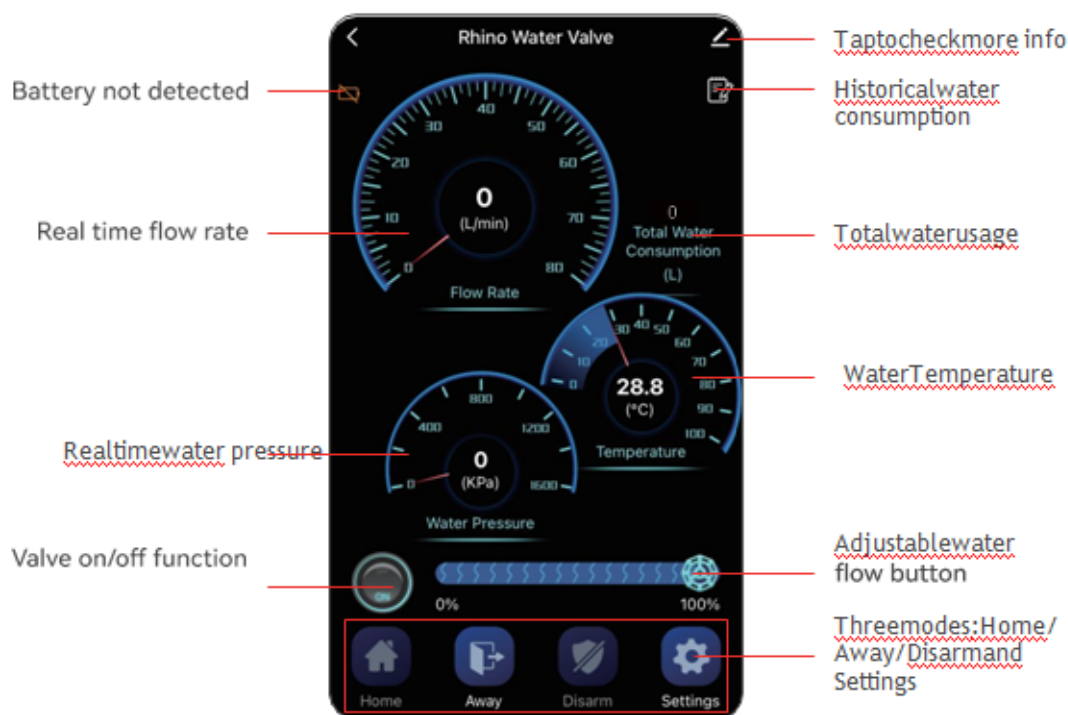
4. Choose the detected device.



5. Enter Wi-Fi password, wait until orange button “OK” is displayed.

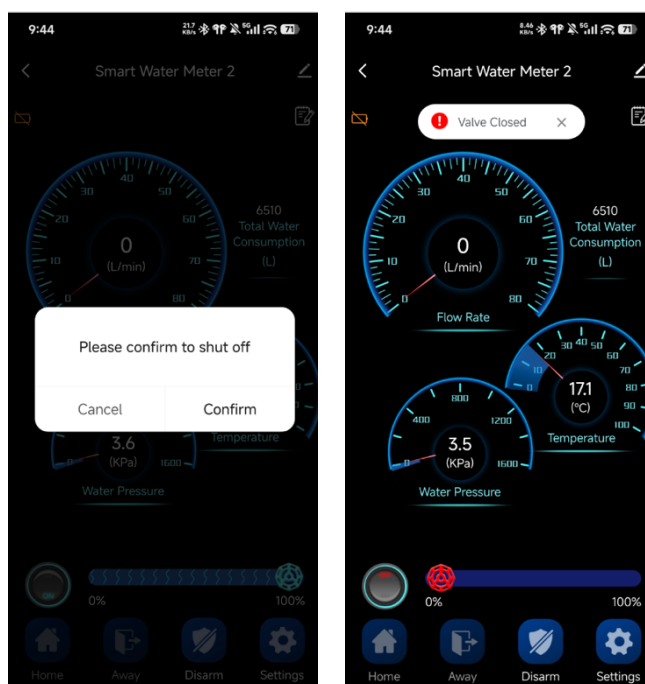


9. Parameter Settings and Operation

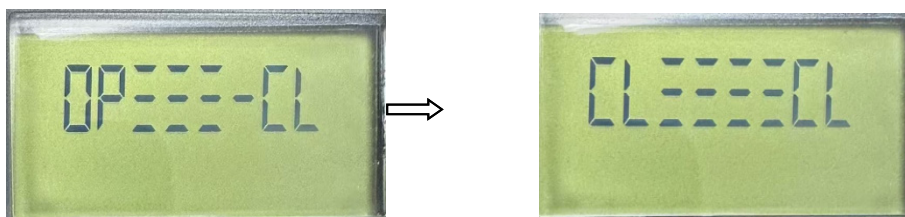


(1) Valve Control

App Control: Tap button to open/close valve.



Device Control: Long press red button. "OP" = Open, "CL" = Close.

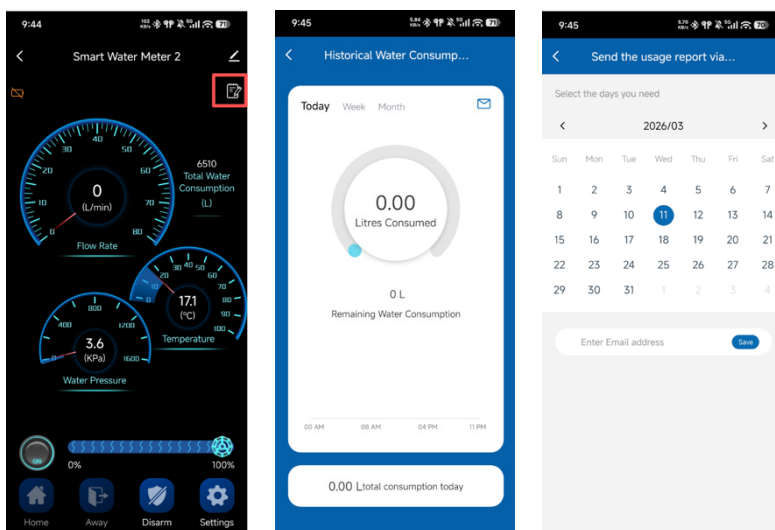


(2) Water Usage Inquiry

Press the button to check historical usage by day/week/month.

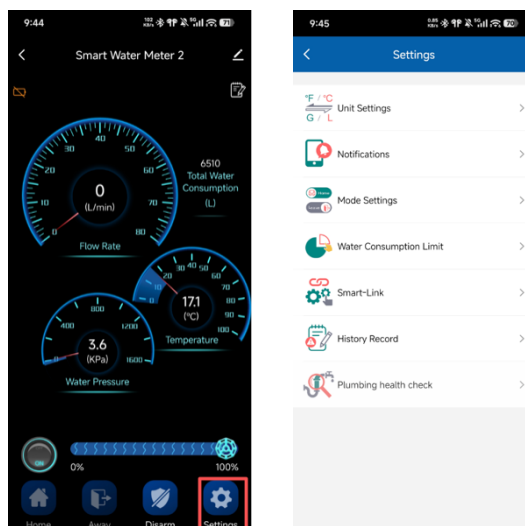
You may:

- View remaining water (after setting limits).
- Send reports to email.

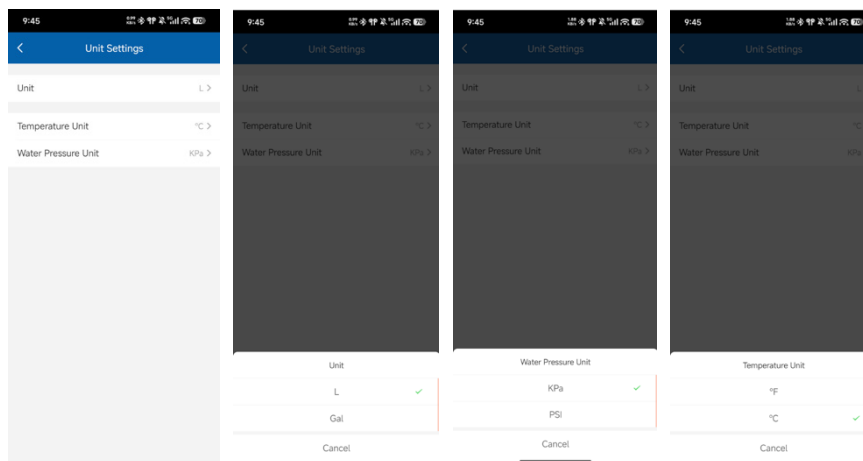


(3) Settings

Enter “Settings” mode:

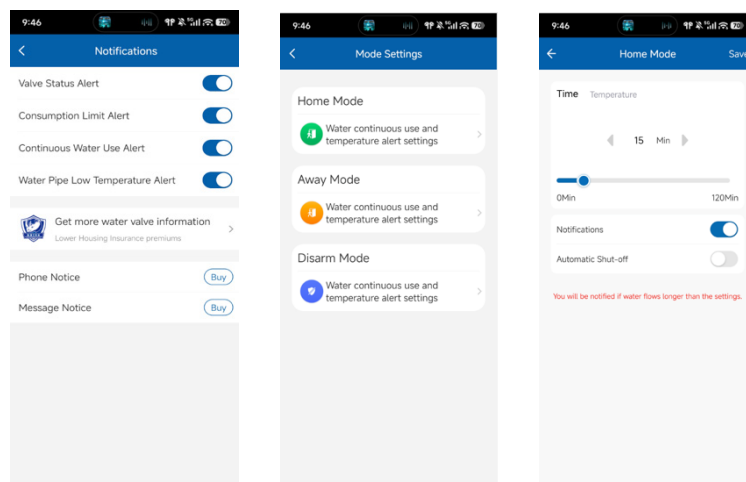


- a. Unit Settings:
Flow: L / GAL;
Temperature: °C / °F;
Pressure: kPa / PSI



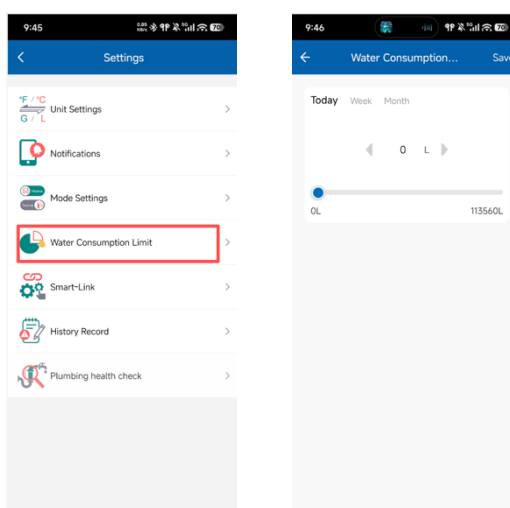
b. Mode Settings

- Home / Away / Disarm modes
- Continuous flow time
- Temperature alarms
- Notifications
- Auto valve closing



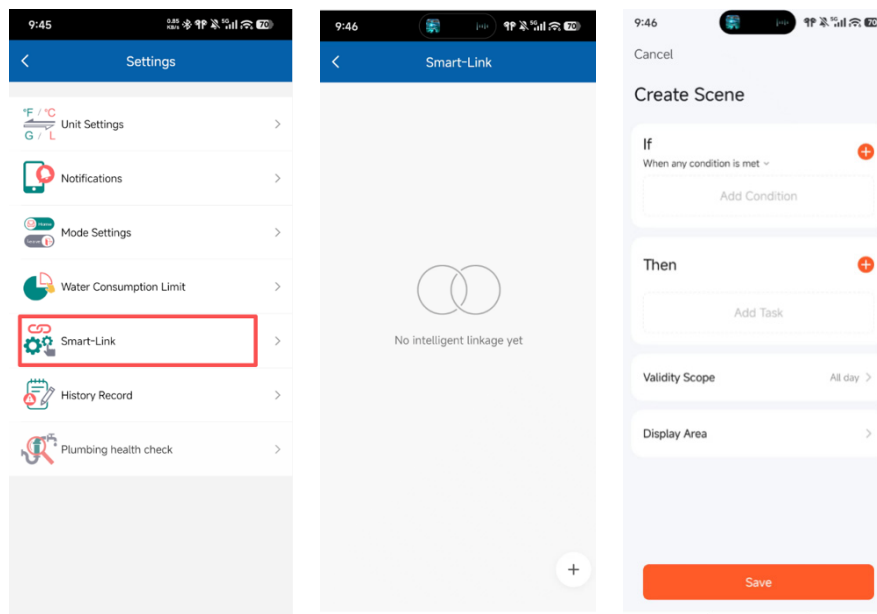
b. Water Usage Limit:

You can set water usage limits by day/week/month. Click “Save” to save your settings.



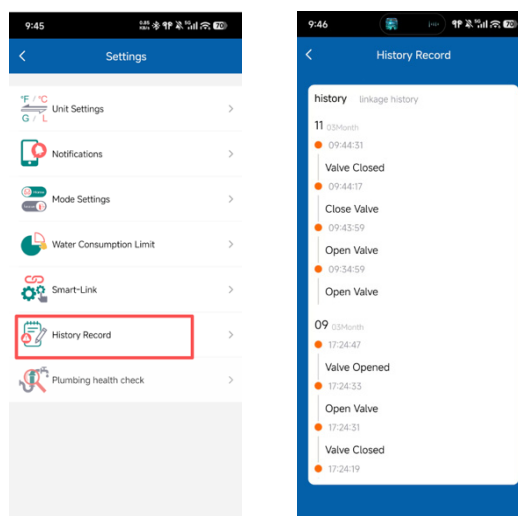
c. Smart Linkage

Create smart scenarios with conditions and tasks.



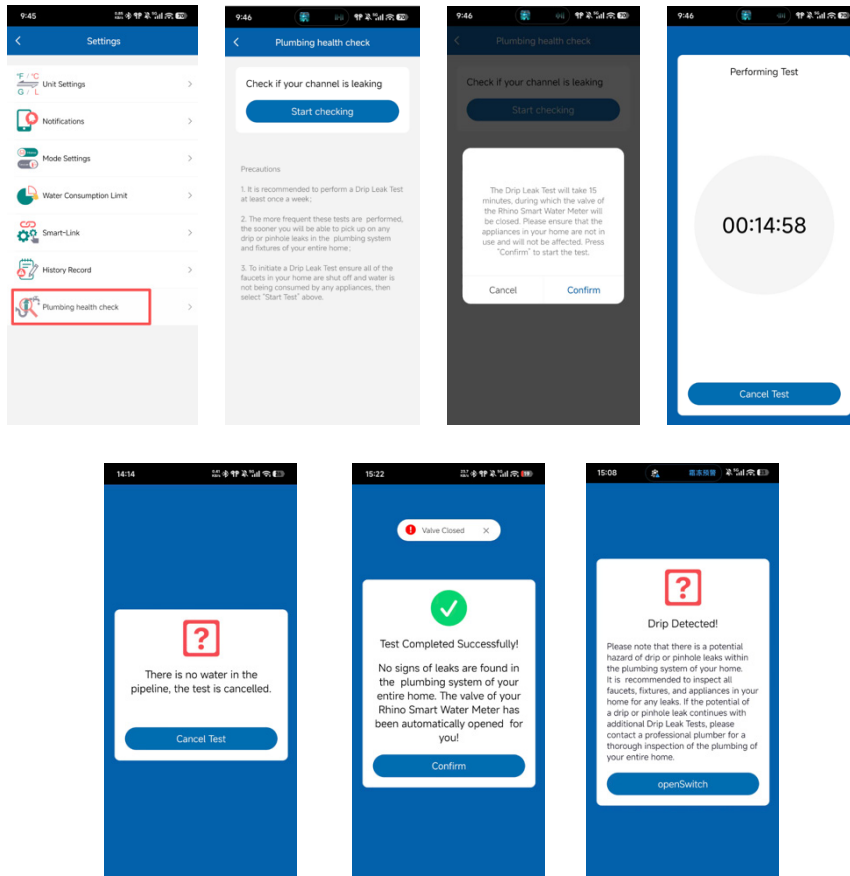
d. History Records

You can view RHINO's operation logs, historical notifications, and even link records.

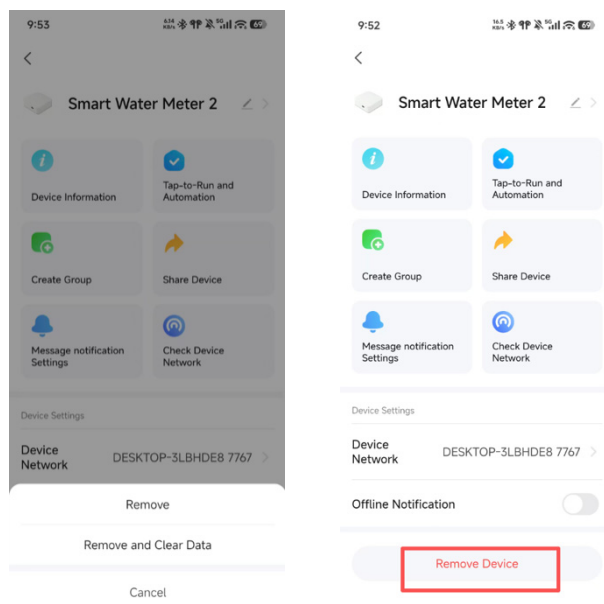


e. Pipeline Health Check

This feature is specifically designed to detect potential leaks in your home. Initiate the process by pressing “Start Inspection” and confirming the test. The drip test will run for 15 minutes. If no water is present in the pipes, the test will automatically cancel.



g. Reset Device: To remove a device from the app, tap the “” icon, locate “Remove Device,” select “Disconnect and Erase Data,” and confirm to reset the device to factory defaults.

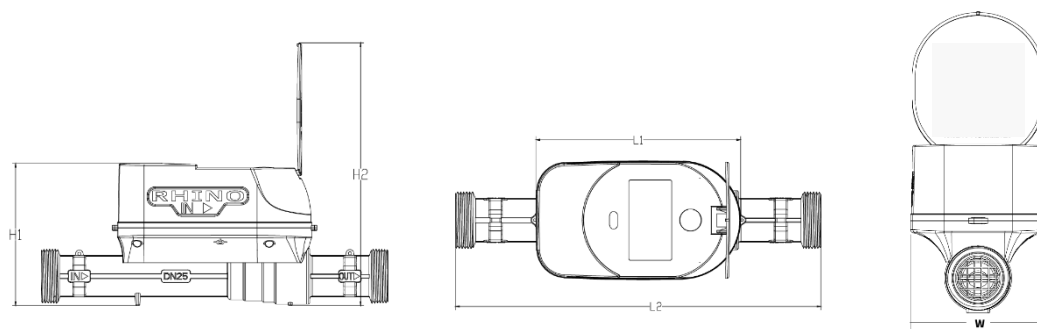


10. Wired Connection

Communication method: MBUS + Pulse output (4-core cable):

1. Yellow & Green: MBUS signal (non-polarized);
2. Red & Black: Pulse signal
 - Red: Positive
 - Black: Negative
 - Pulse value: 1 L/P

11. Dimensions



Model	Overall Dimensions					
	Height H1 (mm)	Height H2 (mm)	Shell length L1 (mm)	Base length L2 (mm)	Width W (mm)	Interface thread D (inch)
RH-WM-3/4-S (short)	107.8	202.4	161	190	89	NPT 1
RH-WM-3/4 (long)	107.8	202.4	161	229	89	NPT 1
RH-WM-1	111.5	206.1	161	273	89	NPT 1 ¹ / ₄
RH-WM-1.5	148	248.4	180	324	100	NPT 2
RH-WM-2	159	259.4	180	387	100	NPT 2 ¹ / ₂

12. FCC Caution:

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

13. IMPORTANT NOTE:

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

14. FCC Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 cm between the radiator and your body.

15. ISED Warning

This device complies with Innovation, Science and Economic Development Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions:

- (1) This device may not cause interference, and
- (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence.

L'exploitation est autorisée aux deux conditions suivantes :

- (1) L'appareil ne doit pas produire de brouillage, et
- (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

The device complies with RF exposure guidelines, and users can obtain Canadian information on RF exposure and compliance. The minimum distance from the body to use the device is 20cm.

Le présent appareil est conforme. Après examen de ce matériel aux conformités ou aux limites d'intensité de champ RF, les utilisateurs peuvent sur l'exposition aux radiofréquences et la conformité et la compliance acquérir les informations correspondantes. La distance minimale du corps à utiliser le dispositif est de 20 cm.