Ultrasonic Flowmeter Instruction Manual

Model: 100-RF-PTP
100-RF-PTP-L

Update Record	Revision	1.1.1
	Date	08 .2023

Content

Update Information:

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1 Technical Specifications

External Dimension：
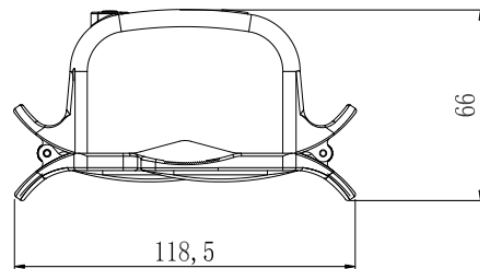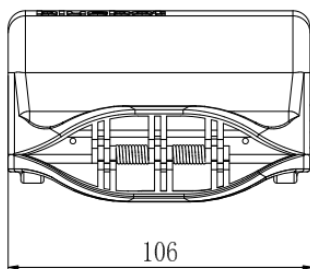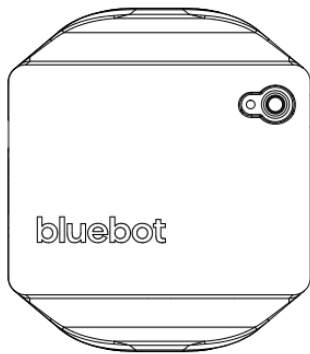
Performance Specifications:

l Accuracy: ±7.0 %；

l Repeatability: 1.0 %；

l Measuring Medium: Water；

l Pipe Material: PVC(American Standard SCH80)

Copper(American Standard)

l Protection Rate: IP54

l Pipe Size: 0.75"~2" (100-RF-PTP)

0.75"~4" (100-RF-PTP-L)

Functional Specifications:

l Power Supply: USB Type-C, 5V 1000mA

l Temperature:

Transmitter:0 ~ 50 ℃，

Transducer: 0 ~ 50 ℃；

l Humidity: Up to 99% RH; Non-condensing.

Physical Specifications:

l Transmitter: Milky silica gel

l Power Supply Cable: USB line 3.0mm*3.0mm

l Weight: 0.4Kg

2 Installation and Wiring

2.1 Bluebot Wiring

1. Insert power cord into the power plug；
2. Clean up the measured pipe section, then put the meter on it.

2.2 Data Concentrator Box Wiring

The Bridge can convert LoRa signals into WIFI signals. Connect the power to the data concentrator box. Follow the instructions in Chapter Four to perform the network setup. After successful network setup, the WIFI indicator light on the data concentrator box will turn blue and remain steady.

3 Measuring Site Selection

The installation of this ultrasonic flow meter is the simplest one of all kinds of flowmeters. Only one suitable measuring site needed, plug the transducers on the pipe and then start the measurement.

When selecting a measurement site, it is important to select an area where the fluid flow profile is fully developed to guarantee a highly accurate measurement. Use the following guidelines to select a proper installation site:
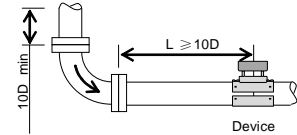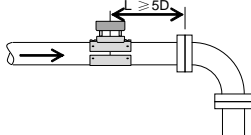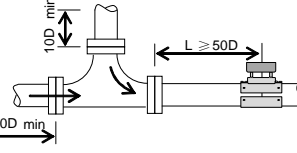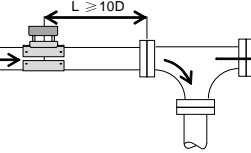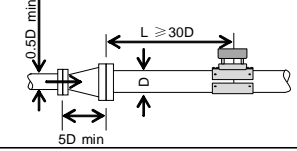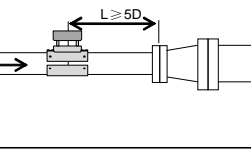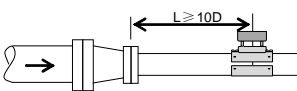
*Choose a section of pipe that is always full of liquid, such as a vertical pipe with flow in the upward direction or a full horizontal pipe.

*The site should have a straight pipe run length equal to at least 10 pipe diameters upstream and 5 pipe diameters downstream from any throttling valves or other flow disturbance producing elements, such as pipe reducers, elbows, tees, etc.

*Ensure that the measuring site temperature is under the transducer temperature limits.

*Consider the inside condition of the pipe carefully. If possible, select a section of pipe where the inside is free of excessive corrosion or scaling.

* Choose a section of sound conducting pipe.

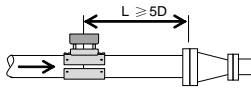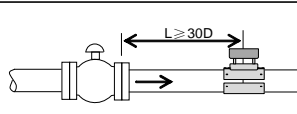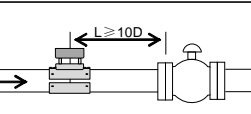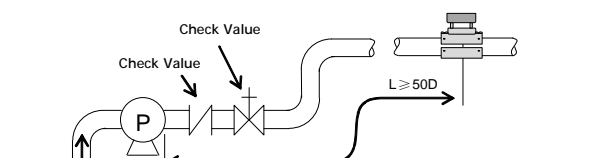| Name	Straight length of Upstream piping	Straight length of Downstream piping
90° bend	$L \geqslant 10D$ (10D min) — Device	$L \geqslant 5D$
Tee	10D min, $L \geqslant 50D$, 10D min	$L \geqslant 10D$
Diffuser	0.5D min, $L \geqslant 30D$, 5D min	$L \geqslant 5D$
Reducer	$L \geqslant 10D$	$L \geqslant 5D$
Value	$L \geqslant 30D$ — Flow controlled upstream	$L \geqslant 10D$ — Flow controlled downstream
Pump	Check Value, Check Value, $L \geqslant 50D$	

4 Bluebot Operating Instructions on Mobile App

4.1 Download bluebot water App

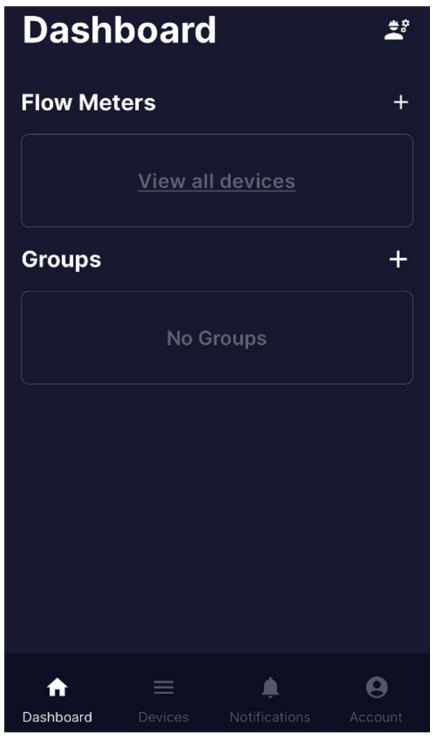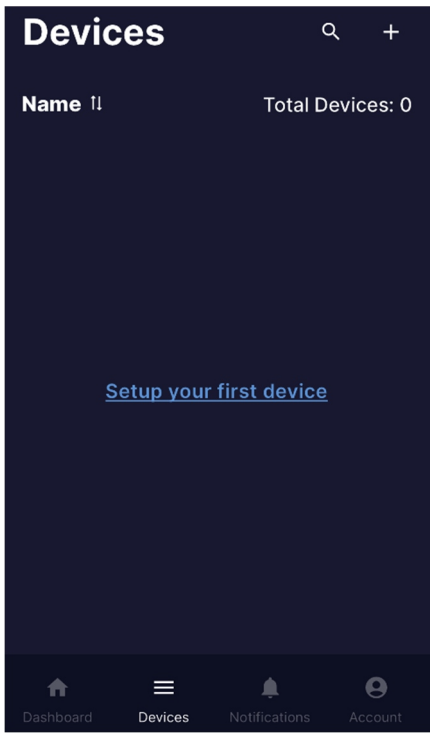Open the Apple App Store, search for the bluebot water app software, and download it.

Follow the prompts to install and register.
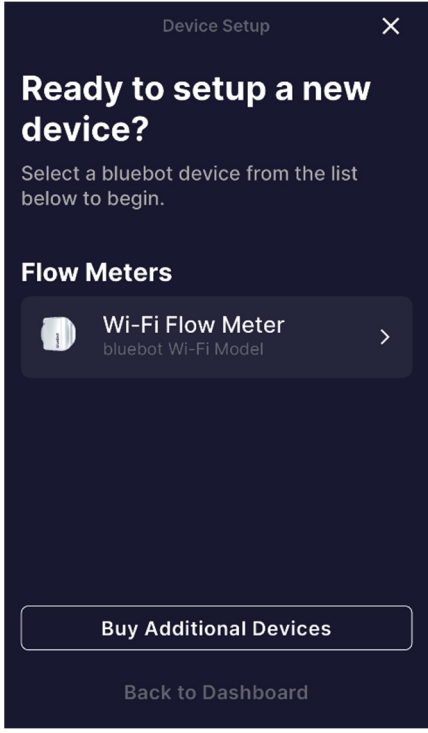
4.2 Powering up the bluebot
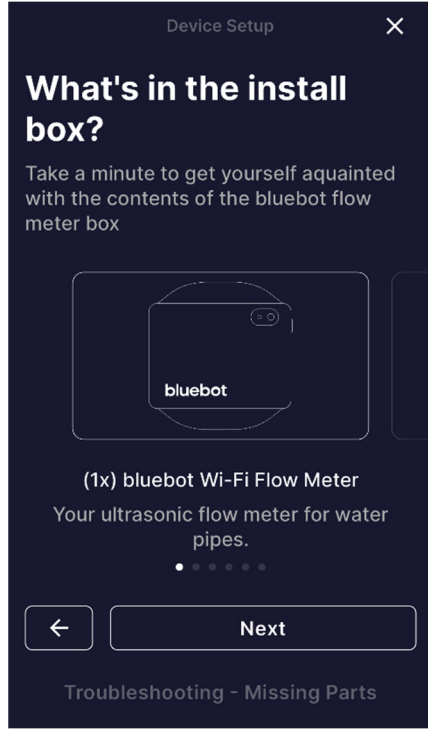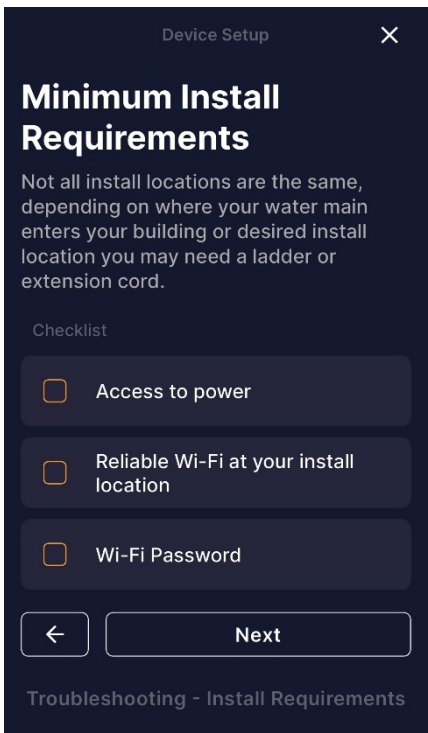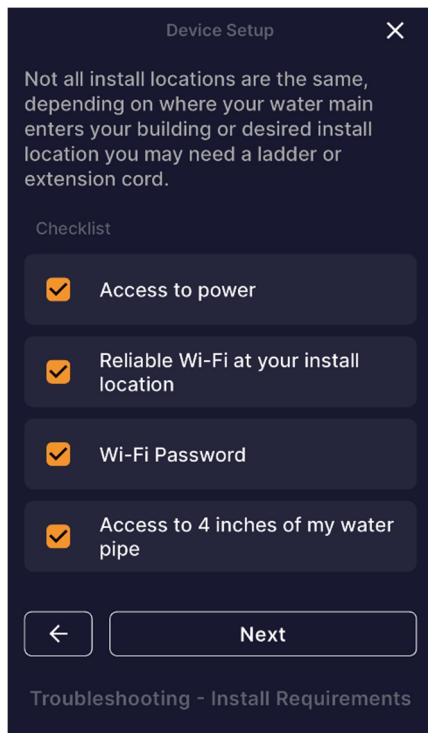
Power up the bluebot meter and data concentrator box separately.
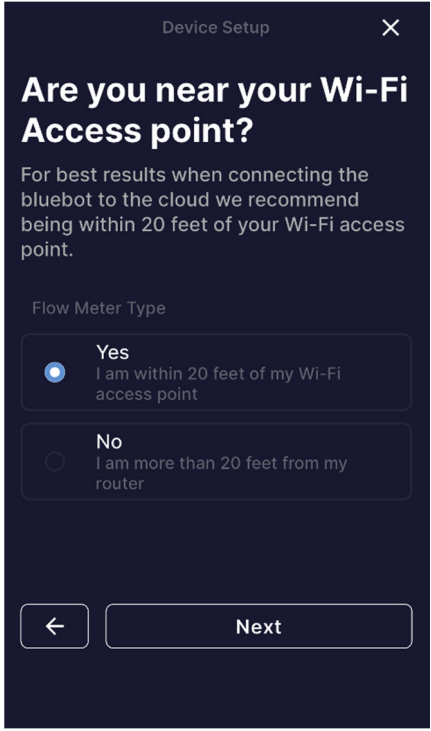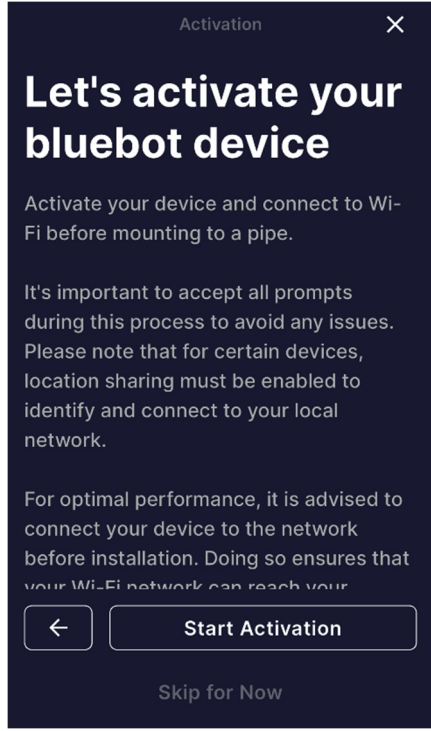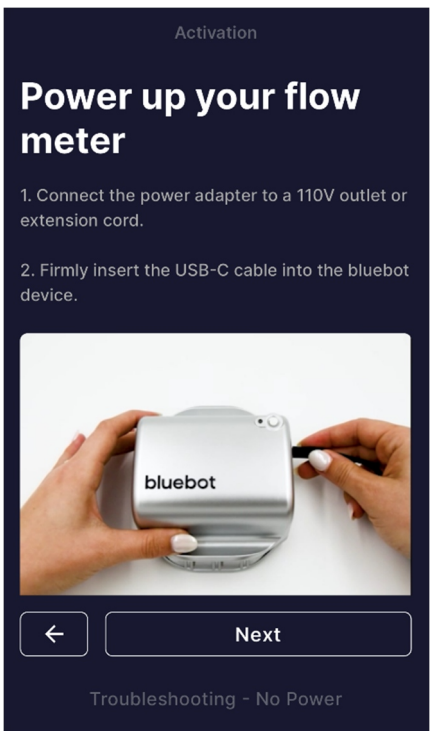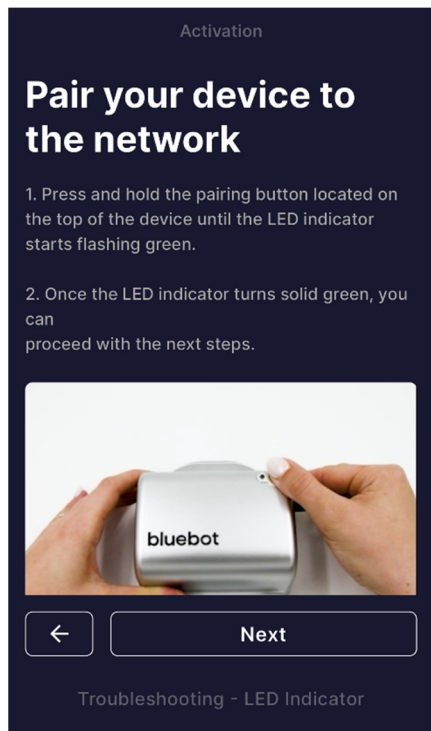
4.3 Equipment distribution network
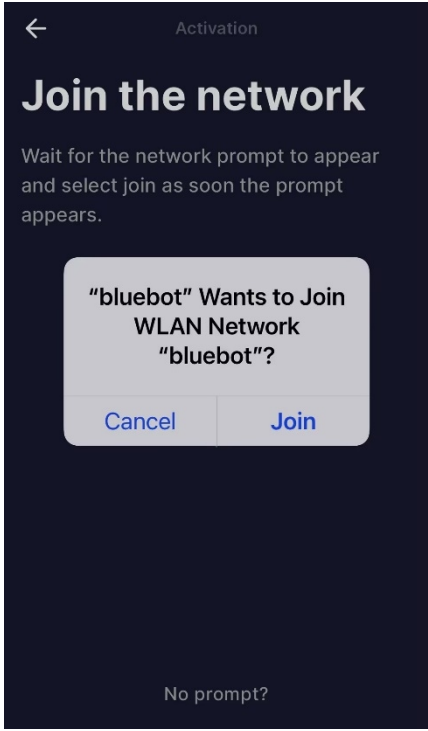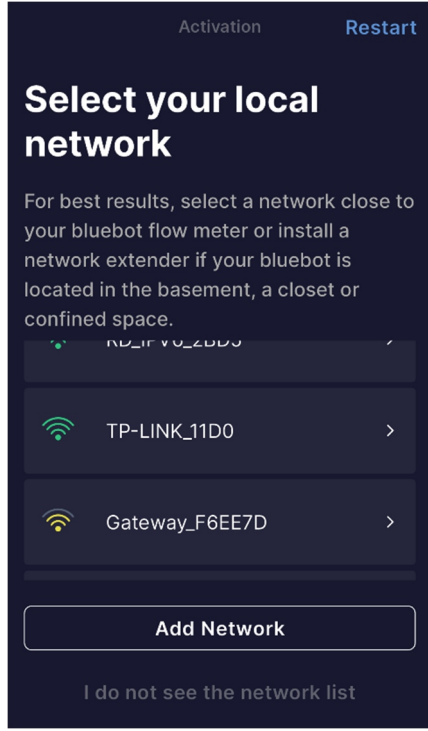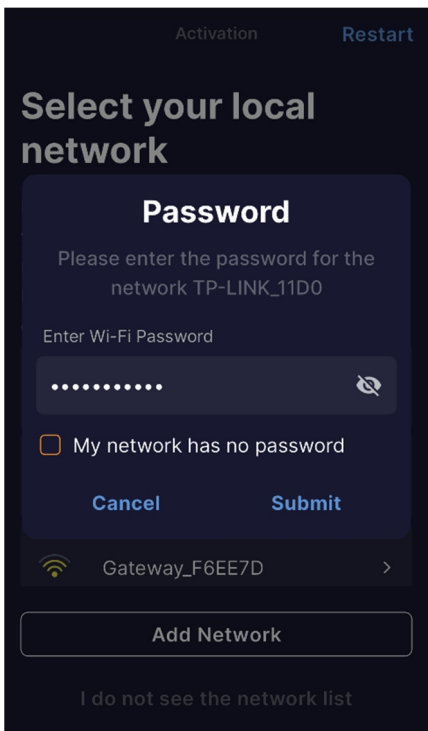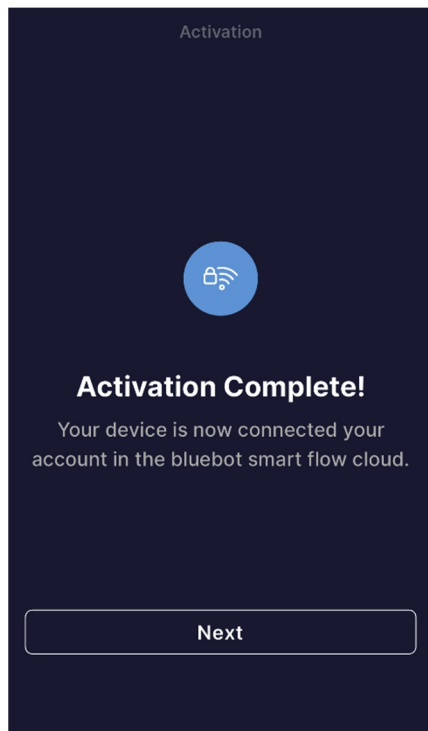
Press the reset button on the gateway box to make the WIFI indicator light flash. Click on the Bluebot icon on the phone desktop to open the Bluebot water app software.

If need adding cloud controlled ball valves to the WIFI distribution network, first ensure that the phone and cloud controlled ball valve are on the same network and power on the cloud controlled ball valve.
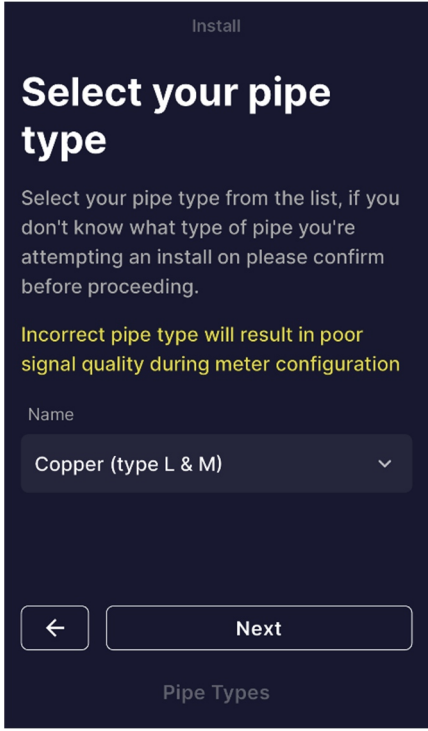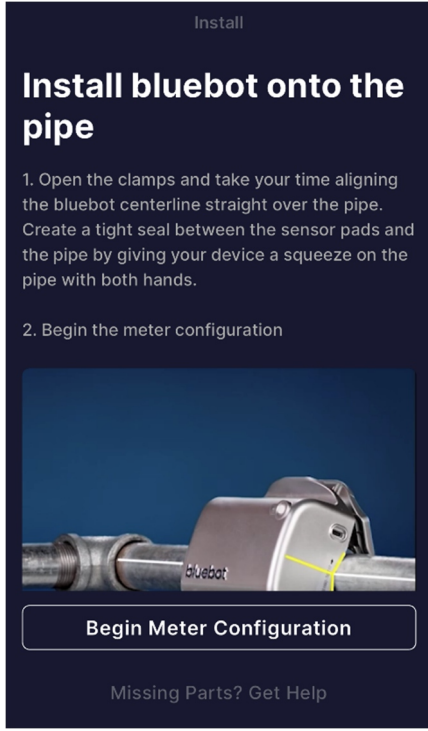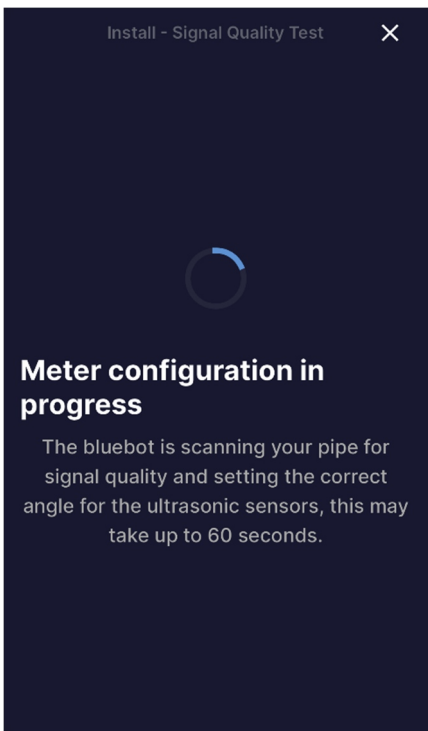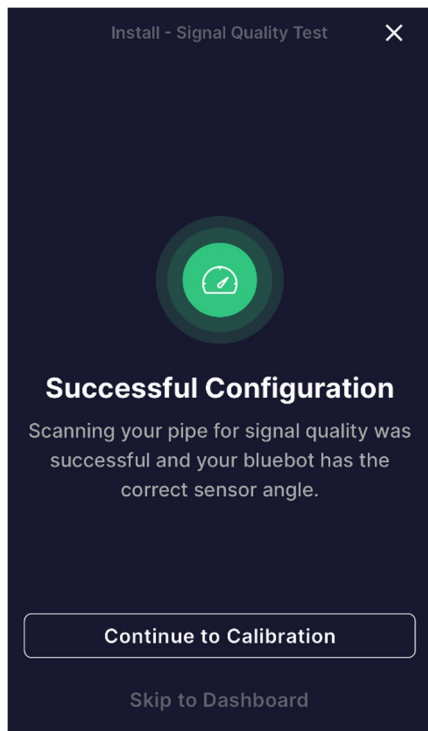
1、 Click "view all devices" enter the Devices interface. 2、 Click "Setup your first device" icon.	**Dashboard** **Flow Meters** + View all devices **Groups** + No Groups Dashboard Devices Notifications Account	**Devices** Q + **Name** ⇅ Total Devices: 0 Setup your first device Dashboard Devices Notifications Account
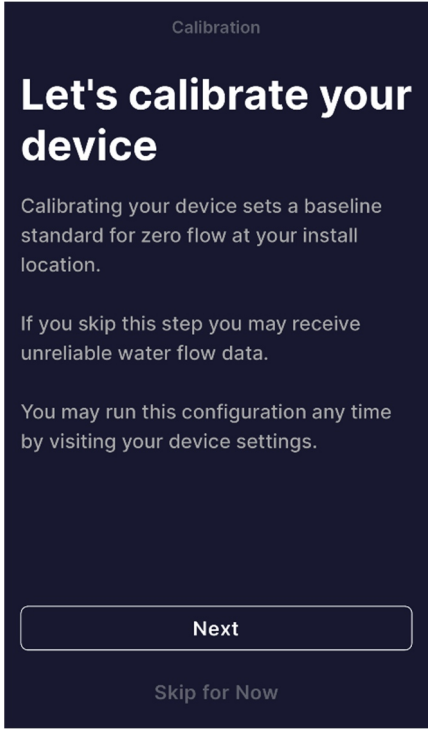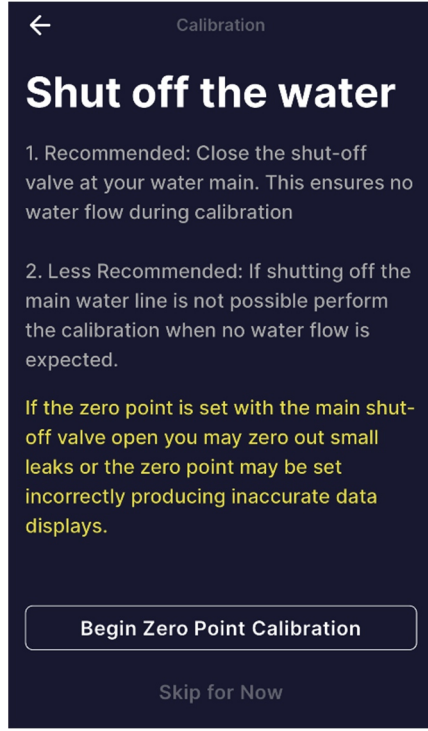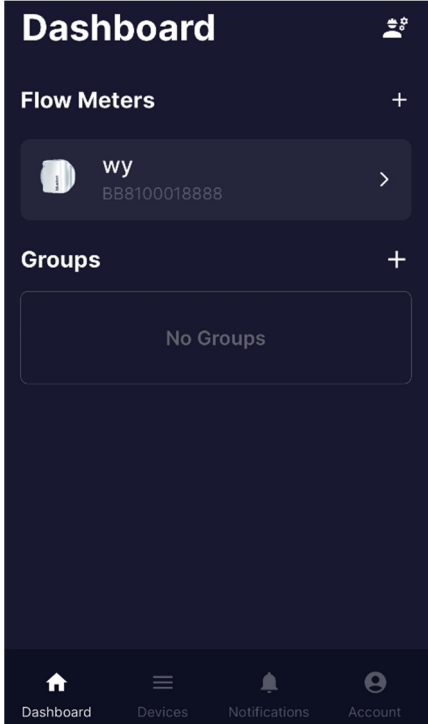
3、 Click Wi-Fi Flow Meter. 4、 Click Next	**Ready to setup a new device?** Select a bluebot device from the list below to begin. **Flow Meters** Wi-Fi Flow Meter bluebot Wi-Fi Model Buy Additional Devices Back to Dashboard	**What's in the install box?** Take a minute to get yourself aquainted with the contents of the bluebot flow meter box bluebot (1x) bluebot Wi-Fi Flow Meter Your ultrasonic flow meter for water pipes. Next Troubleshooting - Missing Parts
5、 Select Minimum Install Requirements. 6、 Click Next.	**Minimum Install Requirements** Not all install locations are the same, depending on where your water main enters your building or desired install location you may need a ladder or extension cord. Checklist ☐ Access to power ☐ Reliable Wi-Fi at your install location ☐ Wi-Fi Password Next Troubleshooting - Install Requirements	Not all install locations are the same, depending on where your water main enters your building or desired install location you may need a ladder or extension cord. Checklist ☑ Access to power ☑ Reliable Wi-Fi at your install location ☑ Wi-Fi Password ☑ Access to 4 inches of my water pipe Next Troubleshooting - Install Requirements

7、 Select Yes and then click Next. 8、 Click Start Activation.	**Device Setup** ✕ ## Are you near your Wi-Fi Access point? For best results when connecting the bluebot to the cloud we recommend being within 20 feet of your Wi-Fi access point. Flow Meter Type ● **Yes** I am within 20 feet of my Wi-Fi access point ○ **No** I am more than 20 feet from my router [←] [Next]	**Activation** ✕ ## Let's activate your bluebot device Activate your device and connect to Wi-Fi before mounting to a pipe. It's important to accept all prompts during this process to avoid any issues. Please note that for certain devices, location sharing must be enabled to identify and connect to your local network. For optimal performance, it is advised to connect your device to the network before installation. Doing so ensures that your Wi-Fi network can reach your [←] [Start Activation] Skip for Now
9、 Power up your flow meter, click Next. 10、 Pair your device to the network, and click Next.	Activation ## Power up your flow meter 1. Connect the power adapter to a 110V outlet or extension cord. 2. Firmly insert the USB-C cable into the bluebot device. [←] [Next] Troubleshooting - No Power	Activation ## Pair your device to the network 1. Press and hold the pairing button located on the top of the device until the LED indicator starts flashing green. 2. Once the LED indicator turns solid green, you can proceed with the next steps. [←] [Next] Troubleshooting - LED Indicator

11、 Click to Join. 12、 Select your local network.	← Activation **Join the network** Wait for the network prompt to appear and select join as soon the prompt appears. "bluebot" Wants to Join WLAN Network "bluebot"? Cancel Join No prompt?	Activation **Restart** **Select your local network** For best results, select a network close to your bluebot flow meter or install a network extender if your bluebot is located in the basement, a closet or confined space. RD_IPV0_2BD3 > 🛜 TP-LINK_11D0 > 🛜 Gateway_F6EE7D > **Add Network** I do not see the network list
13、 Enter the network password, Click Submit 14、 Activation Complete.	Activation **Restart** **Select your local network** **Password** Please enter the password for the network TP-LINK_11D0 Enter Wi-Fi Password •••••••••• 👁 ☐ My network has no password Cancel **Submit** 🛜 Gateway_F6EE7D > **Add Network** I do not see the network list	Activation 🔒🛜 **Activation Complete!** Your device is now connected your account in the bluebot smart flow cloud. **Next**

15、 Name your device. 16、 Click Begin Installation and start to install it on the pipe.	
17、 Select the appropriate measuring point according to the picture prompts, and clean the surface of the measuring point location. 18、 Then clamp the meter onto the pipe and turn on the power, note that the installation direction should be the same as the direction of water flow.	

19、 Select your pipe type 20、 Install bluebot onto the pipe	**Install** **Select your pipe type** Select your pipe type from the list, if you don't know what type of pipe you're attempting an install on please confirm before proceeding. Incorrect pipe type will result in poor signal quality during meter configuration Name Copper (type L & M) ⌄ ← Next Pipe Types	**Install** **Install bluebot onto the pipe** 1. Open the clamps and take your time aligning the bluebot centerline straight over the pipe. Create a tight seal between the sensor pads and the pipe by giving your device a squeeze on the pipe with both hands. 2. Begin the meter configuration **Begin Meter Configuration** Missing Parts? Get Help
21、 Meter configuration in progress 22、 Successful configuration	**Install - Signal Quality Test** ✕ **Meter configuration in progress** The bluebot is scanning your pipe for signal quality and setting the correct angle for the ultrasonic sensors, this may take up to 60 seconds.	**Install - Signal Quality Test** ✕ **Successful Configuration** Scanning your pipe for signal quality was successful and your bluebot has the correct sensor angle. **Continue to Calibration** Skip to Dashboard

23、 Prepare for zero point calibration 24、 Calibrate your device	**Calibration** **Let's calibrate your device** Calibrating your device sets a baseline standard for zero flow at your install location. If you skip this step you may receive unreliable water flow data. You may run this configuration any time by visiting your device settings. Next Skip for Now	← **Calibration** **Shut off the water** 1. Recommended: Close the shut-off valve at your water main. This ensures no water flow during calibration 2. Less Recommended: If shutting off the main water line is not possible perform the calibration when no water flow is expected. If the zero point is set with the main shut-off valve open you may zero out small leaks or the zero point may be set incorrectly producing inaccurate data displays. Begin Zero Point Calibration Skip for Now
25、 Device installed	**Dashboard** **Flow Meters** + wy BB8100018888 > **Groups** + No Groups Dashboard Devices Notifications Account	

4.4 Operating Instructions

1、 Click on the newly-installed device WY 2、 View water usage by hour, day, month, and year.	**Dashboard** 👥 **Flow Meters** + wy BB8100018888 > **Groups** + No Groups 🏠 Dashboard ≡ Devices 🔔 Notifications 👤 Account	← wy ... Hour **Day** Week Month **0.00 gal** 📅 📊 50gal 40gal 30gal 20gal 10gal 0gal 11 AM 11 AM 11 AM 11 AM 11 AM 11 AM 12 PM < 14 Aug **15 Aug 2023** 16 Aug > Go Live 📊 Charts ℹ️ Alerts 💧 Budgets ⚙️ Settings

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

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.

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

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 minimum distance 20cm between the radiator and your body.