# AQUANA



# Aquana Water IoT Platform
# SV-1 Smart Valve
# User Manual

*Version 1.0 - November 2018*

# AQUANA

| Version | Date | Author | Change |
|---------|------|--------|--------|
| 1.0 | 11/01/18 | Aquana | |

# Table of Contents

# AQUANA

# Compliance

Make/Model:  Aquana SV-1 Smart Valve
FCC ID: 2AQSE-AQSV1
IC: 24363-AQSV1
Contains FCC IDs:  AU792U13A16858 (LoRaWAN), 2AHMR-ESP07S (WiFi)
Contains IC IDs: 125A-0055 (LoRaWAN), 23236-ESP07S (WiFi)

**FCC Statement**

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.

**ISED Statement**

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:
1) This device may not cause interference.
2) This device must accept any interference, including interference that may cause undesired operation of the device.

*L'émetteur/récepteur exempt de licence contenu dans 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;*
2. *L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.*

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**CAUTION**:   Any changes or modifications to any component of the Aquana SV-1 Smart Valve that is not expressly approved by Aquana could void the user's authority to operate the equipment.

# Welcome

Thank you for purchasing the Aquana SV-1 smart valve.  In order to install our product you will need a qualified plumber.  Please contact the Aquana support team with any questions or concerns about your installation.  We're here to help.

The setup process for each Aquana Smart Valve requires 3 easy steps.

1.  Create your Aquana user account and property structure.
2.  Plumb your smart valve.  A qualified plumber installs each Smart Valve according to the instructions in this manual.
3.  Activate your smart valve, using the Aquana mobile app, and confirms that each valve can connect to the Aquana Cloud and receive valve commands.

# Included hardware

- (1)  Aquana SV-1 Smart Valves with WiFi or LoRaWAN communication option. Pre-assembled with a hard-wired AC power supply and battery backup, inside the unit.

# AQUANA

# Aquana Account and Property Setup

## Account Setup

1. The first step is to setup your User Account on our Website.
    a. Goto: http://dev.aquana.com/registration
    b. Enter your email, full name, mobile phone number for SMS alerts, and your company name.
    c. Click SIGN UP button.
    d. The Platform will email you with a temporary password.
    e. Enter the temporary password and also choose a new password.
    f. Click "SET NEW PASSWORD".
2. Review and accept the Aquana End User License Agreement (EULA)
3. Create a new property OR accept invites to other properties.
    a. Click on the "Create New Property" button to create your first property. Follow the instructions.
    b. Accept invites to gain access to shared properties.

# Aquana Mobile App

## Download the App:

Download the Aquana Mobile app from the Apple App Store for iOS or Google Play store for Android devices.



## Login to the App:

Once you've downloaded the app, login with your Aquana account to activate a new device.

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## Activate your Device:

In order to use your valve, it must be activated first.

Please make sure that you're within bluetooth range of your valve, and ideally be in the location that the valve will be installed in order to ensure that the valve can connect to your WiFi or LoRaWAN network.
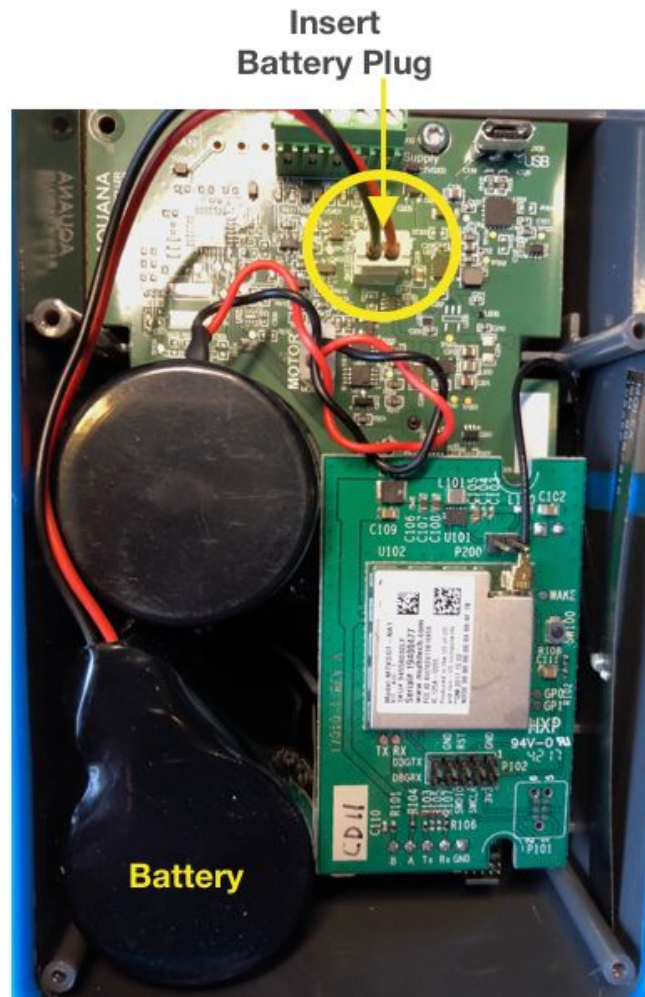
1. From the main menu, choose "Activate New Devices".
2. Then choose from the list of Activation Workflows.
3. Choose the Property & Location within your Property where you want to install your device, and tap Next.
4. Enter or Scan the Valve serial number. You must enter the entire 9-digit serial number found on the device OR you can scan the barcode located on the device by tapping Scan Barcode. Once you've entered the serial number, tap Next and the app will attempt to connect directly to the valve using bluetooth.
5. Once connected, you'll see valve information and a "Complete" message in the app. Tap Next.
6. Next you'll need to Configure your valve settings.
   a. Name your valve. Tip: Your valve name will be used in notifications along with the property and location. Name your valve something unique or identifiable.
   b. Enter your check-in interval. The Check-In interval determines how often the valve checks in to the Cloud to report status and receive commands.
   c. NOTE: If you're on AC power we recommend 1 minute check-in so you can control your valve in near real time. If you're on battery only, speak with your installer or sales rep for recommended check-in intervals.
   d. Choose the primary use of for valve, along with the pipe size. Tap Next.
7. Configure your network settings.
   a. For WiFi, enter the network name and password that is within range of the valve's installation location.
   b. For LoRaWAN, your valve comes pre-configured to work with the provided MultiTech Conduit Gateway.
   c. Tap Next to continue.
8. Confirm Device Activation. If you're only activating a valve, you'll see the Confirmation screen next. Confirm your settings by tapping CONFIRM to add your valve to the chosen Property Location.
9. Confirm your Activation. Make sure your activation details look right and tap CONFIRM to activate.

# Install your Smart Valve
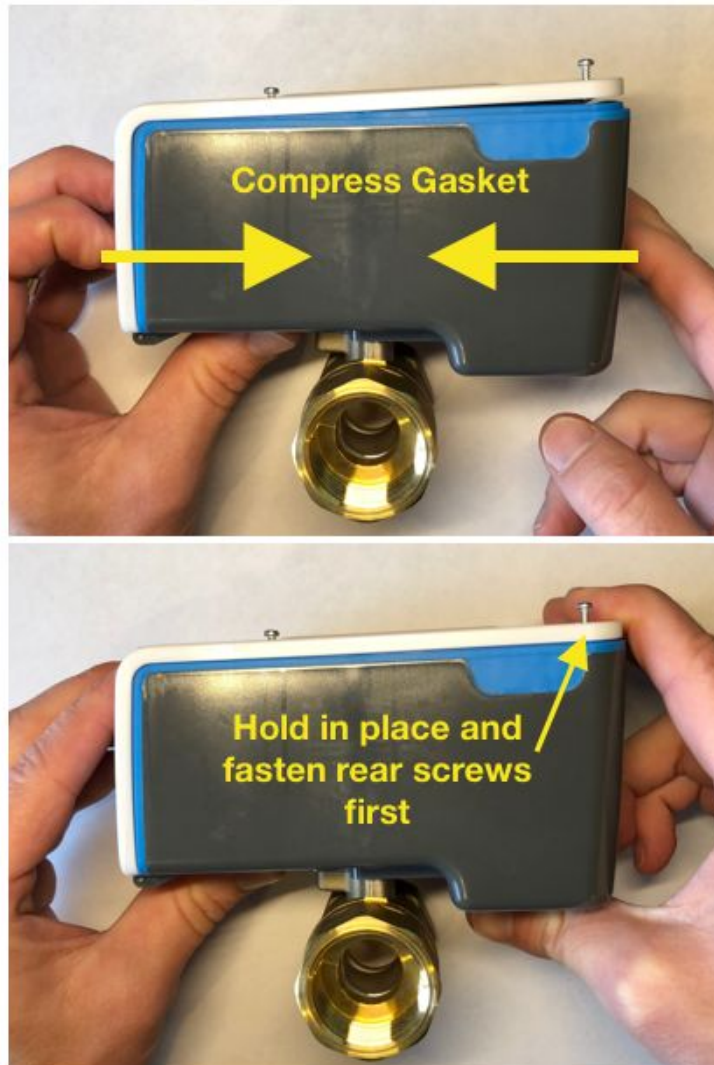
## Connecting the battery

NOTE:  The Aquana SV-1 comes with the battery unplugged.  If your installation location is tight or difficult to access, please plug in the battery before you plumb the unit.

1. Open the lid on your smart valve
2. Plug the battery into the battery connector on the printed circuit board.  This connector can only fit in one direction.  Make sure that the connector is fully seated before closing the lid.

3. Close and secure the lid with the four T8 torx bit screws provided.
   a. The SV-1 uses a compression gasket to keep out any moisture that may come in contact with the unit.  In order to create the best seal and align the lid holes, you will need to apply pressure from the sides as shown.
   b. Compress the short white side of the lid so that it forms a firm seal and allows the lid screw holes to align with the case screw posts.
   c. Screw in the lid screws to a snug fit.  DO NOT OVERTIGHTEN or you can damage the seal.





4. If you plan to use AC power, once your valve is plumbed, simply plug the included power supply into a wall socket.

# AQUANA

## Plumbing the hardware

**NOTE**:  Please ensure that a manual shutoff valve is installed where the water supply enters the home or property unit, before the Aquana SV-1 smart valve.

1. The valve should be installed just downstream of the main manual shutoff valve.
2. The valve requires approximately 3.5" of "lay length" along the dimension the pipe runs, and also requires approximately a 6" radius around the pipe.   Reducer fittings may also be needed, which will add additional length.
3. Be sure to orient the valve with the logo side of the lid level parallel and level with the ground.  Other orientations are supported if it's required.
4. Be sure to orient the valve so that the lid can open completely, and the inside compartment is accessible for future battery replacement, if needed.
5. Once the valve has been plumbed and you're ready for activation, plug in AC power.  The AC power supply cable is 5 feet long.  If you require more length, a standard extension cord can be used.

# Smart Valve Specifications

## Operating Characteristics

- 3-position, Lead-Free Brass/ Stainless Steel  Ball Valve
- Max Pressure: 150 psi
- Max Operating Pressure: 125 psi
- Operating Temp: -22°F-140°F
- Max Water Temp: 194°F (90°C)
- Min Water Temp: 23°F (-5°C)

## Ratings/Certifications

- NSF/ANSI 61 Certified
- NSF/ANSI Lead-free
- IP65 compliant

## Control Options

- Bluetooth 4.0 for local control & provisioning on all models
- Wi-Fi or LoRaWAN 915/868mhz for remote control

## Meter Support

- Pulse or Absolute Encoded
- See compatibility list

## Pipe Sizes

- 1/2" (DN15), 3/4" (DN20), 1" (DN25), 1.25" (DN32), 1.5" (DN40)

## Dimensions & Weight

- 5.4" (137.08mm) L
- 3.32" (84.44mm) W
- 3.86" (97.93mm) H
- 2.2lbs (depends on pipe size)

## Power Specifications

- 110/210V AC Power Supply
- 3.6v Lithium Metal replaceable battery

# Drawings



A

2.52 [64.05mm]

SECTION A-A
SCALE 1:2

3.86 [97.93mm]

2.98 [75.57mm]

3.32 [84.44mm]

5.4 [137.08mm]