



Smart Water Valve



Name	Model	Logical devices
Smart Water Valve	GMB-HAR-WVA-B01W	1 x On/Off Output
Smart Water Valve with water consumption metering, DN15 (1/2")	GMB-HAR-WVA-M15W	1 x On/Off Output
Smart Water Valve with water consumption metering, DN20 (3/4")	GMB-HAR-WVA-M20W	1 x On/Off Output
Smart Water Valve with water consumption metering, DN25 (1")	GMB-HAR-WVA-M25W	1 x On/Off Output
Smart Water Valve with water consumption metering, DN32 (1 1/4")	GMB-HAR-WVA-M32W	1 x On/Off Output
Smart Water Valve with water consumption metering, DN40 (1 1/2")	GMB-HAR-WVA-M40W	1 x On/Off Output
Smart Water Valve with water consumption metering, DN50 (2")	GMB-HAR-WVA-M50W	1 x On/Off Output

User Guide

version 2.0.1

Technical specification

Network	ZigBee 3.0
Frequency	2.4 GHz
Coverage	100m (open area)
Network extender	Yes
Operating temperature	-10°C ~ +85°C
Operating humidity	≤ 95%RH
Nominal voltage	AC 220V - 240V
Action time	125 s
Torque	10 Nm
Pmax	10 bar
Max t°C (fluid temperature)	60 °C
Dimensions	162 x 73 x 64 mm
Case	IP54
PIN code	Included in the package
PUK code	Included in the package

Description

The device is an electrically adjustable valve, which consists of an electric actuator and a ball valve. It is designed to control valves up to 2". After turning on the power, the device is in the last state.

It has a built-in ZigBee module that allows it to be a part of a ZigBee 3.0 network or create its own. As a part of a ZigBee network, it can be controlled by other smart devices belonging to the same network and depending on the capabilities of the system to which it is added, be monitored and controlled remotely.

All models, except GMB-HAR-WVA-B01W, have a built-in module for measuring current and total flow via an external flow meter. The maximum possible flow rate depends on the size of the valve. The specific values can be found in the table below:

Valve size	Maximum flow rate (Mmax) m^3/h
DN15 (1/2")	1.5
DN20 (3/4")	1.8
DN25 (1")	3.0
DN32 (1 1/4")	3.6
DN40 (1 1/2")	9
DN50 (2")	18

For models supporting Level Control (cluster 0x0008), the valve will self-regulate depending on the measured flow rate, so as to maintain values as close as possible to the target flow rate.

To configure the target flow rate (Mg), use the Level Control (cluster 0x0008) functionality, by setting a level value according to the following formula:

$$L = \frac{254 * Mg}{Mmax}$$

, where:

L – level value (cluster 0x0008, Level control)

Mg – target flow rate in m^3

Mmax – maximum flow rate in m^3 for the respective valve size

When $L < 255$, the smart valve will calculate the target flow rate depending on L (currently set target level) and will start self-regulating by opening and closing the valve so as to maintain the target flow rate.

If $L=255$, the valve will be maximally open without being affected by the currently measured flow rate.

Functionality (Clusters)

- (input 0x0000) Basic
- (input 0x0006) On/Off
- (input 0x0008) Level control (all without GMB-HAR-WVA-B01W model)
- (input 0x0702) Consumption metering (all without GMB-HAR-WVA-B01W model)
- (input 0x0003) Identify
- (input 0x0004) Groups
- (input 0x0005) Scenes

Control

- By pressing the button once, the water valve is toggled.
- If the device is connected to a ZigBee network, use the capabilities of the corresponding system to monitor and control the device remotely.

- If the device is bound with another ZigBee device (eg Button) follow its instructions. Most often, the command is sent by a single press.

Indicators

The device has one light indicator:

Blue - for valve open/close indication and configuration status indication:

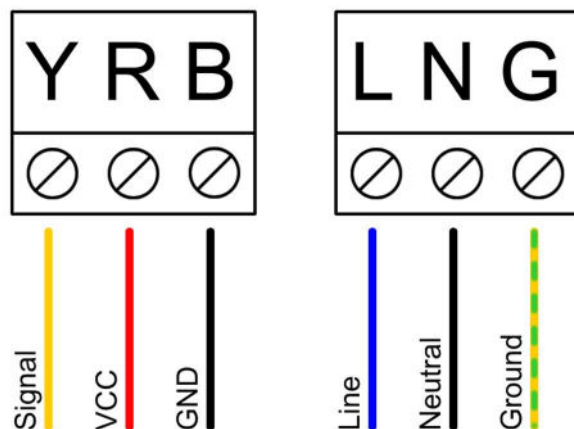
- FAST blinking (4 times/second) – when executing a command.
- SLOW blinking (once/second) – when entering a command or returning the result of a command.

In case of an invalid command or configuration error, the blue LED will blink SLOWLY as follows:

- 1 – wrong command.
- 2 – the device is not part of a ZigBee network. The command could not be executed.
- 3 – the device is locked. The configuration command could not be executed.
- 4 – the device is part of a ZigBee network. The command could not be executed.
- 5 – wrong PIN/PUK code. The command will not be executed.

Preparation and installation

1. For models connected to a flow meter, install the flow meter before the valve, observing the direction of the fluid and the direction indicated on the flow meter.
2. Close the valve and install it, observing the direction of the fluid from A to B.
3. Close the actuator by pressing the orange button and simultaneously turning the handle counterclockwise. The indicator should point to S.
4. Mount the actuator on the valve and turn the locking mechanism clockwise.
5. Unscrew the screw on the orange cover and open it.
6. Connect the flow meter and the power supply according to scheme 1, passing the cables through the muff provided on the orange cover.
7. Close the orange cover and tighten the screw.



scheme 1

Initial power on

On power up, the device will check if it has a configured ZigBee network and:

- a. If there is a ZigBee network configured, the device will start periodically trying to join it until it successfully joins. If you want to terminate this process, you need to execute the "Leave network" command. This command will reset the device to its factory default settings.
- b. If there is no ZigBee network configured and the device is unlocked, it will make 4 consecutive attempts to join an ZigBee network, within up to 1 minute. If the device does not join a ZigBee network, it can be configured later.

*** If there is no ZigBee network configured and the device is locked, it will not automatically try to join a ZigBee network at power up. To allow such a device to join a network, unlock it.**

Configuration

To configure the device press and hold the button. After 3 seconds the blue LED indicator will turn off, if it is on. After another 2 seconds the blue LED indicator will start blinking SLOWLY. Wait until the blue LED indicator blinks the CORRESPONDING NUMBER of times (NUMBER OF BLINKS) for the desired command and release the button. Possible error indications:

- If a wrong or invalid command is entered, the blue LED will blink 1 time SLOWLY.
- If the device is not part of a ZigBee network and you execute a command related to a ZigBee network, the blue LED indicator will blink 2 times SLOWLY, indicating that the command cannot be executed.

- If the device is locked, the blue LED will blink 3 times SLOWLY, indicating a locked state, and the command will not be executed.
- If the device is part of a ZigBee network and you execute a command to join or form a network, the blue LED indicator will blink 4 times SLOWLY, indicating that the command cannot be executed.
- When wrong PIN/PUK code is entered, the blue LED indicator will blink 5 times SLOWLY.

*** When the device is in configuration mode, no other commands can be executed, but it can be controlled.**

Commands

Command	Number of blinks on hold	Description
Network status	4	Information about the presence of a configured ZigBee network.
Binding	5	Binding with another ZigBee device. Duration: until 60 seconds have elapsed or the command ends.
Allow joining	6	Opening the ZigBee network for new devices to join. Duration: 60 sec.
Join network	7	Joining an existing ZigBee network. The device makes 4 consecutive attempts.
Leave network	8	When leaving a network, the device goes to its factory default settings.
Form network	9	Creates its own ZigBee network.
Lock/Unlock	10	Deny/Allow configuration changes.
Change PIN code	11	Configures a new PIN code
Enable/Disable backlight	12	Deny/Allow blue backlight

Network status

1. Submit network status command by pressing the button and wait for 4 blinks.
2. The blue LED indicator will start blinking SLOWLY:
 - 2 times if the device is not part of a Zigbee network.
 - 4 times if the device is connected to a ZigBee network.

Binding

1. Submit a binding command by pressing the button and wait for 5 blinks.
2. The blue LED indicator will start blinking FAST for 1 minute or until the command is completed.

3. Follow the binding instructions of the device you want to control the relay with. It must be part of the same ZigBee network.

Alternatively: When both devices you want to bind are part of a Houseper system, binding can be done via the Houseper app.

*** To execute this command, the device must be part of a ZigBee network.**

Allow joining

1. Submit allow joining command by pressing the button and wait for 6 blinks.
2. The blue LED indicator will start blinking FAST for 1 minute. During this time, the ZigBee network is open for new devices to join.
3. Follow the instructions of the device you want to join to the Zigbee network.

Note: In case another device opens the ZigBee network, the blue LED indicator will indicate this by blinking FAST until the command expires. No configuration commands can be executed during this time.

*** To execute this command, the device must be part of a ZigBee network.**

Join network

4. Make sure that the ZigBee network you want to join the device to is open. If you are using a Houseper system, press the "Add device" button in the Houseper app.
5. Submit join network command by pressing the button and wait for 7 blinks.
6. The blue LED indicator will start blinking FAST and the device will make 4 consecutive attempts to join an open ZigBee network, within up to 1 minute.

Alternatively: If the device is not connected to a ZigBee network, make sure the device is not locked and turn off the power for about 30 seconds. When the power is restored, the device will automatically start searching for a ZigBee network to join.

*** To execute this command, the device must NOT be part of a ZigBee network.**

Leave network

1. Submit leave network command by pressing the button and wait for 8 blinks.
2. The command will return the device to its factory default settings and the device will reboot.

Alternatively: If the device is a part of a Houseper system, you can execute this command through the app.

*** To execute this command, the device must be part of a ZigBee network. When leaving a ZigBee network, the PIN code does not return to its original value, but the last one entered is saved.**

Form network

1. Submit form network command by pressing the button and wait for 9 blinks.
2. The blue LED indicator will start blinking FAST until the device forms its own network or until 1 minute has passed.

Note: This command can be executed for a very short time and the blue LED may not blink.

*** To execute this command, the device must NOT be part of a ZigBee network.**

Lock/Unlock

1. Submit Lock/Unlock command by pressing the button and wait for 10 blinks.

A. Lock

2. If the device is unlocked, it will lock. The blue LED indicator will blink 3 times SLOWLY, indicating that the device is now locked and no reconfiguration commands can be executed.

B. Unlock

2. If the device is locked (**and not blocked**), the blue LED will remain off, waiting for a PIN/PUK code to be entered.
3. Enter the 4 digits of the PIN/PUK code sequentially by pressing the button and holding until the blue LED blinks the number of times corresponding to the entered digit. If no digit is entered within 10 seconds, PIN/PUK code entry will be terminated and the device will remain locked.
4. After entering the 4 digits of the PIN/PUK code, the blue LED indicator will blink:
 - a. 10 times SLOW if the code entered is correct and the device is unlocked.
 - b. 3 times SLOW if the code entered is wrong and the device remains locked.

*** If you enter the wrong PIN/PUK code 3 times in a row, the device will be locked for 1 hour. During this time, it cannot be unlocked even after rebooting. This 1 hour is measured only when power is on.**

C. Blocked device

2. If the device is **blocked**, the blue LED indicator will blink 3 times SLOWLY, indicating a locked and blocked device.

Change PIN code

1. Submit change PIN code command by pressing the button and wait for 11 blinks.
2. The blue LED indicator will remain off, waiting for a new PIN code to be entered.

3. Enter the 4 digits of the new PIN code 2 times consecutively (For example: If the new PIN code is 1234, you must enter 12341234) by holding the button until the device blinks blue, as many times as the corresponding digit. If no digit is entered within 10 seconds, the command will be terminated.

*** The new PIN code can only contain numbers from 1 to 9.**

4. After entering the 8 digits of the new four-digit PIN code, the blue LED indicator will blink:
 - a. 11 times SLOW if the entered PIN is accepted.
 - b. 5 times SLOW if the entered PIN is wrong:
 - The first 4 digits do not match the second 4 digits.
 - A digit greater than 9 has been entered.
 - No digit has been entered for 10 seconds.

Enable/Disable backlight

1. Submit Enable/Disable backlight command by pressing the button and wait for 12 blinks.
2. If the blue backlight is off, it will turn on and vice versa: if it is on, it will turn off.

*** Turning off the blue backlight does not affect the blue indication when executing commands.**