# Building 36 Smart Water Valve
# Z-Wave User Manual

V1.2

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# 1 Z-Wave Add and Remove Process

## 1.1 Adding the Water Valve to a Z-Wave network

1) Put Z-Wave controller into Add mode. See Z-Wave controller documentation for further information.
2) Press the NETWORKING button on the side of the control unit. The Z-Wave LED will begin to blink.
3) The valve has been successfully added to the network when the Z-Wave LED becomes solid.

## 1.2 Removing the Water Valve from a Z-Wave network

1) Put Z-Wave controller into Remove mode. See Z-Wave controller documentation for further documentation.
2) Press the NETWORKING button on the side of the control unit. The Z-Wave LED will begin to blink.
3) The valve has been successfully removed from the network when the Z-Wave LED is no longer flashing or illuminated.

*Note: At any time during the add or remove process, a single press of the pairing button will cancel the function being performed*

## 1.3 Reset Water Valve to default state

*NOTE: Device reset will reset EEPROM, configuration parameters, Z-Wave chip and forcibly clear the Smart Water Valve's Z-Wave Node Identification. Please use this procedure only when the network primary controller is missing or otherwise inoperable.*

1) Press and hold the NETWORKING button on the side of the control unit 5 seconds. The LEDs will blink rapidly for 5 seconds.
2) If there are nodes in the "Lifeline" association group, the LEDs will blink slower until all nodes are notified using a Device Reset Locally Report.
3) Once the device has been reset, the LEDs will return to their normal state.

# 2 Compatibility with Other Manufactures' Z-Wave Devices

This product can be included and operated in any Z-Wave network with other Z-Wave certified devices from other manufacturers and/or other applications. All non-battery-operated nodes within the network will act as repeaters regardless of vendor to increase reliability of the network.

# 3 Node Information

The Smart Water Valve supports non-secure, S2 Unauthenticated, and S2 Authenticated enrollment. The Smart Water Valve learns in as an Always On Slave (AOS).

A Security Enabled Z-Wave controller must be used in order to fully utilize the product.

The Z-Wave DSK code is embedded in the QR code on the back of the Smart Water Valve, to the right of the Z-Wave Plus logo. The 5-digit DSK pin is located beneath the QR Code. The QR code and entire DSK is printed on the Smart Water Valve box.

SmartStart enabled products can be added into a Z-Wave network by scanning the Z-Wave QR Code present on the product with a controller providing SmartStart inclusion. No further action is required and the SmartStart product will be added automatically within 10 minutes of being switched on in the network vicinity.

The table below shows the command classes supported by the Smart Water Valve, the command class version, and the required security class for each command class.

Table 1 - Z-Wave Command Class and Security Information

| Command Class | Version | Required Security Class |
|---|---|---|
| **Z-Wave Plus** | 2 | None |
| **Association** | 2 | Highest Granted Security Class |
| **Clock** | 1 | Highest Granted Security Class |
| **Configuration** | 1 | Highest Granted Security Class |
| **Firmware Update Meta Data** | 3 | Highest Granted Security Class |
| **Manufacturer Specific** | 2 | Highest Granted Security Class |
| **Version** | 2 | Highest Granted Security Class |
| **Device Reset Locally** | 1 | Highest Granted Security Class |
| **Power Level** | 1 | Highest Granted Security Class |
| **Association Group Info** | 1 | Highest Granted Security Class |
| **Supervision** | 1 | None |
| **Security 2** | 1 | None |
| **Transport Service** | 2 | None |
| **Binary Switch** | 1 | Highest Granted Security Class |
| **Basic** | 1 | Highest Granted Security Class |

# 4 Association Reports

The Water Valve will report the following on the lifeline association group (Group 1). The maximum number of devices on the lifeline association group is four (4).

*Switch Binary Report:* On a change in state of the valve and every 4 hours as HEARTBEAT report

*Device Reset Locally:* When the valve is reset, it will send a Device Reset Locally Notification to all devices on the lifeline association group.

# 5 Binary Switch (Version 1)

The Water Valve supports the Binary Switch command class to remotely set and report on the state of the valve actuator.

Table 2 – Switch Binary Valve State Mapping

| Value(s) | Valve State |
|---|---|
| 0x00 | Valve Open |
| 0x01-0x63, 0xFF | Valve Closed |
| 0x64-0xFE | Reserved |

# 6 Basic Command Class Handling

The BASIC Command Class is mapped to BINARY SWITCH Command class as specified by SDS11847-8, section 4.25.5 Basic Command Considerations.

# 7 Configuration Command Class

## 7.1 Parameters

### 7.1.1 0x01: Z-Wave Listen Before Talk (LBT) Threshold – Channel 0

Set the Channel 0 LBT threshold on the Smart Water Valve. The threshold controls at what RSSI level the Z-Wave radio will refuse to transmit because of noise. Each step corresponds to a 1.5dB power step.

Valid Range: 34 to 78 (Decimal)

Default: 78 (Decimal)

Size: 1 Byte

### 7.1.2 0x02: Z-Wave Listen Before Talk (LBT) Threshold – Channel 1

Set the Channel 1 LBT threshold on the Smart Water Valve. The threshold controls at what RSSI level the Z-Wave radio will refuse to transmit because of noise. Each step corresponds to a 1.5dB power step.

Valid Range: 34 to 78 (Decimal)

Default: 78 (Decimal)

Size: 1 Byte

### 7.1.3 0x45: Device Reset (Write only)

A write of 0x0B36 to this configuration parameter will cause the Smart Water Valve to reset.

Size: 2 Bytes