# Repeater Manual

## The name of each part

AC Outlet

ON/OFF
NET

Multi Function Button
AC outlet state LED
Z-Wave state LED
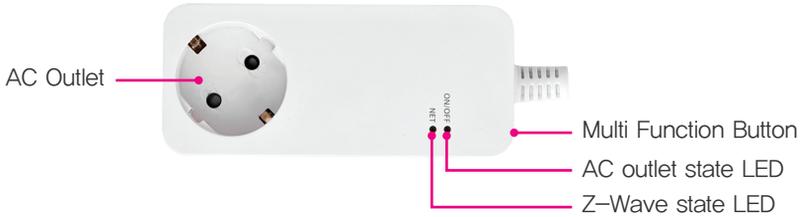
## Functional Instruction

1. AC voltage measurement (V, A, Watt, PF)
2. Z-Wave network ADD and remove use of Fn Switch, AC outlet On/Off

## On/Off LED Display

1. Green LED : AC Outlet On
2. Red LED : AC Outlet Off

## NET LED Display

1. Green LED On: Included in Z-Wave Network
2. Green/Red LED Off: Excluded from Z-Wave Network
3. Green LED blinking: Start to include in the Z-Wave network
4. Red LED blinking: Excluded from Z-Wave network
5. Green LED blinking 10times: Reset the network information

## Multi Function Button

1. Z-Wave network Inclusion and Exclusion
   - Inclusion / Exclusion
     1. Press Fn switch 3 times in a row to include the device in Z-Wave network.
     2. Press Fn switch 3 times in a row again to exclude the device from Z-Wave network.
2. Reset
   - Use this procedure only in the event that the network primary controller is missing or otherwise inoperable. Press Fn switch over 10~15 sec to reset network connection information.
3. AC Outlet On/Off
   - Press Fn switch 1 second to Pn/Off Outlet Relay

## Safety Precaution

1. Do not disassemble, repair and refurbish.
2. Do not touch the device with wet hand.

## Certification

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.

## Node Info List

| Command Class | Version |
|---|---|
| COMMAND_CLASS_ZWAVEPLUS_INFO | ZWAVEPLUS_INFO_VERSION_V2 |
| COMMAND_CLASS_VERSION | VERSION_VERSION_V2 |
| COMMAND_CLASS_MANUFACTURER_SPECIFIC | MANUFACTURER_SPECIFIC_VERSION_V2 |
| COMMAND_CLASS_DEVICE_RESET_LOCALLY | DEVICE_RESET_LOCALLY_VERSION_V1 |
| COMMAND_CLASS_POWERLEVEL | POWERLEVEL_VERSION_V1 |
| COMMAND_CLASS_ASSOCIATION | ASSOCIATION_VERSION_V2 |
| COMMAND_CLASS_ASSOCIATION_GRP_INFO | ASSOCIATION_GRP_INFO_VERSION_V2 |
| COMMAND_CLASS_BASIC | BASIC_VERSION_V1 |
| COMMAND_CLASS_SWITCH_BINARY | SWITCH_BINARY_VERSION_V1 |
| COMMAND_CLASS_METER | METER_VERSION_V3 |
| COMMAND_CLASS_CRC16_ENCAP | CRC_16_ENCAP_VERSION_V1 |
| COMMAND_CLASS_CONFIGURATION | CONFIGURATION_VERSION_V1 |
| COMMAND_CLASS_FIRMWARE_UPDATE_MD_V2 | FIRMWARE_UPDATE_MD_VERSION_V2 |

## Associstion

### 1. Type
  A. Role Type : Always On Slave
  B. Device Type : Switch On/Off
  - Generic : GENERIC_TYPE_SWITCH_BINARY
  - Specific : SPECIFIC_TYPE_POWER_SWITCH_BINARY
  - Icon type : ICON_TYPE_GENERIC_ON_OFF_POWER_SWITCH
  - User Icon type : ICON_TYPE_SPECIFIC_ON_OFF_POWER_SWITCH_PLUGIN

### 2. Group
  A. Group1 – Lifeline
  B. Group2 – Notice button status with switch binary report.
  C. Group3 – Notice AC power status with meter report.

## Configuration Command Class Parameter

| Parameter | Function | Size | Default | Description |
|-----------|----------|------|---------|-------------|
| 2 | AMRC | 1 | 0x02 | Set the Meter data notice |
| 3 | AKRC | 1 | 0x01 | Set the Button Status notice |
| 91 | GMRTL_W | 2 | 50 | Group report trigger level (Watt) |
| 92 | GMRTL_kWh | 2 | 50 | Group report trigger level (kWh) |
| 101 | GRCCS | 4 | 0x0000 | Group report setting |
| 111 | GRIC | 4 | 720 | Group report time setting |
| 255 | Reset | 1 | 0xFF | Initialize Configuration parameter |

## A. Parameter 2

1. Automatically meter report control (AMRC) is report mode setting of the Meter data.

| | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
|---|---|---|---|---|---|---|---|---|
| Configuration Value 1 | | | | | | | AMRC | |

| AMRC | | Automatically meter report control |
|------|-----|-----------------------------------|
| MSB | LSB | |
| 0 | 0 | Deactivate the Meter data report |
| 0 | 1 | Trigger level event mode |
| 1 | 0 | Time Interval Mode |

**AMRC (00b)** Deactivate the meter report

**AMRC (01b)** In case Parameter 91~92 is bigger than setting value, report the event. Report interval is 31 seconds after trigger.

**AMRC (10b)** Automatic report by the set interval in the Parameter 111.

## B. Parameter 3

1. Automatically key report control (AKRC) is report mode setting of the Key data.

| | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
|---|---|---|---|---|---|---|---|---|
| Configuration Value 1 | | | | | | | AKRC | |

| AKRC | | Automatically key report control |
|------|-----|----------------------------------|
| MSB | LSB | |
| 0 | 0 | Deactivate the button activation report |
| 0 | 1 | Button Activation report |

## C. Parameter 91~92 (0x5B~0x5C)

### 1. Trigger value setting (0~65535) for Meter report of Parameter2.

|  | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
|---|---|---|---|---|---|---|---|---|
| Configuration Value 1 | Trigger value (MSB) | | | | | | | |
| Configuration Value 2 | Trigger value (LSB) | | | | | | | |

| Parameter 91 | Group1 Watt Trigger level value |
|---|---|
| Parameter 92 | Group1 kWh Trigger level value |

## D. Parameter 101 (0x65) (GRCCS – Group Report Command Class Setup)

### 1. Report setting for Group

|  | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
|---|---|---|---|---|---|---|---|---|
| Configuration Value 1 | Reserved | | | | | | | |
| Configuration Value 2 | Reserved | | | | | | | |
| Configuration Value 3 | Reserved | | | | | | | CRC |
| Configuration Value 4 | MRSS | | | | | | | |

**CRC** Group report crc16 enable/disable

| CRC | Group report CRC16 |
|---|---|
| 0x00 | Group report CRC16 Disable |
| 0x01 | Group report CRC16 Enable |

**MRSS** Select Scale of Meter report.

| MRSS | Meter Report Scale Select |
|---|---|
| 0x00 | Meter report command scale (kWh) |
| 0x02 | Meter report command scale (Watt) |

## E. Parameter 111 (0x6F)

### 1. Interval time setting for (60~65535 second)Report group

|  | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
|---|---|---|---|---|---|---|---|---|
| Configuration Value 1 | Reserved | | | | | | | |
| Configuration Value 2 | Reserved | | | | | | | |
| Configuration Value 3 | Interval value (MSB) | | | | | | | |
| Configuration Value 4 | Interval value (LSB) | | | | | | | |

## F. Parameter 255

### 1. Initialize Configuration parameter

|                       | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
|-----------------------|---|---|---|---|---|---|---|---|
| Configuration Value 1 | Default parameter number | | | | | | | |

| Parameter num | Description |
|---------------|-------------|
| 2 | Initialize Parameter 2 |
| 3 | Initialize Parameter 3 |
| 91 | Initialize Parameter 91 |
| 92 | Initialize Parameter 92 |
| 101 | Initialize Parameter 101 |
| 111 | Initialize Parameter 111 |
| 255 | Reset to the default full parameter |