Energy Meter User Manual

The name of each part

Fn display
ANT
Fn switch
CT CH1
CT CH2
Power AC 200V

Functional Instruction

1. AC voltage measurement
2. AC measurement use of CT (A, Watt, PF)
3. Include / Exclude from Z—Wave network using Fn switch

Z—Wave network inclusion and exclusion

1. Include your energy meter in Z—Wave network

A. Confirm that a device must be wireless access to Z—Wave network. (Fn Display: Green LED OFF)

B. Set "NW Inclusion" or "Node Add" by controller.

C. Press Fn switch 3 times in a row to include device in Z—Wave network. (Fn Display: Green LED blinking)

- Press Fn switch 3 times in a row to exclude the device from the Z—Wave network.
(Fn Display: Green LED OFF)

D. Confirm that a device is included in Z—Wave network. (Fn Display: Green LED blinking)

2. Exclude your energy meter from Z—Wave network

A. Confirm that a device is included in Z—Wave network. (Fn Display: Green LED blinking)

B. Set "Node remove" by controller.

C. Press Fn switch 3 times in a row to exclude the device from the Z—Wave network.
(Fn Display: Red LED blinking)

- If the controller is not on "Node remove" status, device will automatically cancel "Exclusion".
(Fn Display: Green LED ON)

D. Confirm the exclusion of the device from Z—Wave network. (Fn Display Green LED – OFF)

3. 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.
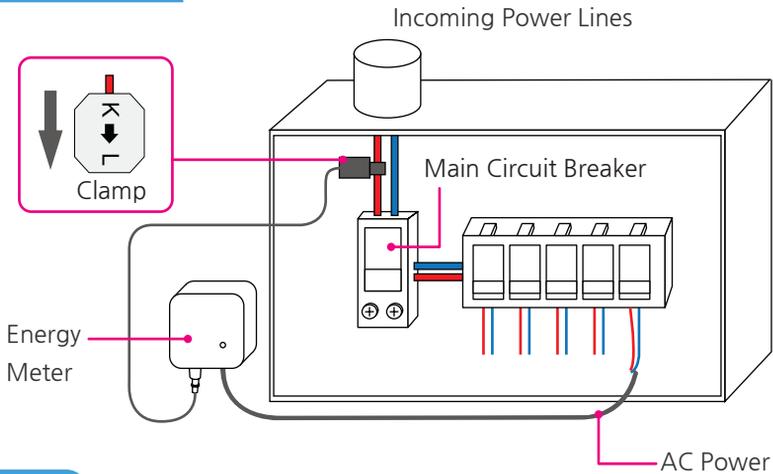
Safety Precaution

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

Fn Display

1. Green LED On : Z-Wave network on line
2. Green/Red LED Off : Z-Wave network off-line
3. Green LED blinking : start inclusion to Z-Wave network
4. Red LED blinking : remove the inclusion from Z-Wave network
5. Green LED blinking 10times : Initialize network information

Cable Installation

Incoming Power Lines

Clamp

Main Circuit Breaker

Energy Meter

AC Power

Fn Display

1. Turn off main electricity breaker to power-off AC power.
2. Open the main circuit box panel.
3. Open clamp clip and connect to incoming power line on the main circuit breaker.
   (Note : please make sure the current direction which is marked on clamp and cable line direction.)
4. Connect clamp to CT incoming power socket on energy meter.
5. Connect the AC power output on the earth leakage circuit breaker to AC cable on energy meter.
6. Connect AC Live on the circuit box to brown cable on Energy meter.
7. Connect AC Neutral on the circuit box to blue cable on Energy meter.
8. Replace the main circuit box panel.
9. Turn on main electricity breaker to power-on AC power.

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_MULTI_CHANNEL_V4	MULTI_CHANNEL_VERSION_V4
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 : Whole Home Meter
- Generic : GENERIC_TYPE_METER
- Specific : SPECIFIC_TYPE_WHOLE_HOME_METER_SIMPLE
- 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.
- Report the SUM of Clamp1, Clamp2 to the node which belongs to Group1

B. Group2 – Meter1
- Report the Meter data of Clamp1 to the node which belongs to Group2.

C. Group3 – Meter2
- Report the Meter data of Clamp2 to the node which belongs to Group3.

Feature

Color : White

Configuration Command Class Parameter

Parameter		Function	Size	Default	Description
2	0x02	AMRC	1	0x02	Set the Meter data report
3	0x03	MRCS	1	0x01	Set the Meter Report Clamp
91	0x5B	GMRTL1_W	2	50	Group1 Meter report trigger level (Watt)
92	0x5C	GMRTL1_kWh	2	50	Group1 Meter report trigger level (kWh)
93	0x5D	GMRTL2_W	2	50	Group2 Meter report trigger level (Watt)
94	0x5E	GMRTL2_kWh	2	50	Group2 Meter report trigger level (kWh)
95	0x5F	GMRTL3_W	2	50	Group3 Meter report trigger level (Watt)
96	0x60	GMRTL3_kWh	2	50	Group3 Meter report trigger level (kWh)
101	0x65	GRCCS1	4	0x00	Set the Group1 Report
102	0x66	GRCCS2	4	0x02	Set the Group2 Report
103	0x67	GRCCS3	4	0x02	Set the Group3 Report
111	0x6F	GRIC1	4	720	Set the Group1 Report Time
112	0x70	GRIC2	4	720	Set the Group2 Report Time
113	0x71	GRIC3	4	720	Set the Group3 Report Time
255	0xFF	Reset	1	0xFF	Reset to the default configuration parameter

A. Parameter 2

1. Automatically meter report control (AMRC) is to set the Meter data Report

	7	6	5	4	3	2	1	0
Configuration Value 1			AMRC3		AMRC2		AMRC1	

AMRC1   Automatically control the meter report of Group1
AMRC2   Automatically control the meter report of Group2
AMRC3   Automatically control the meter report of Group3

AMRC		Automatically meter report control
MSB	LSB	
0	0	Clear Meter data report
0	1	Trigger Level Event Mode
1	0	Time Interval Mode

AMRC (00b)   Clear Meter Report
AMRC (01b)   Report the event
in case GMRTLx_W , GMRTLx_kWh value is bigger than setting value.
AMRC (10b)   Automatic repot with the setting interval in the GRICx.

B. Parameter 3

1. Meter Report Clamp Select (MRCS) sets the Meter data which is reported by "Get command" of Meter Command Class that does not use "Multi Channel Command Encapsulation Command" (without Destination End Point).

MRCS	Meter report clamp select
0x01	Clamp1 meter data
0x02	Clamp2 meter data
0x03	Sum of the Meter data's Clamp 1, 2

C. Parameter 91~96

1. Set the trigger value (0~65535) of Meter report in the Parameter 2

	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
Parameter 93	Group2 Watt Trigger level value
Parameter 94	Group2 kWh Trigger level value
Parameter 95	Group3 Watt Trigger level value
Parameter 96	Group3 kWh Trigger level value

D. Parameter 101~103 (GRCCS – Group Report Command Class Setup)

1. Set the Group Report

	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							

Parameter 101	Which reports need to send in report group1
Parameter 102	Which reports need to send in report group2
Parameter 103	Which reports need to send in report group3

CRC Group report crc16 enable/disable

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

MRSS select the scale which is used for Meter report event.

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

E. Parameter 111~113 (GRIC – Group Report Interval Control)
1. Set the Interval time of Report group (60~65535 second)

	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
93	Initialize Parameter 93
94	Initialize Parameter 94
95	Initialize Parameter 95
96	Initialize Parameter 96
101	Initialize Parameter 101
102	Initialize Parameter 102
103	Initialize Parameter 103
111	Initialize Parameter 111
112	Initialize Parameter 112
113	Initialize Parameter 113
255	Reset all parameters to the default