

# ONU Integrated Service Router

## User's Guide

Model: NSD-G1000TS

# Introduction

This document describes the ONU Integrated Service Router (Model NSD-G1000TS) overview and how to use Z-Wave™ functionality.

## Feature Overview

The current product is a home gateway device. IoT devices such as sensors are connected and can be controlled with this device. This device supports various interfaces for the functionalities of Wireless LAN, Bluetooth, Z-Wave™ and Mobile networks.

The device can collect sensing data from various Z-Wave™ sensor devices, and uploading of the data to a cloud server by wired LAN communication is available.

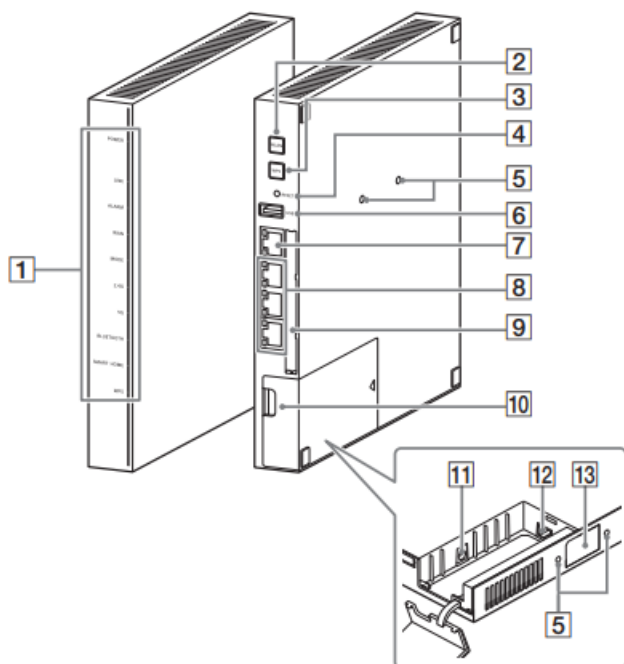
This product can be operated in any Z-Wave™ network with other Z-Wave™ certified devices from other manufacturers. All mains operated nodes within the network will act as repeaters regardless of vendor to increase reliability of the network.

The ONU Integrated Service Router has the following general features:

- 4 LAN Ports
- Wireless LAN client
- Z-Wave™ communication
- Bluetooth communication

# Names of Product Device Parts

The top and bottom view of the product device and parts names are as follows.



| No | Part Name                           |
|----|-------------------------------------|
| 1  | System LED                          |
| 2  | WLAN Button                         |
| 3  | WPS Button                          |
| 4  | Reset Button                        |
| 5  | Bracket Mounting Hole               |
| 6  | USB 2.0 Connector                   |
| 7  | LAN Connector (2.5GBASE-T) with LED |
| 8  | LAN Connector (1000BASE-T) with LED |
| 9  | LAN Plate                           |
| 10 | GPON Cover                          |
| 11 | DC-IN Connector                     |
| 12 | SC (LINE) Connector                 |
| 13 | SSID Label                          |

## Installation

Installation of the ONU Integrated Service Router is only a one step process:

1- Connect an AC adapter to the gateway and plug it into an AC outlet. The gateway has no power switch. It will begin operating as soon as it is plugged into the AC adapter/outlet.

The gateway needs to be connected to the internet via a WAN port.

# LED Indication Information

System status LED/Lamp Indicator:

| LED Indicator/Lamp Type | Lamp Color and Status | Device Status                       |
|-------------------------|-----------------------|-------------------------------------|
| POWER                   | Green Steady State    | Power is on                         |
| LINE                    | Green Blinking        | Connecting G-PON                    |
|                         | Green Steady State    | Connected G-PON                     |
| ALARM                   | Red Steady State      | Optical fiber is disconnected       |
| WAN                     | Green Steady State    | Internet is connected via wired LAN |
| MODE                    | Green Steady State    | G-PON mode                          |
|                         | Red Steady State      | IPoE mode                           |
| 2.4G                    | Green Steady State    | Wi-Fi(2.4GHz) is enabled            |
| 5G                      | Green Steady State    | Wi-Fi(5GHz) is enabled              |
| BLUETOOTH               | Green Steady State    | Pairing with Bluetooth              |
| WPS                     | Red Blinking          | Pairing with WPS                    |
|                         | Red Steady State      | Pairing was successful              |

# General Information

## Device Type

Gateway

## Role Type

Central Static Controller (CSC)

## Command Class

### Support

| CC                                     | Version | Required Security classes      |
|----------------------------------------|---------|--------------------------------|
| COMMAND_CLASS_APPLICATION_STATUS       | 1       | None                           |
| COMMAND_CLASS_ASSOCIATION              | 3       | None                           |
| COMMAND_CLASS_ASSOCIATION_GRP_INFO     | 3       | None                           |
| COMMAND_CLASS_CRC_16_ENCAP             | 1       | None                           |
| COMMAND_CLASS_DEVICE_RESET_LOCALLY     | 1       | None                           |
| COMMAND_CLASS_MULTICHANNEL_ASSOCIATION | 4       | None                           |
| COMMAND_CLASS_MANUFACTURER_SPECIFIC    | 2       | Highest granted security class |
| COMMAND_CLASS_POWERLEVEL               | 1       | Highest granted security class |
| COMMAND_CLASS_SECURITY                 | 1       | None                           |
| COMMAND_CLASS_SECURITY_2               | 1       | None                           |
| COMMAND_CLASS_VERSION                  | 3       | Highest granted security class |
| COMMAND_CLASS_ZWAVEPLUS_INFO           | 2       | None                           |
| COMMAND_CLASS_FIRMWARE_UPDATE_MD       | 5       | Highest granted security class |
| COMMAND_CLASS_INCLUSION_CONTROLLER     | 1       | None                           |
| COMMAND_CLASS_INDICATOR                | 3       | Highest granted security class |
| COMMAND_CLASS_MAILBOX                  | 2       | LAN-side only                  |
| COMMAND_CLASS_MULTI_CMD                | 1       | None                           |
| COMMAND_CLASS_NODE_PROVISIONING        | 1       | Access Control, only when SIS  |
| COMMAND_CLASS_NW_MGMT_BASIC            | 2       | Highest granted security class |
| COMMAND_CLASS_NW_MGMT_INCLUSION        | 4       | Highest granted security class |
| COMMAND_CLASS_NW_MGMT_IMA              | 4       | Highest granted security class |
| COMMAND_CLASS_NW_MGMT_PROXY            | 4       | Highest granted security class |
| COMMAND_CLASS_SUPERVISION              | 1       | None                           |
| COMMAND_CLASS_TRANSPORT_SERVICE        | 2       | None                           |
| COMMAND_CLASS_TIME                     | 1       | None                           |
| COMMAND_CLASS_ZIP                      | 4       | LAN-side only                  |
| COMMAND_CLASS_ZIP_GATEWAY              | 1       | LAN-side only                  |
| COMMAND_CLASS_ZIP_ND                   | 2       | LAN-side only                  |
| COMMAND_CLASS_ZIP_NAMING               | 1       | LAN-side only                  |
| COMMAND_CLASS_ZIP_PORTAL               | 1       | LAN-side only                  |
| COMMAND_CLASS_ZWAVEPLUS_INFO           | 2       | None                           |

## Control

| CC                               | Version | CC                         | Version |
|----------------------------------|---------|----------------------------|---------|
| ANTITHEFT_UNLOCK                 | 1       | NW_MGMT_PROXY              | 4       |
| APPLICATION_STATUS               | 1       | POWERLEVEL                 | 1       |
| ASSOCIATION                      | 3       | PROTECTION                 | 2       |
| ASSOCIATION_CMD_CFG              | 1       | SECURITY                   | 1       |
| ASSOCIATION_GRP_INFO             | 3       | SECURITY_2                 | 1       |
| BARRIER_OPERATOR                 | 1       | SENSOR_ALARM               | 1       |
| BASIC                            | 2       | SENSOR_BINARY              | 2       |
| BATTERY                          | 3       | SENSOR_MULTILEVEL          | 11      |
| CENTRAL_SCENE                    | 3       | SIMPLE_AV_CONTROL          | 1       |
| CLIMATE_CONTROL_SCHEDULE         | 1       | SOUND_SWITCH               | 2       |
| CLOCK                            | 1       | SUPERVISION                | 1       |
| CONFIGURATION                    | 4       | SWITCH_ALL                 | 1       |
| CRC16_ENCAP                      | 1       | SWITCH_BINARY              | 2       |
| DEVICE_RESET_LOCALLY             | 1       | SWITCH_COLOR               | 3       |
| DOOR_LOCK                        | 4       | SWITCH_MULTILEVEL          | 4       |
| DOOR_LOCK_LOGGING                | 1       | THERMOSTAT_FAN_MODE        | 5       |
| FIRMWARE_UPDATE_MD               | 7       | THERMOSTAT_FAN_STATE       | 2       |
| INDICATOR                        | 3       | THERMOSTAT_MODE            | 3       |
| MANUFACTURER_SPECIFIC            | 2       | THERMOSTAT_OPERATING_STATE | 2       |
| METER                            | 5       | THERMOSTAT_SETBACK         | 1       |
| METER_PULSE                      | 1       | THERMOSTAT_SETPOINT        | 3       |
| METER_TBL_MONITOR                | 1       | TIME                       | 2       |
| MULTI_CHANNEL                    | 4       | USER_CODE                  | 2       |
| MULTI_CHANNEL_ASSOCIATION        | 4       | VERSION                    | 3       |
| MULTI_CMD                        | 1       | WAKE_UP                    | 2       |
| NO_OPERATION                     | 1       | WINDOW_COVERING            | 1       |
| NODE_NAMING                      | 1       | ZIP                        | 4       |
| NODE_PROVISIONING                | 1       | ZIP_GATEWAY                | 1       |
| NOTIFICATION/ALARM               | 8       | ZIP_ND                     | 2       |
| NW_MGMT_BASIC                    | 2       | ZIP_PORTAL                 | 1       |
| NW_MGMT_INCLUSION                | 4       | ZWAVEPLUS_INFO             | 2       |
| NW_MGMT_INSTALLATION_MAINTENANCE | 4       |                            |         |

## Interoperability

Any products from different manufacturers and product categories can be a part of the same Z-Wave™ network using the gateway, and different non-battery powered nodes can act as repeaters regardless of the manufacture.

## Security Enabled Z-Wave Plus™ Product

The gateway is a security enabled Z-Wave Plus™ product.

## Basic Command Class Handling

The gateway will ignore Basic Commands received from other devices in the Z-Wave™ network.

## Support for Association Command Class

Group id: 1 – Lifeline

Maximum number of devices that can be added to the group: 1

All devices are associated with the group.

## Identify

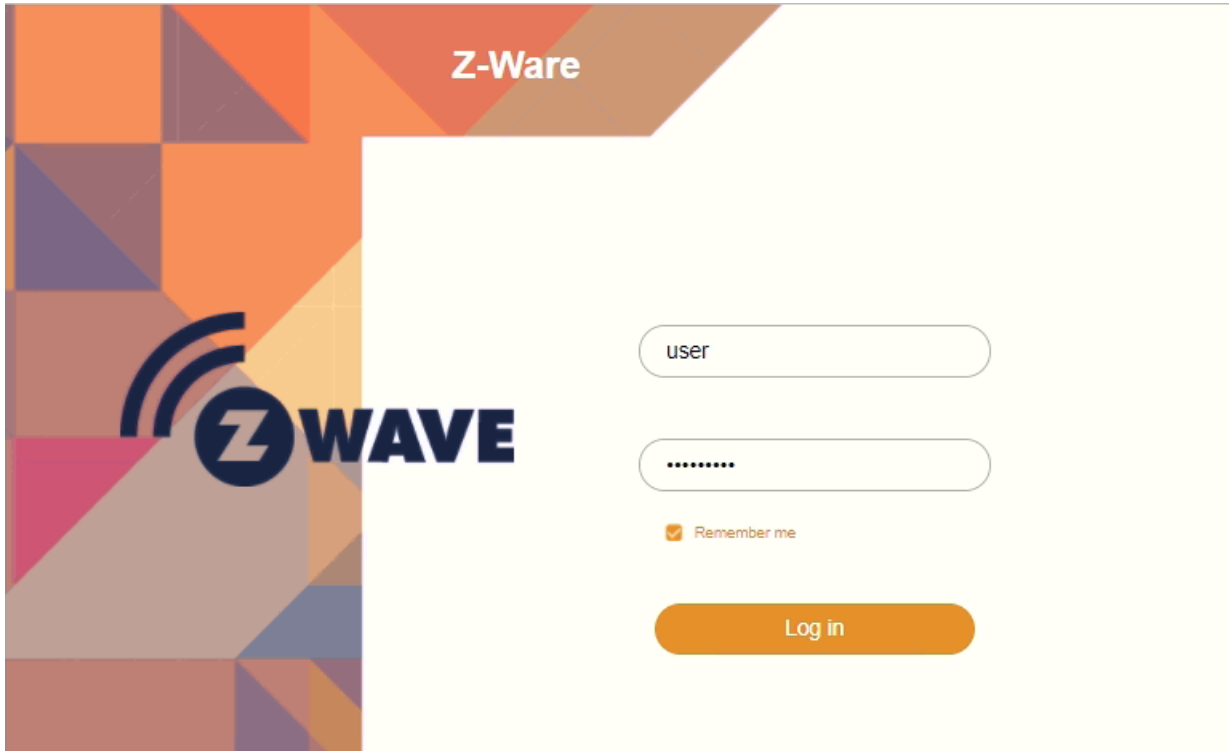
The “Indicator-Identify” command can be used to identify the controller with the Indicator ID 0x50 or any node that supports the Identify command. The “Indicator-Set” command can be used to send specific indicating parameters to a node.

# Z-Ware Controller Interface

## Gateway Login Screen

Visit Z-wave user interface by web browser with IP address: <http://192.168.1.1>

Use account: user/password: smarthome to login.



The login screen features a decorative header with a geometric pattern of orange, purple, and pink triangles on the left, and a solid orange bar on the right containing the text "Z-Ware". Below the pattern is the Z-Wave logo, which consists of a stylized "Z" inside a circle with three curved lines above it, followed by the word "WAVE" in bold blue capital letters. The login form is positioned on the right side of the screen and includes a username input field with the text "user", a password input field with masked characters "\*\*\*\*\*", a "Remember me" checkbox with a checked icon, and an orange "Log in" button.

Z-Ware

**Z WAVE**

user

\*\*\*\*\*

☒ Remember me

Log in

# Node Controller

Node Controller shows the device viewer with device class and corresponding setting options.

Menu

Home  
SmartStart  
Network Manager  
Node Controller  
Scenes  
Security Scenes  
Settings  
Feature  
About  
Change Password  
Logout

Z-Wave

Node Controller

| Node Id | Vendor   | Product Id | Product Type | Category | Security              |
|---------|----------|------------|--------------|----------|-----------------------|
| 1       | Id: 1087 | 3          | 3            |          | [S0] [S2.0] [S2.1] >> |

| Endpoint Id | Generic Device Class | Specific Device Class | Name | Location |
|-------------|----------------------|-----------------------|------|----------|
| 0           | Static Controller    | Gateway               |      |          |

Time Settings

Gateway Settings

Portal Settings

Firmware Settings

Name/Location Settings

## Inclusion (Add)

Select Network Manager>> Add Node to start device inclusion.

Menu

Home  
SmartStart  
Network Manager  
Node Controller  
Scenes  
Security Scenes  
Settings  
Feature  
About  
Change Password  
Logout

Z-Wave

Network Manager

Add Node

Add Node(Dsk)

Add Node On Behalf

Add Node On Behalf(Dsk)

Remove Node

Replace Failed Node

Replace Node(Dsk)

Replace Node On Behalf

Replace Node On Behalf(Dsk)

Remove Failed Node

Network Health Check

Update Network

Reset

Learn Mode

☒ Broadcast

Send Node Info

Update Node

Node Identify

Set LR Channel

Primary

Get LR Channel

LR unsupported

| Node | Vendor   | Product | Product | Category | Security           | Health |    |
|------|----------|---------|---------|----------|--------------------|--------|----|
| 1    | Id: 1087 | 3       | 3       |          | [S0] [S2.0] [S2.1] |        | >> |

## Exclusion (Remove)

Select Network Manager>> Remove Node to start device exclusion.

Menu

Home  
SmartStart  
Network Manager  
Node Controller  
Scenes  
Security Scenes  
Settings  
Feature  
About  
Change Password  
Logout

Z-Wave

Network Manager

Add Node

Add Node(Dsk)

Add Node On Behalf

Add Node On Behalf(Dsk)

Remove Node

Replace Failed Node

Replace Node(Dsk)

Replace Node On Behalf

Replace Node On Behalf(Dsk)

Remove Failed Node

Network Health Check

Update Network

Reset

Learn Mode

☒ Broadcast

Send Node Info

Update Node

Node Identify

Set LR Channel

Primary

Get LR Channel

LR unsupported

| Node | Vendor   | Product | Product | Category | Security           | Health |    |
|------|----------|---------|---------|----------|--------------------|--------|----|
| 1    | Id: 1087 | 3       | 3       |          | [S0] [S2.0] [S2.1] |        | >> |

# Learn Mode

The Learn Mode is to add the gateway into another Z-Wave™ network as a secondary controller or inclusion controller. Select Network Manager>> Learn Mode into device learning.

Menu

Home  
SmartStart  
Network Manager  
Node Controller  
Scenes  
Security Scenes  
Settings  
Feature  
About  
Change Password  
Logout

Z-Ware

Network Manager

Add NodeAdd Node(Dsk)Add Node On BehalfAdd Node On Behalf(Dsk)Remove Node

Replace Failed NodeReplace Node(Dsk)Replace Node On BehalfReplace Node On Behalf(Dsk)Remove Failed Node

Network Health CheckUpdate NetworkReset

Learn Mode

☒ BroadcastSend Node InfoUpdate NodeNode Identify

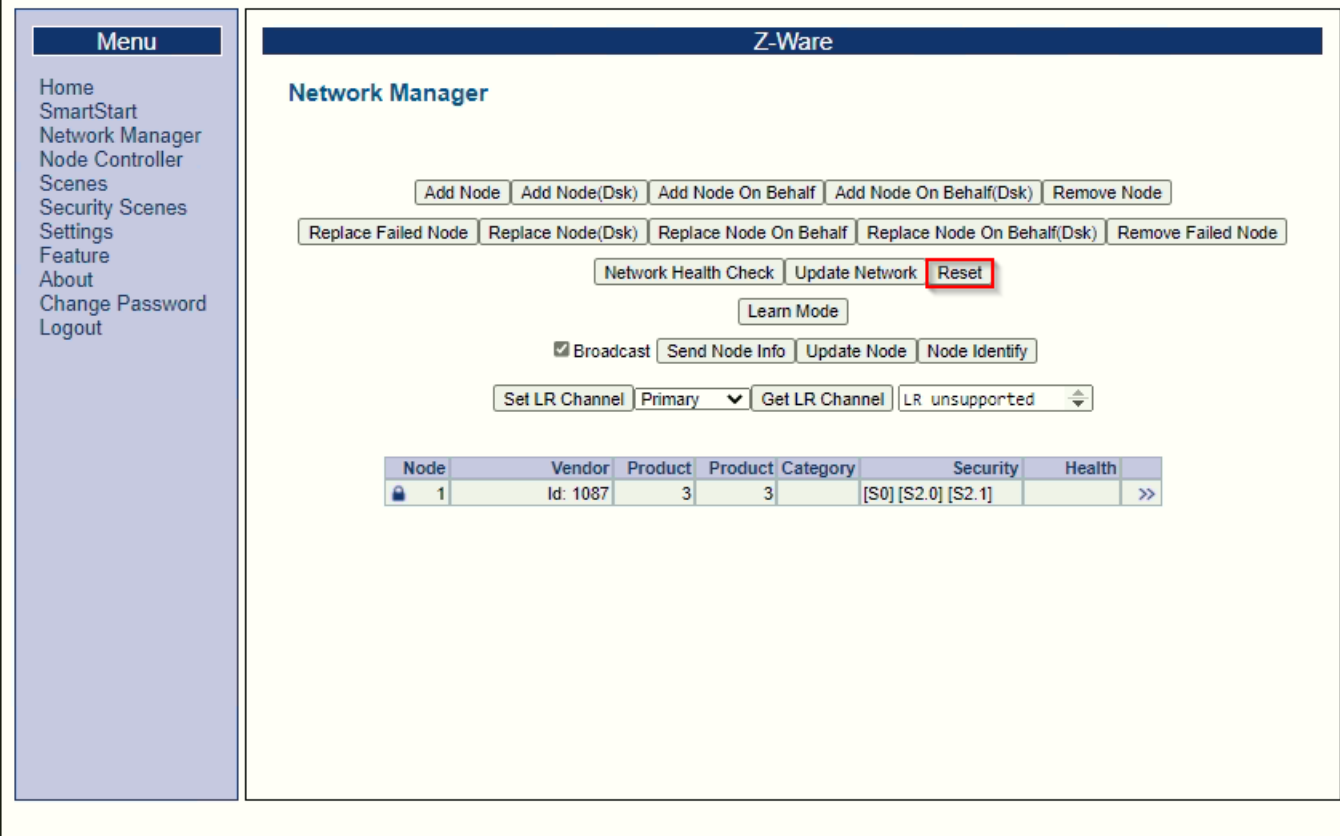
Set LR ChannelPrimaryGet LR ChannelLR unsupported

| Node | Vendor   | Product | Product | Category | Security           | Health |    |
|------|----------|---------|---------|----------|--------------------|--------|----|
| 1    | Id: 1087 | 3       | 3       |          | [S0] [S2.0] [S2.1] |        | >> |

# Reset Mode

Select Network Manager>> Rest to perform a reset to factory default operation.

If this controller is the primary controller for your network, resetting it will result in the nodes in your network being orphaned and it will be necessary after the reset to exclude and re-include all of the nodes in the network. If this controller is being used as a secondary controller in the network, use this procedure to reset this controller only in the event that the network primary controller is missing or otherwise inoperable.



# Node Rediscovery

Select Network Manager>> Update Node to perform the capability rediscovery of a chosen node.

# SmartStart

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.

Select SmartStart to perform SmartStart operation.

Select “Add Device” button to register the DSK which is indicated on product label or shown as QR code that can be scanned via smartphone camera.

The added device will be shown in the provisioning list.

Select “Refresh Device List” button to update the provisioning list.

Select Device name in the provisioning list to edit or remove single device.

Select “Remove All Devices” button to clear the provisioning list.



## Where to find S2 DSK on product

DSK which is indicated on product label or shown as QR code that can be scanned via smartphone camera.

QR code is written on product label of the gateway with protection by fiber cover from the wonders of rubbing and dirt.

## Initiate Controller Replication

In the event that the gateway is already the controller of the Z-Wave™ network, put the gateway into Inclusion Mode, and put another controller into the Learn Mode. The Replication will begin and network information will be sent to another controller. In the event that the gateway is integrated into an existing Z-Wave™ network, put the gateway into Learn Mode, and put the existing controller into Inclusion Mode. The Replication will begin and network information will be received from the existing controller.