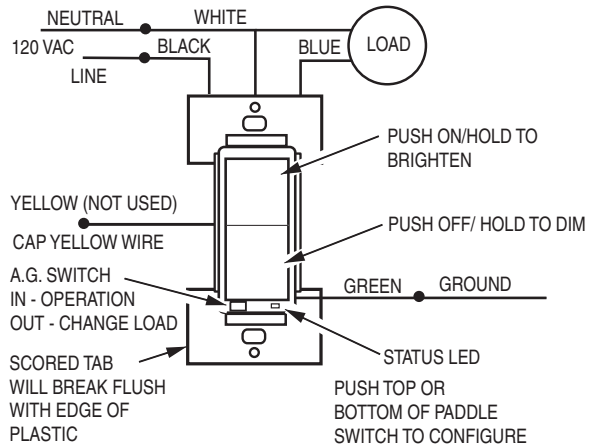SUPPLIED WITH DECORATIVE SWITCH PLATE

NOTE: This module must be "included in the Network" **only where it will be permanently installed.** The proper operation of this node in the mesh network is dependent on it knowing its location with respect to other nodes. You cannot "test bench" configure this module.

WD500Z-1 WALL MOUNTED DIMMER

Linear's family of Z-Wave certified wireless lighting controls (switches, dimmers, outlets and plug-in modules) brings a new level of intelligent wireless capability to commercial and residential environments.

The Z-Wave wireless protocol is an international wireless standard for remote home automation, security and other applications. Embedded in each device, the Z-Wave smart chip enables two-way RF communication among hundreds of Z-Wave enabled devices, allowing products and services from multiple manufacturers to work seamlessly.

Linear Z-Wave products are easy to install, and allow dealers to create an integrated wireless network with nearly limitless expansion and interoperability with security and health monitoring systems, energy management, home entertainment, appliances, and more.

DANGER! SHOCK HAZARD. Read and understand these instructions before installing. This device is intended for installation in accordance with the National Electric code and local regulations in the United States, or the Canadian Electrical Code and local regulations in Canada. It is recommended that a qualified electrician perform this installation. Make sure the total load controlled does not exceed 1800 watts. For indoor use only. Retain instructions for future use.

CAUTION: **To reduce the risk of overheating and possible damage** to other equipment, do not install to control a receptacle, a motor operated appliance, a fluorescent lighting fixture, or a transformer-supplied appliance, **but only permanently installed incandescent lamp fixtures.** Make sure the lamp(s) to be controlled directly from the dimmer receiver total no more than 500 watts. Retain instructions for future use.

INSTALLATION

With power off, wire this WD500Z-1 according to the diagram show. **Caution!** Do not wire unit "live" (with power on the circuit) and do not allow the yellow wire to contact line voltage, neutral or ground or you will damage the device.

If more than one WD500Z-1 is to be installed in a wall box, scored tabs on the side can be broken off by bending back and forth with pliers, to accommodate proper fit. Apply power when completed

Remote Control
The WD500Z-1 will respond to BASIC and MULTILEVEL commands that are part of the Z-Wave system. Refer to your controller's instructions as to whether your controller can transmit those commands.

All On/All Off
The WD500Z-1 supports the ALL ON/ ALL OFF commands.

The WD500Z-1 can be set to respond to ALL ON and ALL OFF commands 4 different ways. Refer to your controller for information on how to set the WD500Z-1 to operate in the manner you desire. Some controllers may be only able to set certain settings of ALL ON/ALL OFF response. The 4 different ways the WD500Z-1 can be setup to respond to ALL ON and ALL OFF commands are:

• WD500Z-1 will not respond to ALL ON or the ALL OFF command.
• WD500Z-1 will respond to ALL OFF command but will not respond to ALL ON command.
• WD500Z-1 will respond to ALL ON command but will not respond to ALL OFF command.
• WD500Z-1 will respond to ALL ON and the ALL OFF command (default)

ASSOCIATION

The WD500Z-1 supports the Association command.

The WD500Z-1 can be set to control other Z-Wave devices. **Those devices must be installed in their permanent location.**

You can turn on and off, and even dim other Z-Wave devices once they are **"associated"** in groups 2 and 3 with WD500Z-1.

ABOUT DIMMERS IN A GROUP: If you combine Z-Wave enabled dimmers and other types of Z-Wave devices in a group, place a Z-Wave enabled dimmer into the empty group first to ensure that the dimming operates correctly.

Each group is turned on, off or dimmed by tapping or holding the switch a differing amount of times.

Group 2

If you **associate** a Z-Wave device into Group 2, you can turn that device on and off by tapping the top or bottom of the switch twice. You can brighten or dim devices by tapping the top or bottom of the switch once and then hold it down. The load attached to the WD500Z-1 is not affected.

Group 3

If you **associate** a Z-Wave device into Group 3, you can turn that device on by tapping the top of the switch three times or off by tapping the bottom of the switch three times. You can brighten devices by tapping the top of the switch twice or dim devices by tapping the bottom of the switch twice and then hold it down. The load attached to the WD500Z-1 is not affected.

You can **associate** up to **5** Z-Wave devices into each of these groups. For instructions on how to **"associate"** a Z-Wave device into one of these groups, refer to your wireless controller instructions. (If you are using the Z-Wave controller, refer to the Setup Menu, Association section).

ABOUT DIMMING: If you combine Z-Wave enabled dimmers and other types of Z-Wave devices in a group, place a Z-Wave enabled dimmer into the empty group 1st to ensure that the dimming operates correctly.

CONFIGURATION

The WD500Z-1 supports the Configuration command.

The WD500Z-1 can be configured to operate differently than how it works when you first install it. Using the Configuration command you can configure the following:

Set Ignore Start Level Bit When Transmitting Dim Commands

The WD500Z-1 can send Dim commands to Z-Wave enabled dimmers. The Dim command has a start level embedded in it. A dimmer receiving this command will start dimming from that start level if this bit is set to 0. If the bit is set to 1, the dimmer will ignore the start level and instead start dimming from its current level.

- **Parameter No: 1**
- **Length: 1 Byte**
- **Valid Values = 0 or 1 (default 1)**

Night Light

The LED on the WD500Z-1 will by default, turn ON when the load attached is turned ON. To make the LED turn ON when the load attached is turned OFF instead, set parameter 3 to a value of 1.

Proper Single Gang Installation

Using WD500Z-1's standard full heat-sink (all tabs), the connected incandescent lamp load shall not exceed 500W. If a tab is removed from one side of the WD500Z-1 unit, the connected incandescent lamp load must not exceed 400W. If both tabs are removed from the WD500Z-1 unit, the connected incandescent lamp load must not exceed 300W.

Proper Dual Gang Installation

The connected incandescent lamp load must not exceed 400W for each of the two WD500Z-1 units.

Proper Triple Gang Installation

The connected incandescent lamp load must not exceed 300W for each of the three WD500Z-1 units.

Air Gap Switch

The WD500Z-1 has an air gap switch on the face (lower left), that when pulled out, completely removes the power available to the load (simply turning the dimmer off does not). This enables the lamps that are controlled by the device to be changed with minimal danger of electrical shock. The air gap switch must be pushed all the way back in for the dimmer to operate the lamps again.

INCLUDING WD500Z-1 TO THE NETWORK

STEP 1. Prepare the Controller to include a unit to the network by adding it to a group (method of adding a node to the network). Refer to controller instructions.

STEP 2. The WD500Z-1 **must be in its permanently installed location.** Tap either the top or bottom of the WD500Z-1 switch once.

STEP 3. You should see an indication on your Controller that the "device was included" in the network.

NOTE: If you have trouble adding the WD500Z-1 to a group it may be that the Home ID and Node ID were not cleared from it after testing. You must first "RESET UNIT" with your controller to remove it from the network."

Although adding it to a group includes it in the network, removing it from a group does not remove it from the network. If removed from a group, it functions only as a repeater.

BASIC OPERATION

Local Control

The top or bottom of the WD500Z-1 switch can be used to carry out inclusion (add to a group), association, exclusion (remove from group) or reset (remove from network). Pushing the top or bottom of the switch, the WD500Z-1 allows the user to do the following:

- Turn ON, OFF, DIM or BRIGHTEN the load attached.
- Include or exclude the module from the Z-Wave network.
- Configure to Control Shades or Window Coverings via Z-Wave network.
- Control other Z-Wave enabled devices.

Also, when a controller prompts you to "Send Node ID" or to "Press Button on Unit", quickly tap the top or bottom of the switch once to satisfy those instructions.

- Tapping top of the switch turns the load attached ON.
- Tapping bottom of the switch turns the load attached OFF.
- Pressing and holding the top of the switch will brighten the load attached, and pressing and holding the bottom of the switch will dim the load. When OFF, pressing and holding the bottom of the switch will cause the load will go to the minimum dim level.

NOTE: Upon restoration of power after a power loss, the WD500Z-1 returns to previous known state.

LED indication

The LED on the WD500Z-1 will turn on when the load attached is ON. However, the LED can be user configured to turn ON when the load attached is OFF, if so desired, to act as a night light.

The WD500Z-1 will flicker its LED when it is transmitting to any of its groups. This can be changed if desired.
- **Parameter No: 3**
- **Length: 1 Byte**
- **Valid Values = 0 or 1 (default 0)**

Invert Switch

To change the top of the switch to OFF and the bottom of the switch to ON, set parameter 4 to 1.
- **Parameter No: 4**
- **Length: 1 Byte**
- **Valid Values = 0 or 1 (default 0)**

Enable Shade Control Group 2

The WD500Z-1 can control shade control devices via its group 2 if this configuration parameter is set to 1.
- **Parameter 14**
- **Length: 1 Byte**
- **Valid Values: 0 or 1 (default 0)**

Enable Shade Control Group 3

The WD500Z-1 can control shade control devices via its group 3 if this configuration parameter is set to 1.
- **Parameter 15**
- **Length: 1 Byte**
- **Valid Values: 0 or 1 (default 0)**

LED Transmission Indication

The WD500Z-1 will flicker its LED when it is transmitting to any of its groups. This flickering can be set to not flicker at all (set to 0), to flicker the entire time it is transmitting (set to 1), or to flicker for only 1 second when it begins transmitting (set to 2). By default, the WD500Z-1 is set to flicker for only 1 second.
- **Parameter 19**
- **Length: 1 Byte**
- **Valid Values = 0 , 1, 2 (default 2)**

Each Configuration Parameter can be set to its default setting by setting the default bit in the Configuration Set command. See your controller's instructions on how to do this (and if it supports it). All Configuration commands will be reset to their default state when the WD500Z-1 is excluded from the Z-Wave network by using the controller to reset the node (on the Z-Wave select "SETUP" and scroll to "RESET UNIT").

POWER LEVEL

The WD500Z-1 supports the Power Level command.

The Power level command allows controllers to set and get the RF transmit power level of a node and test specific links between nodes with specific RF transmit power. Refer to your controller's instructions for more information if it supports this command. This command is typically used by professional installer

SUC Support

There must be a Static Update Controller (SUC) in your Z-Wave system for this feature to work. A Static Controller is one that is not moved after addition to the network. The Static Update Controller can act as a gateway in the system, since other nodes always know its position. The "always listening" advantage of the Static Update Controller is that other nodes can transmit information frames to it whenever needed.

You can assign an "SUC Route" to the WD500Z-1. Refer to your Controller's instructions on how to do this (if it supports it). Assigning an SUC Route to the WD500Z-1 allows it to request an update of the Z-Wave devices that are between it and the Z-Wave device to which it was trying to transmit. The WD500Z-1 will only request an update when a transmission fails.

Specifications

Power	120 VAC, 60 Hz
Maximum Load	500 Watts for control of permanently installed incandescent lamp fixtures only (not for control of receptacles)
Signal	(Frequency) 908.42 MHz
Range	Up to 100 feet line of sight between the Controller and /or the closest Z-Wave Receiver Module

Interoperability with z-WAVE Devices

A Z-Wave™ network can integrate devices of various classes, and these devices can be made by different manufacturers. The WD500Z-1 can be incorporated into existing Z-Wave™ networks. The top or bottom of the WD500Z-1 switch can be used to carry out inclusion, association, or exclusion.

REGULATORY INFORMATION

The WD500Z-1 is certified to comply with applicable FCC and IC rules and regulations governing RF and EMI emissions. This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation.

FCC NOTICE

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

* Reorient or relocate the receiving antenna.
* Increase the separation between the equipment and receiver.
* Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
* Consult the dealer or an experienced radio/TV technician for help.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

IC NOTICE

This Class B digital apparatus complies with Canadian ICES-003 Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada. Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada. Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

WARRANTY

This Linear product is warranted against defects in material and workmanship for twelve (12) months. **This warranty extends only to wholesale customers** who buy direct from Linear or through Linear's normal distribution channels. Linear does not warrant this product to consumers. Consumers should inquire from their selling dealer as to the nature of the dealer's warranty, if any. **There are no obligations or liabilities on the part of Linear Corporation for consequential damages arising out of or in connection with use or performance of this product or other indirect damages with respect to loss of property, revenue, or profit, or cost of removal, installation, or reinstallation.** All implied warranties, including implied warranties for merchantability and implied warranties for fitness, are valid only until Warranty Expiration Date as labeled on the product. **This Linear LLC Warranty is in lieu of all other warranties express or implied.**

All products returned for warranty service require a Return Product Authorization Number (RPA#). Contact Linear Technical Services at 1-800-421-1587 for an RPA# and other important details.

IMPORTANT !

Linear radio controls provide a reliable communications link and fill an important need in portable wireless signaling. However, there are some limitations which must be observed.

For U.S. installations only: The radios are required to comply with FCC Rules and Regulations as Part 15 devices. As such, they have limited transmitter power and therefore limited range.

A receiver cannot respond to more than one transmitted signal at a time and may be blocked by radio signals that occur on or near their operating frequencies, regardless of code settings.

Changes or modifications to the device may void FCC compliance.

Infrequently used radio links should be tested regularly to protect against undetected interference or fault.

A general knowledge of radio and its vagaries should be gained prior to acting as a wholesale distributor or dealer, and these facts should be communicated to the ultimate users.

P1775 X1