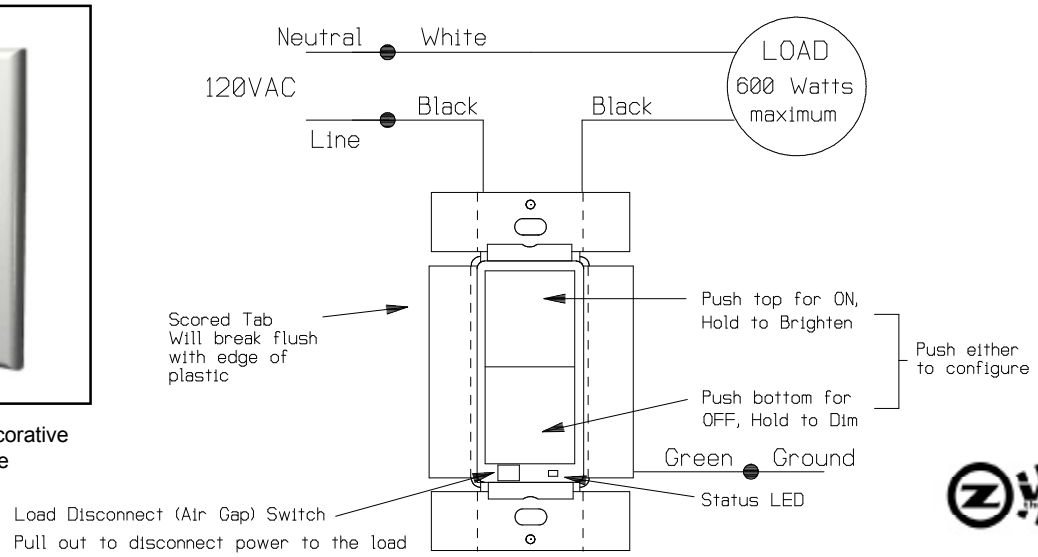
HomePro
RF Home Automation

ZDW120

Radio Frequency Controlled, 600W, 120 VAC, Two Wire Wall Mounted Dimmer Switch

Supplied with decorative switch plate



ZDW120 WALL MOUNTED DIMMER

The ZDW120 Wall Mounted Dimmer is a component of the HomePro lighting control system. Wire the Wall Mounted Dimmer in place of the standard wall switch according to the diagram above and program from the Wireless Controller to operate loads. Inclusion of the ZDW120 Wall Mounted Dimmer on the ZTH100 Wireless Controller menu allows remote ON/OFF control and dimming of light connected.

This Wall Mounted Dimmer is designed to work with other HomePro lamp and appliance controls. Z-Wave nodes of other types can be added to the system and will also act as repeaters if they support this function of repeating the signal received to other modules in the system.

As part of a HomePro network, the ZDW120 will also act as a wireless repeater to insure that commands intended for another device in the network are received. This is useful when the device would otherwise be out of the radio range of the wireless controller.

There are no field repairable assemblies on this unit. If service is needed, the unit must be returned where purchased.

CAUTION! 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.

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 switch total no more than 600 watts. Retain instructions for future use.

INSTALLATION

CAUTION! - SHOCK HAZARD. Make all connections with the **POWER OFF** to avoid injury to the installer or damage to the device.

1. Strip 3/4" of insulation from the ends of the conductors (if not already done) and make connections as shown in the Wiring Diagram. Note that the line side of the load must be switched.
2. Check connections to be sure they are tight and no bare conductors are exposed.
3. Make sure the load or installation does not exceed the device rating.
4. Install into an appropriately sized electrical wall box. Scored tabs on both sides can be bent up and down their length with pliers to break off, to allow fitting in a variety of electrical box types.
5. Restore the power.

Wire this Wall Mounted Dimmer in place of an existing wall switch according to the diagram. See the ZTH100 Wireless Controller operating instructions to add this module under the command of the Wireless Controller.

Air Gap Switch

The ZDW120 has an air gap switch on the face (lower left), that when pulled out, completely removes the power available to the load (more so than simply turning the dimmer off). 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.

BASIC OPERATION

Local Control

The ZDW120 allows the user to

- Turn ON or OFF, DIM or BRIGHTEN, the load attached.
- Add or remove the module from the Z-Wave system
- Control other Z-Wave enabled devices.

Also, when a controller prompts you to "Send Node ID" or to "Press Button on Unit", quickly tap one the top or bottom of the switch once to satisfy those instructions. Also, quickly tapping 4 times will give you the same result without changing the state of the load attached or transmitting to other Z-Wave devices.

- 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 ZDW120 defaults OFF.

LED indication

The LED on the ZDW120 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.

Remote Control

The ZDW120 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.

See the information in the section titled **Version** (Page 6) for a complete list of commands the ZDW120 will support.

ADVANCED OPERATION

Protection

The ZDW120 supports the Protection Command.

The ZDW120 can be set to any one of three **Protection** modes by a wireless controller. Refer to your controller for information on how to set the various modes of **Protection.** Some controllers may only be able to set certain settings of Protection.

There are 3 modes of **Protection**:

1. **No Protection**
2. **Child Protection**
3. **Paddle Switch totally disabled**

When **Protection** is set to "*No Protection*" mode, the ZDW120 works normally.

When **Protection** is set to "*Child Protection*" mode, you will have to press the switch 3 times rapidly to control the attached load. The ZDW120 operates normally when controlled by a wireless controller.

When **Protection** is set to "*Paddle Switch totally disabled*" mode, the paddle switch will not work. You will be able to turn the load on and off only with a wireless controller, however the paddle switch can still be used to access the Z-Wave network.

All On/All Off

The ZDW120 supports the ALL ON/ ALL OFF commands.

The ZDW120 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 ZDW120 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 ZDW120 can be setup to respond to ALL ON and ALL OFF commands are:

- ZDW120 will not respond to ALL ON or the ALL OFF command.
- ZDW120 will respond to ALL OFF command but will not respond to ALL ON command.
- ZDW120 will respond to ALL ON command but will not respond to ALL OFF command.
- ZDW120 will respond to ALL ON and the ALL OFF command (default).

Association

The ZDW120 supports the Association command.

The ZDW120 can be set to control other Z-Wave devices. You can turn on and off, and even dim other Z-Wave devices once they are "**associated**" into 1 of 4 groups within the ZDW120.

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

If you **associate** a Z-Wave device into Group 1, you can turn that device on and off by tapping the switch on or off *once*. The load attached to the ZDW120 will also turn on or off.

You can brighten the controlled device by pushing and holding the top of the switch, dim by pushing and holding the bottom of the switch.

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 ZDW120 is not affected.

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 ZDW120 is not affected.

If you **associate** a Z-Wave device into Group 4, that device will be commanded to turn on or off when the ZDW120 is commanded to turn on or off. Caution: The ZDW120 will not transmit to Z-Wave devices in Group 4 if it is already in the state that the Z-Wave command commanded it to.

You can **associate** up to **5** Z-Wave devices into *each* of these four 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 ZTH100 controller, refer to the Setup Menu, Association section).

A note 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.

Routing Support

The ZDW120 is a routing slave

The Z-Wave devices that are "**associated**" into Group 2 or Group 3 can be commanded from the ZDW120 via repeater nodes. In other words, the command can be routed through nodes that are in between the Z-Wave device you are trying to control and the ZDW120.

This routing via repeater nodes only needs to occur when the Z-Wave device you are trying to control and the ZDW120 are not within direct range of each other. You will be able to determine this is the case, if, after "**associating**" a Z-Wave device into a group you cannot control it with the ZDW120.

For Group 2 and Group 3, if you cannot control the Z-Wave device directly from the ZDW120, you must tell the ZDW120 what other Z-Wave devices are between it and the Z-Wave device you are trying to control. You must use a controller to do this, so refer to your controller's instructions on how to tell the ZDW120 this information. This is sometimes called **"Assigning Routes"**. Caution: you do not want to do this unnecessarily because the ZDW120 is limited to communicating to **5** Z-Wave devices via repeater nodes. So first, be sure to determine you cannot control the device directly from the ZDW120 because you can communicate up to **25** Z-Wave devices (**5** in each

group) from the ZDW120 *without* the use of repeater nodes.

Z-Wave devices that you **associate** into Group 1 **cannot** be commanded through repeater nodes.
Z-Wave devices that you **associate** into Group 2 **can** be commanded through repeater nodes.
Z-Wave devices that you **associate** into Group 3 **can** be commanded through repeater nodes.
Z-Wave devices that you **associate** into Group 4 **cannot** be commanded through repeater nodes.

There can be up to 4 nodes between the ZDW120 and the Z-Wave device you are trying to command.

Configuration

The ZDW120 supports the Configuration command.

The ZDW120 can be configured to operate slightly differently than how it works when you first install it. Using the Configuration command you can configure the following:

1. **Set Ignore Start Level Bit When Transmitting Dim Command**
2. **Suspend Group 4**
3. **Night Light Operation**
4. **Invert Switch**
5. **Adjust Dim Rate**

You can use a ZTH100 to send Configuration commands. (Refer to the Setup Menu, Configuration section)

Set Ignore Start Level Bit When Transmitting Dim Commands

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

The ZDW120 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. However, the command also has a bit that indicates whether the dimmer should ignore the start level. If the bit is set to 1, the dimmer will ignore the start level and instead start dimming from its current level. To set this bit, configure this parameter to the value of 1.

Suspend Group 4

- **Parameter No: 2**
- **Length: 1 Byte**
- **Valid Values = 0 or 1 (default 0)**

You may wish to disable transmitting commands to Z-Wave devices that are in Group 4 without “un-associating” those devices from the group. Setting parameter 2 to the value of 1 will stop the ZDW120 from transmitting to devices that are “associated” into Group 4.

It is possible that you may only want the units in Group 4 to track when the dimmer is being turned ON and OFF and not when dimming.

Disable Group 4 During a Dim Command

- **Parameter 13**
- **Length: 1 Byte**
- **Valid Values = 0 or 1 (default 0)**

After the ZDW120 is commanded to stop dimming, it will then command the Z-Wave devices in Group 4 to the ZDW120’s new level. To prevent the ZDW120 from commanding the Z-Wave devices in Group 4 during this particular occurrence, set Parameter 13 to the value of 1.

Night Light

- **Parameter No: 3**
- **Length: 1 Byte**
- **Valid Values = 0 or (default 0)**

The LED on the ZDW120 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.

Invert Switch

- **Parameter No: 4**
- **Length: 1 Byte**
- **Valid Values = 0 or 1 (default 0)**

To change the top of the switch to OFF and the bottom of the switch to ON, set parameter 4 to 1.

Ignore Start Level When Receiving Dim Commands

- **Parameter No: 5**
- **Length: 1 Byte**
- **Valid Values = 0 or 1 (default 0)**

The ZDW120 can be set to ignore the start level that is part of the dim command, regardless of whether the command itself is telling the dimmer to ignore the start level or not ignore the start level embedded in the command (see Parameter 1). Setting parameter 5 to a value of 1 will cause the ZDW120 to ignore the start level and cause it to dim or brighten from its current level.

Don't Send Level Command After Transmitting Dim Commands

- **Parameter 6**
- **Length: 1 Byte**
- **Valid Values = 0 or 1 (default 0)**

When you press and hold the bottom of the ZDW120 switch once, the Z-Wave devices that are **associated** into Group 1 are sent the Dim command. After you release the switch, the ZDW120 follows up by commanding the devices to go to the same level of the ZDW120. The user has the ability to stop the ZDW120 from commanding the Z-Wave devices to do this by setting parameter 6 to a value of 1.

Adjusting Dim Rate

- **Parameter 7-12**
- **Length: 1 Byte**
- **Valid Values: (See below)**

There are 3 sets of parameters that can adjust the dimming rate of the ZDW120.

1. One set to control how fast the dim rate is when the dimmer receives a Z-Wave command (excluding ALL ON or ALL OFF command).
2. One set to control how fast the dim rate is when the dimmer is locally controlled.
3. One set to control how fast the dim rate is when the dimmer receives an ALL ON or ALL OFF command.

These values can be changed instantly to allow various scenes and effects.

The first of these parameters is the "dim step" (dim rate) parameter. It can be set to a value of 1 to 99. This value indicates how many levels the dimmer will change when the timer (discussed below) expires.

The second parameter is the timing (how fast the dim rate) parameter. It can be set to a value of 1 to 255.

This value indicates in 10 millisecond resolution, how often the dim level will change. For example, if you set this parameter to 1, then every 10mS the dim level will change. If you set it to 255, then every 2.55 seconds the dim level will change.

With the combination of the two parameters that can control the dim rate, the dimmer can be adjusted to dim from max to min or min to max at various speeds between 10 millisecond and 252.45 seconds (over 4.25 minutes).

On/Off Command dim rate (excluding ALL ON/ALL OFF commands)

Parameter 7 **Dim step Parameter (default = 3)**
Valid Values: 1-99

Parameter 8 **Dim timer Parameter (default = 10)**
Valid Values: 1-255

Local Control dim rate

Parameter 9 **Dim step Parameter (default = 3)**
Valid Values: 1-99

Parameter 10 Dim timer Parameter (default = 10)
Valid Values: 1-255

ALL ON/ALL OFF dim rate

Parameter 11 Dim step Parameter (default = 3)
Valid Values: 1-99

Parameter 12 Dim timer Parameter (default = 10)
Valid Values: 1-255

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 ZDW120 is reset from the Z-Wave system.

Powerlevel

The ZDW120 supports the Powerlevel command.

The Powerlevel 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, if it supports this command, for more information. This command is typically used by professional installers.

Version

The ZDW120 supports the Powerlevel command.

The ZDW120 can return version information about itself and the commands it supports. Refer to your controller's instructions on how to get this information from the ZDW120. The following is the version information for the ZDW120.

COMMAND_CLASS_SWITCH_MULTILEVEL	Version 1
COMMAND_CLASS_SWITCH_ALL	Version 1
COMMAND_CLASS_PROTECTION	Version 1
COMMAND_CLASS_ASSOCIATION	Version 1
COMMAND_CLASS_POWERLEVEL	Version 1
COMMAND_CLASS_CONFIGURATION	Version 1
COMMAND_CLASS_VERSION	Version 1
COMMAND_CLASS_MANUFACTURER_SPECIFIC	Version 1
COMMAND_CLASS_MARK	Version 1
COMMAND_CLASS_BASIC	Version 1
COMMAND_CLASS_SWITCH_MULTILEVEL	Version 1

Z-Wave Library Type	ZW_LIB_SLAVE_ROUTING
Z-Wave Protocol Version	1
Z-Wave Protocol Sub Version	39
Application Version	1
Application Sub Version	0

Manufacturer Specific

The ZDW120 supports the Manufacturer Specific command.

The ZDW120 can return Manufacturer Specific information about itself. Refer to your controller's instructions on how to get this information from the ZDW120. The following is the manufacturer specific information for the ZDW120.

Manufacturer ID 1	0x00
Manufacturer ID 2	0x17
Product Type ID 1	'D' or 0x44
Product Type ID 2	'W' or 0x57
Product ID 1	'2' or 0x32
Product ID 2	'0' or 0x30

SUC Support

There must be a Static Update Controller 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 Controller can act as a gateway in the system, since other nodes always know its position. The “always listening” advantage of the Static Controller is that other nodes can transmit information frames to it whenever needed.

You can assign an “SUC Route” to the ZDW120. Refer to your controller’s instructions on how to do this (if it supports it). Assigning an SUC Route to the ZDW120 allows the ZDW120 to request an update of the Z-Wave devices that are in between it and the Z-Wave device it was trying to transmit to. The ZDW120 will only request an update when a transmission fails.

WARRANTY

For warranty and general product information visit our web site at www.act-solutions.com

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:

- Increase the separation between the equipment and receiver.
- Consult the dealer or an experienced radio/TV technician for help.

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.

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.

About ZDW120’s Certification (Pending)

The ZDW120 has been thoroughly tested by the ETL SEMKO division of Intertek, a nationally recognized testing laboratory. This product was found to be in compliance with safety standards ANSI/UL STD 1472 and CAN/CSA C22.2 No. 184.1.

In addition to compliance with product safety standards, the ZDW120 is also certified to comply with applicable FCC and IC rules and regulations governing RF and EMI emissions.

Power	120 VAC, 60 Hz.
Signal (Frequency)	908.42 MHz.
Maximum Load	600W, for incandescent lamps only.
Range	Up to 100 feet line of sight between the Wireless Controller and /or the closest HomePro Receiver Module.
Operating Temperature Range	32-104^{O} F (0-40^{O} C). Indoor use only.