RTI

RF SMART DIMMER – ZWL-MND For dimmable LED/CFL/incandescent/MLV/ELV/Halogen/dimmable Fluorescent
ZWL-IDN For incandescent/MLV ZWL-FDN for ELV Lighting Fixtures/ ZWL-AND RF Accessory for multi-location

INSTALLATION INSTRUCTIONS
WARNING:
• Turn OFF circuit breaker or remove fuse(s) and test that power is off before wiring.
• Never wire any electrical device with power turned on. Wiring dimmer with power on may cause permanent damage to dimmer and void warranty.
• If you are not sure about any part of these instructions, please contact a licensed electrician.

IMPORTANT:
RF Smart dimmer will not work or will become damaged if wired incorrectly, and warranty will be voided. Refer to wiring instructions provided on reverse side.

OPERATION INSTRUCTIONS
• Press once to turn lights ON at previously selected level.
• Press again to turn lights OFF.
• When lights are OFF, press and hold for 2 seconds for full brightness.
• When lights are ON, press and hold for 2 seconds until the blue LED blinks. After the preset delay, the lights will begin fading to OFF (up to 4 minutes).
• Amber ON/OFF LED indicates that dimmer is turned on.

DIMMING LEVEL ADJUSTMENT
For maximum compatibility with different loads types, ZWL-MND allows the user to set the minimum level. Also to save on power consumption ZWL-MND allows the user to set the maximum level.
1. After installing the dimmer and restoring power, press on/off button to turn on the light.
2. Press and hold on/off button for five seconds until the blue dimmer LEDs begin to cycle rapidly (NOTICE- after two seconds blue dimmer LEDs will start to flash indicating activation of the delay off feature. Continue holding the ON/OFF button for three additional seconds until the blue dimmer LEDs begin to cycle rapidly.)
3. Release the button. Dimmer will set the light to the previously saved minimum level (that may cause the light to flicker or turn off). During initial setup, the light will set to the factory minimum default.
4. Press either the dim or bright buttons to change the minimum level until the light output is acceptable.
5. Press ON/OFF button. Blue dimmer LEDs will start to cycle rapidly again and the dimmer light will go to previously saved maximum level.
6. Press either the dim or bright buttons to change the maximum level until the light output is acceptable.
7. Press ON/OFF button, LED will flash indicating completion of programming
• NOTE – To restore the default min/max, repeat the steps above and adjust light levels to full min/max settings by pressing dim/bright buttons until the light output no longer changes.
• NOTE - User could ignore setting max or min by pressing on/off button without changing the dimmer level.

Rapid start feature
This feature ensures that LED/CFL lights turn on when the dimmer preset level is low. With this setting enabled, the lights may momentarily be brighter than the preset level (less than one second) and then dim down to the preset level.
Depending on the type of light used, this feature may not be needed.
To enable/disable the feature, turn lights on. Press and hold the on/off button for 10 seconds until the blue dimmer LEDs flash for the third time, then release the button.

CAUTION:
1. Use only with 120V AC 60 Hz.
2. Do not exceed maximum rating of the dimmer as indicated on the device.
3. Must be installed and used in accordance with electrical codes.
4. If a bare copper or green ground connection is not available in the wallbox, contact a licensed electrician for installation.
5. Use only #14 or #12 copper wire rated for at least 75°C with these devices. Do not use with Aluminum wire.
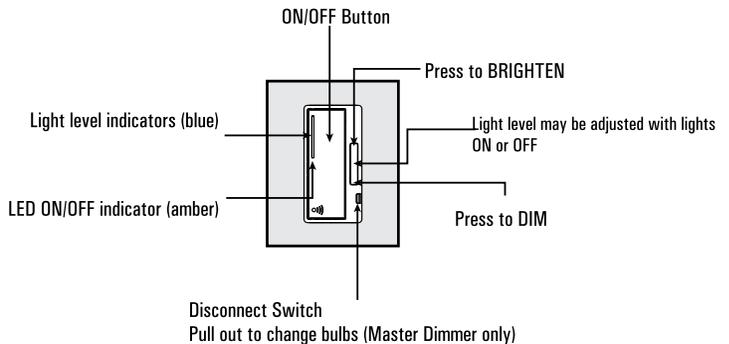
NOTES:
1. The RF Master Dimmer is wired directly to the light fixture.
2. The RF Smart Dimmer is not compatible with standard 3-way switches.
3. For Multi-location applications (3-Way or 4-Way) the RF Smart Accessory Dimmer(s) is used along with one RF Master Dimmer.
4. The RF Accessory Dimmer communicates via RF signals to control the light from more than one location.
5. For multi-location control use RF Smart Dimmer Master direct wired to the light along with RF Accessory (ZWL-AND). **The RF Accessory does not require direct connection to the light (use Association function).**
6. When installing more than one dimmer in a wall box the total lamp wattage may need to be reduced. See Ganging chart.

GANGING When ganging multiple Smart Dimmer Masters in one wall box, derating is required as follows

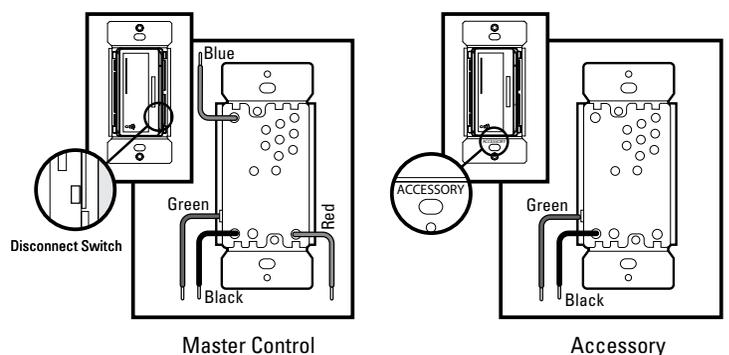| Catalog #	Loads	Single Gang	Double Gang	Tripple Gang
ZWL-IDN	INC/MLV	1000W/VA	800W/VA	800W/VA
ZWL-FDN	ELV	1000W	800W	800W
ZWL-MND	INC/ ELV/ FLR/ Halogen/ MLV	600W/VA	600W/VA	600W/VA
	CFL/ LED	300W	300W	300W

Z-Wave Device Network Installation Instructions
1. This product may be added to a new or existing Z-Wave network. A RTI Z-Wave device has a blue LED, which will blink when the device is not included in a Z-Wave network. The LED stops blinking when the device is in a network.
2. To include this device in a Z-Wave network, select the command on your Z Wave controller for inclusion (Install, Add Device, Add Node, Include Device, etc.). Then press the device switch one time to include it in the network. The LED will stop blinking.
3. To exclude this device from a Z-Wave network, select the command on your Z-Wave controller for exclusion (Uninstall, Remove Device, Remove Node, Exclude Device, etc.). Then press the device switch one time to exclude it from the network. The LED will start blinking.
4. This product works with other Z-Wave products from different vendors and product categories as part of the same network.
5. This product is a listening node and it will act as a repeater in the Z-Wave network. It will perform the repeater function with Z-Wave products from RTI and from other Z-Wave vendors.

ON/OFF Button
Press to BRIGHTEN
Light level indicators (blue)
Light level may be adjusted with lights ON or OFF
LED ON/OFF indicator (amber)
Press to DIM
Disconnect Switch
Pull out to change bulbs (Master Dimmer only)

READ BEFORE INSTALLATION!

Switch Identification

Blue
Green
Red
Black
Disconnect Switch
ACCESSORY
Green
Black

Master Control   Accessory

Troubleshooting Guide

| Symptom	Possible Cause	Solution
No Function. All LEDs are OFF	A) Light bulb(s) burned out B) Circuit breaker is off or tripped C) Disconnect switch on the dimmer is pulled out to the OFF position D) Improper wiring E) Defective dimmer	A) Replace light bulb B) Turn on the circuit breaker C) Push in the disconnect switch on the dimmer D) Check and correct wiring E) Replace dimmer
Erratic operation or flickering LEDs	A) Loose wiring connections B) Low dim setting (**ZWL-MND**)	A) Check and correct wiring B) Set minimum brightness to a higher level (**ZWL-MND**)
Lights turns on after long delay	A) Rapid start feature is disabled (**ZWL-MND**) B) Low dim setting (**ZWL-MND**)	A) Enable rapid start feature (**ZWL-MND**) B) Set minimum brightness to a higher level (**ZWL-MND**)
Functions normally using the dimmer push buttons but not from Z-Wave controller and one of the blue LEDs blinks ON and OFF about once per second	Dimmer is not included in Z-Wave network	Include dimmer in a Z-Wave network using a Z-Wave controller. Refer to Z-Wave controller user manual for details
Functions normally using the Master dimmer control but not from Z-Wave controller and no LEDs are blinking	Problem with RF communication on dimmer	Replace dimmer
Functions normally both locally and from a Z-Wave controller but can't be controlled from a dimmer accessory switch (**ZWL-MND**) or other Z-Wave device	The dimmer accessory or other Z-Wave device is not associated with the dimmer you wish to control	Create an association between the dimmer accessory or other device and the dimmer. Refer to your Z-Wave controller user manual for details
Dimmer is warm to touch after a period of time	This is normal	No action required

Single Location Control Installation (requires one Master Dimmer)

**1.1**

Black - Hot

Tag

Bare

White

Black To Light
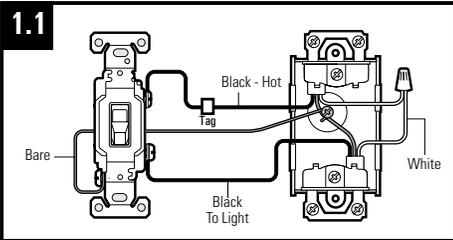
Identify existing wiring (This switch will be a single-pole) and tag "Hot" wire. Use voltage tester as necessary to confirm "Hot" wire (Voltage will be present at the "Hot" wire when the lights are off).
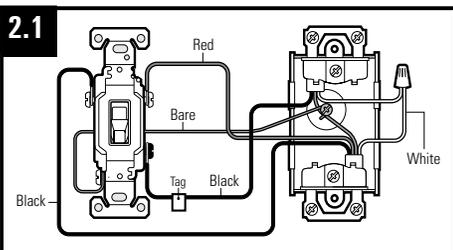
1.2

Disconnect existing switch and remove.

1.3 Master

Power

Black

Green

Tag

Black

Blue

White

Red
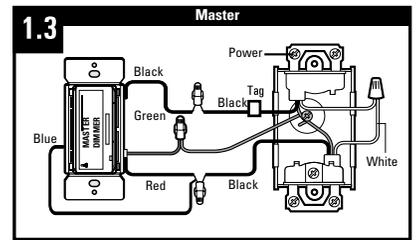
Black

Connect master dimmer as shown by connecting black wire of dimmer to tagged "Hot" wire. Red wire must be connected to the wire that goes to the light.

1.4 TOP
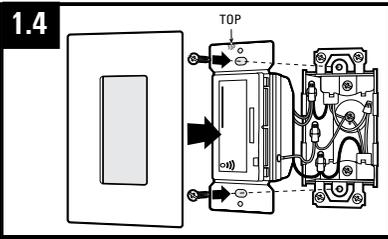
Gently push dimmer into place and secure with mounting screws. Make sure disconnect switch at bottom of master is fully pushed in.

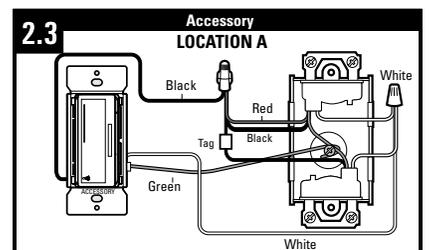Hot 120V — Black — Red — Light Fixture
Green — White
Ground
Neutral — White
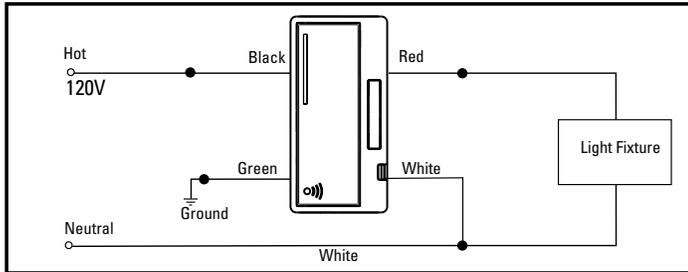
Two Location Control Installation (requires one Master and one Accessory)

2.1

Red

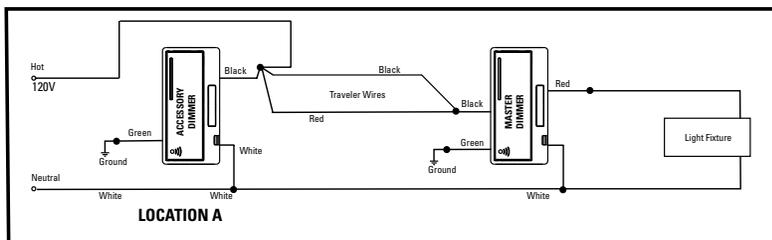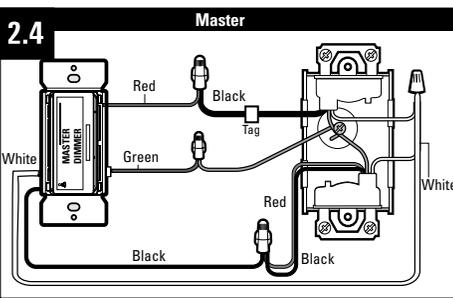Bare

White

Tag Black

Black

Identify existing wiring (both existing switches will be "3-way") Tag common wire on both 3-Way switches (see "How to Identify Common Wires" section *)
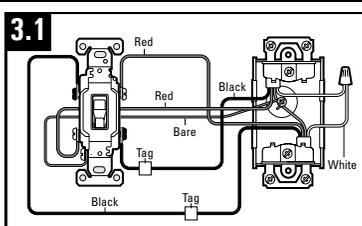
2.2

Red

Bare

Black

White

Black

Tag
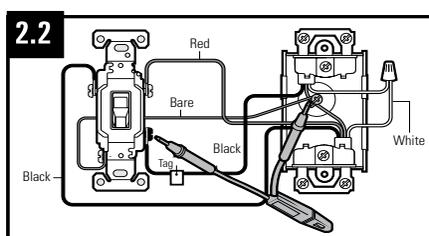
NOTE: The Circuit Breaker must be turned "ON" during this step and the switches must be set so that the light is OFF. Ensure that all wires are safely separated before turning the Circuit Breaker "ON." Connect the tester between the tagged common terminal and ground in one of the boxes to determine the location for the Accessory Dimmer. If the test indicates voltage then that will be Location A, and will be used for the Accessory Dimmer. If voltage is not present then the other 3-way location will be Location A. NOTE: Disconnect power after this step.
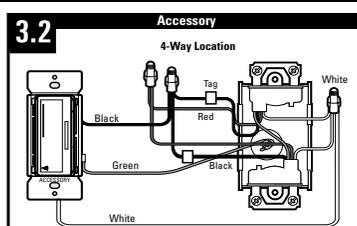
2.3 Accessory LOCATION A

Black

White

Red

Tag Black

Green

White

Disconnect existing switch and remove. Connect Accessory Dimmer in Location A as shown.

2.4 Master

Red

Black

Tag

White

Green

White

Red

Black

Black

Hot 120V — Black — Traveler Wires — Black — Red
Green — Red — Green
Ground — White — Ground
Neutral — White — White — White — White
LOCATION A — Light Fixture

Three Location Control Installation (requires one Master and two Accessory Dimmers)

3.1

Red

Red

Black

Bare

Tag

White

Black

Tag

Identify existing wiring (4-way switches) Tag common wire on 4-Way switch. (see "How to Identify Common Wires" section *)

3.2 Accessory 4-Way Location

White

Tag

Black

Red

Green

Black

White

Connect the second Accessory Dimmer (4-way switch) as shown.
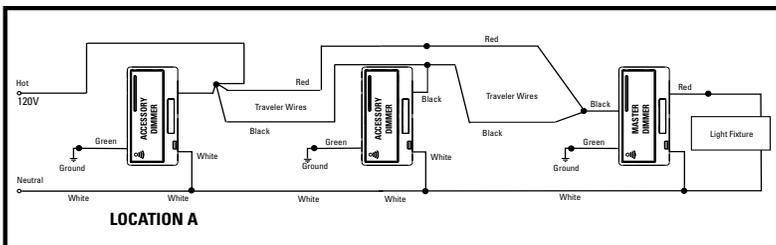
IMPORTANT! How to identify Common Wires *
Two location:

Each switch will have insulated wires connected to three terminal screws plus a green or bare wire connected to a green terminal screw. The three terminals are usually one dark colored screw and two light colored screws (ignore the Green screw). Alternatively, the three screws may be the same color and one will be marked COMMON or COM Find the wires connected to the dark or COMMON screws. Usually these wires are black but may be red or blue. Tag these wires on both switches to identify when wiring.

Three location:

Two of the existing switches will be 3-way. The 3-way switches will be located at each end of the circuit with a 4-way switch in between. TAG the two 3-way switches as in the Two Location Control section. The 4-Way switch has 4 insulated wires connected to 4 terminal screws. VERY IMPORTANT - TAG two same color insulated wires, which are connected to screws of opposite colors.

Hot 120V — Red — Red — Red
Traveler Wires — Black — Traveler Wires — Black
Green — Black — Green — Black — Green — Light Fixture
Ground — White — Ground — White — Ground
Neutral — White — White — White — White — White
LOCATION A

Refer to 1.4 to push dimmers into place.

Additional Information (Contact Info, Safety, Service & Support, Warranty)

Safety Suggestions
Do not use unit near water, for example, near a sink, swimming pool, open window, in wet basement, etc.
Do not allow objects to fall or liquids to be spilled into the enclosure through openings.
Do not attempt any service beyond that described in the operating instructions. Refer all other service needs to qualified service personnel.

Service & Support
If you are encountering any problems or have a question about your RTI product, please contact RTI Technical Support for assistance. RTI provides technical support by telephone or e-mail. For the highest quality service, please have the following information ready: Your Name • Company Name • Telephone Number • E-mail Address • Product model & serial no. (if applicable)
If you are having a problem with hardware, please note the equipment in your system, a description of the problem, and any troubleshooting you have already tried. *Please do not return products to RTI without return authorization.*