

Wireless Control
ZFM-M80US/DB038
Z-Wave Smart Fixture Switch Module
(with switch and energy meter)
USER MANUAL



### **Introduction:**

Thank you for choosing ZFM-M80US Z-Wave control product. Our Z-Wave enabled product allows user to remotely control resistive household appliance with power metering feature, and make home control easy at low installation / maintenance cost. You may begin with a few Z-Wave enabled devices or build up a complete home automation system with our products.

The ZFM-M80US Smart Fixture Switch Module (with switch and energy meter) is a Z-Wave enabled device and fully compatible with any Z-Wave enabled network. It allows remote On/Off control of specified resistive household appliance, report instant power consumption (W) and accumulated energy consumption (Wh) to gateway device. Each Smart Fixture Switch Module is designed to act as a repeater, which will re-transmit the RF signal to ensure that the signal is received by its intended destination by routing the signal around obstacle and radio dead spots.



# Glossary

Device/Light/Node	Devices, lights and nodes are all terms to describe an individual Z-Wave
	device. These are all interchangeable when setting up your Z-Wave
	network.
Z-Wave Network	A collection of Z-Wave devices is controlled by primary and secondary
	controllers operating on the same system. A Z-Wave network has its own
	unique ID code so that controllers not in the network cannot control the
	system.
Inclusion	Add a Z-Wave device to the network.
Exclusion	Delete a Z-Wave device from the network.
Network Wide	Network Wide Inclusion (NWI) enables both end-user friendly, Plug and
Inclusion (NWI)	Play like Z-Wave network installation as well as professional installation
	scenario where the inclusion process in terms of time will be reduced
	significantly. NWI is a feature supported by a new frame type named
	Explorer which enables the Z-Wave protocol to implement Adaptive
	Source Routing.
Association	Association is used to organize nodes in different groups allowing the
	device to identify the nodes by a group identifier. The groups can also be
	copied to other devices.

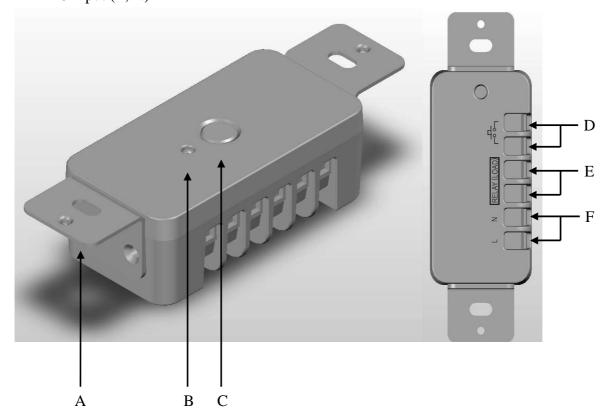
# **Key Features:**

- High output power
- Energy meter for monitoring power consumption.
- Remote ON/OFF control via the Z-Wave controller
- Manual ON/OFF control with the front panel push button
- Support External ON/OFF key connects to the module
- Advanced function Conditional trigger for "Fail Safe Application"
- Support Network Wide Inclusion (NWI) and Explore Frames
- Screw terminals for wires connection
- Flexible mounting structure mount inside gang box or any place



# **Product Overview:**

- A Mount
- B Status LED
- C ON/OFF/PROG Push button
- D External switch (S/W)
- E Z-Wave controlled output (isolated relay, RL)
- F AC input (L, N)





### **Installation**

**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.

For indoor use only in a dry location. Retain instructions for future use.

Step 1 WARNING: To reduce the risk of fire or electric shock, install in a controlled environment relatively free of contaminants. To avoid fire, shock, or death; turn off power at circuit breaker or fuse and test that power is off before wiring!

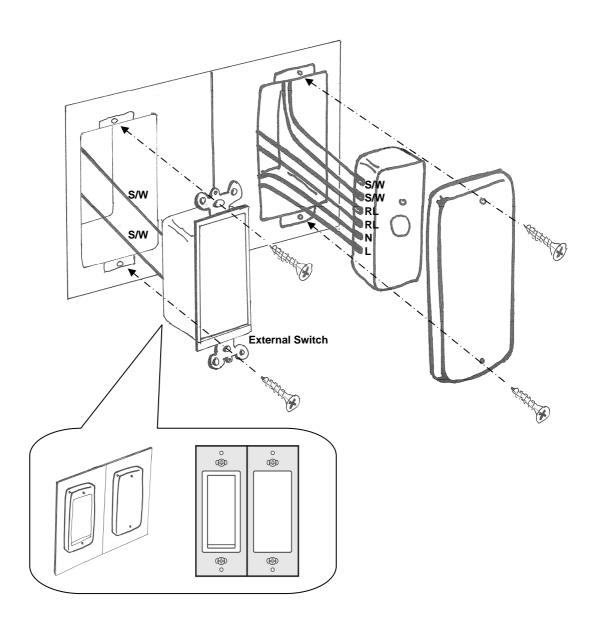
Step 2 Identifying your wiring application: refer to figure 1

NOTE: If the wiring in the wall box does not resemble any of above configurations, consult a qualified electrician.

Step 3 Connecting wires: refer to figure 1 and connect the wires with correct symbols. Use at less 75°C copper wire only and the stripped wire end's length must be 9mm. The tightening torque must be 3.5lb-in. (Make sure all wires are firmly fixed at all terminals)

**CAUTION:** Risk of Electric Shock – More than one disconnect switch may be required to de-energize the equipment before servicing.







Single switch (connected with input AC power source for the load)

(Important: The relay terminals MUST be connected to L and Load as Figure 1)

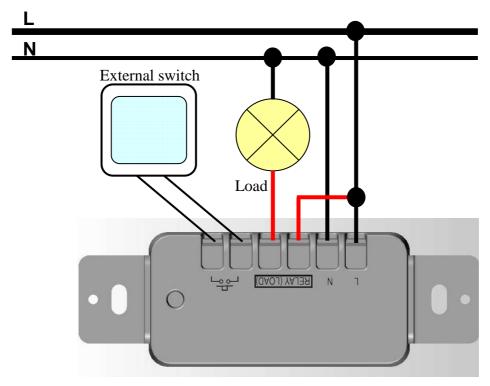


Figure 1

# Warning

The resistive household appliance connected into the Z-Wave controlled outlet on this module must not exceed 230Vac 10A or 120Vac 15A.

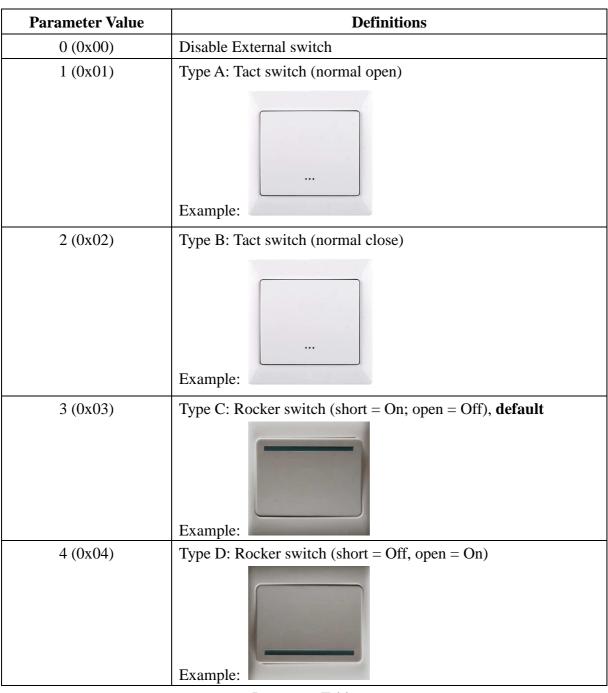


### **External Switch**

ZFM-M80US provides an option to user that can add an external switch to control the On/Off function. ZFM-M80US can be placed into the switch box with external wall switch cover. User can configure the external switch type through the configuration command.

### **Configuration Command for External Switch**

Parameter Number	Definitions
1 (0x01)	Set External switch type



Parameter Table



# Advanced function "Conditional trigger for Fail Safe Application"

ZFM-M80US provides an advanced function "Conditional trigger for Fail Safe Application". It can turn on or turn off the relay if ZFM-M80US has not received any Z-Wave commands from a specified Z-Wave Node ID and within a specified period. For example: Z-Wave gateway can monitor a Z-Wave device status and power on equipment if this Z-Wave device is out of service.

### Configuration Command for "Conditional trigger for Fail Safe Application"

Parameter Number	Definitions	Parameter value range
2 (0x02)	Set timeout period	0 ~ 240 (minutes)
		(default value is 0 [function disabled])
3 (0x03)	Configure Node ID number for	1 ~ 232 (Node ID number)
	Z-Wave command source	(default value is 0 [function disabled])
4 (0x04)	Set relay output status if timeout	1 = turn on relay
	period has been reached	0 = turn off relay
		(default value is 0)

### Report by Get command

Instant power consumption (W) and accumulated energy consumption (Wh) can be reported by Get command.

# Configuration command for "Power metering"

Parameter Number	Definitions	Parameter value range
5 (0x0005)	Configure the time interval of	6 ~ 18000
	instant power (W) auto report	(default value is 10, unit in
		second)
6 (0x0006)	Configure the time interval of	6 ~ 18000
	accumulated energy (Wh)	(default value is 600, unit in
	auto report	second)
7(0x0007) – 306 (0x0132)	It is used to save the instant	One parameter number is
	power (W) consumption. It	mapped to one log information.
	can backup 300 log	Below is the format:
	information for the instant	
	power (W)	



7	7 6 5 4 3 2 1 0					0
	Saved instant power MSB					
	Saved instant power LSB					
(Time	(Time stamp) Weekday (Time stamp) Hour					
	(Time stamp) Minute					

Remark: Instant power unit is W\*10. The real instant power is 102.5W if the reported value is 1025.

# **LED Indication Status:**

	LED Indication Status			
Operations	Device already exist in	Device does NOT exist in		
	network	network		
ZFM-M80US power on	• LED flashes slowly within 2	• LED flashes slowly within 2		
	seconds then stay on if	seconds then stay on if external		
	external switch stay in active	switch stay in active stage.		
	stage.	• LED flashes slowly within 4		
	• LED light up.	minutes then stay on if external		
		switch stay in inactive stage.		
Press PROG button /	LED flashes slowly within 2	• LED flashes slowly within 2		
Press external switch	seconds then stay on.	seconds then stay on.		
(Learning mode)				
Receive command /	LED flashes 2 times then stay on.	N/A		
Send command or data				
Error	LED flashes 6 times rapidly then	N/A		
	stay on.			

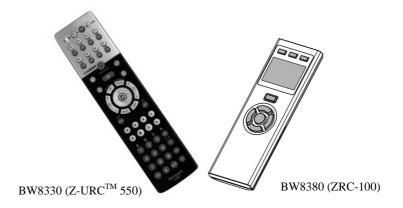


# **Basic Operation**

The connected device can be turned ON in two ways:

- 1. Manual control with the push button on the ZFM-M80US.
- 2. Z-Wave remote controller.





### Manual ON/OFF function

Turn the resistive household appliance On/Off by pressing the button at front or external switch.

(Press the external switch to turn the resistive household appliance on if it is in off stage and vice versa)



#### **Z-Wave Remote Control**

<u>Include or exclude</u> the Smart Fixture Switch Module from the existing Z-Wave home control network with your primary controller.

- Refer to your primary controller instructions to process the inclusion / exclusion setup procedure.
- When prompted by your primary controller, click once on the PROG button or external switch.
- The primary controller should indicate that the action was successful. If the controller indicates the action was unsuccessful, please repeat the procedure.
- Once the Smart Fixture Switch Module is part of the network, the same basic procedure is used to add the Smart Fixture Switch Module to groups or scenes. Refer to the primary controller's instructions for details.

### **Support Association Command Class**

ZFM-M80US support one association group, this association group contains 5 nodes max. It is used to report the relay on/off status to specify nodes with ZFM-M80US predefined association group once the relay state has been changed.

#### All On/All Off functions

Depending upon your primary controller, the Smart Fixture Switch Module can be set to respond to ALL ON and ALL OFF commands up to four different ways. Some controllers may not be able to change the response from its default setting. Please refer to your controller's instructions for information on whether or not it supports the configuration function and if so, how to change this settings.

The four possible responses are:

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

## **Restoring Factory Defaults**

All Configuration Parameters can be restored to their factory default settings by using your primary controller to reset the device. (Delete device from the network)



# **WIRELESS INFORMATION**Wireless range:

This device has an open-air line-of-sight transmission distance of 25m which complies with the Z-Wave standards. Performance can vary depending on the amount of objects in between Z-Wave devices such as walls and furniture. Every Z-Wave device set up in your network will act as a signal repeater allowing devices to talk to each other and find alternate routes in the case of a reception dead spot.

### Radio frequency limitations:

- 1. Each wall or object (i.e.: refrigerator, bookshelf, large TV, etc) can reduce the maximum range of 65 feet by up to 25 to 30%.
- 2. Plasterboard and wooden walls block less of the radio signal then concrete, brick or tile walls which will have more of an effect on signal strength.
- 3. Wall mounted Z-Wave devices will also suffer a loss of range if they are housed in metal junction boxes which could also reduce the range by up to 25 to 30%.

### **MAINTENANCE**

- 1. Do not expose your ZFM-M80US to dust, strong sunlight, humidity, high temperatures or mechanical shocks.
- 2. Do not use corrosive or abrasive cleansers on your ZFM-M80US.
- 3. Keep the unit dust free by wiping it with a soft, dry cloth.
- 4. Do not disassemble your ZFM-M80US, it contains no user-serviceable parts.

### TECHNICAL SPECIFICATIONS

Model no.	ZFM-M80US / DB038
RF frequency	908.42MHz
Input voltage	120Vac or 230Vac
RF operating distance	up to 25m (line of sight between the Wireless Controller and the closest
	Z-Wave receiver module.)
Z-Wave association group	Support 1 association group; Each association group contains 5 nodes max.
Power measurement	+/-5% or +/-1W(whichever is greater)
accuracy:	@ Input = 120Vac 60Hz (≤1800W) or 230Vac 50Hz (≤2300W)
Output relay power rating	120Vac 15A max. or 230Vac 10A max. (Resistive load)
Dimension (L x W x H)	68x35x25mm
Weight	50g metal mount excluded; 70g metal mount included
Storage	-25~60oC
Operation Temperature	-5~45oC
Environment	Indoor use only

Note: Specifications subject to change without notice due to continuing product improvement

Functional: Not used for any limiting and safety function or similar.



### **Certifications**

### **FCC** Information

FCC ID: ZGIDA065

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.

Warning: Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user authority to operate the equipment.

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.

### IC information

IC: 9548A-DA065

This device complies with Industry Canada licence-exempt RSS standard(s). 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.

This device complies with RSS-310 of Industry Canada. Operation is subject to the condition that this device does not cause harmful interference.

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.



#### WARNINGS

Do not dispose of electrical appliances as unsorted municipal waste, use separate collection facilities. Contact your local government for information regarding the collection systems available.

RISK OF FIRE
RISK OF ELECTRICAL SHOCK
RISK OF BURNS
DID NOT QUALIFY FOR INSTRUMENT OF MEDICAL AND LIFE SUPPORT EQUIPMENT

Z-Wave Smart Fixture Switch Module never got qualified certificate to supply power for medical instrument or any life support equipment.

# There is no user serviceable parts in the Smart Fixture Switch Module.

Please contact a qualified electrician to install this product. Do not modify the smart fixture switch module in any way.

### WARRANTY

Subject to local distributor policy or law in your state.

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Wireless Control ZFM-80US/DA065 Z-Wave Fixture Switch Module USER MANUAL



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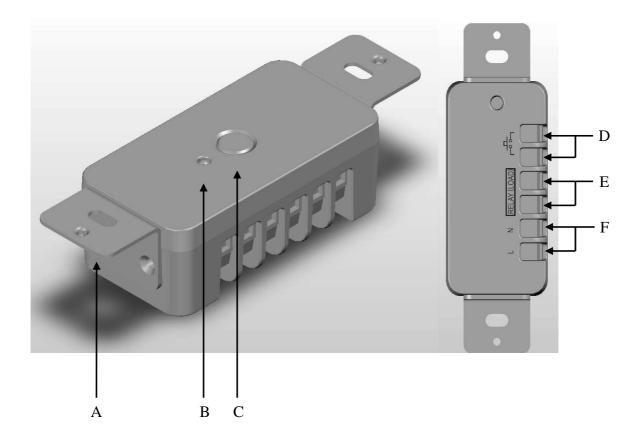
# **Key Features:**

- High output power
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- Manual ON/OFF control with the front panel push button
- Support External ON/OFF key connects to the module
- Advanced function Conditional trigger for "Fail Safe Application"
- Support Network Wide Inclusion (NWI) and Explore Frames
- Screw terminals for wires connection
- Flexible mounting structure mount inside gang box or any place



# **Product Overview:**

- A Mount
- B Status LED
- C ON/OFF/PROG Push button
- D External switch (S/W)
- E Z-Wave controlled output (isolated relay, RL)
- F AC input (L = terminal for Live lead; N = terminal for Neutral lead)





### **Installation**

**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.

For indoor use only in a dry location. Retain instructions for future use.

Step 1 WARNING: To reduce the risk of fire or electric shock, install in a controlled environment relatively free of contaminants. To avoid fire, shock, or death; turn off power at circuit breaker or fuse and test that power is off before wiring!

Step 2 Identifying your wiring application: refer to figure 1 and 2

NOTE: If the wiring in the wall box does not resemble any of above configurations, consult a qualified electrician.

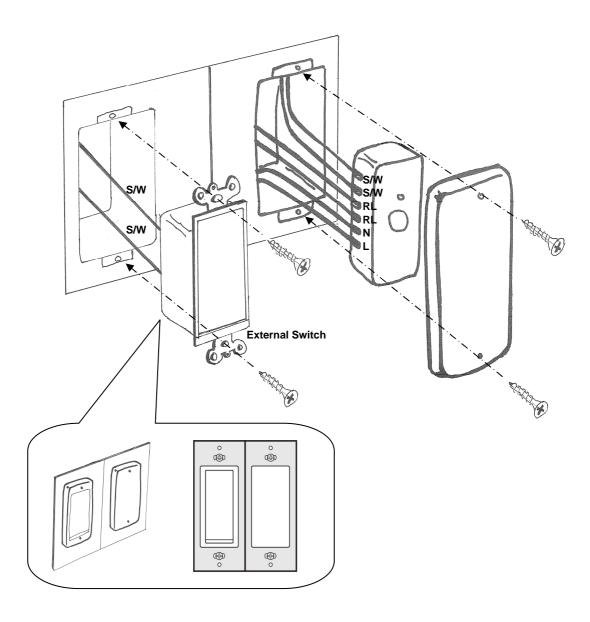
Step 3

Connecting wires: refer to figure 1 or 2 and connect the wires with correct symbols.

Use at less 75°C copper wire only and the stripped wire end's length must be 9mm. The tightening torque must be 3.5lb-in. (Make sure all wires are firmly fixed at all terminals)

**CAUTION:** Risk of Electric Shock – More than one disconnect switch may be required to de-energize the equipment before servicing.







Single switch (connected with input AC power source for the load)

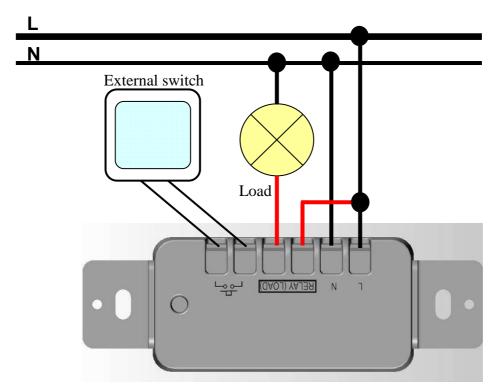
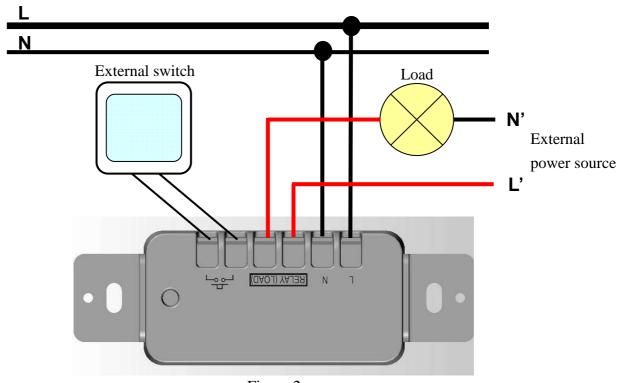


Figure 1

Single switch (connected with an external power source for the load)



### Figure 2

# Warning

The resistive household appliance connected into the Z-Wave controlled outlet on this module must not exceed 230Vac 10A or 120Vac 15A.

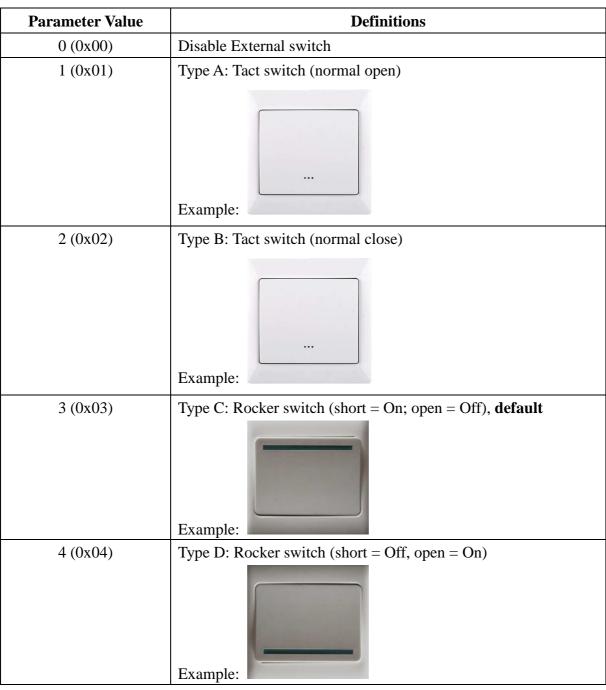


### **External Switch**

ZFM-80US provides an option to user that can add an external switch to control the On/Off function. ZFM-80US can be placed into the switch box with external wall switch cover. User can configure the external switch type through the configuration command.

### **Configuration Command for External Switch**

Parameter Number	Definitions
1 (0x01)	Set External switch type



Parameter Table



# Advanced function "Conditional trigger for Fail Safe Application"

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### Configuration Command for "Conditional trigger for Fail Safe Application"

<b>Parameter Number</b>	Definitions	Parameter value range
2 (0x02)	Set timeout period	0 ~ 240 (minutes)
		(default value is 0 [function disabled])
3 (0x03)	Configure Node ID number for	1 ~ 232 (Node ID number)
	Z-Wave command source	(default value is 0 [function disabled])
4 (0x04)	Set relay output status if timeout	1 = turn on relay
	period has been reached	0 = turn off relay
		(default value is 0)

### **LED Indication Status:**

	LED Indication Status			
Operations	Device already exist in	Device does NOT exist in		
	network	network		
ZFM-80US power on	• LED flashes slowly within 2	• LED flashes slowly within 2		
	seconds then stay on if	seconds then stay on if external		
	external switch stay in active	switch stay in active stage.		
	stage.	LED flashes slowly within 4		
	• LED light up.	minutes then stay on if external		
		switch stay in inactive stage.		
Press PROG button /	LED flashes slowly within 2	• LED flashes slowly within 2		
Press external switch	seconds then stay on.	seconds then stay on.		
(Learning mode)				
Receive command /	LED flashes 2 times then stay on.	N/A		
Send command or data				
Error	LED flashes 6 times rapidly then	N/A		
	stay on.			

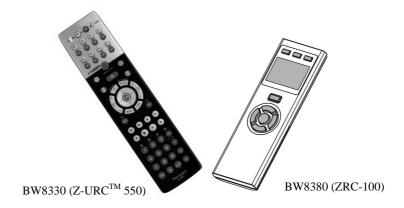


# **Basic Operation**

The connected device can be turned ON in two ways:

- 1. Manual control with the push button on the ZFM-80US.
- 2. Z-Wave remote controller.





### Manual ON/OFF function

Turn the resistive household appliance On/Off by pressing the button at front or external switch.

(Press the external switch to turn the resistive household appliance on if it is in off stage and vice versa)



#### **Z-Wave Remote Control**

<u>Include or exclude</u> the Fixture Switch Module from the existing Z-Wave home control network with your primary controller.

- Refer to your primary controller instructions to process the inclusion / exclusion setup procedure.
- When prompted by your primary controller, click once on the PROG button or external switch.
- The primary controller should indicate that the action was successful. If the controller indicates the action was unsuccessful, please repeat the procedure.
- Once the Fixture Switch Module is part of the network, the same basic procedure is used to add the Fixture Switch Module to groups or scenes. Refer to the primary controller's instructions for details.

### **Support Association Command Class**

ZFM-80US support one association group, this association group contains 5 nodes max. It is used to report the relay on/off status to specify nodes with ZFM-80US predefined association group once the relay state has been changed.

### All On/All Off functions

Depending upon your primary controller, the Fixture Switch Module can be set to respond to ALL ON and ALL OFF commands up to four different ways. Some controllers may not be able to change the response from its default setting. Please refer to your controller's instructions for information on whether or not it supports the configuration function and if so, how to change this settings.

The four possible responses are:

- It will respond to ALL ON and the ALL OFF commands (default).
- It will not respond to ALL ON and ALL OFF commands.
- It will respond to the ALL OFF command but will not respond to the ALL ON command.
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## **Restoring Factory Defaults**

All Configuration Parameters can be restored to their factory default settings by using your primary controller to reset the device. (Delete device from the network)



#### WIRELESS INFORMATION

### Wireless range:

This device has an open-air line-of-sight transmission distance of 25m which complies with the Z-Wave standards. Performance can vary depending on the amount of objects in between Z-Wave devices such as walls and furniture. Every Z-Wave device set up in your network will act as a signal repeater allowing devices to talk to each other and find alternate routes in the case of a reception dead spot.

#### Radio frequency limitations:

- 1. Each wall or object (i.e.: refrigerator, bookshelf, large TV, etc) can reduce the maximum range of 65 feet by up to 25 to 30%.
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#### **MAINTENANCE**

- 1. Do not expose your ZFM-80US to dust, strong sunlight, humidity, high temperatures or mechanical shocks.
- 2. Do not use corrosive or abrasive cleansers on your ZFM-80US.
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- 4. Do not disassemble your ZFM-80US, it contains no user-serviceable parts.

### TECHNICAL SPECIFICATIONS

Model no.	ZFM-80US / DA065
RF frequency	908.42MHz
Input voltage	120Vac or 230Vac
RF operating distance	up to 25m (line of sight between the Wireless Controller and the closest
	Z-Wave receiver module.)
Z-Wave association group	Support 1 association group; Each association group contains 5 nodes max.
Output relay power rating	230Vac 10A max. or 120Vac 15A max. (Resistive load)
Dimension (L x W x H)	68x35x25mm
Weight	50g metal mount excluded; 70g metal mount included
Storage	-25~60oC
Operation Temperature	-5~45oC
Environment	Indoor use only

Note: Specifications subject to change without notice due to continuing product improvement



#### **Certifications**

### **FCC** Information

FCC ID: ZGIDA065

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