

TECHNICAL USER MANUAL

FlexNET Dongle Description

Z-Wave Certification
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Ver. 1.0

FlexNET Dongle Objective

- FlexNET Dongle was developed to convert FlexNet Protocol (RS-485) to Z-Wave Protocol.
- It controls a total of 16+ Flex Lighting Panels via Z-Wave.
- The FlexNET Dongle Interface is Universal (One fits All).
- It is a fully compatible with any Z-Wave enabled network. Z-Wave enabled devices displaying the Z-Wave logo can also be used with it regardless of the manufacturer. And ours can also be used in other manufacturer's Z-Wave enabled networks since FlexNet Dongle Bridge is used together with Flex Panels.
- This Device is designed to act as a repeater. Repeaters will re-transmit the RF signal to ensure the signal is received by its intended destination by routing the signal around obstacles and radio dead spots.
- FlexNET Dongle is a Security Enable Z-Wave Plus Product. To fully utilize this Device, a Security Enable Z-Wave Controller must be used.

Existing Hardware

- **Chipset:** ZM5202 - 500 Series;
- **Communication:** RS485 Transceiver;
- **Power:** 3,3VDC LDO (5VDC / 700mA - Power from Flex Panel - Always On);
- **Inclusion:** No tact switch (inclusion through touch button on Flex Panels – more than 3 times within 1 second);
- **Indication:** Power LED indicator;
- **PCB Size:** 40mm x 25mm;
- **Layer:** Two layers.
- **Firmware Size:** 350KB
- **OTA Size:** 264KB (After updating the Device through OTA, power off the Panel, wait 5 seconds and power on again – Ready to use it.)

Node Info

- **Generic Device Class:**
GENERIC_TYPE_SWITCH_MULTILEVEL.
- **Specific Device Class:**
SPECIFIC_TYPE_POWER_SWITCH_MULTILEVEL

Node Info

➤ Supported Command Classes:

- COMMAND_CLASS_ZWAVEPLUS_INFO_V2,
- COMMAND_CLASS_VERSION_V2,
- COMMAND_CLASS_BASIC_V1,
- COMMAND_CLASS_SWITCH_BINARY_V1,
- COMMAND_CLASS_SWITCH_MULTILEVEL_V1,
- COMMAND_CLASS_SCENE_ACTIVATION_V1,
- COMMAND_CLASS_SCENE_ACTUATOR_CONF_V1
- COMMAND_CLASS_SCENE_CONTROLLER_CONF_V1,
- COMMAND_CLASS_MULTI_CHANNEL_V4,
- COMMAND_CLASS_MULTI_CHANNEL_ASSOCIATION_V3,
- COMMAND_CLASS_ASSOCIATION_V2,
- COMMAND_CLASS_ASSOCIATION_GRP_INFO_V3,
- COMMAND_CLASS_SECURITY_V1,
- COMMAND_CLASS_SECURITY_2_V1,
- COMMAND_CLASS_TRANSPORT_SERVICE_V2,
- COMMAND_CLASS_MANUFACTURER_SPECIFIC_V2,
- COMMAND_CLASS_POWERLEVEL_V1,
- COMMAND_CLASS_SUPERVISION_V1,
- COMMAND_CLASS_FIRMWARE_UPDATE_MD_V4,
- COMMAND_CLASS_CONFIGURATION_V1,
- COMMAND_CLASS_NODE_NAMING AND LOCATION_V1,
- COMMAND_CLASS_CLOCK_V1,

Flex Panel Operation (End User Manual)

Remark: Flex Panels works Stand Alone. Thus, they are not an IoT Device (Flex Panels Are not Native Z-Wave Device)

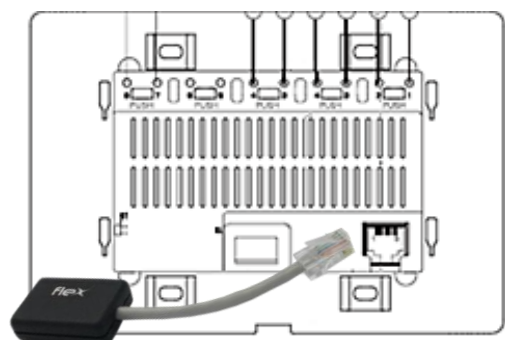
➤ Example: Flex Panel FXA-0600

Features:

- 6 Dimming Channels
- 4 User configurable Scenes
- All Off Key
- Clock
- Buzzer
- Eco Mode
- Minimum Lighting Level
- 127~220 VAC
- Total Panel Capacity: 9A - Max. Capacity per channel: 1,5A (Resistive)

Built-in Available Interfaces:

- InfraRed (IR Receiver on front panel)
- ModBus (Serial Port on back panel)
- FlexNet (Serial port on back Panel)
- Z-Wave (Optional through FlexNET Dongle connected to FlexNet Port)



Flex Panel Operation (End User Manual)

Front Flex Panel:



Symbols:



Increases the level of the Dimming light channel.



Decreases the level of the Dimming light channel.



1 Select a scene



2 Customization: adjust the desired lighting levels of each of the 6 channels and keep your finger over the button for 5 seconds.



3 When buzzer activates, the customized scene is stored.



4 ALL OFF the entire panel



all



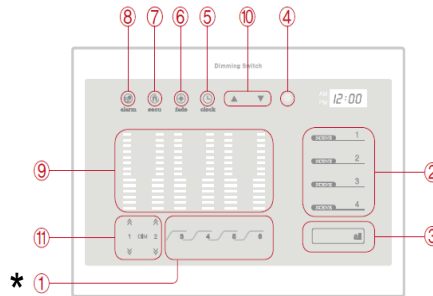
Infra Red Sensor

Flex Panel Operation (End User Manual)

See below how to Setup all Flex Panel stand alone functions:

**Not applicable
for FXA-0600.*

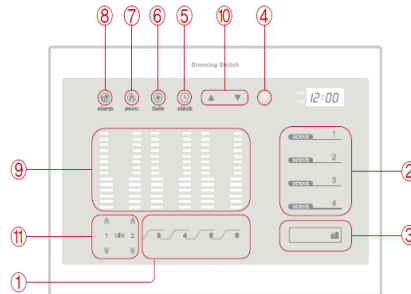
*** After Clock setup,
you must press any Scene
Button to update it.*



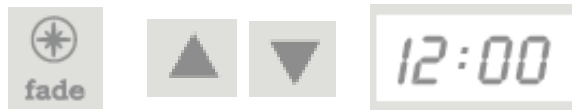
	Name	Function	Method of use
*	① Light on/off button	Turning On/Off of relevant lamp.	<ul style="list-style-type: none"> - If you press the shortly, the lamp on the relevant circuit is either turned on or turned off. - The current the turning on/off state of the lamp is indicated on ⑨.
	⑪ Dimming Button	Adjusting brightness of dimming lamp.	<ul style="list-style-type: none"> - If you press the , the relevant lamp becomes brighter, and press the , then its brightness is diminished. - The current dimming level is indicated on ⑨.
	② Scene button	Presenting atmosphere with each different scene.	<p>Scene presentation</p> <p>If you press the 1 ~ 4 shortly, it moves to the state of the brightness that has been set on the relevant Scene.</p> <p>Setting the Scene</p> <p>Adjust the brightness suitably by using ①, ⑪ buttons. If you press the Scene button, which you want to have it remembered, for more than 5 seconds, it's set while a beep sound is heard.</p>
	③ All button	Turning On/Off of all lamps in state before they had been turned off.	Press the shortly.
**	④ IR receiver	Remocon receiver	
	⑤ Current time button	Setting up of current time.	<ul style="list-style-type: none"> - If you press the function button(⑤,⑥,⑦,⑧) it becomes activated while the function button LED is turned on. - If press the button for more than 3 seconds, it becomes activated while the button LED is turned on together with a beep occurs. - Sets up the current time by pressing the button. - After setting the time if you either press the button or wait for 5 seconds, then it's set.
	⑦ Secu button	Setting up of crime prevention function or releasing the setting (In the setting time the lamp of 1 circuit is turned on automatically, and is automatically turned off after 6 hours from the time it's turned on).	<p>Setting up of crime prevention</p> <ul style="list-style-type: none"> - If you press the function button (⑤,⑥,⑦,⑧), it becomes activated while the LED is turned on. - If you press the button for more than 3 seconds, it becomes activated while the button LED is turned and a beep sound is heard. - Now by pressing the button, set up the time you want. - After setting it, if you either press the button or wait for 5 seconds, then its setting is completed. <p>Releasing of crime prevention setting</p> <ul style="list-style-type: none"> - Under the state in which a crime prevention function is set (While button LED is turned on), press the button. - Then, the crime prevention setting is released while the button LED is turned off.
	⑧ Alarm setting	Setting up of alarm function and releasing the setting.	<p>Alarm setting</p> <ul style="list-style-type: none"> - If you press the function button (⑤,⑥,⑦,⑧) it becomes activated while the function button LED is turned on. - If you press the button for more than 3 seconds, it becomes activated while the button LED is turned on and a beep sound is heard. - By pressing the button, set the time you want. - After setting it, if you either press the button or wait for 5 seconds, then its setting is completed. <p>Releasing of the setting</p> <ul style="list-style-type: none"> - Under the state in which an alarm function is set (While button LED is turned on), press the button. - Then, the alarm function set is released while the button LED is turned off.

Flex Panel Operation (End User Manual)

See below how to Setup all Flex Panel stand alone functions:



6) Fade Adjustments: All 6 Dimmer channels can be setup for individual fade (Dimmer or On/Off) as instructions below:



To setup dimmers individually, active the menu, touch the clock symbol during 5 seconds. The arrow LEDs will turn on (▲ and ▼). Touch the Clock symbol during 3 seconds until the first digit change to 1. In this case, the second digit will show the dimmer to be configured. Touch the arrows to change the channel behavior. To edit another dimmer, just touch the Clock symbol changing the second digit from the display.

To save all changes, touch in Fade symbol or wait the menu deactivate automatically.

Example:

1st Digit	2nd Digit	3rd Digit
0 - All	0 ("All" Configuration Activated)	0 - 0s (on-off)
1 - Individual	1 - Dimmer 1	1 - 3s
	2 - Dimmer 2	
	3 - Dimmer 3	
	4 - Dimmer 4	
	5 - Dimmer 5	
	6 - Dimmer 6	

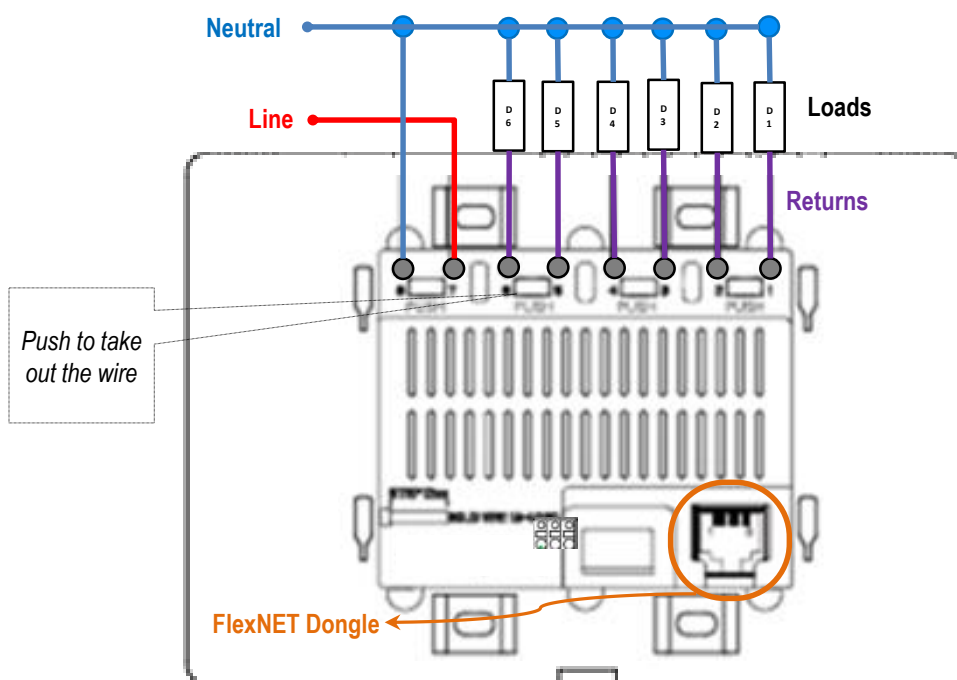
Note: Do not use any other value different than 0 for On/Off and 1 for Dimmer on 3rd Digit.

Installation Procedures

Once Flex Panel is properly installed and powered (110 ~ 220v 50/60Hz), the Dongle can be inserted in back panel port through FlexNet Serial port.

The Panel communicates with FlexNET Dongle and informs:

- **Number of Channels:** 1 ~ 25 (6 channels for FXA-0600)
- **Channels Type:** Dimmer or On/Off (Dimmers for FXA-0600)
- **Number of Physical Scenes:** Values: 0 ~ 8 (4 scenes for FXA-0600. The scene buttons can be associated to Z-Wave Scenes ID and/or to other Z-Wave Devices. More details underneath.
- **Main Channel:** Reflects Channel 01 (Dimmer or On/Off).



Additional Information

See below important additional information:

➤ **Add device into Z-Wave Network:**

Enter your Z-Wave Controller into Inclusion/Add Mode. Press the Lighting Panel "Scene1" button more than 3 times within 1 second.

➤ **Remove device from Z-Wave Network:**

Enter your Z-Wave Controller into Exclusion/Remove Mode. Press the Lighting Panel "Scene1" button more than 3 times within 1 second.

➤ **Network Wide Inclusion - NWI:**

NWI can be used every time you power on the device. It will be activated during 4 seconds.

➤ **Reset to factory default:**

Parameter: 15; Bytes: 01; Value: 255.

Note: Please use this procedure only when the network primary controller is missing or otherwise inoperable.

➤ **Flex Panel Customization through FlexNET Dongle:**

Though "Command Class Configuration v1".

➤ **Multilevel Switch CC – Dimming Duration:**

FlexNET Dongle does not respond to Dimming Duration.

Commands through "Configuration Set/Get"

FXA-0600 Panel Configuration SET/GET - Parameters							
Parameter (HEX)	Name	Parameter Description	Total Bytes	Bytes	Values (HEX)	Default	Value Description (HEX)
01	Set Buzzer	Turn On or Off the Flex Panel Buzzer	01	01	00	01	00 - Turn Off
					01		01 - Turn On
02	Set Clock	Configure Panel Hour and Minute	02	01	00 ~ 17	NA	Start Hour
				01	00 ~ 3B	NA	Start Minutes
03	Eco Mode Channel 01	Save energy, increase bulb life and reduce your bill by limiting the maximum brightness of each channel. (Only use for Dimmer Channels)	01	01	1E ~ 64	64	1E - Minimum Limit 64 - Maximum Limit
04	Eco Mode Channel 02	Save energy, increase bulb life and reduce your bill by limiting the maximum brightness of each channel. (Only use for Dimmer Channels)	01	01	1E ~ 64	64	1E - Minimum Limit 64 - Maximum Limit
05	Eco Mode Channel 03	Save energy, increase bulb life and reduce your bill by limiting the maximum brightness of each channel. (Only use for Dimmer Channels)	01	01	1E ~ 64	64	1E - Minimum Limit 64 - Maximum Limit
06	Eco Mode Channel 04	Save energy, increase bulb life and reduce your bill by limiting the maximum brightness of each channel. (Only use for Dimmer Channels)	01	01	1E ~ 64	64	1E - Minimum Limit 64 - Maximum Limit
07	Eco Mode Channel 05	Save energy, increase bulb life and reduce your bill by limiting the maximum brightness of each channel. (Only use for Dimmer Channels)	01	01	1E ~ 64	64	1E - Minimum Limit 64 - Maximum Limit
08	Eco Mode Channel 06	Save energy, increase bulb life and reduce your bill by limiting the maximum brightness of each channel. (Only use for Dimmer Channels)	01	01	1E ~ 64	64	1E - Minimum Limit 64 - Maximum Limit
09	Dimmer Minimum Level Channel 01	Is possible to setup a minimum value for Dimmer Channels to fix a "Lighting Range".	01	01	1D ~ 63	1D	1D - Minimum Limit 63 - Maximum Limit
0A	Dimmer Minimum Level Channel 02	Is possible to setup a minimum value for Dimmer Channels to fix a "Lighting Range".	01	01	1D ~ 63	1D	1D - Minimum Limit 63 - Maximum Limit
0B	Dimmer Minimum Level Channel 03	Is possible to setup a minimum value for Dimmer Channels to fix a "Lighting Range".	01	01	1D ~ 63	1D	1D - Minimum Limit 63 - Maximum Limit
0C	Dimmer Minimum Level Channel 04	Is possible to setup a minimum value for Dimmer Channels to fix a "Lighting Range".	01	01	1D ~ 63	1D	1D - Minimum Limit 63 - Maximum Limit
0D	Dimmer Minimum Level Channel 05	Is possible to setup a minimum value for Dimmer Channels to fix a "Lighting Range".	01	01	1D ~ 63	1D	1D - Minimum Limit 63 - Maximum Limit
0E	Dimmer Minimum Level Channel 06	Is possible to setup a minimum value for Dimmer Channels to fix a "Lighting Range".	01	01	1D ~ 63	1D	1D - Minimum Limit 63 - Maximum Limit
0F	Reset to Factory Default	Reset the device to the factory default. It will delete all previous device configuration	01	01	FF	NA	FF - Reset the Device

NOTE:
 1. Never set the Minimum value to be higher then the Maximum Value. This command will be ignored.
 2. To set the Eco Mode value, firstly you should turn off the respective channel.

Command Class “Scene Activation”

This Command Class sends commands to perform internal Flex Panel Scenes.

Remark: Scenes 1 ~ 255

- Scenes 1 ~ 4: Physical Scenes (programmed directly in the panel and not through Z-Wave)
- All other Scenes can be saved through the Scene_Actuator_Configuration_Command_Class

Command Class Scene Association

This Command Class works with Group Association. Group association is sub divided up to 5 AGs (Association Groups). It is possible to send Basic Set or Scene Activation through these groups.

- **AG01:** This is the “Lifeline” group. It can hold five devices.
- **AG02:** Group responsible for the Scene Button 01 which can hold five Devices. Is possible to choose between Basic Set Command and Scene Activation.
- **AG03:** Group responsible for the Scene Button 02 which can hold five Devices. Is possible to choose between Basic Set Command and Scene Activation.
- **AG04:** Group responsible for the Scene Button 03 which can hold five Devices. Is possible to choose between Basic Set Command and Scene Activation.
- **AG05:** Group responsible for the Scene Button 04 which can hold five Devices. Is possible to choose between Basic Set Command and Scene Activation.

Important Note

All other Command Classes listed but not explained in this document, follows behavior according to the Sigma`s SDK 6.71.03.