Nano Shutter

Engineering Specification
Nano Shutter

Document No.	SPEC-ZW141
Description	This Document mainly introduces AEOTEC new generation Nano Shutter, including its interface, accessories, features, specification, quick start and software function definition. Nano Shutter is a Z-Wave Plus device with many advantages. ● Used to control the motor of Curtain, support Shutter Mode and Venetian Mode. ● Can be calibrated according to different curtains ● Used to control other Z-Wave device directly. ● Support S2, more safe and more reliable ● Support SmartStart,faster inclusion
Written By	
Date	
Reviewed By	
Date	
Approved By	
Date	

REVISION RECORD		
Version	Date	Brief description of changes
1	2019.08.09	First revision
2	2019.08.22	Modify the Quick Start Description

Table of Content

1 INTERFACE & ACCESSORIES....1

2 FEATURES & SPECIFICATION....2

2.1 Structural Characteristics....2

2.2 Hardware Characteristics....2

2.3 Software Characteristics....2

3 PRODUCT QUICK START....4

3.1 Important safety information....4

3.2 Optimally placing the product....4

3.3 How to Install the product....4

3.4 External Switch Identification....6

3.5 How to add the product into Z-Wave network....6

3.5.1 Smart Learn Mode....7

3.5.2 Classic inclusion Learn Mode....7

3.6 How to Remove the device from Z-Wave network....7

3.7 How to Factory Reset....8

4 SOFTWARE FUNCTION DEFINITION....9

4.1 User Behavior Interaction....9

4.2 Calibration....10

4.3 Supported Command Classes....13

4.4 Basic Command Class mapping....13

4.5 MultiLevel Switch....13

4.6 Z-Wave Plus Info....14

4.7 Manufacturer Specific....14

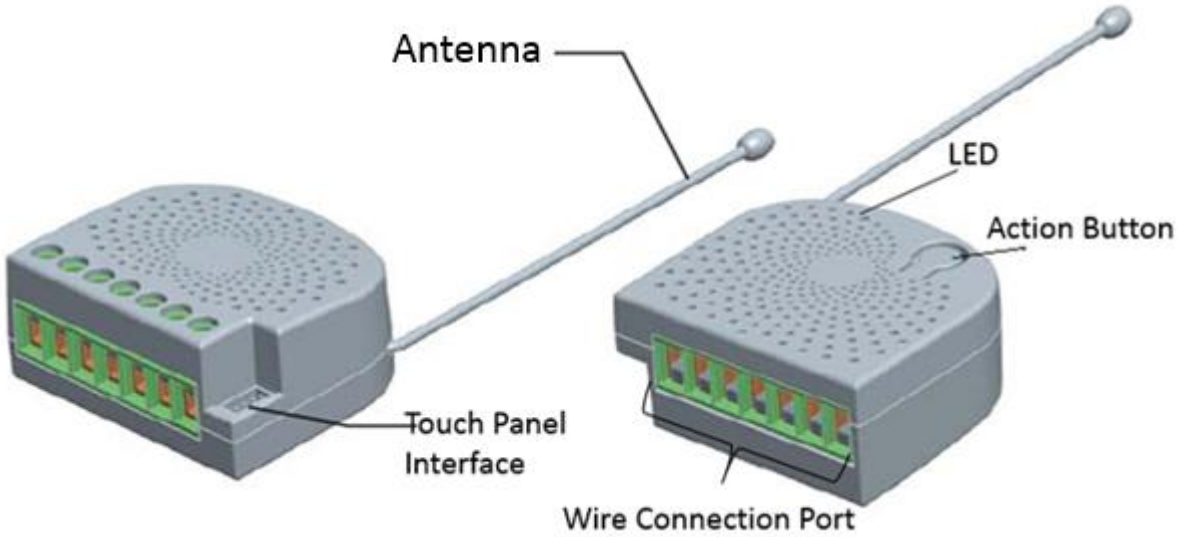
4.8 Version....14

4.9 Association Group Info....15

4.10 Central Scene Notification....15

4.11 Configuration....15

1 INTERFACE & ACCESSORIES



Interface	Description
Action Button	Used for networking, Motor Carbiration, External Switch identify and resetting.
LED	RGB, Used for indicating the current product state
Wire Connection Port	Used for connect the electric line of power input, load, external switch
Touch Panel Interface	Used for Wall Swipe or Touch Panel connection
Antenna	Used for Z-Wave communication
QR	Used for Smart Smart

2 FEATURES & SPECIFICATION

2.1 Structural Characteristics

Parameter	Value
Model	ZW141
Dimensions	44*40*20.5mm^3
Weight	34g
Color	White
Shell Meterial	PC
Shell Surface Treatment	Light frosted
Waterproof and Dustproof	UL94 V-0
IP Level	IP00（Based on IEC 60529）
environmental conditions	Indoor only, used in Switch box
Operating Temperature	0-40℃
Relative Humidity	8-80%

2.2 Hardware Characteristics

Parameter	Value
Z-Wave Module	ZM5101
Z-Wave Communication Distance	40m（indoor）/150m（Outdoor）
LED	RGB
User Interface	Action Button * 1
	Power Input：L（Live）, N（Neutual）, IN（Load Input）
	Power Output： OUT1, OUT2(Load Output)
	External Switch Port：S1（External Switch 1）, S2（External Switch 2）
	Touch Panel Interface：Power, Gnd, Txd, Rxd
Input Voltage	230VAC
Battery Inside	No
Load Output	Max 575W @230VAC Note: Actuallu only one output is working in one time for Motor
Max Ampere output	Max 2.5A@230VAC
Standby Currunt	<10mA
Standby Power	<0.8W
Inbuilt Sensor	NO
Local Certification	US: FCC、ETL EU: CE AU: RCM

2.3 Software Characteristics

Parameter	Value
Wireless Protocol	Z-Wave
Certification Type	Z-Wave Plus Certification
Z-Wave SDK Version	6.81.03
Z-Wave Library Type	Enhanced 232 Slave
Z-Wave Role Type	ZWAVEPLUS_INFO_REPORT_ROLE_TYPE_SLAVE_ALWAYS_ON (0x05)
Generic Device Type	GENERIC_TYPE_SWITCH_MULTILEVEL (0x11)
Specific Device Type	SPECIFIC_TYPE_CLASS_C_MOTOR_CONTROL (0x07)

Security Class	Non-Security, S0, S2 Unauthenticated, S2 Authenticated
SmartStart	Support
Over The Air （OTA）	Support
Multi Channel Device	NO
Tap-and-Touch	NO
Association	Support
Factory Reset	Support
Power-down Memory	Support. All command settings will stay unchanged even power down.
Control other device	Support. When Magnet is away or near, control other Z-Wave device directly via Group 2.

3 PRODUCT QUICK START

3.1 Important safety information

Please read this Engineering Specification carefully for correct and effective use.

Failure to follow the recommendations set forth by AEOTEC Limited may be dangerous or cause a violation of the law. The manufacturer, importer, distributor, and/or reseller will not be held responsible for any loss or damage resulting from not following any instruction in this guide or in other materials.

This product is intended for indoor use in dry locations only. Do not use in damp, moist, and /or wet locations. Contains small parts; keep away from children.

3.2 Optimally placing the product

Indoor Only for inside the Switch Box

3.3 How to Install the product

The following will step you through installing Nano Shutter and connecting it to your Z-Wave Network.

1. Turn off electricity to switch at circuit breaker.

1. **Note**: For safety, your home's main circuit breaker must support overload protection.

2. Remove and unwire existing wall switch that Nano Shutter will install behind.

    a) Ensure the wires are not short-circuited during the installation as to avoid causing damage to Nano Shutter

    b) Ensure the size of gang box Nano Switch will be installed in is at least 3*2*2.75 inches/75*50*70mm or larger, the minimum volume is 14 in^3/230 cm^3.

3. Prepare connection wires.

    a) 14 AWG power wires for Input/Output (L/N/IN/OUT1/OUT2)

    b) 18 AWG power wires for external manual switch.

    c) Use the wire stripper cut the metallic part of the connection wire and make sure the length of the metallic part is about 5mm.

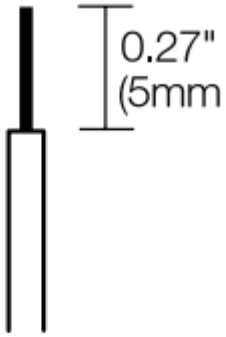


Diagram 1; expose 5mm / 0.27" of wire.

Diagram 2; trim any wire in excess of 5mm / 0.27".

1. Notes for the wire connection ports as the diagram below:

N – Power input for neutral

L – Power input for live

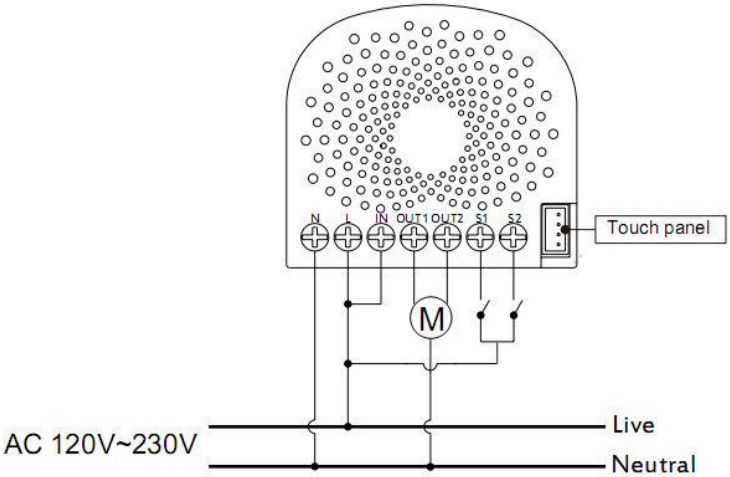
IN – Input for load power supply

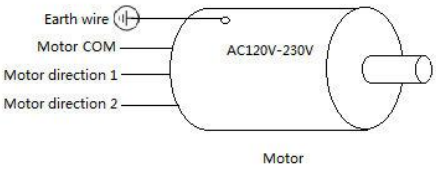
OUT1 – Output for Motor direction 1

OUT2 – Output for Motor direction 2

S1 – External Switch/button 1 control for Motor

S2 – External Switch/button 2 control for Motor





2. Wire Nano Shutter into its gang box.Nano Shutter will be wired as diagram above when wired with external switch.

   a) Live/Hot wire connection: Connect the Live/Hot wire to the Live/Hot wire to the “L” terminal on Nano Shutter.

   b) Neutral wire connection: Connect the Neutral wire to the “N” terminal on Nano Shutter.

   c) Load wire connection:Connect the 2 Load wires (Motor direction 1 and Motor direction 2) to the “OUT1” and “OUT2” on Nano Shutter.

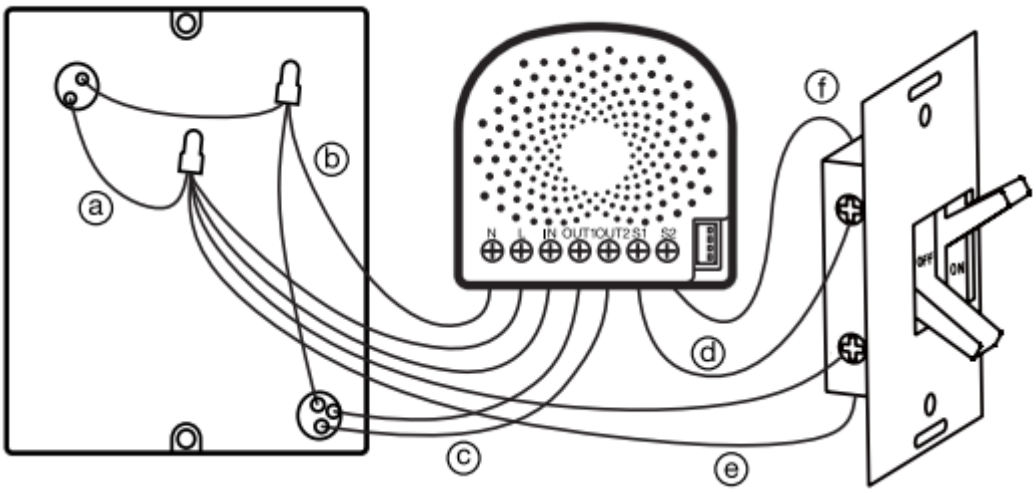
   d) Load wire connection:Conncet the Neutral wire to the “Neutral” terminal on Motor.

   e) External/manual Switch connection: Connect 2*18AWG wires to the “S1” and “S2” on Nano Shutter.

   f) External/manual Switch conncetion:Connect 2*18AWG wires from the 2 terminals on the External/manual

Switch to the Live wire.

3. The actual wire connection will be completed as below:



4. Mount in gang box.
   a) Organize all wires to provide rrom for Nano Shutter
   b) Place Nano Shutter inside of the gang box with the antenna towards the back of the box and away from all other wires.
   c) Don’t close the gang box’s cover for the moment before configuration completed.
5. Turn on electricity to switch at circuit breaker or fuse.

3.4 External Switch Identification

1. Press Action Button twice to enter S1(external switch 1) Identify Mode, LED will flash blue light in identification.Press external switch 1 once to complete identification.LED become solid blue light for 2s when identify secceeds.LED becom solid red light for 2s when identify fails.
2. Press Action Button quartic to enter S2(external switch 2) Identify Mode, LED will flash green light in identification.Press external switch 2 once to complete identification. LED become solid green light for 2s when identify secceeds.LED becom solid red light for 2s when identify fails.
3. Inclusion/Exclusion will not change the switch type after identification.And this can also be set by gateway after inclusion ,see section 4.11 configuration parameter 120/121

3.5 How to add the product into Z-Wave network

This product supports Security 2 Command Class. While a Security 2 enabled Controller is needed in order to fully use the security feature. This product can be included and operated in any Z-Wave network with other Z-Wave certified devices from other manufacturers and/or other applications. All non-battery operated nodes within the network will act as repeaters regardless of vendeor to increase reliability of the network.

3.5.1 Smart Learn Mode

SmartStart enabled products can be added into a Z-Wave network by scanning the Z-Wave QR Code present on the product with a controller providing SmartStart inclusion. No further action is required and the SmartStart product will be added automatically within 10 minutes of being switched on in the network vicinity.

Indicator Light will alternate through a rainbow of colors indicating the product has been powered. It will become constantly bright yellow light after being assigned a NodeID.

If Adding succeeds, it will turn blue light in the adding process,and turn green light when motor runs, turn off when motor stops.

If Adding fails, it will bright red light for 2s and turn back to alternate through a rainbow of colors and then start SmartStart Learn Mode again.

Note:

The label of QR Code on the product and package are used for SmartStart Inclusion. The Z-Wave DSK Code is at surface of the package. Please do not remove or damage them.

3.5.2 Classic inclusion Learn Mode

1. Set your Z-Wave Controller into its 'Add Device' mode in order to add the product into your Z-Wave system. Refer to the Controller's manual if you are unsure of how to perform this step.
2. Make sure the product is powered. After powered up, Its LED will alternate through a rainbow of colors all the time.
3. Click Action Button once, it will quickly flash blue light for 30 seconds until it is added into the network.
4. If your Z-Wave Controller supports S2 encryption, enter the first 5 digits of DSK into your Controller's interface if /when requested. The DSK is printed on its housing.
5. If Adding fails, it will bright red light for 2s and then alternate through a rainbow of colors; repeat steps 1 to 4. Contact us for further support if needed.
6. If Adding succeeds, it will bright blue light for 2s and then turn to Motor Mode(green for runing, off for stop). Now, this product is a part of your Z-Wave home control system. You can configure it and its automations via your Z-Wave system; please refer to your software's user guide for precise instructions.

Note:

If Action Button is clicked again during the Classic Inclusion Learn Mode, the Classic Inclusion Learn Mode will exit. At the same time, Indicator Light will bright red light for 2s, and then alternate through a rainbow of colors.

3.6 How to Remove the device from Z-Wave network

1. Set your Z-Wave Controller into its 'Remove Device' mode in order to remove the product from your Z-Wave system. Refer to the Controller's manual if you are unsure of how to perform this step.
2. Click Action Button/S1/S2(external switch need to be identified first) 6 times will enter exclusion mode.

3. If Removing fails, it will bright red light for 2s then turn back to Regular Light Mode, repeat steps 1-2. Contact us for further support if needed.
4. If Removing succeeds, it will alternate through a rainbow of colors. Now, it is removed from Z-Wave network successfully.

3.7 How to Factory Reset

Manually, press and hold the Action Button for at least 20s and then release. The LED indicator will alternate through a rainbow of colors, which indicates the reset operation is successful. Otherwise, please try again. Contact us for further support if needed.

Note:

1. This procedure should only be used when the primary controller is missing or inoperable.
2. Factory Reset will:

a) Remove the product from Z-Wave network;

b) Delete the Association setting;

4 SOFTWARE FUNCTION DEFINITION

4.1 User Behavior Interaction

1. S1 means External Switch 1, S2 means External Switch 2.

2. User behavior with S1/S2 works only after External Switch Identfication complete.

3. Long Press with S1/S2 works only when S1/S2 is in Button mode.

4. Regular light mode is the LED operation mode inside the network.

User Behavior	Outside the network	Inside the network
Power OFF	Cut the Power and light off.	Cut the Power and light off.
Power ON	SmartStart Learn Mode： LED cycle on rainbow lights，which means outside the network. LED will become flash blue color if gateway is adding the device into the network through SmartStart。LED become solid blue after Node ID assigned. If Adding succeeds, LED will become twinkle blue light 3 times and then go to light status inside the network. If Adding fails, LED will go back to rainbow lights cycle. Device will auto-reset and then active SmartStart Learn Mode again.	LED regular light mode inside the network： LED become green when motor is moving, LED become off when motor stops.
Click Action Button/S1/S2 once	1.Send Node Info for Adding: LED will become flash blue color for no long than 30s or before adding succeeds. LED become solid blue after Node ID assigned. If Adding succeeds, LED will become twinkle blue light 3 times and then go to light status inside the network. If Adding fails, LED will go back to rainbow lights cycle. Device will auto-reset and then active SmartStart Learn Mode again. 2.activate and stop the motor The motor moves in a forward - stop - reverse - stop - forward order, turning on the green light when moving and turn off when stopping. 3.calibration assistance When in Shutter or Venetian calibration mode, press once to assist finish calibration, at the same time function 1 and function 2 will not work.	1.active and stop the motor The motor moves in a foward - stop - reverse - stop - forward order, turning on the green light when moving and turn off when stopping. 2.calibration assistance When in Shutter or Venetian calibration mode, press once to assist finish calibration, at the same time function 1 and function 2 will not work.
Click Action Button/S1/S2 twice	S1(External switch 1) Identify Mode LED will flash blue light when it is in Identify Mode, LED become solid blue light for 2s when identify secceeds. LED becom solid red light for 2s when identify fails.	S1(External switch 1) Identify Mode LED will flash blue light when it is in Identify Mode, LED become solid blue light for 2s when identify secceeds. LED becom solid red light for 2s when identify fails.
Click Action Button/S1/S2 3 times	1.Enter Shutter Calibration Mode Orange light flashing when calibrating. 2.Exit Calibration Mode Calibration incomplete，go back to rainbow light cycle.	1.Enter Shutter Calibration Mode Orange light flashing when calibrating. 2.Exit Calibration Mode Calibration incomplete，go back to light mode inside the network.

Click Action Button/S1/S2 4 times	S2(External switch 1) Identify Mode LED will flash green light when it is in S2 Identify Mode, LED become solid green light for 2s when S2 identify secceeds. LED becom solid red light for 2s when S2 identify fails.	S2(External switch 1) Identify Mode LED will flash green light when it is in S2 Identify Mode, LED become solid green light for 2s when S2 identify secceeds. LED becom solid red light for 2s when S2 identify fails.
Click Action Button/S1/S2 5 times	1.Enter Venetian Calibration Mode White light flashing when calibrating. 2.Exit Calibration Mode Calibration incomplete，go back to rainbow light cycle.	1.Enter Venetian Calibration Mode White light flashing when calibrating. 2.Exit Calibration Mode Calibration incomplete，go back to light mode inside the network.
Click Action Button/S1/S2 6 times	Reserved:	Send Node Info for Removing: If Removing succeeds, it will become rainbow light cycle. If Removing fails, it will go back to light mode inside the network.
Press and hold Action Button/S1/S2（button）for [0.4, 2s)	Reserved:	Reserved: LED will become off when press, and go back to light mode inside the network when release.
Press and hold Action Button/S1/S2（button）for [2，5s)	Reserved:	Reserved: LED will become orange when press, and go back to light mode inside the network when release.
Press and hold Action Button/S1/S2（button）for [5，10s)	Reserved:	Reserved: LED will become purple when press, and go back to light mode inside the network when release.
Press and hold Action Button/S1/S2（button）for [10，20s)	Reserved:	Reserved: LED will speed up flashing red light when press, and go back to light mode inside the network when release.
Press and hold Action Button/S1/S2（button）for [20，∞)	Reserved:	Factory Reset: LED will become solid green for 2s when press, *Factory Reset will be performed* then. The device will issue a Device Reset Locally Command via its Lifeline to notify the Lifeline destination that the device has been reset to its factory default state. And it will perform the reset operation regardless of whether or not the delivery of the Device Reset Locally Notification is successful. LED will become rainbow cycle, device will auto-reset and then active SmartStart Learn Mode again.

4.2 Calibration

Calibration for Shutter have 2 modes: **Shutter Mode** for Standard roller blind, and Venetian Mode for Venetian Blind. Shutter will record the **Curtain Trip Time** for **Shutter mode** and **Curtain Trip Time + Blade Turn Time** for **Venetain Mode.**

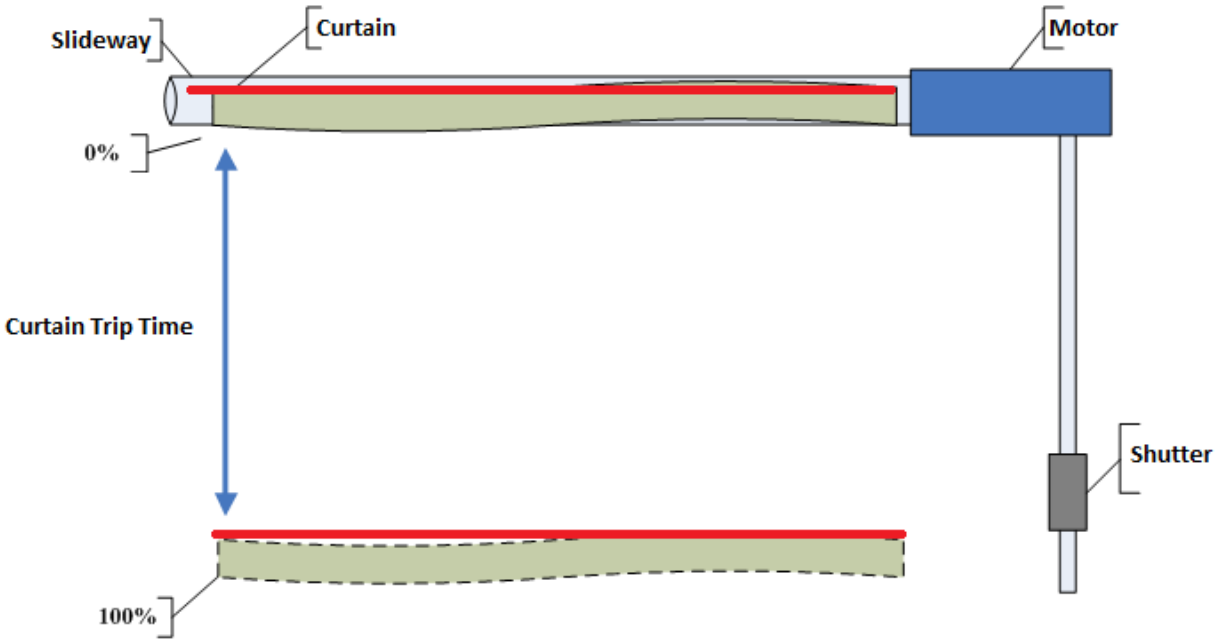
1. Shutter Mode

a) Entering the calibration mode by short pressing 3 times (Z-Wave button or external switch) or by sending a Configuration Set(see Configuration 0x24 for details), to determine the Curtain Trip Time between extreme positions.

b) The curtain moves to the end in one direction (full open or fully closed), that is, reference point A. Then the motor reverses to the end in the other direction, that is, the reference point B.

c) Users need to press the Action Button/S1/S2 once at reference A and B to tell shutter to next step.

d) The product records the run time from the reference point A to B, the time is between the full opening and the full closing of the curtain (this time can be read and modified through the Configuration 0x23), and the calibration is completed.



2. Venetian Mode

The corresponding blinds to Venetian Mode can be set to up and down of blind, and the angle of rotation of the leaf individually. There are a switch on venetian to change the Controlling Channel for blind lifting and leaf rotation, the switch need manual operation by the user. The calibration process is as follows:

a) Before calibration, User need to set the venetian to blind lifting channel;

b) The user enters the calibration mode by short pressing 5 times (Z-Wave button or external switch) or by sending a Configuration Set via the gateway (see Configuration 0x24 for details), to determine the curtain trip time and blade turn time between the reference points.

c) The motor of the product moves toward the direction in which the blinds are curled upwards. If the blinds are unfolded, the motor movement direction needs to be reset (see Configuration 22); after setting the correct direction, follow step a to re-enter the calibration mode;

d) The motor of the product moves till the end towards the direction in which the blinds is curled upwards, that is, the reference point A. Then press the button once (Z-Wave button or external switch) to confirm that the reference point A has arrived;

e) The product motor reverses to the end of the blind opening downward, that is, the reference point B. At this time,

the user short presses once (Z-Wave button or external switch) to determine that the reference point B has arrived;

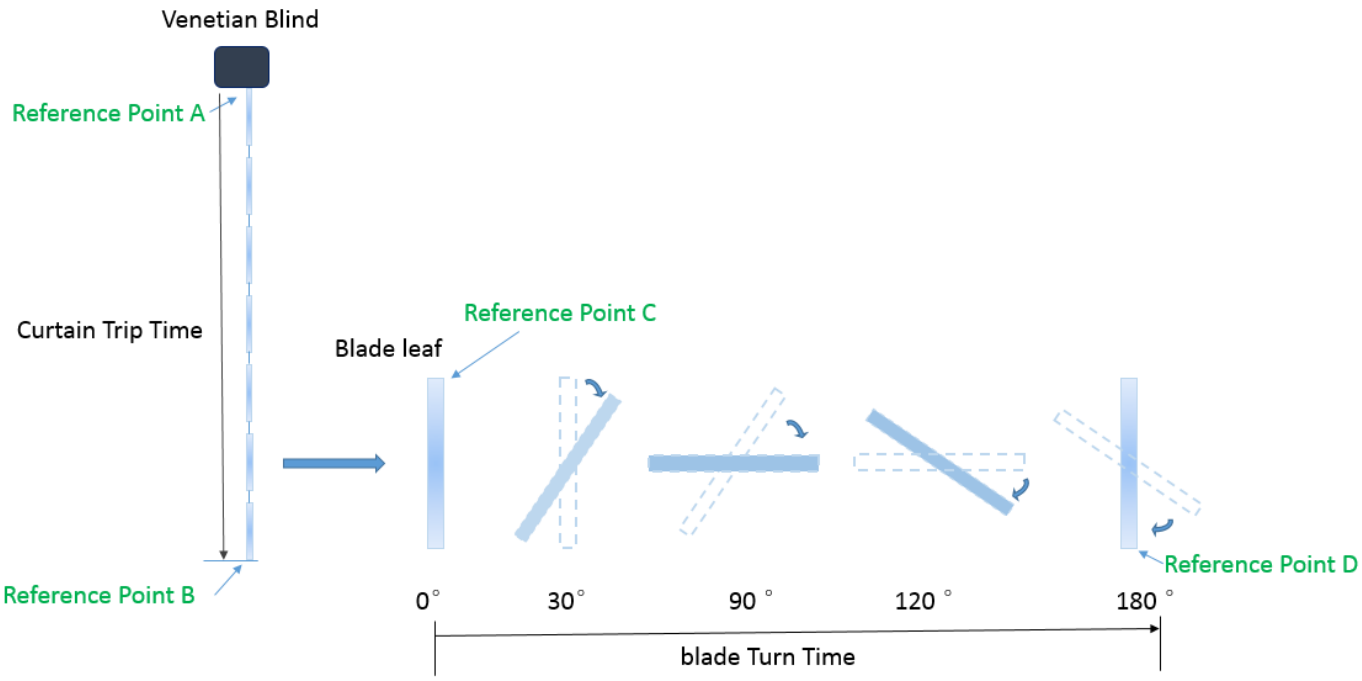
f) Shutter will stop working now, when user need to change the venetian to leaf rotation channel;

g) the user short presses once (Z-Wave button or external switch) to get to next part;

h) The motor of venetian run to get leaf rotation, the window leaf turn to 0° (or 180°, depend on the motor direction), that is, the reference point C. Pressing the button once (Z-Wave button or external switch) to determine the reference point C arrived;

i) The motor of venetian run to get leaf turn to 180°, that is, the reference point D. Pressing the button once (Z-Wave button or external switch) to determine the reference point D arrived;

f) The product records the run time between points A and B, and turn time between reference points C and D, that is, curtain trip time and blade turn time (the recorded time can be read and modified from the Configuration 0x22 and 0x23) The calibration is completed now.



3. Calibration termination

If the motor movement direction is found incorrect during calibration (see Venetian calibration mode), the calibration can be terminated by short pressing 3 times/ 5 times or sending the Configuration Set command (see User Behavior Interaction, Configuration Command Introduction).

4. Repositioning

Nano Shutter may experience positional deviation after long-term operation or external force. Errors can be eliminated by repositioning.

a) The user sends a Configuration Set (Parameter 0x28) command to enter repositioning;

b) The percentage position at which the product motor starts is recorded and motor moves to reference point A for a duration of Shutter Trip Time + Venetian Turn Time;

c) The motor reverses and returns to the starting percentage position and the repositioning is complete.

4.3 Supported Command Classes

Note: For old gateway compatibility, Manufacturer Specific CC will be list in Node Info when product is in S0 network, and product will response the Manufacturer Specific Get Command.

Command Class	Version	Not added	Non-secure added	S0 Securely added		S2 Securely added	
				Non-secure CC	Secure CC	Non-secure CC	Secure CC
ZWAVEPLUS_INFO	2	Support	Support	Support		Support	
ASSOCIATION	2	Support	Support		Support		Support
ASSOCIATION_GRP_INFO	1	Support	Support		Support		Support
TRANSPORT_SERVICE	2	Support	Support	Support		Support	
SCENE_ACTUATOR_CONF	1	Support	Support		Support		Support
SCENE_ACTIVATION	1	Support	Support		Support		Support
CONFIGURATION	1	Support	Support		Support		Support
SWITCH_MULTILEVEL	4	Support	Support		Support		Support
VERSION	2	Support	Support		Support		Support
MANUFACTURER_SPECIFIC	2	Support	Support	Support			Support
DEVICE_RESET_LOCALLY	1	Support	Support		Support		Support
POWERLEVEL	1	Support	Support		Support		Support
SECURITY	1	Support	Support	Support		Support	
SECURITY_2	1	Support	Support	Support		Support	
SUPERVISION	1	Support	Support	Support		Support	
FIRMWARE_UPDATE_MD	4	Support	Support		Support		Support
CENTRAL_SCENE	3	Support	Support		Support		Support

4.4 Basic Command Class mapping

Command	Mapping
Basic Set	Multilevel Switch Set
Basic Get	Multilevel Switch Get
Basic Report	Multilevel Switch Report

4.5 MultiLevel Switch

1. Multilevel Switch Set

Parameter	Valid Value	Default Value
Value	0x00..0x63	Moves to the specific position
	0xFF	Moves to the last non-zero position
	other	Invalid Value
Duration	0x00..0xFF	Not available for Shutter

2. Multilevel Switch Report

Parameter	Valid Value	Default Value
Current Value	0x00..0x63	Current Position
Target Value	0x00..0x63	Taget Position，to become Current Value after movemnet
Duration	0x00..0xFF	Left time of movement, equal to 0 when reach the Target Position.

3. Multilevel Switch Start Level Change

Parameter	Valid Value	Default Value
Up /Down	0 or 1	0 = move to 99% 1 = move to 1%
Ignore Start Level	0 or 1	Not available for Shutter
Inc Dec	0..3	Not available for Shutter
Start Level	0x00...0xFF	Not available for Shutter
Dimming Duration	0x00...0xFF	Not available for Shutter
Step Size	0x00...0xFF	Not available for Shutter

4. Multilevel Switch Stop Level Change

Shutter stops immediately when receiving this command.

5. Multilevel Switch Supported Report

Parameter	Valid Value	Default Value
Primary Switch Type	-	0x01: ON/OFF
Secondary Switch Type	-	0x00: Not supported

4.6 Z-Wave Plus Info

Parameter	Value
Z-Wave Plus Version	2
Role Type	5 (ZWAVEPLUS_INFO_REPORT_ROLE_TYPE_SLAVE_ALWAYS_ON)
Node Type	0 (ZWAVEPLUS_INFO_REPORT_NODE_TYPE_ZWAVEPLUS_NODE)
Installer Icon Type	0x1A00 (ICON_TYPE_GENERIC_WINDOW_COVERING_POSITION_ENDPOINT_AWARE)
User Icon Type	0x1A00 (ICON_TYPE_GENERIC_WINDOW_COVERING_POSITION_ENDPOINT_AWARE)

4.7 Manufacturer Specific

Parameter	Value
Manufacturer ID 1	0x03
Manufacturer ID 2	0x71
Product Type ID 1	0x00(EU), 0x01(US), 0x02(AU)
Product Type ID 2	0x03(PRODUCT_TYPE_ID_SWITCH)
Product ID 1	0x00
Product ID 2	0x8D(141)

4.8 Version

Parameter	Value
Z-Wave Protocol Library Type	0x03
Z-Wave Protocol Version	0x06
Z-Wave Protocol Sub Version	0x04
Firmware 0 Version	Z-Wave Chip Firmware Version Major
Firmware 0 Sub Version	Z-Wave Chip Firmware Version Minor
Hardware Version	0x8D(141)
Number of firmware targets	0x01
Firmware 1 Version	Wallswipe Firmware Version Major
Firmware 1 Sub Version	Wallswipe Firmware Version Minor

4.9 Association Group Info

ID	Name	Node Count	Profile	Function
1	Lifeline	5	General:Lifeline (0x0001)	1. **Device Reset Locally Notification(0x5A01):** Send after device reset. 2. **Switch Multilevel Report(0x2603):** Send after shutter stop moving. 3. **Basic Report(0x2003):** Send after shutter stop moving.(need to set configuration CC) 4. **Central Scene Notification(0x5B03):** Send when press S1/S2 5. **Configuration Report(0x7006):** Send shutter calibration and repositioning status
2	Retransmit	5	General:NA	Retransmit when receiving the follow commands: **BASIC_SET** **SWITCH_MULTILEVEL_SET** **SWITCH_MULTILEVEL_START_LEVEL_CHANGE** **SWITCH_MULTILEVEL_STOP_LEVEL_CHANGE** **SCENE_ACTIVATION_SET**

4.10 Central Scene Notification

Switch	Scene ID	Attribute Supported
External Switch 1	1	Key Pressed 1 time
		Key Pressed 2 times
		Key held Down (Push Button Supported Only)
		Key Released (Push Button Supported Only)
External Switch 2	2	Key Pressed 1 time
		Key Pressed 2 times
		Key held Down (Push Button Supported Only)
		Key Released (Push Button Supported Only)

Note: Only Push Button mode switch support Attribut Key Held Down/Key Released

4.11 Configuration

No.	Description	W/R	default	length
0x14 (20)	Motor behavior after Power ON: Value: Function 0: Stay the same position before power off last time. 1: Moves to 99% 2: Moves to 0%	WR	0	1

<table>
<tr><td>0x16
(22)</td><td>Determine motor run direction for Shutter mode and Venetian Mode
<table><tr><th>Value</th><th>Function</th></tr><tr><td>0</td><td>Shutter mode / Venetian mode :Out 1= Up moving/ Multilevel switch = 99%, Out 2= Down moving/ Multilevel switch = 0%</td></tr><tr><td>1</td><td>Shutter mode : Out 1= Down moving/ Multilevel switch = 0%, Out 2= Up moving/ Multilevel switch = 99%.
Venetian mode :Out 1= Up moving/ Multilevel switch = 99%, Out 2= Down moving/ Multilevel switch = 0%</td></tr><tr><td>2</td><td>Shutter mode : Out 1= Up moving/ Multilevel switch = 99%, Out 2= Down moving/ Multilevel switch = 0%
Venetian mode: Out 1= Down moving/ Multilevel switch = 0%, Out 2= Up moving/ Multilevel switch = 99%.</td></tr><tr><td>3</td><td>Shutter mode / Venetian mode : Out 1= Down moving/ Multilevel switch = 0%, Out 2= Up moving/ Multilevel switch = 99%.</td></tr></table>Note:
1.Motor will stop when receiving this command in moving;
2.This configuration will not change after network exclusion or Configuration Reset.</td><td>WR</td><td>0</td><td>1</td></tr>
<tr><td>0x22
(34)</td><td>Blade Turn Time (Unit = 0.01 seconds)
<table><tr><th>Value</th><th>Function</th></tr><tr><td>150
(1.5 seconds)</td><td>Default Value</td></tr><tr><td>10 – 32767
(0.1 – 327.675 seconds)</td><td>Configurable Range</td></tr></table>Note:
For Venetian, if this value is set too large for blade turning, curtain may move upwards or downwards.
Calibration need to work correctly.Or this setting will force the curtain to move up or down.
This configuration will not change after network exclusion or Configuration Reset.</td><td>WR</td><td>150（1.5s)</td><td>2</td></tr>
<tr><td>0x23
(35)</td><td>Curtain Trip Time (Unit = 0.01 seconds)
• default value 15000 = 150 seconds
• 500 - 32767 = 5 seconds – 327.675 seconds
<table><tr><th>Value</th><th>Function</th></tr><tr><td>15000
(150 seconds)</td><td>Default Value</td></tr><tr><td>500 – 32767
(5 – 327.675 seconds)</td><td>Configurable Range</td></tr></table>Note:
For Venetian, if this value is set too large for curtain trip, blade turn positioning may cause errors.
This configuration will not change after network exclusion or Configuration Reset.</td><td>WR</td><td>15000</td><td>2</td></tr>
<tr><td>0x24
(36)</td><td>Enter/Exit Calibration
<table><tr><th>Value</th><th>Function</th></tr><tr><td>0</td><td>Set:Exit Calibration
Report: Not in Calibration</td></tr><tr><td>1</td><td>Set:Enter Shutter Mode Calibration
Report: In Shutter Mode Calibration</td></tr><tr><td>2</td><td>Set:Enter Venetian Mode Calibration
Report: In Venetian Mode Calibration</td></tr><tr><td>others</td><td>Invalid</td></tr></table>Note:
Product will enter the right Curtain Mode after calibration, see Configuration 0x27</td><td>WR</td><td>0</td><td>1</td></tr>
<tr><td>0x25
(37)</td><td>User confirmation for calibration (Set Only)：
<table><tr><th>Value</th><th>Function</th></tr><tr><td>0</td><td>Go to next step of calibration</td></tr><tr><td>others</td><td>Invalid</td></tr></table></td><td>WR</td><td>0</td><td>1</td></tr>
</table>

<table>
<tr><td>0x26
(38)</td><td>Return Calibration Status(Get or Report):
<table><tr><th>Value</th><th>Function</th></tr><tr><td>0</td><td>Calibration Complete</td></tr><tr><td>1</td><td>Calibration starts, going to Reference Point A</td></tr><tr><td>2</td><td>Reach Reference Point A, going to Reference Point B</td></tr><tr><td>3</td><td>Reach Reference Point B, waiting for Blade turn Calibraion(Only for Venetian Mode)</td></tr><tr><td>4</td><td>Going to Reference Point C(Only for Venetian Mode)</td></tr><tr><td>5</td><td>Calibration terminated</td></tr></table></td><td>RO</td><td>-</td><td>1</td></tr>
<tr><td>0x27
(39)</td><td>Set the Curtain Mode
<table><tr><th>Value</th><th>Function</th></tr><tr><td>0</td><td>Shutter Mode</td></tr><tr><td>1</td><td>Venetian Mode</td></tr><tr><td>others</td><td>Invalid</td></tr></table>Note:
1. This Operation will enter repositioning automatically;
2. This configuration will not change after network exclusion or Configuration Reset.</td><td>WR</td><td>0</td><td>1</td></tr>
<tr><td>0x28
(40)</td><td>Set repositioning begins:
<table><tr><th>Value</th><th>Function</th></tr><tr><td>1</td><td>Repositioning begins</td></tr><tr><td>others</td><td>Invalid</td></tr></table></td><td>WR</td><td>1</td><td>1</td></tr>
<tr><td>0x29
(41)</td><td>Get repositioning Status
<table><tr><th>Value</th><th>Function</th></tr><tr><td>0</td><td>Repositioning complete</td></tr><tr><td>1</td><td>In repositioning</td></tr><tr><td>others</td><td>Invalid</td></tr></table></td><td>RO</td><td>0</td><td>1</td></tr>
<tr><td>0x2A
(42)</td><td>Calibration Lock.Used to enable/disable calibration lock
<table><tr><th>Value</th><th>Function</th></tr><tr><td>0</td><td>Disable calibration</td></tr><tr><td>1</td><td>Enable Action Button/ Command Calibration</td></tr><tr><td>2</td><td>Enable Action Button/ Command/S1/S2 Calibration</td></tr><tr><td>others</td><td>Invalid</td></tr></table></td><td>WR</td><td>1</td><td>1</td></tr>
<tr><td>0x50
(80)</td><td>Choose which report to send when switch status change:
<table><tr><th>Value1</th><th>function</th></tr><tr><td>0</td><td>No Report</td></tr><tr><td>1</td><td>Basic Report</td></tr><tr><td>2</td><td>Switch Multilevel Report</td></tr><tr><td>others</td><td>Invalid</td></tr></table></td><td>WR</td><td>2</td><td>1</td></tr>
<tr><td>0x55
(85)</td><td>Set Extern Button Operation Mode
<table><tr><th>Value1</th><th>function</th></tr><tr><td>0</td><td>S1/S2 map to Z-Wave Button</td></tr><tr><td>1</td><td>S1 = Open or Stop,
S2 = Close or Stop
Note:Operation will not change the curtain mode, including press and hold ,short press.</td></tr><tr><td>2</td><td>1）When configuration 0x78/79 = 03：
Press and hold S1 :blade folds to 180°
Press and hold S2：Blade folds to 0°
Short press S1：Blinds go downwards
Short press S2：Blinds go upwards
Note: The device will change its curtain mode if it does not match the current mode.
2）When Configuration 0x78/79 = others：
S1 = Open or Stop,S2 = Close or Stop ,operation will not change the curtain mode.</td></tr></table>Note: when setting value to 2, we advice not to set only one external switch to push button, do remember to change the controller channel before operating push button, or the curtain level will be wrong.</td><td>WR</td><td>0</td><td>1</td></tr>
</table>

<table>
<tr><td>0x78
(120)</td><td>Set Switch Type of External Switch 1
<table><tr><th>Value1</th><th>function</th></tr><tr><td>0</td><td>Unidentified mode</td></tr><tr><td>1</td><td>2-state switch mode</td></tr><tr><td>2</td><td>3 way switch mode</td></tr><tr><td>3</td><td>Push Button mode</td></tr><tr><td>4</td><td>Enter automatic identification mode(The blue led will fast blink)</td></tr></table>Report automatically during Identify:
<table><tr><th>Value</th><th>Description</th></tr><tr><td>0x55</td><td>In Identify</td></tr><tr><td>2/3/4</td><td>Identify succeeds，return the Switch Type</td></tr><tr><td>0x00</td><td>Identify fails</td></tr></table>Note:
This configuration will not change after network exclusion or Configuration Reset.</td><td>WR</td><td>0</td><td>1</td></tr>
<tr><td>0x79
(121)</td><td>Set Switch Type of External Switch 2
<table><tr><th>Value1</th><th>function</th></tr><tr><td>0</td><td>Unidentified mode</td></tr><tr><td>1</td><td>2-state switch mode</td></tr><tr><td>2</td><td>3 way switch mode</td></tr><tr><td>3</td><td>Push Button mode</td></tr><tr><td>4</td><td>Enter automatic identification mode(The blue led will fast blink)</td></tr></table>Report automatically during Identify:
<table><tr><th>Value</th><th>Description</th></tr><tr><td>0x55</td><td>In Identify</td></tr><tr><td>2/3/4</td><td>Identify succeeds，return the Switch Type</td></tr><tr><td>0x00</td><td>Identify fails</td></tr></table>Note:
This configuration will not change after network exclusion or Configuration Reset.</td><td>WR</td><td>0</td><td>1</td></tr>
<tr><td>0xF3
(243)</td><td>To Get the DSK from product</td><td>RO</td><td>--</td><td>16</td></tr>
<tr><td>0xF8
(248)</td><td>Enable/Disable function of External Switch S1&S2
<table><tr><th>Value</th><th>Function</th></tr><tr><td>1</td><td>Enable network function, inclusion/exclusion</td></tr><tr><td>2</td><td>Enable reset to factory default function</td></tr></table>Note :
This value can be combine, e.g. set to 3(1+2=3),means networking function and Reset function are both enable.</td><td>WR</td><td>1</td><td>1</td></tr>
<tr><td>0xFB
(251)</td><td>Enable/disable reset to factory default and exclusion function by long press on touch panel and press 6 times on wall swipe
<table><tr><th>Value</th><th>Function</th></tr><tr><td>0</td><td>Disable</td></tr><tr><td>1</td><td>enable</td></tr></table></td><td>WR</td><td>1</td><td>1</td></tr>
<tr><td>0xFF
(255)</td><td>Reset function (Write Only)
<table><tr><th>Value</th><th>Function</th></tr><tr><td>1431655765
(0x55555555)</td><td>Reset to factory default settings and removed from the z-wave network</td></tr><tr><td>0</td><td>Reset all configuration parameters to default settings</td></tr></table>Note：
Parameter 0x16, 0x22, 0x23, 0x24, 0x25, 0x27, 0x28 will not reset to default value by this command.</td><td>WR</td><td>0</td><td>4</td></tr>
</table>