Micro Motor Controller
(Z-Wave Motor Controller)

Change history

Revision	Date	Change Description
1	01/30/2013	Initial draft.
2	05/17/2003	V1.26
3	01/04/2014	V1.29

Aeon Labs Micro Motor Controller
Engineering Specifications and Advanced Functions for Developers
(V1.29)

The Aeon Labs Micro Motor Controller is a Motor Control Class C Specific Device which is connected with window rail to remote control curtain to any position that you want directly.

1. Library and Command Classes:

1.1 SDK: 4.55.00

1.2 Library:

- Basic Device Class: BASIC_TYPE_ROUTING_SLAVE
- Generic Device class: GENERIC_TYPE_SWITCH_MULTILEVEL
- Specific Device Class: SPECIFIC_TYPE_CLASS_C_MOTOR_CONTROL

1.3 Commands:

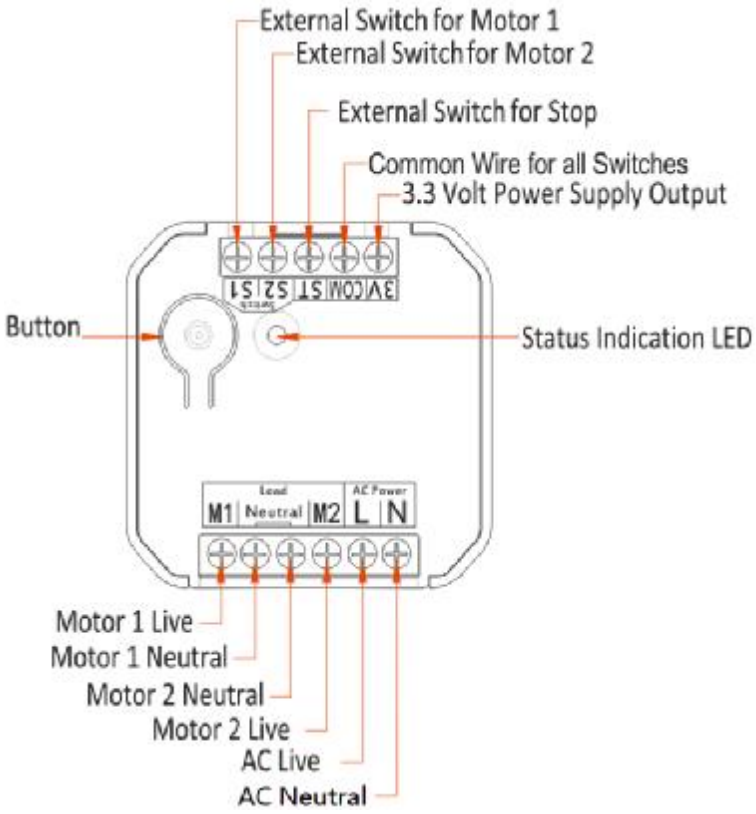
- COMMAND_CLASS_SWITCH_MULTILEVEL_V3
- COMMAND_CLASS_SWITCH_BINARY_V1
- COMMAND_CLASS_CONFIGURATION_V1
- COMMAND_CLASS_ASSOCIATION_V1
- COMMAND_CLASS_MANUFACTURER_SPECIFIC_V2
- COMMAND_CLASS_VERSION_V1
- COMMAND_CLASS_HAIL_V1

2. Technical Specifications

Operating distance: Up to 100 ft/30 meters indoors and 300 ft/100 meters outdoors.

3. Familiarize yourself with your Motor controller

3.1Interface



4. All functions of each trigger are like the following

4.1 Functions of Z-wave Button

Button	Trigger	Description
Z-Wave Button	Click	1. Let Micro Motor Controller into Learn Mode which can pairing into z-wave network or remove from z-wave network. 2. Toggle Motor status (Motor 1 on->stop , stop->Motor 2 on, Motor 2 on->stop, stop ->Motor 1 on) . 3. Trigger to Send Hail Command /Basic report (configurable) .
Z-Wave Button	Sextuple Clicked	Toggle External Switch/Button Control Mode(momentary button mode/2 state switch mode).
Z-Wave Button	Press and hold	Calibration. Hold the button, when the rail reach the endpoint, release the button ASAP, repeat this process for at least three times. LED will blink fast when calibrate.

4.2 Functions of External Switch/Button (Three Button/Switch Mode)

Configure parameter 8 to 0 , Motor Controller will enter this Mode.

Button/Switch	Trigger	Description
External Switch/Button Control for Motor 1 （momentary button mode）	Clicked	Turn on Motor 1. Turn off Motor 2.

External Switch/Button Control for Motor 2 （momentary button mode）	Clicked	Turn off Motor 1. Turn on Motor 2.
External Switch/Button Control for Stop （momentary button mode）	Clicked	Turn off Motor 1. Turn off Motor 2.
External Switch/Button Control for Motor 1/2 （momentary button mode）	Sextuple Clicked	Node Info Frame/Enter learn mode.
External Switch/Button Control for Motor 1/2 （2 state switch mode）	Open	Turn off Motor 1. Turn off Motor 2.
External Switch/Button Control for Motor 1（2 state switch mode）	Close	Turn on Motor 1. Turn off Motor 2.
External Switch/Button Control for Motor 2（2 state switch mode）	Close	Turn off Motor 1. Turn on Motor 2.
External Switch/Button Control for Motor 1/2 （2 state switch mode）	Sextuple Open/Close	Node Info Frame/Enter learn mode.

4.3 Functions of External Button (Single Button Mode)

Single External Button must connect to ST and COM port. And configure parameter 8 to 1

Button/	Trigger	Description
External momentary Button	Click	Toggle Motor status (Motor 1 on->stop , stop->Motor 2 on, Motor 2 on->stop, stop ->Motor 1 on) .

5. Special rule of each command

5.1 Association command class

Micro Motor controller supports grouping 1.

The Node IDs which are in Grouping 1 will receive Hail Command /Basic report (configurable) which is sent via multicast(more than 2 Node IDs);

5.2 Basic, Switch Binary, Switch Multilevel Command Class

Binary Switch Set (0x00)：

If motor is stopped then go to endpoint A.
If motor is already running towards endpoint A then ignore.
If motor is running towards endpoint B then stop motion.

Binary Switch Set (0xFF)：

If motor is stopped then go to endpoint B.
If motor is already running towards endpoint B then ignore.
If motor is running towards endpoint A then stop motion.

Command	Value	Description
Basic Set, Switch Multilevel Set	0x00	Close to point A
Basic Set, Switch Multilevel Set	0x63/0xFF	Open to point B
Switch Multilevel Start Level Change	Up/Down=1	Close to point A
Switch Multilevel Start Level Change	Up/Down=0	Open to point B

5.3 Configuration Command Class

7	6	5	4	3	2	1	0
Command Class = COMMAND_CLASS_CONFIGURATION							
Command = CONFIGURATION_SET							
Parameter Number							
Default	Reserved				Size		
Configuration Value 1(MSB)							
Configuration Value 2							
.....							
Configuration Value n(LSB)							

Parameter Number Definitions (8 bit):

Parameter Number	Description	Default Value	Size
4	Motor start delay time (ms).	0	4
5	Total time from endpoint of close go to endpoint of opening (ms). This value set 0x00000000, will use the time of last calibration.	0x1388 (5s)	4
6	Total time from endpoint of opening go to endpoint of close (ms). This value set 0x00000000, will use the time of last calibration.	0x1388 (5s)	4
7	Motor status after power on: Value=0: Motor keep still Value=1: Open Motor Value=2: Close Motor	0	1
8	Set count of External Button/Switch. (0=Three External Button/Switch, 1=Single External Button) Note: Single External Button must connect to ST and COM port.	0	1
80	Enable automatic notifications to associated grouping1 devices whenever there is a state change. (0=nothing, 1=hail CC, 2=basic CC report)	0	1
120	Set External Button/Switch Control mode (0: momentary button mode, 1: 2 state switch mode).	0	1
254	Device Tag. When motor controller removed from z-wave network, Device Tag will not change.	0	2
255	Size=1,Value=0: Reset configuration settings to default values, except parameter is 254 Size=4, Value=0x55555555: Reset to factory setting.	N/A	1