

# HDL<sup>®</sup>

## User Manual

Wireless Motorized Curtain

HDL-MWM70-RF.12



buspro

[www.hdlautomation.com](http://www.hdlautomation.com)

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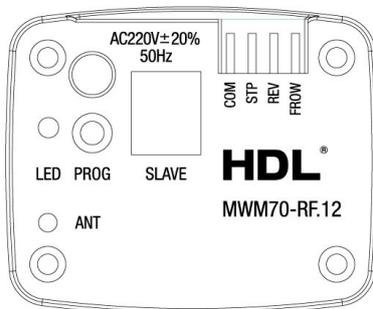
## 1. Overview

### 1.1 General Information

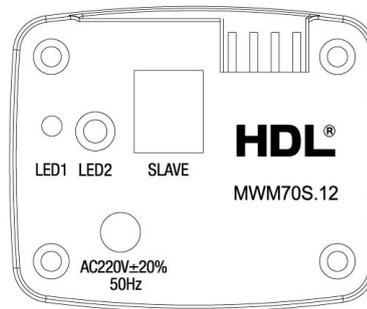
#### 1.1.1 Description

HDL-MWM70-RF.12 is the wireless curtain motor, which is configured by mesh gateway. It can control the curtain to open, close, stop and percentage control. And it has over load protection and over heat protection.

#### 1.1.2 Serial Numbers



MWM70-RF.12  
Master

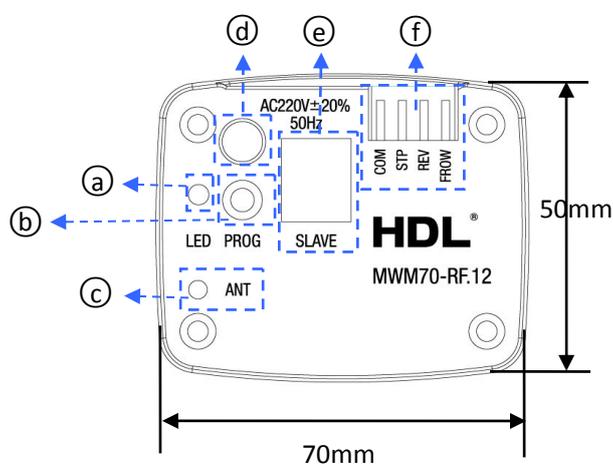


MWM70S.12  
Slave

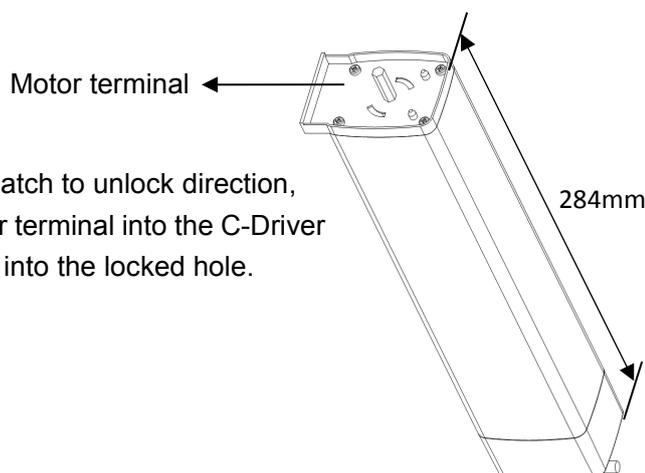
### 1.2 Function Qualities Description

- Test the distance of the curtain automatically
- Manual mode: long drag, short drag, drag no action
- Percentage control
- Communication: wireless
- Support online upgrading
- Support easy programming
- Built-in new generation clutch, precise planetary reduce, noise level 40dB.
- Dry contact switch, it can control the curtain to open, close, stop.
- Be suitable for all small to medium-scale curtain applications, linear and arched, one-and two-side opening

### 1.3 Device Description



- Ⓐ LED Indicator
- Ⓑ Programming button
- Ⓒ Antenna
- Ⓓ AC220V power line, 1 meter (Brown for L, Blue for N, Y/G for PE)
- Ⓔ RJ11 6P network port, it supplies the working voltage for slave motor
- Ⓕ Dry contact switch, control the curtain to open, close, stop ( COM+FROW is open, COM+REV is close, COM+STP is stop )



Motor terminal: Pull the latch to unlock direction, and then insert the motor terminal into the C-Driver Unit. Then, put the latch into the locked hole.

#### LED Indicator

Function	LED status	enter into the status	exit the status
Working fine	LED turns ON 1 time per 2s	---	---
Modify the address of motor	LED turns on	long press the button 3s	long press the button 3s / no operation 2minutes
Testing for installation	LED turns OFF 1 time per 2s	long press the button 5s	long press the button 5s / no operation 20minutes
Easy programming	LED Turns OFF 2 times per 2s	long press the button 10s	long press the button 10s / no operation 20minutes
Wireless setting	LED flashes	Press the button 3 times continuously	Press the button 1 time/ no operation for 4 minutes

Note: the above operations are carried out in normal work.

## 2. Technical Data

<b>Electric Parameters:</b>	
Rated voltage	AC220V 50Hz
Voltage range	AC220V±20% 50HZ
Slave interface	6P internet port
Rated power	70W
Rated torque	1.0Nm
Rated speed	112rpm
Rail belt speed	16cm/s
Communication	Wireless
Wireless transmit power	+10dbm
Wireless receive sensitivity	-90dbm
Indoor communication distance	30m(barrier free)
RSSI receive signal intensity	>-80dbm
<b>Wireless central frequency:</b>	
(China) WPAN	780MHz to 786MHz
(Europe) SRD	864MHz to 870MHz
(North America)	904MHz to 928 MHz
Default band	780MHz
Default PSK	HDL-SecurityKey0
<b>Environmental Conditions:</b>	
Working temperature	-5°C~45°C
Working relative humidity	<95%
Storage temperature	-20°C~+60°C
Storage relative humidity	<93%
<b>Approved:</b>	

CE	
RoHS	
<b>Production Information:</b>	
Dimensions	284×70×50 ( mm )
Weight	1352g
Housing material	ABS, aluminum
Installation	Wall hanging
Protection	IP41
Insulation	E

### 3. Curtain Rail Installation

#### 3.1 Characteristic

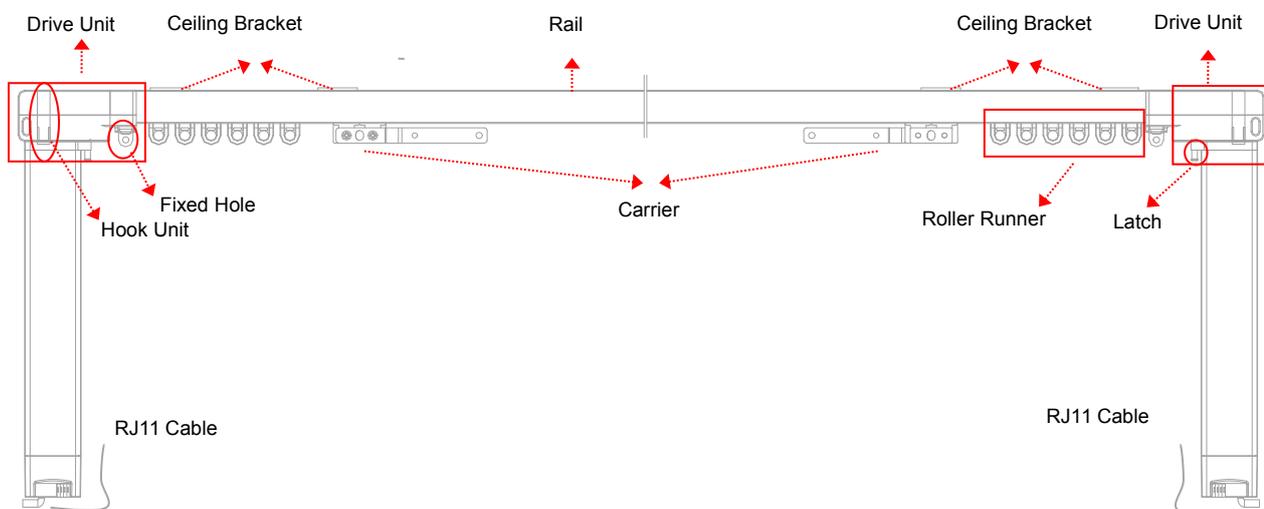
- AC power input, make the operation more stable and reliable
- Built-in a new generation of clutch, system operating noise no more than 40dB
- The curtain's horizontal pull reaches 8KG

#### 3.2 Notice

- Read all instructions in detail before use
- Non-Contact with the liquids or inflammable gas and object when using
- Make sure there is no short-circuits or wiring errors before power on
- Power off before install and uninstall
- When install the motor to the drive unit, please check and make sure that the latch has switched back to the locket position.
- After the installation, please don't pull the curtain forcibly, don't put any additional weight on the curtain rail; please don't climb the curtain or hang anything on it; otherwise the rail and the motor will fall down then lead to personal injury and product damage
- Pay attention to water-proof, steam-proof
- Please use the dry cloth to wipe when cleaning, can't use the damp or corrosive stuff for wiping
- Has any abnormal situation, please stop the operation and turn off the power, then contact with the technical service or our company

### 3.3 Connecting

Please follow the connecting showed below strictly.



- **Master, Slave:**  
The Master is connected to the Buspro port and AC220V, and it provides DC12V to the Slave by the RJ11 6P6C. HDL provides the RJ11 cable is 1 meter.
- **Ceiling Bracket's mounting distance:**  
On the top of rail, recommend every 600 mm installing a Ceiling Bracket.

### 3.4 Curtain Rail Accessories



Hook Unit



Belt



Roller Runner



Fixture



Rubber



Ceiling Bracket



Insertion



Clamp



Carriers and its handles



RJ11 6P6C



Track Joiner



Motor



Motor Base Socket



Master



Slave



Drive Unit and Roller Runner

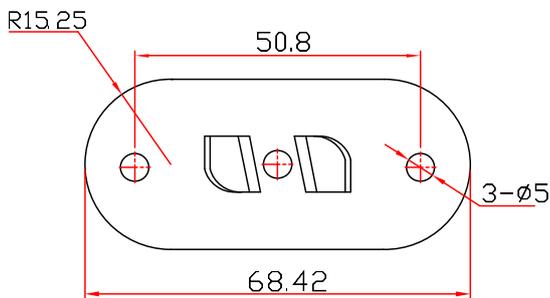


Drive Unit and Hook Unit



Motor Lock

### 3.5 The dimensions of ceiling bracket

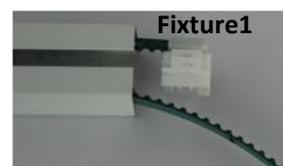
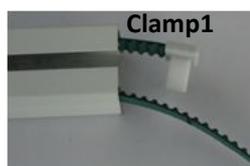
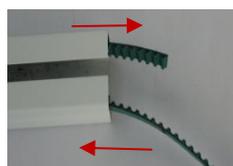
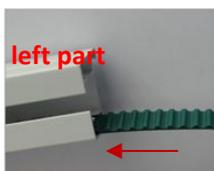


### 3.6 Installation steps

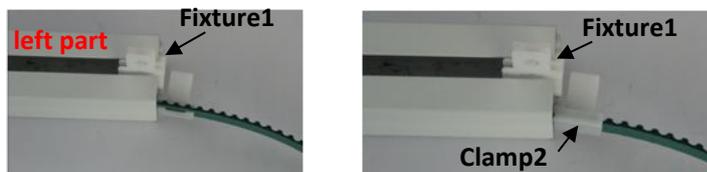
- The length of the rail and the belt need to customize according to the size of the window.
- Turn to the reverse side of the rail, put the Track Joiner to the rail.



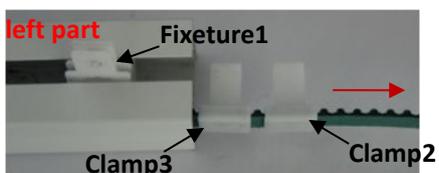
- Turn to the forward side of the rail. Take the Belt, thread it into one of the rails (left side), drag it to the Drive unit, then pull it out. At the end of the Belt, insert the Clamp1, then plug the Fixture1.



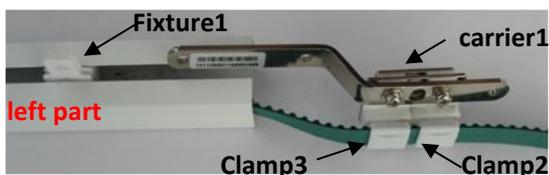
- d) Adjust the Belt's position of the Fixture1 (as shown in figure), and insert the Clamp2 to the other side of the belt, next to the Fixture1.



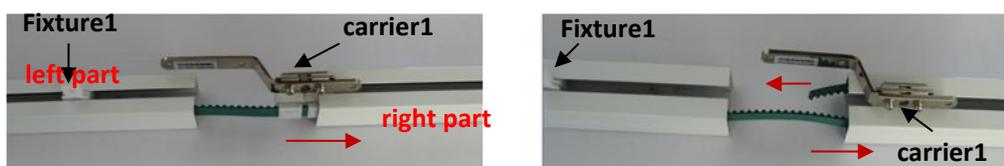
- e) Adjust the Belt's position, insert the Clamp3 between the Fixture1 and the Clamp2, next to the Clamp2.



- f) Adjust the Belt's positions according to the figure, put the Carrier1 onto the Clamp2、3, its handle should point to the Fixture1.



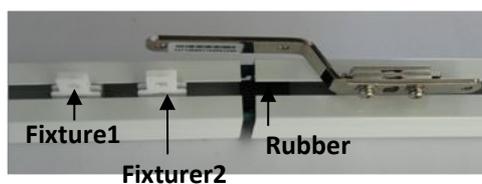
- g) Thread the other side of the belt into the right path rail, drag it to the Drive unit, then pull it out. At the same time, push the carrier1 into the rail.



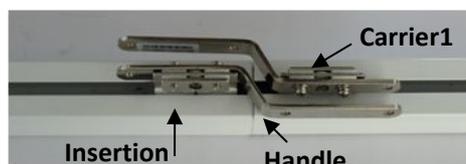
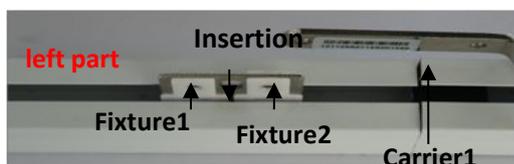
- h) At the end of the belt, insert the Clamp4, then plug the Fixture2.



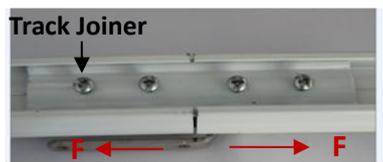
- i) Adjust the belt, make the Fixture1 and Fixture2 closer, and place the Rubber (the Rubber can buffer the collision between two Handles of the Carrier)



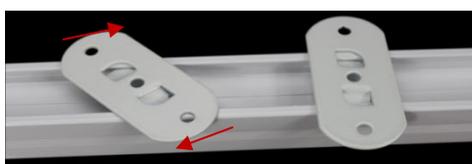
- j) Insert an Insertion between the Fixture1 and Fixture2, and install the Handle onto the Insertion.



- k) Face to the reverse side of the rail, adjust the position of the Track Joiner, make its middle part located in the gap of two rails, then outward stretch the rails with hands (Purpose: to let the belt running smoothly), meanwhile tighten the screws of the track joiner.



- l) Turn to reverse side of the rail, can install in more than one Ceiling Brackets (Recommended every 600 meters using one Ceiling Bracket), install the Ceiling Brackets on the wall, need to use other fixed devices, about the fixed devices, need to turn to 3<sup>rd</sup> party.

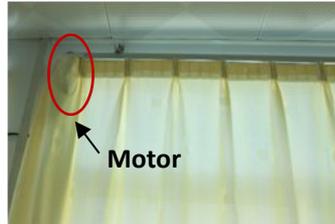


- m) Screw the motor into the Drive Unit, then clamp tightly and lock it ( Notice: the Master motor should be installed to the side with the power supply; need to connect the master and slave by the RJ11 6P6C, HDL provides the RJ11 cable is 1 meter. If this 1 meter of RJ11 cable is not suit for you project, you can make the other RJ11 cable, about the Clamping Tool of RJ11, please see this:

[http://www.alibaba.com/product-detail/Round-LAN-Wire-Stripper-6P6C-RJ11\\_60076618303.html](http://www.alibaba.com/product-detail/Round-LAN-Wire-Stripper-6P6C-RJ11_60076618303.html)

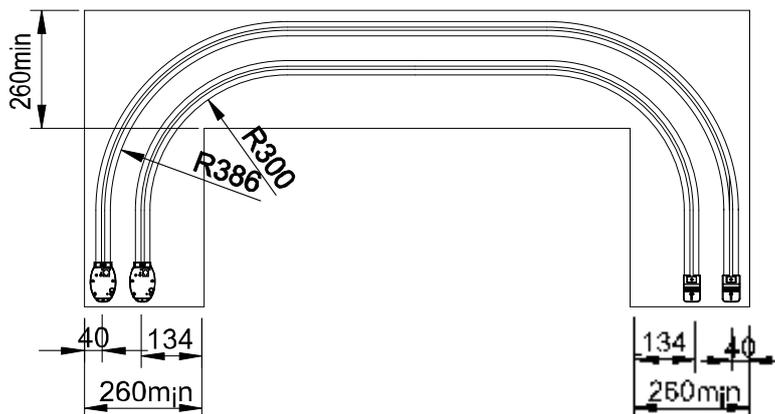
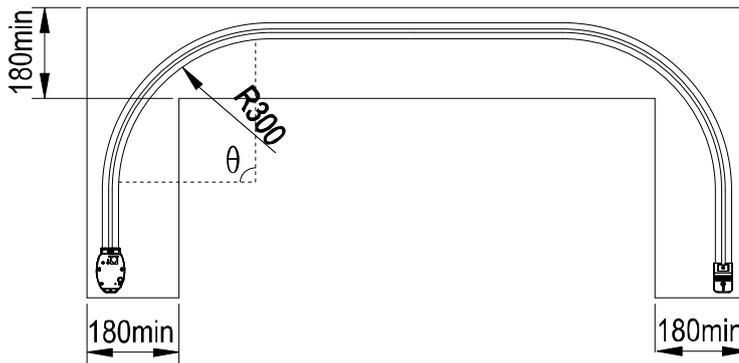


- n) Hang the Hook Unit on these two Drive Units( Notice: each Drive Unit has four holes, the Hook Units make the curtain better to shield the window, as well as the motor, make it look beautiful). Install the curtain rail on the wall, and hang the curtain to the corresponding position. Finish the installation.



#### 4. Curved Rail

HDL provides the curved rail. But has some limits.  $\theta \leq 90^\circ$  and  $R \geq 300\text{mm}$  curtain rail is available.



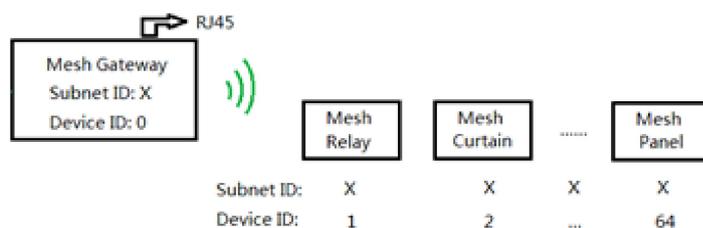
## 5. Software Configuration

### 5.1 Workflow

- When power on, test the distance of the curtain by itself, then, short press PROG button and control the curtain, make sure the curtain is working properly.
- Set wireless parameters for it via mesh gateway
- Confirm the motor's running mode, forward or reverse.
- Set the work mode: long drag, short drag, drag no action.
- Set the reserved distance. (Don't change after setting.)
- Set the panel's target and control the curtain.

### 5.2 Wireless Setting via Mesh Gateway

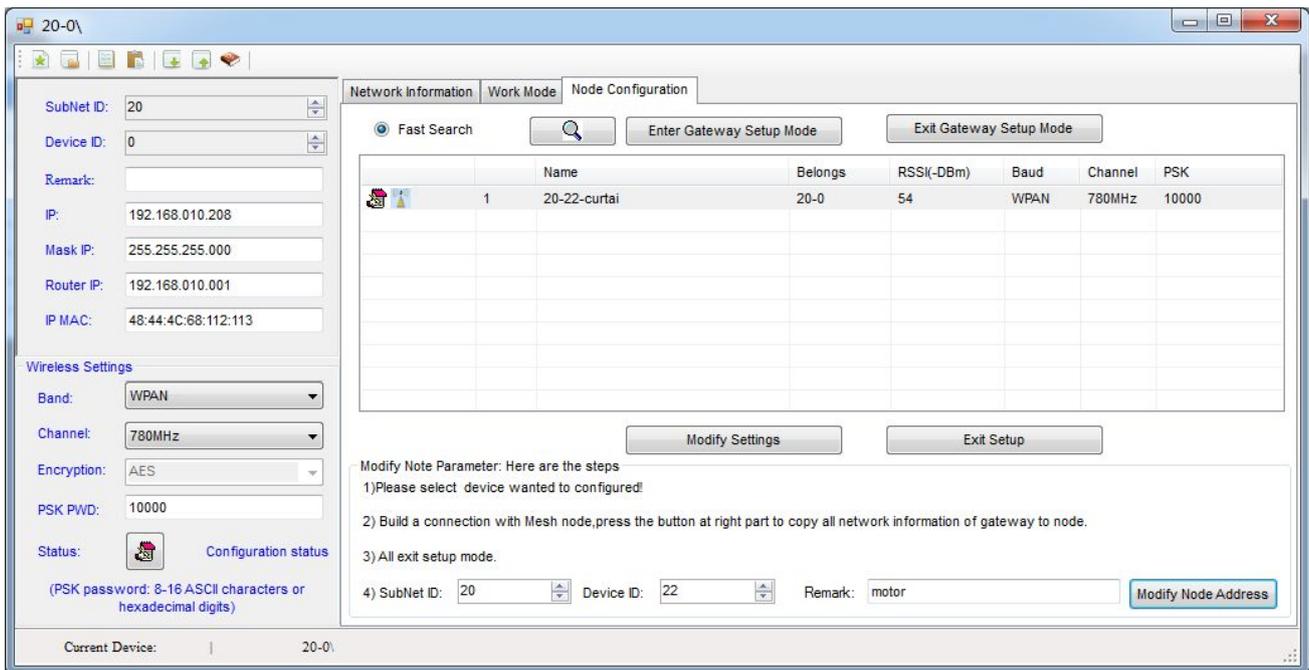
Before user can configure the wireless motor normally, need to set the wireless parameters for it via mesh gateway, and the mesh gateway needs to work in mesh mode.



#### Mesh Mode

Note: Subnet ID X and Y are different, Gateway has the fixed Device ID 0.

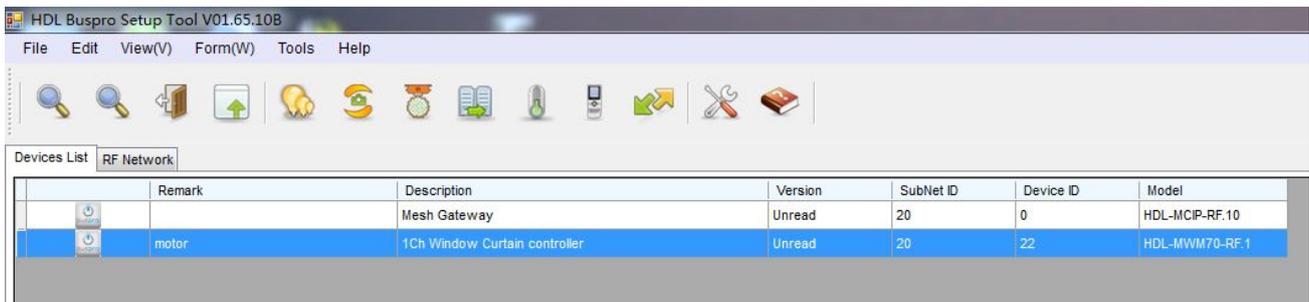
- Set the free frequency and unique PSK PWD for the gateway
- Press motor programming button 3 times, green LED will flash quickly and the wireless curtain motor enters gateway setup mode.
- Open HDL Buspro Setup Tool, search wireless gateway, enter the 'node configuration' page, and click the "enter gateway setup mode" button to make the gateway enter the wireless setup mode.



4- click 'search' button, the wireless motor will be shown in the list, select it and modify the subnet ID and device ID( Note: the subnet ID of wireless motor should be same as the gateway.)

5- click 'modify settings' so that all its wireless parameters will follow the gateway's (Band, Frequency and PSK)

6- click 'exit setup' to exit wireless setting mode, now you can search the motor and start the setup.



### 5.3 Confirm motor running mode

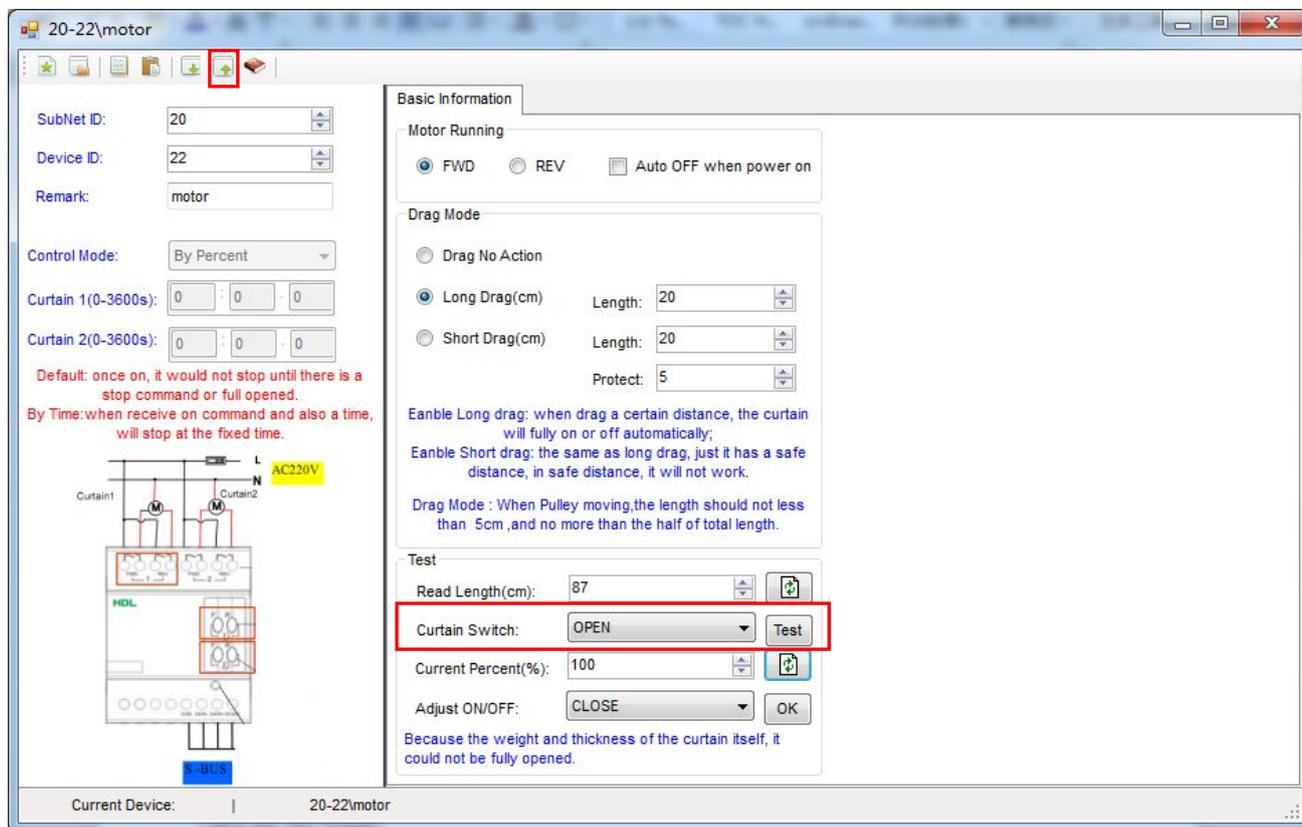
#### Motor running mode : Forward or Reverse

Confirm motor running mode by HDL Buspro Setup Tool.

- 1- find the wireless motor in the device list, and enter its setting page
- 2- the default running mode is FWD.
- 3- Select OPEN
- 4- Click Test, then to observe the Curtain's open direction is correct or not.

There are two results:

- 1- If the curtain opens, that means the setting (Step 2) is right, no need to change.
- 2- if the curtain closes, that means you have to set REV in Step 2.
- 3- Save and upload the setting.



## 5.4 Testing for Installation (very important)

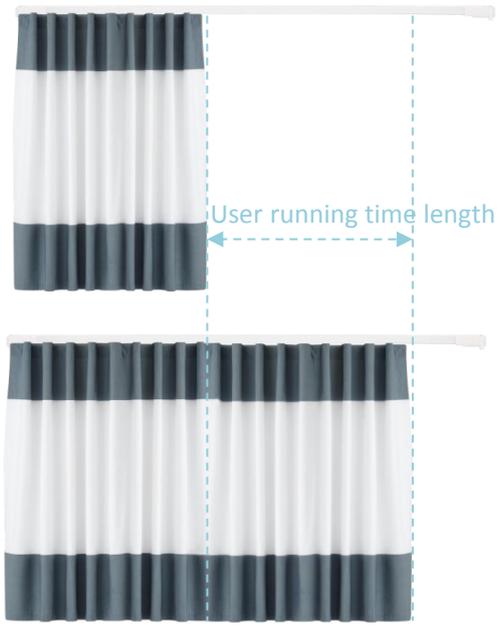
Long press the PROG button 5s, the LED will turn OFF 1 time per 2s, the curtain enters the installation mode. It will measure moveable distance for the rail automatically; short press the button to manually open and close after the measuring is done. (short press: open->stop->close->stop->open...)

Press the button 5s to exit the installation mode and enter the normal working mode, it will also exit the installation mode after 20min without operating.

Automatic detection (see Section 5.4)



User setting (see Section 5.5)



## 5.5 Set position for open and close

### 5.5.1 Position open setting

**Motor Running**

FWD   
  REV   
  Auto OFF when power on

---

**Drag Mode**

Drag No Action ①

Long Drag(cm)    Length: 20

Short Drag(cm)    Length: 20

   Protect: 5

Enable Long drag: when drag a certain distance, the curtain will fully on or off automatically;  
 Enable Short drag: the same as long drag, just it has a safe distance, in safe distance, it will not work.

Drag Mode : When Pulley moving, the length should not less than 5cm ,and no more than the half of total length.

---

**Test**

Read Length(cm): 87   

Curtain Switch: OPEN      

   100   

Current Percent(%):

Adjust ON/OFF: OPEN ②       ③

- 1- Select 'Drag NO Action' mode, Save and Upload, then manually drag the curtain to the limit position of curtain-open which is the end-user wants.
- 2- Select Open, then click OK, now the limit position of Open is saved, it is a new different position from the detected limit position in Section 5.4.

### 5.5.2 Position close setting

**Motor Running**

FWD   
  REV   
  Auto OFF when power on

---

**Drag Mode**

Drag No Action

Long Drag(cm)    Length: 20

Short Drag(cm)    Length: 20

Protect: 5

Enable Long drag: when drag a certain distance, the curtain will fully on or off automatically;  
 Enable Short drag: the same as long drag, just it has a safe distance, in safe distance, it will not work.

Drag Mode : When Pulley moving,the length should not less than 5cm ,and no more than the half of total length.

---

**Test**

Read Length(cm): 87

Curtain Switch: CLOSE

0

Current Percent(%):

Adjust ON/OFF: CLOSE

- 1- Select 'Drag NO Action' mode, Save and Upload, then manually drag the curtain fabric to the limit position of curtain-close which is the end-user wants.
- 2- Select Close, then click OK, now the limit position of Close is saved, it is a new different position from the detected limit position in Section 5.4.

## 5.6 Set the drag mode

**Motor Running**

FWD    REV    Auto OFF when power on

**Drag Mode**

Drag No Action

Long Drag(cm)   Length: 20

Short Drag(cm)   Length: 20   Protect: 5

Enable Long drag: when drag a certain distance, the curtain will fully on or off automatically;

Enable Short drag: the same as long drag, just it has a safe distance, in safe distance, it will not work.

Drag Mode : When Pulley moving, the length should not less than 5cm, and no more than the half of total length.

**Test**

Read Length(cm): 87

Curtain Switch: CLOSE   Test

0

Current Percent(%):

Adjust ON/OFF: CLOSE   OK

→ Select drag mode  
Set the safe distance

**Manual mode: long drag, short drag, drag no action.**

**Long drag:** Drag the certain fabric for certain distance (longer than the setting *Length*) and let go, the curtain will fully open or close automatically according to the direction you drag, the default Long drag *Length* is 20cm.

**Short drag:** Drag the certain fabric for certain distance, (the distance shall be more than the protect *Length* and less than the short drag *Length*), the curtain will open or close automatically according to the direction you drag, the default protect *Length* is 5cm, in order to avoid misoperation or curtain flap, you can set the protect *Length*. The default Short drag *Length* is 20cm.

**Drag no action:** free mode, end-user can manually drag the curtain to any position freely.

**Note:** long drag and short drag are depend on you habit. When pulley moving, the length should longer than protect *Length*, and no more than half of total length.

## 5.7 Set curtain’s action after power on

Even there is power failure, you still can control the curtain manually, the curtain is not locked mechanically.

**Set the curtain’s action after power on: Auto close or no action.**

**Auto OFF when power on:** If this option is checked, after power on, the curtain will close automatically. If this option is unchecked, when power on, it will stay still, and wait for the end-user’s command, say 40%, the curtain will fully close automatically(to initialize the curtain position), and then it reaches the desired position, 40%.

**Motor Running**

FWD   
  REV   
  Auto OFF when power on

---

**Drag Mode**

Drag No Action

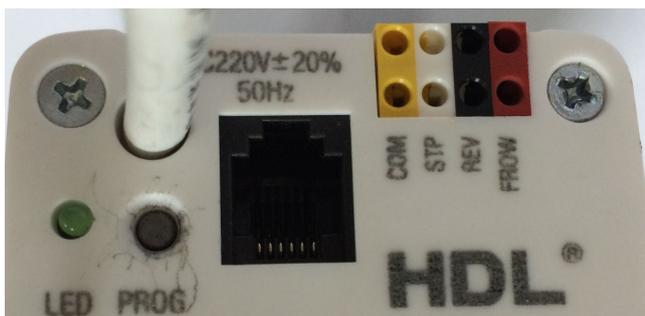
Long Drag(cm)    Length: 20

Short Drag(cm)    Length: 20

                                 Protect: 5

## 5.8 Control Way

### 5.8.1 Dry Contact Control



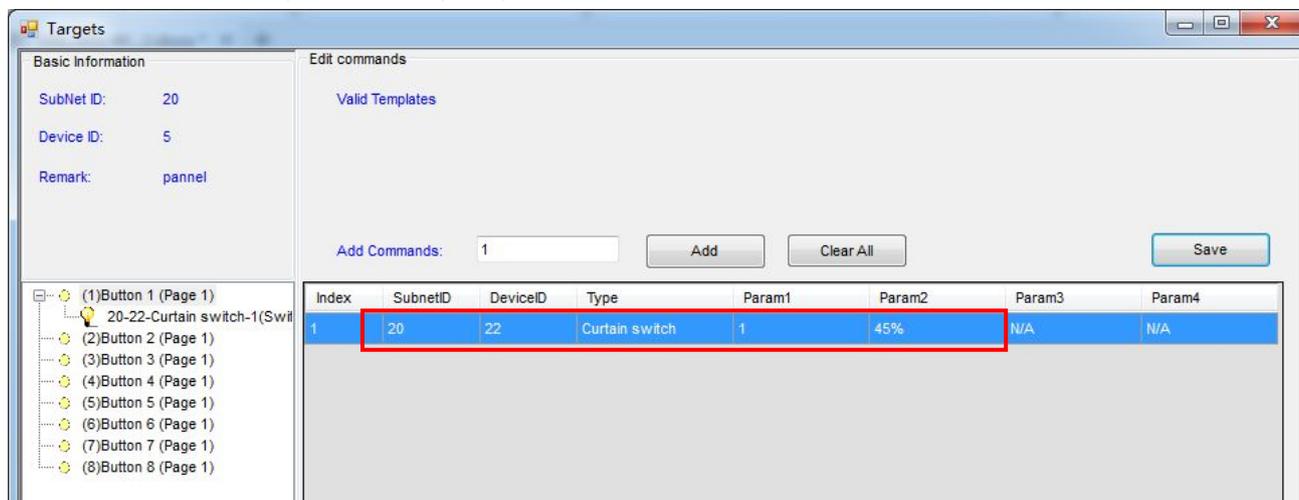
As the motor has dry contact interface, user can connect the switches to control the curtain to open, close and stop directly without any panel.

(COM+FROW is open, COM+REV is close, COM+STP is stop )

### 5.8.2 Panel Control

The curtain can be controlled by 2 different kinds of commands.

1: The button's setting as following(single on/off mode)

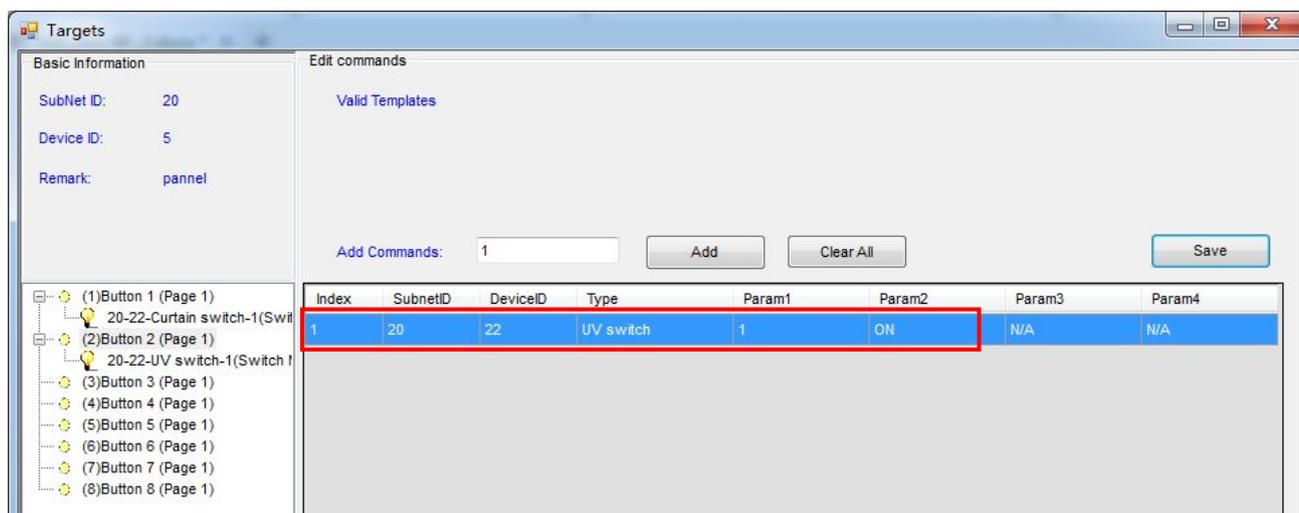


Operation:

Long press the button, open or close the curtain, when loosen the button, it will stop running (If the curtain reaches the fully open or close position, and you have not loosen the button, it will stop automatically for protection.)

Short press the button, it will go to the desired position, 45%. Short press again, the curtain will stop.

2: The button's setting as following. (single on mode)



Operation: With only one button, you can control the curtain's open, close and stop.

## 6. FAQ

### 6.1 CurtainFAQ001

Q:

How does the Master Motor control the Slave Motor?

A:

The Master is connected to AC220V, and it provides DC12V to the Slave motor by the RJ11 6p6c. When the Master is forwarding or reversing, will control the Slave via the RJ11 line at the same time.

### 6.2 CurtainFAQ002

Q:

Are all fixing accessories provided by HDL?

A:

No, HDL just provides the Ceiling Brackets (See section 3.4), you need to find other fixing accessories from 3<sup>rd</sup> party providers.

### 6.3 CurtainFAQ003

Q:

Why and when we need the Slave Motor?

A:

When the curtain fabric is heavy, you may need to use Slave Motor, see the below curve.

#### Load curves(one-motor type)



**Load curves(two-motor type)**



