



HDL-M/W04.10.1  
KNX 4CH 10A Curtain Actuator  
User Manual

Version: 1.0.0

Published on Dec. 26th, 2020

## Content

<b>Legal Statement</b> .....	I
<b>Update History</b> .....	II
<b>1 Introduction</b> .....	1
1.1 Feature .....	1
1.2 Important Notes .....	1
1.3 Product Information .....	2
<b>2 Configuration on ETS5</b> .....	3
2.1 Import Device .....	3
2.2 General Setting .....	4
2.3 Channel A/B/C/D .....	6
2.4 A/B/C/D: Function .....	8
2.5 Example .....	10

## Legal Statement

HDL has all the intellectual property rights to this document and contents thereof. Reproduction or distribution for third parties are prohibited without written authorization from HDL. Any infringement of HDL's intellectual property rights will be investigated the legal liability.

The contents of this document will be updated as the updates of product versions or other reasons. Unless otherwise agreed upon, this document is to be used as a guidance only. All the statements, information and recommendations in this document makes no warranty expressed or implied.

HDL Automation Co., Ltd.

## Update History

The form below contains the information of every update. The latest version contains all the updates of all former versions.

No.	Version	Update Information	Date
1	V1.0.0	Initial release	Dec 26th, 2020

## 1 Introduction

KNX 4CH 10A Curtain Actuator (See Figure 1) is in full compliance with Chinese and European safety standards and KNX protocol. This series of products have the characteristics of high power (10A), low consumption and high reliability.

This manual offers the information on installation steps, connection and configuration of KNX 4CH 10A Curtain Actuator on ETS5.



Figure 1. KNX 4CH 10A Curtain Actuator

### 1.1 Feature

- (1) Each channel can control the upward, downward and stop operation of the curtain, and can be controlled manually. Up to 10A output for each channel
- (2) Control types: Blinds operation mode, curtain operation mode, manual operation, priority setup, power-on status recall, power-off status saving, forced position operation, limit position control, status response for position, operation status, scene control, safety control, and automatic control.

### 1.2 Important Notes

- (1) Installation - Distribution box
- (2) Programming - This device is compliant with the KNX standard and can only be programmed by ETS software.
- (3) Output channel - Maximum current of each relay channel: 10A
- (4) Protection - A 10A breaker or fuse should be connected to the output load channel.

### 1.3 Product Information

Dimensions - See Figure 2 – 3

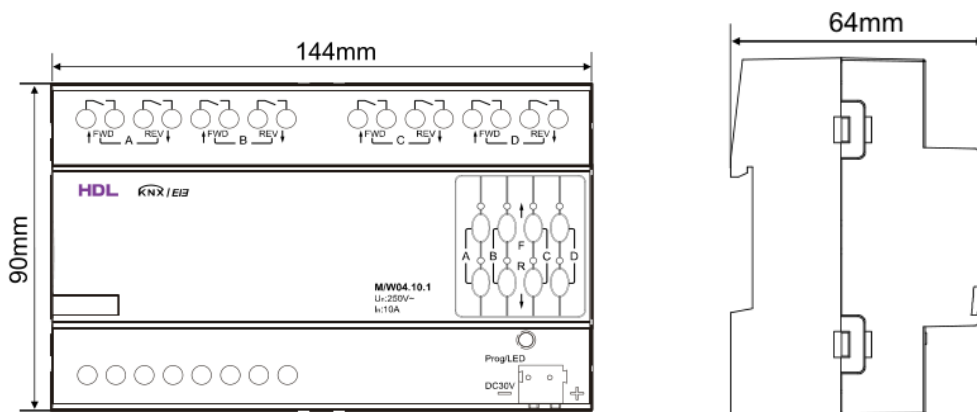


Figure 2. Dimensions - Front View

Figure 3. Dimensions - Side View

Wiring - See Figure 4

1. Manual button
2. KNX programming button/indicator: Red LED indicates programming mode.
3. KNX/EIB interface.

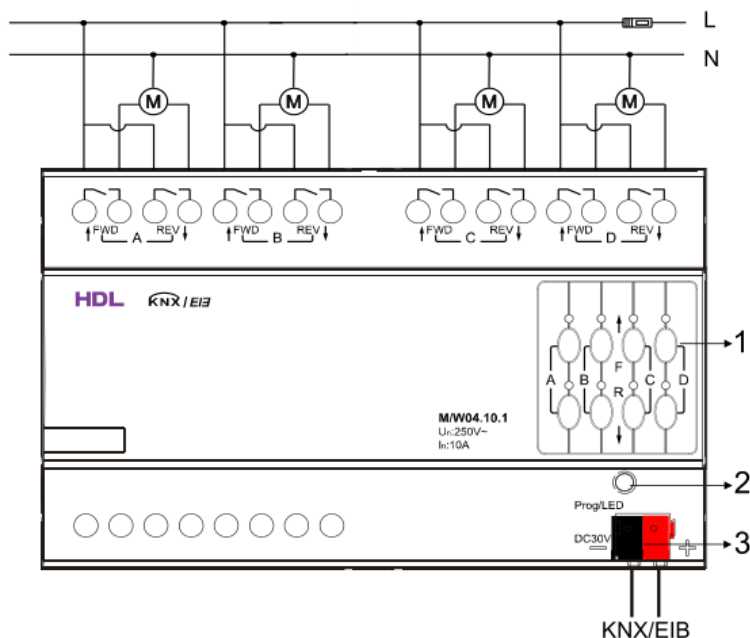


Figure 4. Wiring

Installation:

- Step 1. Fix the DIN rail with screws.
- Step 2. Buckle the bottom cap of the actuator on the edge of the DIN rail.

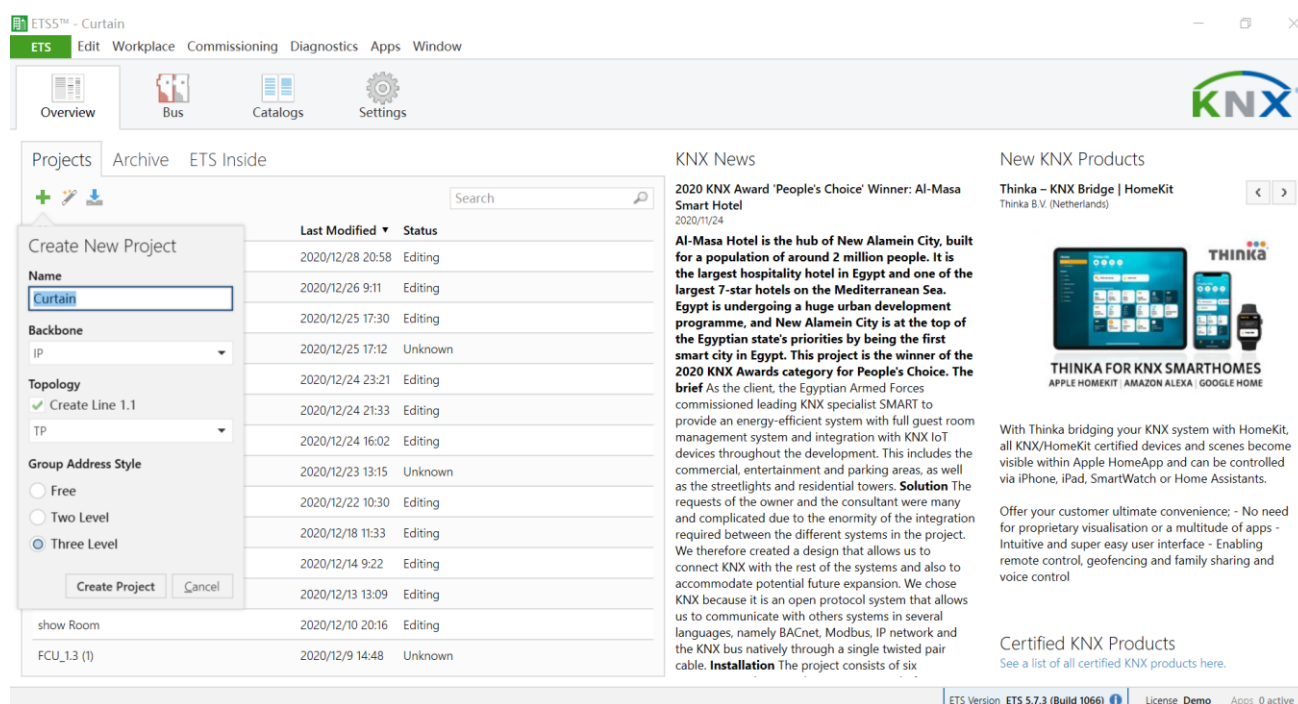
Step 3. Press the device on the DIN rail, slide it and fix it up until an appropriate position is adjusted.

## 2 Configuration on ETS5

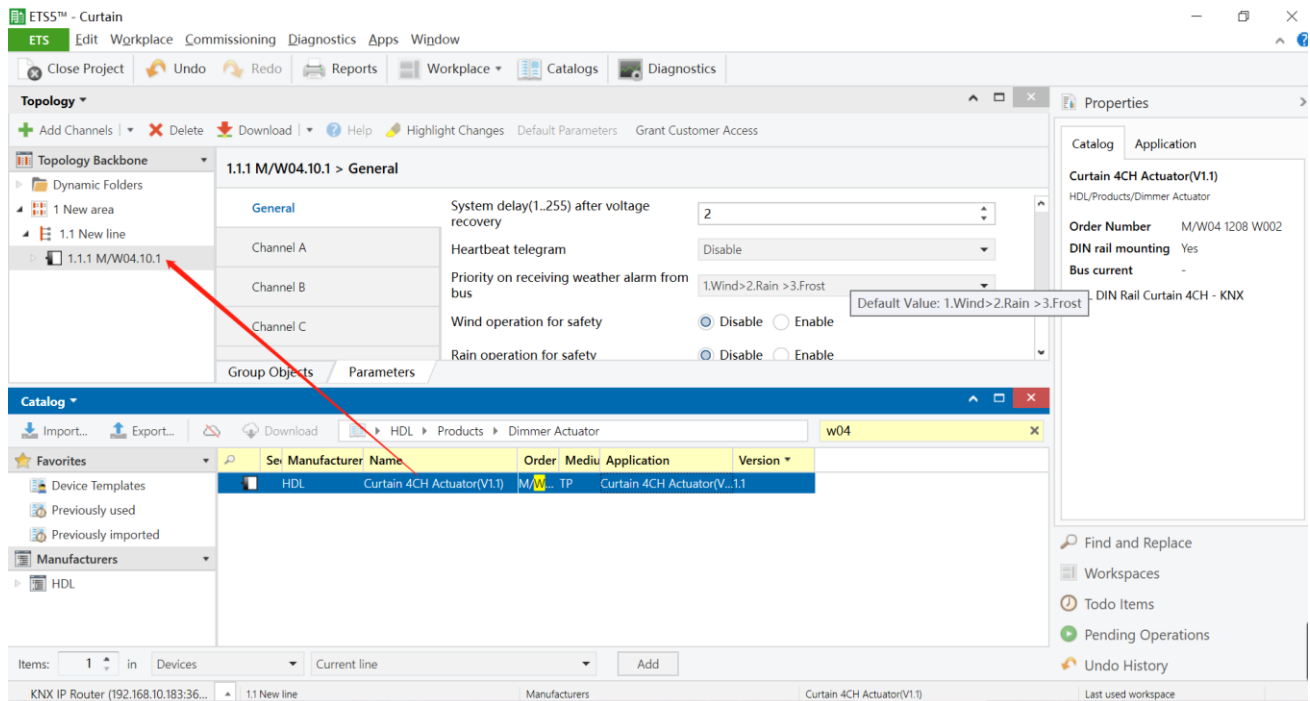
### 2.1 Import Device

Add device/database before program it.

1. Create project in ETS5, if you have project, ignore it. Select three level group address style when create project.

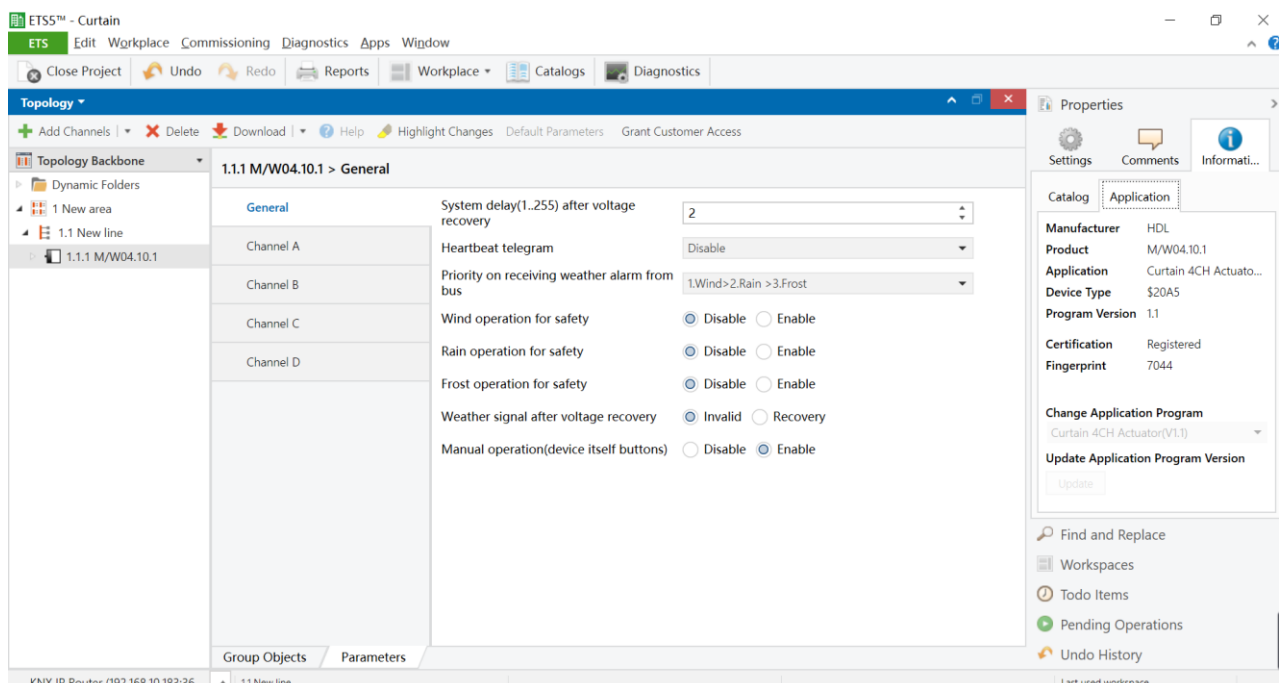


2. Refer to the device version from the label, select Catalog, drag the database to current Line. According to the label of sensor, you can ask HDL technical support for corresponding database.



## 2.2 General Setting

This document mainly describes 1.1 version M/W04.1 KNX 4CH 10A Curtain Actuator.



(1) System delay (1...255) after voltage recovery: system time-delay function, namely a delay time between powering on the device and activating the system, which ranges from 1 to 255 s. The default value is 2 s.

(2) Heartbeat telegram: It is used to check whether the communication between device and HDL Automation Co., Ltd.






system is normal.

- Disable: disable heartbeat telegram function.
- Send value “0” cyclically: devices will send “0” on the KNX bus at a set time interval.
- Send value “1” cyclically: devices will send “1” on the KNX bus at a set time interval.
- Send value “1/0” inverted cyclically: devices will send “0” and “1” alternately on the KNX bus at a set time interval.

(3) Priority on receiving weather alarm from bus: Priority of wind, rain and frost.

(4) Wind operation for safety: Wind detection alarm settings. If enable corresponding intensity of the wind and create and link to a group address, Bus will receive 0/1 value.

- Monitoring wind period: Interval time of monitoring the status of wind. Its range is 1 – 2000 s and 0 means invalid.

	1	General	Weak wind alarm received	1 bit	C	-	W	T	U	Low
	2	General	Slight wind alarm received	1 bit	C	-	W	T	U	Low
	3	General	Strong wind alarm received	1 bit	C	-	W	T	U	Low

Wind operation for safety	<input type="radio"/> Disable	<input checked="" type="radio"/> Enable
->Weak wind alarm received	<input type="radio"/> Disable	<input checked="" type="radio"/> Enable
--Receive weak wind signal	<input checked="" type="radio"/> '0'-No weak wind, '1'-Weak wind <input type="radio"/> '1'-No weak wind, '0'-Weak wind	
->Slight wind alarm received	<input type="radio"/> Disable	<input checked="" type="radio"/> Enable
--Receive slight wind signal	<input checked="" type="radio"/> '0'-No slight wind, '1'-Slight wind <input type="radio"/> '1'-No slight wind, '0'-Slight wind	
->Strong wind alarm received	<input type="radio"/> Disable	<input checked="" type="radio"/> Enable
--Receive strong wind signal	<input checked="" type="radio"/> '0'-No strong wind, '1'-Strong wind <input type="radio"/> '1'-No strong wind, '0'-Strong wind	
--Monitoring wind period[1..2000s,0-invalid]	<input type="text" value="0"/>	

(5) Rain operation for safety: Rain detection alarm settings.

- Receive rain signal: If the rain is detected, Bus will receive 0/1 value from its group address.
- Monitoring rain period: Interval time of monitoring the status of rain. Its range is 1 – 2000 s and 0 means invalid.

Rain operation for safety	<input type="radio"/> Disable <input checked="" type="radio"/> Enable
->Receive rain signal	<input checked="" type="radio"/> '0'-No rain, '1'-Rain <input type="radio"/> '1'-No rain, '0'-Rain
->Monitoring rain period[1..2000s,0-invalid]	<input type="text" value="0"/>

4 General Rain alarm received
1 bit C - W T U Low

(6) Frost operation for safety: Frost detection alarm settings.

- Receive Frost signal: If the frost is detected, Bus will receive 0/1 value from its group address.
- Monitoring frost period: Interval time of monitoring the status of rain. Its range is 1 – 2000 s and 0 means invalid.

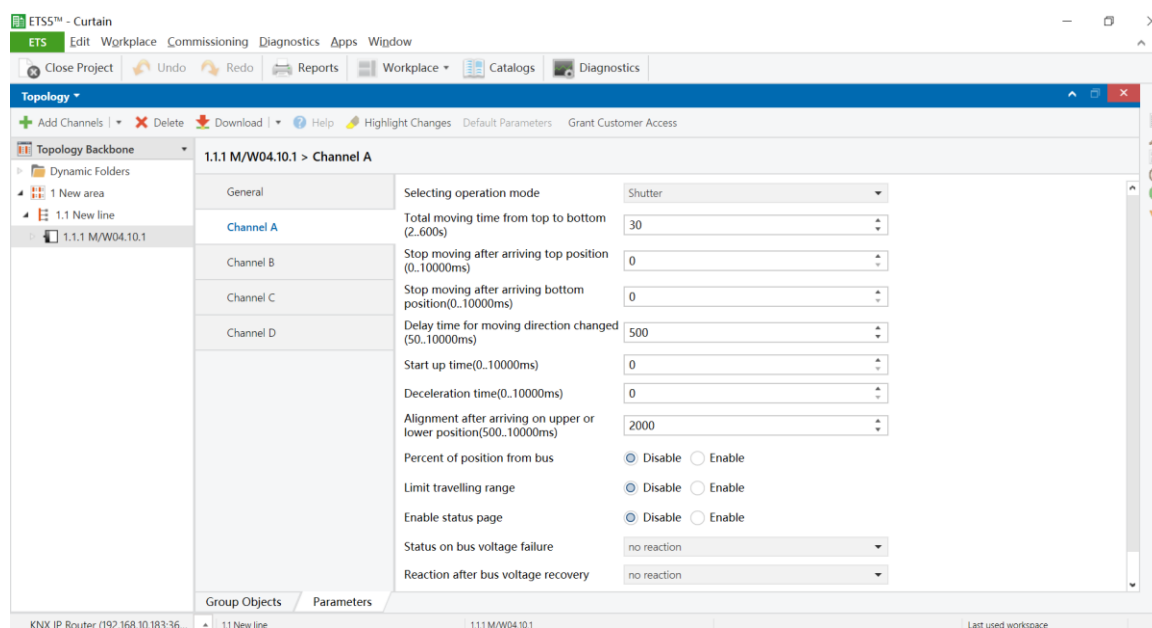
Frost operation for safety	<input type="radio"/> Disable <input checked="" type="radio"/> Enable
->Receive frost signal	<input checked="" type="radio"/> '0'-No frost, '1'-Frost <input type="radio"/> '1'-No frost, '0'-Frost
->Monitoring frost period[1..2000s,0-invalid]	<input type="text" value="0"/>

(7) Weather signal after voltage recovery: Restore the state before power failure.

(8) Manual operation (device itself buttons): Allow the key operation of the device itself.

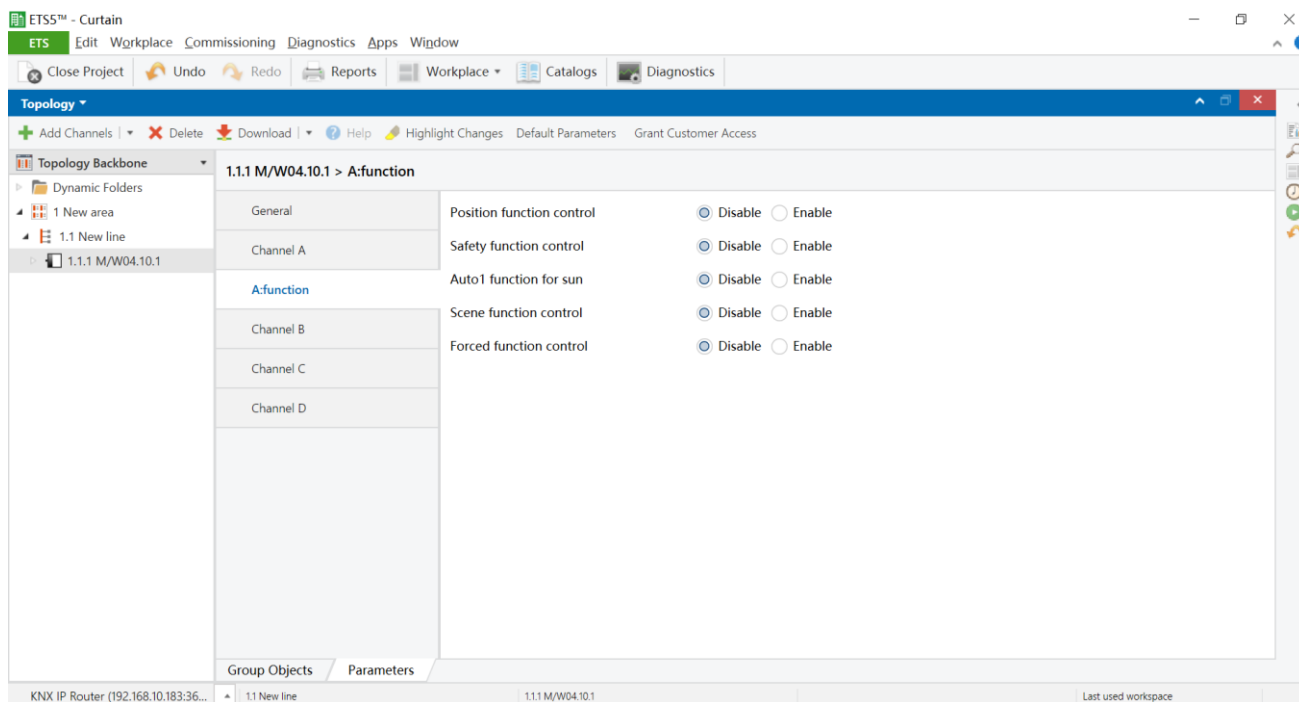
## 2.3 Channel A/B/C/D

There are four independent channels, take Channel A as example.



- (1) Select operation mode: Shutter, bind and simple control mode can be selected.
- (2) Total moving time from top to bottom: The total time from top to bottom can be set to 2 ~ 600 seconds.
- (3) Stop moving after arriving top position: The stop time after reaching the top can be set to 0 ~ 10000 Ms.
- (4) Stop moving after arriving bottom position: The stop time after reaching the bottom can be set to 0 ~ 10000 Ms.
- (5) Delay time for moving direction changed: The movement direction change delay time can be set to 50 ~ 10000 Ms.
- (6) Start up time: The starting time can be set to 0 ~ 10000 Ms.
- (7) Deceleration time: The deceleration time can be set to 0 ~ 10000 Ms.
- (8) Alignment after arriving on upper or lower position: The time setting of alignment after reaching the high / low position can be set to 500... 10000 Ms.
- (9) Percent of position from bus: Read percentage location information from the bus.
- (10) Limit travelling range: Percentage setting of high / low travel range.
- (11) Enable status page: The status page function can be enabled.
- (12) Status on bus voltage failure: The state of voltage fault can be selected as no response, up, down and stop.
- (13) Reaction after bus voltage recovery: The state of power failure recovery can be selected as no response, up, down, stop and set position.

## 2.4 A/B/C/D: Function



(1) Position function control: Specify the position of the percentage.

To set position 1/2, send value 0/1 to group address of Set position 1/2. To set position 3/4, send value 0/1 to group address of Set position 3/4.

To move to position 1/2, send value 0/1 to group address of Move to position 1/2. To move to position 3/4, send value 0/1 to group address of Move to position 3/4.

1.1.1 M/W04.10.1 > A:position					
General	Preset position[1..4]	Used for position config			
Channel A	Position 1 for moving[0%(top)..100%(bottom)]	0%(0)			
A:function	Position 2 for moving[0%(top)..100%(bottom)]	25%			
<b>A:position</b>	Position 3 for moving[0%(top)..100%(bottom)]	50%(128)			
Channel B	Position 4 for moving[0%(top)..100%(bottom)]	100%(255)			
Channel C	Set position[1 bit]	<input type="radio"/> Disable <input checked="" type="radio"/> Enable			
Channel D	Move to position[1 bit]	<input type="radio"/> Disable <input checked="" type="radio"/> Enable			

26	Output A	Set position 1/2	1 bit	C - W - U	Low
27	Output A	Set position 3/4	1 bit	C - W - U	Low
28	Output A	Move to position 1/2	1 bit	C - W - U	Low
29	Output A	Move to position 3/4	1 bit	C - W - U	Low

- (2) Safety function control: When the weather (wind, rain and frost) alarm is triggered, curtain will be forced to move a specified position.

## 1.1.1 M/W04.10.1 &gt; A:safety

General	The weak wind alarm is used	<input type="radio"/> No <input checked="" type="radio"/> Yes
Channel A	The slight wind alarm is used	<input type="radio"/> No <input checked="" type="radio"/> Yes
A:function	The strong wind alarm is used	<input type="radio"/> No <input checked="" type="radio"/> Yes
<b>A:safety</b>	Reaction on wind alarm(the wind signal come from bus)	no reaction ▼
Channel B	Reaction on rain alarm(the rain signal come from bus)	no reaction ▼
Channel C	Reaction on frost alarm(the frost signal come from bus)	no reaction ▼
Channel D	Reaction on reset of weather alarm(no wind,rain and frost)	no reaction ▼
	Safety mode after voltage recovery	<input checked="" type="radio"/> Invalid <input type="radio"/> Recovery

- (3) Auto 1 function for sun: Adjust the position of the curtain according to whether it is sunrise or sunset.

## 1.1.1 M/W04.10.1 &gt; A:auto1

General	Toggling to direct object control	<input type="radio"/> enable <input checked="" type="radio"/> communication object enable/disable
Channel A	Delay time sun='0'(0..3600s)	0 ▲▼
A:function	Delay time sun='1'(0..3600s)	0 ▲▼
<b>A:auto1</b>	Moving for sun='0'	no reaction ▼
Channel B	Moving for sun='1'	no reaction ▼
Channel C	Auto mode after voltage recovery	<input checked="" type="radio"/> Invalid <input type="radio"/> Recovery
Channel D		

- (4) Scene function control: Assign scenes to control the curtain to a certain position.

1.1.1 M/W04.10.1 > A:scene		
General	Output is assigned to (scene 1..64 or not allocate)	Not allocate ▼
Channel A	->Output position value	100%(255) ▼
A:function	->Output delay	<input checked="" type="radio"/> Disable <input type="radio"/> Enable
<b>A:scene</b>	Output is assigned to (scene 1..64 or not allocate)	Not allocate ▼
Channel B	->Output position value	100%(255) ▼
Channel C	->Output delay	<input checked="" type="radio"/> Disable <input type="radio"/> Enable
Channel D	Output is assigned to (scene 1..64 or not allocate)	Not allocate ▼
	->Output position value	100%(255) ▼
	->Output delay	<input checked="" type="radio"/> Disable <input type="radio"/> Enable
	Output is assigned to (scene 1..64 or not allocate)	Not allocate ▼
	->Output position value	100%(255) ▼
	->Output delay	<input checked="" type="radio"/> Disable <input type="radio"/> Enable
	Output is assigned to (scene 1..64 or not allocate)	Not allocate ▼

Parameters    Group Objects

(5) Forced function control: Force the curtain to move to a certain position.

1.1.1 M/W04.10.1 > A:forced operation		
General	Forced operation 1(2 bit)	<input checked="" type="radio"/> Disable <input type="radio"/> Enable
Channel A	Forced operation 2(1 bit)	<input checked="" type="radio"/> Disable <input type="radio"/> Enable
A:function	Forced operation 3(1 bit)	<input checked="" type="radio"/> Disable <input type="radio"/> Enable
<b>A:forced operation</b>	Reaction on exit forced operation	no reaction ▼
Channel B	Forced operation mode after voltage recovery	<input checked="" type="radio"/> Invalid <input type="radio"/> Recovery

## 2.5 Example

Take an example of M/DLP04.1 Rocker A controlling M/W04.10.1 Channel A.

(1) In M/W04.10.1 parameter, select Shutter mode and default settings. Create and link 2 group addresses for “Move shutter up/down” and “Stop moving” of output A.

Topology Backbone	Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
Dynamic Folders	10	Output A	Move shutter up/down	Move shutter up/...	1/1/1	1 bit	C	-	W	-	U	up/down	Low
1 New area	11	Output A	Stop moving	Stop moving	1/1/2	1 bit	C	-	W	-	U	up/down	Low
1.1 New line	50	Output B	Move shutter up/down			1 bit	C	-	W	-	U	up/down	Low
1.1.1 M/W04.10.1	51	Output B	Stop moving			1 bit	C	-	W	-	U	up/down	Low
1.1.2 M/DLP04.1	90	Output C	Move shutter up/down			1 bit	C	-	W	-	U	up/down	Low
	91	Output C	Stop moving			1 bit	C	-	W	-	U	up/down	Low
	130	Output D	Move shutter up/down			1 bit	C	-	W	-	U	up/down	Low
	131	Output D	Stop moving			1 bit	C	-	W	-	U	up/down	Low

### 1.1.1 M/W04.10.1 > Channel A

General	Selecting operation mode	Shutter
Channel A	Total moving time from top to bottom (2..600s)	30
A:function	Stop moving after arriving top position (0..10000ms)	0
Channel B	Stop moving after arriving bottom position(0..10000ms)	0
Channel C	Delay time for moving direction changed (50..10000ms)	500
Channel D	Start up time(0..10000ms)	0
	Deceleration time(0..10000ms)	0
	Alignment after arriving on upper or lower position(500..10000ms)	2000
	Percent of position from bus	<input checked="" type="radio"/> Disable <input type="radio"/> Enable
	Limit travelling range	<input checked="" type="radio"/> Disable <input type="radio"/> Enable
	Enable status page	<input checked="" type="radio"/> Disable <input type="radio"/> Enable
	Status on bus voltage failure	no reaction
	Reaction after bus voltage recovery	no reaction

Parameters    Group Objects

(2) In M/DLP04.1 > Rocker A, select Shutter controller mode and its default settings.  
Separately link 2 group addresses to “Adjust/Stop for shutter” and “Move for shutter” of Rocker A.

### 1.1.2 M/DLP04.1 > Rocker A

General1	Rocker A work mode	<input type="radio"/> Independent button mode <input checked="" type="radio"/> Combined button mode
General2	=====	=====
Functions	Rocker A : operation mode	Shutter controller
Rocker A	-> Reaction on short button	Left=Decrease/Stop,Right=Increase/Stop
Rocker B	-> Reaction on long button	Left/Right=Moving-> Toggle
Rocker C	Long button time after	1s
Rocker D	LED status source	Local
	--LED status	ON/OFF status

The screenshot displays two windows from the HDL software. The top window, 'Topology Backbone', shows a table of objects with columns: Number, Name, Object Function, Description, Group Address, Length, C, R, W, T, U, Data Type, and Priority. The bottom window, 'Group Addresses', shows a table of group addresses with columns: Object, Device, Sending, Data Type, C, R, W, T, U, Product, and Program. A red arrow points from the '1/1/1 Move shutter up/down' group address in the bottom window to the row in the top window where the 'Group Address' is '1/1/1' and the 'Object Function' is 'Move shutter up/down'.

Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
40	Rocker A	Adjust/Stop for shutter	Stop moving	1/1/2	1 bit	C	-	W	T	U		Low
41	Rocker A	Move for shutter	Move shutter up/down	1/1/1	1 bit	C	-	W	T	U	up/down	Low
50	Rocker B short	Switching			1 bit	C	-	W	T	U	switch	Low
51	Rocker B long	Switching			1 bit	C	-	W	T	U	switch	Low
60	Rocker C short	Switching			1 bit	C	-	W	T	U	switch	Low
61	Rocker C long	Switching			1 bit	C	-	W	T	U	switch	Low
70	Rocker D short	Switching			1 bit	C	-	W	T	U	switch	Low
71	Rocker D long	Switching			1 bit	C	-	W	T	U	switch	Low

Object	Device	Sending	Data Type	C	R	W	T	U	Product	Program
10: Output A - Move shutter up/down	1.1 M/W04.10.1	S	up/down	C	-	W	-	U	M/W04.10.1	Curtain 4CH Actuator(V
41: Rocker A - Move for shutter	1.1.2 M/DLP04.1	S	up/down	C	-	W	T	U	M/DLP04.1	DLP 4B Controller(V1.1)

(3) Separately and Fully download data to M/DLP04.1 and M/W04.10.1.