

Project Name: RS485 open protocol (for roller blinds and venetian blinds)

Protocol version: A4

Engineer Name

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Check:

Updated version:**2015-01-10:** Reformat

1 Function Instruction

2 Instruction of address for reading and writing

Data address	Description	Data format	Read and write	
0x00	ID_L	0x01~0xfe	Write	*
0x01	ID_H	0x01~0xfe		*
0x02	Current position (percentage)	0x00~0x64 (0xff is limit setting) Open (UP) until UP limit position is 100% Close (DOWN) until bottom limit position is 0%	Only read	M
0x03	Default direction	0x00—Default direction 0x01—Opposite direction	Read and write	M
0x05	Motor situation	0x00—STOP 0x01—OPEN 0x02—CLOSE 0x03—SETTING	Only read	M
0x06	Current angle	0-180	Only read	B
0x07	Direction of adjusting angle	0x00—Default direction 0x01—Opposite direction	Read and write	B
0x08	Angle coefficient	0-255	Read and write	B
0x09	Limit position	Bi t1 limit position1 Bi t2 limit position2 Bi t3 limit position 3 Bi t4 limit position 4	Only read	M
0x0A	Jogging mode	0 No jogging 1-jogging	Read and write	M
0x0C	Power on remind	0: No remind 1: "beep" remind 2: Rotation remind 3: Rotation and beep remind	Read and write	M
0xe0-0xef	Information	read and write for master box	read and write	*
0xF0	Device type	0x11 roller blinds	only read	*
		0x12 venetian blinds		
0xf1	channel of module	1-15	only read	*
0xfd	software version	0-255	only read	*
0xfe	protocol version	0xA4	only read	*

3 Instruction of controller command

Command	Description	Command data	Remark
0x01	Open (UP) command	NO	
0x02	Close (DOWN) command	NO	
0x03	STOP command	NO	
0x04	Percentage, angle command	0~100 (percentage, 0xff is for adjusting angle) 0~100 (percentage, 0xff is for adjusting angle 0~180 degrees	roller blinds venetian blinds
0x05	Limit setting	1-4 Setting limit position 1 (Top limit) 、 2 (Bottom limit) 、 3 (3rd limit) 、 4 (4th limit)	
0x06	Run until limit position	1-4 Run until limit position 1 (Top limit) .(Bottom limit) .(3rd limit) .(4th limit)	
0x07	Delete limit position	NO (Delete all) 1 (Top limit) 、 2 (Bottom limit) 、 3 (3rd limit) 、 4 (4th limit)	*
0x08	Factory default	NO	
0x09	Set scene mode	See another instruction manual	
0x0A	operate scene mode	See another instruction manual	
0x0B	Delete scene mode	See another instruction manual	
0x0f	Get opposite command	NO, if last command is open, this time operated close, or it will operate OPEN command.	

4 Other instruction

- First step: Set limit positions
Send open(UP)command, check if the motor run UP, if not, it needs to read the default running direction, then write opposite data. When motor runs until suitable position, send STOP command, then send limit setting command(Top limit is set); Send close(DOWN) command, when motor runs until suitable position, send STOP command, then send limit setting command(Bottom limit is set), limit position setting is finished.

Send open(UP) command, motor will run UP until the top limit position and stop; send close(DOWN) comand, motor will run DOWN until the bottom limit postion and stop.
- Venetian blinds: adjust angle of slat, this data is not useful for roller blinds
Before use venetian blinds, the first step is correcting angle of slats.
 1. Set correct limit positions
 2. Send UP command until slats turn completely, then send STOP, and send percentage and angle command, setting angle is 90 degrees, to check if slats are in horizontal situation. If not, read the angle coefficient, increase or decrease angle writing. Repeat this process until seting 90 degrees, all the slats are in horizontal situation.
 3. Set 180 degrees, check if slats are "/" direction, 0 degree is "\" direction. If not, read angle adjusting direction, write opposite data.

For example**5.1 Control command (0x03)****5.1.1 Command-Open**

	Start code	device address		function	data address	CRC16	
Master sending	55	12	34	03	01	AD	8A
Device return	55	12	34	03	01	AD	8A

5.1.2 Command-Close

	Start code	device address		function	data address	CRC16	
Master sending	55	12	34	03	02	ED	8B
Device return	55	12	34	03	02	ED	8B

5.1.3 Command-Stop

	Start code	device address		function	data address	CRC16	
Master sending	55	12	34	03	03	2C	4B
Device return	55	12	34	03	03	2C	4B

5.1.4 Comand-percentage (30%)

	Start code	device address		function	data address	data info	CRC16	
Master sending	55	12	34	03	04	1E	C8	E5
Device return	55	12	34	03	04	1E	C8	E5
	55	12	34	03	04	FF*	08	AD

(*) If devices haven't set limit positions, return to 0xFF, motor won't work

5.1.5 Command-Delete limit positions

	Start code	device address		function	data address	CRC16	
Master sending	55	12	34	03	07	2D	88
Device return	55	12	34	03	07	2D	88

5.1.6 Command-Factory default

	Start code	device address		function	data address	CRC16	
Master sending	55	12	34	03	08	6D	8C
Device return	55	12	34	03	08	6D	8C

After factory default, all the setting of motors will be default situation, all the stored situation and data will be deleted.

The address of device is 0xfe fe, limits are deleted.

5.1.7 Command-set scene mode

	Start code	device address		function	data address	data content	CRC16	
Master sending	55	12	34	03	09	01	8D	BD
Device return	55	12	34	03	09	01	8D	BD
						FF*	0C	3D

Each motor can be set with 64 scene modes maximumly(data content is number of scene mode) If device has no limit, it can set scene mode, return 0xFF.

5.1.8 Command-Operate scene mode

	Start code	device address		function	data address	data content	CRC16	
Master sending	55	12	34	03	0A	01	8D	4D
Device return	55	12	34	03	0A	01	8D	4D
						FF*	0C	CD

When motor is in scene mode but without limit position, motor won't run, return 0xFF.

If motor has no limit position, can't operate scene mode, return 0xFF.

5.1.9 Command-Delete scene mode

	Start code	device address		function	data address	data content	CRC16	
Master sending	55	12	34	03	0B	01	8C	DD
	55	12	34	01	0B	01	8C	DD

5.2 Read command (0x01)

5.2.1 Read command-position (percentage) --0x02

	start code	device address		function	data address	data length	CRC16	
Master sending	55	12	34	01	02	01	2B	4D
	start code	device address		function	data length	data content	CRC16	
Device return	55	12	34	01	01	1E*	6A	75
						FF*	AA	3D

*If device has limit, it will return current limit (0x00~0x64), 0x00 means completely close, 0x64 means completely open.

*If device has no limit, it will return to 0xFF

5.2.2 Read command-direction--0x03

	start code	device address		function	data address	data length	CRC16	
Master sending	55	12	34	01	03	01	2A	DD
	start code	device address		function	data length	data content	CRC16	
Device return	55	12	34	01	01	00*	EA	7D

*0x00-default direction, 0x01-opposite direction

*This direction is used for judging the direction of motor opening and closing, for example, send open command, motor closes, then please operate reading direction, and write opposite direction to change the direction, to make sure the command is same as motor running.

5.2.4 Read command-motor situation--0x05

	start code	device address		function	data address	data length	CRC16	
Master sending	55	12	34	01	05	01	29	7D
	start code	device address		function	data length	data content	CRC16	
Device return	55	12	34	01	01	00*	EA	7D

*00-means motor STOP. 01-means motor OPEN. 02-means motor CLOSE. 03-means motor is in setting situation

5.2.7 Read command-protocol version--0xfe

	start code	device address		function	data address	data length	CRC16	
Master sending	55	12	34	01	fe	01	6A	4D
	start code	device address		function	data length	data content	CRC16	
Device return	55	12	34	01	01	A3*	AA	04

5.3 Write command (0x02)

5.3.1 Write command-write device address--0x00

	start code	device address		function	data address	data length	data	data	CRC16	
Master sending	55	00	00	02	00	02	12(ID_L)	34(ID_H)	50	7F
	start code	device address		function	data address	data length	CRC16			
Device return	55	12	34	02	00	02	9A	2C		

*ID_H can't set 0x00, 0xff, ID_L can't set 0x00, 0xff. Default address is 0xfefe (factory default).

*Before operate write device address, press setting button on motor 5 seconds, until motor "beep" twice, then release, if successfully, motor will rotate. If not successful, device address will keep the same without change.

*Default address 0xfefe

5.4 Slave device request command (0x04)

	start code	device address		function	data address	CRC16				
Slave sending	55	FE	FE	04	01	BB	14			
	start code	device address		function	data address	data length	data	data	CRC16	
Master sending	55	00	00	02	00	02	12(ID_L)	34(ID_H)	50	7F
		device address		function	data address	data length	CRC16			
slave return	55	12	34	02	00	02	9A	2C		

when motor is powered on, press setting button of motor 5 seconds, until motor "beep" twice, then release, slave device will send request assigned address command, within 10 seconds, master device can modify slave device address from the writing command which slave device sent.
