

# Tuya Serial Port Communication Protocol

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## Product information

Product name: Kkmoon

Product ID: j681q6dr

Product functions:

dpID	Function name	Data transmission type	Data type	Function attribute	Remarks
1	Control	Issue and report	enum	Enumerated values: open, stop, close, continue	<b>【必选项】</b> 该DP点用于控制电机的开启、暂停、关闭。该DP点枚举值参数不允许修改，不允许增减。其中，continue功能在APP面板无呈现，用于第三方（Google home）开通使用，下发指令后，需要MCU记住上一次的状态，并执行动作，注意，无该功能，无法通过WWGA认证。
2	Curtain position setting	Issue and report	value	Values range: 0-100, Pitch: 1, Unit: %	
3	Current curtain position	Only report	value	Values range: 0-100, Pitch: 1, Unit: %	该DP点与“开启百分比状态控制”配套使用。该DP点用于显示实际窗帘所处位置。该DP点数值范围值参数不允许修改，不允许增减。
4	Mode	Issue and report	enum	Enumerated values: morning, night	
5	Motor Direction	Issue and report	enum	Enumerated values: forward, back	用于设置电机转向，顺时针，或者逆时针，forward代表顺时针，back代表逆时针
6	Auto Power	Issue and report	bool		用于设置窗帘电机是否允许人为手动拉动窗帘时，会自动启动全开或者全关。例如开启自启动，人为拉动窗帘时，电机会因为惯性启动起来。
7	Work State	Only report	enum	Enumerated values: opening, closing	<b>【必选项】</b> 用于显示电机的当前工作状态。该DP点枚举值参数不允许修改，不允许增减。如需要修改在APP面板中显示的内容，可以前往第四步的拓展中心，多语言管理修改代表值，新增的枚举值所代表的

					的内容也是 在多语言中修改 代表值。
8	Countdown	Issue and report	enum	Enumerated values: cancel, 1h, 2h, 3h, 4h	设备倒计时, 该DP点枚举值 可增减, 但不 可修改枚举值 名称, 例如可 以删除4, 但是 不能把4改为其 他词, 可以增 加, 仅支持增 加数字, 未选 则不展示该功 能。如需要修 改在APP面板中 显示的代表名 称, 可以前往 第四步的拓展 中心, 多语言 管理修改代表 值, 新增的枚 举值所代表的 的内容也是在 多语言中修改 代表值。
9	Left Time	Only report	value	Values range: 0-86400, Pitch: 1, Unit: s	倒计时剩余时 间显示
10	Total Time	Only report	value	Values range: 0-120000, Pitch: 1, Unit: ms	用于APP面板中 窗帘全程的时 间, 单位是 MS, 例如上报 5000, 就代表 5S, 也就是APP 面板中窗帘动 态全程的时 间。
11	Situation_set	Issue and report	enum	Enumerated values: fully_open, fully_close	上报该DP点枚 举值, 以告知 APP, 该窗 帘, 100%对 应的是全开, 还 是全关。不上 报或者不选择 改DP点, 则默 认100%为全 关。
12	Fault	Only report	bitmap		【必选】设备 上报故障值, 该DP点枚举值 可增减, 但不 可修改枚举值 名称, 例如可 以删除 motor_fault, 可以增加其他 值, 未选则不 展示该功能。 如需要修改在 APP面板中显 示的内容, 可 以前往第四步 的拓展中心, 多 语言管理修改 代表值, 新增 的枚举值所代 表的的内容也 是在多语言中 修改代表值。
13	Battery Percentage	Only report	value	Values range: 0-100, Pitch: 1, Unit: %	
16	Border	Issue and report	enum	Enumerated values: up, down, up_delete, down_delete, remove_top_bottom	
19	Best Position	Issue and report	value	Values range: 0-100, Pitch: 1, Unit: %	
20	Click Control	Issue and report	enum	Enumerated values: up, down	
21	Angle Control	Issue and report	value	Values range: 0-180, Pitch: 1, Unit: null	

Conventional baud rate of serial port: 9600

Data bits: 8

Parity check: N/A

Stop bit: 1

Data flow control: N/A

MCU: The control chip of the control board, connected to the Tuya module via a serial port

Frame format description

Field	Length(byte)	Description
Header	2	Fixed to 0x55aa
Version	1	Used for upgrade and expansion
Sequence number	2	Sequence number of the transmission data (in ascending order)
Command word	1	Detailed frame type
Data length	2	Big endian
Data	XXXX	
Checksum	1	Get the remainder of the byte sum from the frame header divided by 256

Communication Protocol – Base Protocol

• 1. Query product information

1.1 product ID: Corresponding to a Tuya developer platform PID (product identifier), generated by the Tuya developer platform and used for recording product-related information on the cloud

1.2 Serial protocol software version number format definition: Using dotted decimal form, e.g. “x.x.x” (0 <= x <= 9), where x is a decimal digit.

1.3 Product information consists of a product ID and a serial protocol software version number.

For example: {"p": "BDzkjuLY", "v": "2.0.0"}

p indicates that the product ID is BDzkjuLY, and v indicates that the MCU version is 2.0.0.

55	AA	02	00 00	01	00	1C	7B2270223A224244
7A	6B	6A	75 4C	59	22	2C	2276223A22322E30
z	k	j	u	L	Y	,	" v " : " 2 . 0 "
2E	30	22	7D 89				
.	0	"	}	Check bit			

• 2. Report module network status

There are three types of module network statuses:

0x00: The device is not connected to a network

0x01: The device is connected to a network

0x02: The device network status is abnormal

2.1 The device is not connected to a network: When the device is powered on for the first time, the connection fails or it is off-network, the device is not connected and sends the status to the MCU.

2.2 The device is connected to a network: After the device is connected successfully, it changes the status to connected and sends the status to the MCU.

2.3 When the module detects the MCU restarting or going offline and online again, it actively sends the module network status to the MCU.

2.4 When the module network status changes, it actively delivers the status to the MCU.

• 3. Device networking status

There are two types of device networking statuses:

3.1 0x00: The module is reset to the factory setting (not connected) status;

3.2 0x01: The module is configured to the distribution network start status.

• 4. Command sending and status reporting

For details about the command sending and status reporting protocols related to the product functions, refer to the "Communication protocol (product functions) command send-receive table".

- 5. MCU operating status reporting conditions

5.1 When the module network status changes (not connected => connected): After the MCU receives the module network status command, it reports all functional statuses (switch, mode, etc.);

5.2 Active report: When the MCU status changes (by non-app control, such as the control panel button), the MCU needs to actively report such a change;

5.3 Timed report: If a timing function is available, the MCU needs to report the remaining time every minute (measured in minutes).

- 6. Get local time (optional)

Supports getting the local time and UTC time from the network.

- 7. ZigBee functional product test

Scans the SSID of the specified channel. The scanning result and signal strength percentage are returned, which are mainly used for the ZigBee RF functional test for product volume production.

- 8. Communication Protocol (Base Protocol) command send-receive table

The sequence number is entered according to the actual data.

		Frame header	Version	Sequence number	Command word	Data length	Data	Checksum
Query product information	Module sends	0x55aa	0x02	0xXXXX	0x01	0x0000		Checksum
	MCU reports	0x55aa	0x02	0xXXXX	0x01	0x001C	Format: {"p": "BDzkjuLY", "v": "2.0.0"}	Checksum
Report module network status	Module sends	0x55aa	0x02	0xXXXX	0x02	0x0001		Checksum
	MCU reports	0x55aa	0x02	0xXXXX	0x02	0x0000		Checksum
Configure ZigBee module	MCU sends	0x55aa	0x02	0xXXXX	0x03	0x0001	0x01	Checksum
	Module returns	0x55aa	0x02	0xXXXX	0x03	0x0000		Checksum
Command sending	Module sends	0x55aa	0x02	0xXXXX	0x04	0xXXXX	For the actual DP data information, refer to the data format in the protocol document.	Checksum
Status report (passive)	MCU sends	0x55aa	0x02	0xXXXX	0x05	0xXXXX	For the actual DP data information, refer to the data format in the protocol document.	Checksum
	Module returns	0x55aa	0x02	0xXXXX	0x05	0x0001	0x01	Checksum
Status report (active)	MCU sends	0x55aa	0x02	0xXXXX	0x06	0xXXXX	For the actual DP data information, refer to the data format in the protocol document.	Checksum
	Module returns	0x55aa	0x02	0xXXXX	0x06	0x0001	0x01	Checksum
ZigBee functional	MCU sends	0x55aa	0x02	0xXXXX	0x08	0x0001	00x0b	Checksum
							When the data length is 2 bytes: Data[0] - 0x00 for failure, 0x01 success; when Data[0] is 0x01, that is,	

product test (note: scan the SSID of the specified channel)	Module returns	0x55aa	0x02	0xXXXX	0x08	0x0002	success, Data[1] indicates the signal strength (0-100, 0 for the poorest, 100 for the strongest); when Data[0] is 0x00, that is, failure, Data[1] is 0x00 indicating that the specified SSID is not scanned, and Data[1] is 0x01 indicating that the module does not burn the authorization key.	Checksum
Get local time (optional)	MCU reports	0x55aa	0x02	0xXXXX	0x24	0x0000		Checksum
	Module sends	0x55aa	0x02	0xXXXX	0x24	0x0008	When the data length is 8 bytes: The first four bytes are the standard timestamp and the last four bytes are the local timestamp.	Checksum

- Communication protocol - functional protocol  
Communication protocol (product function part) instruction sent and received form

ID	Function name		Header version	Command word	Data length	dpID	Data type	Function length	Function command	Checksum
1	Control	Module send	0x55aa 0x02	0x04	0x00 0x05	0x01	0x04	0x00 0x01	open:0x00 stop:0x01 close:0x02 continue:0x03	Checksum
1	Control	MCU report	0x55aa 0x02	0x05	0x00 0x05	0x01	0x04	0x00 0x01	open:0x00 stop:0x01 close:0x02 continue:0x03	Checksum
2	Curtain position setting	Module send	0x55aa 0x02	0x04	0x00 0x08	0x02	0x02	0x00 0x04	0x0-0x64	Checksum
2	Curtain position setting	MCU report	0x55aa 0x02	0x05	0x00 0x08	0x02	0x02	0x00 0x04	0x0-0x64	Checksum
3	Current curtain position	MCU report	0x55aa 0x02	0x05	0x00 0x08	0x03	0x02	0x00 0x04	0x0-0x64	Checksum
4	Mode	Module send	0x55aa 0x02	0x04	0x00 0x05	0x04	0x04	0x00 0x01	morning:0x00 night:0x01	Checksum
4	Mode	MCU report	0x55aa 0x02	0x05	0x00 0x05	0x04	0x04	0x00 0x01	morning:0x00 night:0x01	Checksum
5	Motor Direction	Module send	0x55aa 0x02	0x04	0x00 0x05	0x05	0x04	0x00 0x01	forward:0x00 back:0x01	Checksum
5	Motor Direction	MCU report	0x55aa 0x02	0x05	0x00 0x05	0x05	0x04	0x00 0x01	forward:0x00 back:0x01	Checksum
6	Auto Power	Module send	0x55aa 0x02	0x04	0x00 0x05	0x06	0x01	0x00 0x01	off:0x00 on:0x01	Checksum
6	Auto Power	MCU report	0x55aa 0x02	0x05	0x00 0x05	0x06	0x01	0x00 0x01	off:0x00 on:0x01	Checksum
7	Work State	MCU report	0x55aa 0x02	0x05	0x00 0x05	0x07	0x04	0x00 0x01	opening:0x00 closing:0x01	Checksum
8	Countdown	Module send	0x55aa 0x02	0x04	0x00 0x05	0x08	0x04	0x00 0x01	cancel:0x00 1h:0x01 2h:0x02 3h:0x03 4h:0x04	Checksum
8	Countdown	MCU report	0x55aa 0x02	0x05	0x00 0x05	0x08	0x04	0x00 0x01	cancel:0x00 1h:0x01 2h:0x02 3h:0x03 4h:0x04	Checksum

9	Left Time	MCU report	0x55aa 0x02	0x05	0x00 0x08	0x09	0x02	0x00 0x04	0x0-0x15180	Checksum
10	Total Time	MCU report	0x55aa 0x02	0x05	0x00 0x08	0x0a	0x02	0x00 0x04	0x0-0x1d4c0	Checksum
11	Situation_set	Module send	0x55aa 0x02	0x04	0x00 0x05	0x0b	0x04	0x00 0x01	fully_open:0x00 fully_close:0x01	Checksum
11	Situation_set	MCU report	0x55aa 0x02	0x05	0x00 0x05	0x0b	0x04	0x00 0x01	fully_open:0x00 fully_close:0x01	Checksum
12	Fault	MCU report	0x55aa 0x02	0x05	0x00 0x05	0x0c	0x05	0x00 0x01	bit0:motor_fault	Checksum
13	Battery Percentage	MCU report	0x55aa 0x02	0x05	0x00 0x08	0x0d	0x02	0x00 0x04	0x0-0x64	Checksum
16	Border	Module send	0x55aa 0x02	0x04	0x00 0x05	0x10	0x04	0x00 0x01	up:0x00 down:0x01 up_delete:0x02 down_delete:0x03 remove_top_bottom:0x04	Checksum
16	Border	MCU report	0x55aa 0x02	0x05	0x00 0x05	0x10	0x04	0x00 0x01	up:0x00 down:0x01 up_delete:0x02 down_delete:0x03 remove_top_bottom:0x04	Checksum
19	Best Position	Module send	0x55aa 0x02	0x04	0x00 0x08	0x13	0x02	0x00 0x04	0x0-0x64	Checksum
19	Best Position	MCU report	0x55aa 0x02	0x05	0x00 0x08	0x13	0x02	0x00 0x04	0x0-0x64	Checksum
20	Click Control	Module send	0x55aa 0x02	0x04	0x00 0x05	0x14	0x04	0x00 0x01	up:0x00 down:0x01	Checksum
20	Click Control	MCU report	0x55aa 0x02	0x05	0x00 0x05	0x14	0x04	0x00 0x01	up:0x00 down:0x01	Checksum
21	Angle Control	Module send	0x55aa 0x02	0x04	0x00 0x08	0x15	0x02	0x00 0x04	0x0-0xb4	Checksum
21	Angle Control	MCU report	0x55aa 0x02	0x05	0x00 0x08	0x15	0x02	0x00 0x04	0x0-0xb4	Checksum