Tuya Wi-Fi communication protocol

Protocol generated time：2018年11月01日 02:27

Product information

Product name：Lighting Devices

Product ID：mshptd7gdybgsnx4

Product functions：

dpID	Function name	Data transmission type	Data type	Function attribute	Remarks
20	Switch	Issue and report	bool		
21	Mode	Issue and report	enum	Enumerated values: white,colour,scene,music	
22	Bright	Issue and report	value	Values range: 10-1000, Pitch: 1, Unit:	
23	Colour Temp	Issue and report	value	Values range: 0-1000, Pitch: 1, Unit:	
24	Colour	Issue and report	string	Maxium Length: 255	
25	Scene	Issue and report	string	Maxium Length: 255	
26	Left time	Issue and report	value	Values range: 0-86400, Pitch: 1, Unit:	
27	Music	Only issue	string	Maxium Length: 255	
28	Debugger	Only issue	string	Maxium Length: 255	

Communication protocol

Serial communication protocol
Baud rate: 9600

Data bits: 8

Parity check: None

Stop bit: 1

Data flow control: None

MCU: Control panel control chip, connect with Tuya module through serial port

Frame format description

Field	Length(byte)	Description
Header	2	Fixed to 0x55aa
Version	1	Used for upgrade and expansion
Command word	1	Specific frame type
Data length	2	Big end
Data	N	
Checksum	1	Use the result by bytes sum from the header to get remainder of 256

Communication protocol - basic protocol

- 1. The heartbeat detection
  1.1 Power on module. Send the heartbeat periodically at 10s interval. If the MCU response is not received within the timeout period (3s), the MCU is considered offline;
  1.2 The MCU can also periodically check whether the module is working properly based on the heartbeat.

- 2. Check product information
  2.1 Product ID is generated when development platform creates a product.It is fixed to 8 bytes. It is the unique ID for the product, used for recording product and function information;
  2.2 If the MCU does not support the upgrade, the default MCU version number is 1.0.0. If the MCU supports the upgrade, the version number format is defined as "x.x.x" (0≤x≤99)。

- 3. Query how the MCU sets the module
  Module's working mode refers to Wi-Fi working status and the method to reset Wi-Fi. There are two methods: :
  3.1 MCU and module are coordinated to process
  Modules notifies the current MCU Wifi Working status through serial port and MCU provides display support; MCU detects reset requirement and notifies module to reset Wifi through serial port;
  3.2 Module self processing
  Wi-Fi working status displays through GPIO pin driver LED status; Wi-Fi reset is processed through GPIO input requirement;
  If the product adopts the module self-processing mode, then ignore the following 4-6 protocol. Module self-processing WiFi reset method: When it detects that GPIO entry low level is more than 5s and it trigger module reset.

- 4. Report module working status

Module working status (3 types)	Corresponding indicator status
Module network configuration status	Flashing (The interval flashes 250ms)
Module is successfully configured,but not connected to router	Off state
Module is successfully configured and connected to router	Long bright state

- 5. Reset module
  When the module is networked, you can reset it so that the device is in the state to be networked. After resetting, enter network configuration state by default.

- 6. Command issued and status reported
  For product function's command issued and status reported, please see the protocol as below "Communication Protocol (Product Function Part) Send and Receive Orders."

- 7. Query the MCU working status
  7.1 Power on the module for the first time, establish connection with MCU through heartbeat, query and send;
  7.2 During module working process, it detects that MCU restarts or occurrence of offline and then on-line process, query and send;

- Communication protocol (basic protocol) instruction

		Header version	Command word	Data length	Data	Checksum
Heartbeat detection	Module send	0x55aa 0x00	0x00	0x0000		0xff
	MCU report	0x55aa 0x00	0x00	0x0001	0x00(first time) 0x01(others)	Checksum
Query product information	Module send	0x55aa 0x00	0x01	0x0000		0x00
	MCU report	0x55aa 0x00	0x01	xxxx	PID + mcu version(1.0.0)	Checksum
Query MCU Set module Working mode	Module send	0x55aa 0x00	0x02	0x0000		0x01
	MCU report(MCU and module coordinate to process)	0x55aa 0x00	0x02	0x0000		0x01
	MCU report(Module self process)	0x55aa 0x00	0x02	0x0002	The first byte is the Wi-Fi status indicating the GPIO sequence number; the secondary byte is the Wi-Fi reset key GPIO serial number	Checksum
Report module working status	Module send	0x55aa 0x00	0x03	0x0001	Indication module status: 0x00: network connection mode (rapid light flashing); ; 0x01: Module configuration is successful, but not connected to router(light is off); 0x02: Module configuration is successful and connected to	Checksum

						router (Light is long bright);	
	MCU report	0x55aa 0x00	0x03	0x0000		0x02
Reset module	MCU send	0x55aa 0x00	0x04	0x0000		0x03
	Module report	0x55aa 0x00	0x04	0x0000		0x03
Query MCU working status	Module send	0x55aa 0x00	0x08	0x0000		0x07

- 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
28	Debugger		0x55aa 0x00		N	0x1c	0x03	N	0x00-0xff	Checksum