Espressif AT   Instruction Set

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1   Introduction

This article provides Espressif AT instruction set.

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2 ,   AT   Instruction Category

Classification	Instruction format	Command functions
Test Command	AT + <x> =?	This command is used to query the set command or the internal procedures set Parameters and their ranges.
Query command	AT + <x>?	This command returns the current value of the parameter.
Set command	AT + <x> = <...>	This command is used to set the value of user-defined parameters.
Run	AT + <x>	Variable parameters used to perform under the command module's internal control procedures Number of immutable functions.

Note:

1) Not every AT commands are equipped with the above four categories command.

2) later instruction [] the data to the default value, do not have to fill out, or may not appear.

3) 57600 baud.

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3 Basis   **AT**   Instruction

        Command   Description
        AT + RST   Restart module

3.1. AT + RST

                              AT + RST: Restart module
  Instruction: Response   OK
          AT + RST   Description   None

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4 ，   **Wifi**   Function   **AT**   Instruction

Command	Description
AT + CWMODE	Select WIFI application mode
AT + CWJAP	Join AP
AT + CWLAP	Lists currently available AP
AT + CWQAP	Exit connection with the AP
AT + CWSAP	AP mode setting parameters

4.1. AT + CWMODE

AT + CWMODE: Select WIFI application mode

		+ CWMODE: (<mode> value list)
Test command:	Response	
AT + CWMODE =?		OK
	Description	What response returns the current mode can support?
		+ CWMODE: <mode>
Query command:	Response	
AT + CWMODE?		OK
	Description	Response Response is currently in which mode?
	Response	OK
		This instruction should be restarted after the entry into force (AT + RST).
Set command:		
AT + CWMODE = <mode>	Description	Command parameter <mode>:
		1 - Station mode;
		2 - AP mode;
		3 - AP and Station mode.

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4.2. AT + CWJAP

	AT + CWJAP: Join AP
	+ CWJAP: <ssid>
Query command:	Response
AT + CWJAP?	OK
	DescriptionResponse returns the currently selected AP
	Response OK or ERROR
Set command:	Command parameters:
AT + CWJAP = <ssid>, <pwd>	Description<Ssid> string parameter, the access point name
	<Pwd> string parameter, passwords up to 64 bytes
	ASCII

4.3. AT + CWLAP

	AT + CWLAP: lists currently available AP
	Successful return AP list
	+ CWLAP: <ecn>, <ssid>, <rssi> [, <mode>]
	Response OK
	Or
	Fails, the return
Instruction:	ERROR
AT + CWLAP	
	Response parameters:
	<Ecn> 0 OPEN
	1 WEP
Description	2 WPA_PSK
	3 WPA2_PSK
	4 WPA_WPA2_PSK
	<Ssid> string parameter, the access point name
	<Rssi> signal strength
	<Mode> 0 manually connect
	An automatic connection

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4.4. AT + CWQAP

<table>
<tr><td colspan="3">AT + CWQAP: Exit connection with AP</td></tr>
<tr><td>Test command:</td><td>Response</td><td>OK</td></tr>
<tr><td>AT + CWQAP =?</td><td>Description</td><td>None</td></tr>
<tr><td>Instruction:</td><td>Response</td><td>OK</td></tr>
<tr><td>AT + CWQAP</td><td>Description</td><td>None</td></tr>
</table>

4.5. AT + CWSAP

<table>
<tr><td colspan="3">AT + CWSAP: AP mode setting parameters</td></tr>
<tr><td>Test instructions</td><td>Response</td><td></td></tr>
<tr><td></td><td>Description</td><td></td></tr>
<tr><td>Query command:</td><td>Response</td><td>Returns the current AP parameter</td></tr>
<tr><td>AT + CWSAP?</td><td></td><td>+ CWSAP: <ssid>, <pwd>, <chl>, <ecn></td></tr>
<tr><td></td><td>Description</td><td>None</td></tr>
<tr><td rowspan="2">Set command:</td><td rowspan="2">Response</td><td>OK</td></tr>
<tr><td>Or</td></tr>
<tr><td>AT + CWSAP =</td><td></td><td>ERROR</td></tr>
<tr><td><Ssid>, <pwd>, <chl>,</td><td></td><td>Command parameters:</td></tr>
<tr><td><Ecn></td><td></td><td><Ssid> string parameter, the access point name</td></tr>
<tr><td></td><td></td><td><Pwd> string parameter, passwords up to 64-byte ASCII</td></tr>
<tr><td></td><td></td><td><Chl> channel number</td></tr>
<tr><td></td><td>Description</td><td><Ecn> Encryption</td></tr>
<tr><td></td><td></td><td>0 OPEN</td></tr>
<tr><td></td><td></td><td>1 WEP</td></tr>
<tr><td></td><td></td><td>2 WPA_PSK</td></tr>
<tr><td></td><td></td><td>3 WPA2_PSK</td></tr>
<tr><td></td><td></td><td>4 WPA_WPA2_PSK</td></tr>
<tr><td>Description</td><td colspan="2">The set of instructions only after the AP mode on effective</td></tr>
</table>

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5 ,   **TCP / IP**   Toolbox   **AT**   Instruction

Command	Description
AT + CIPSTATUS	Get the connection status
AT + CIPSTART	Establish a TCP connection or UDP port numbers registered
AT + CIPSEND	Send Data
AT + CIPCLOSE	Close TCP or UDP
AT + CIFSR	Get Local IP Address
AT + CIPMUX	Start multiple connections
AT + CIPSERVER	Configured as a server

5.1. AT + CIPSTATUS

		AT + CIPSTATUS: get the connection status
Test instructions	Response	OK
	Description	None
		Returns connection status and connection parameters of the current module.
	Response	STATUS: <stat>
		+ CIPSTATUS: <id>, <type>, <addr>, <port>
Instruction:		
AT + CIPSTATUS		OK
		Response Value Description:
		<Id> id number of the connection 0-4
	Description	<Type> string parameter, type TCP or UDP
		<Addr> string parameter, IP address
		<Port> port number

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5.2. AT + CIPSTART

		AT + CIPSTART: establish a TCP connection or UDP port numbers registered
Test instructions	Response	+ CIPSTART: (<type> value list), (<IP address> range), (<port> range)
AT + CIPSTART =?		

		OK
	Description	None

		OK - the format is correct and the connection is successful
Set command	Response	Or
1) Single Connection		ERROR - Failed
(+ CIPMUX = 0)		Or
AT + CIPSTART =		ALREAY CONNECT - connection already exists
<Type>, <addr>, <port>		
		Command parameters:
		<Id> 0-4 id number of the connection
2) multi-channel connection	Description	<Type> string parameter indicates the connection type
(+ CIPMUX = 1)		Type. "TCP" established tcp connection; "udp" establish UDP
AT + CIPSTART =		Connection
<Id> <type>, <addr>,		<Addr> string parameter, the remote server IP address
<Port>		<Port> remote server port number

Description	No. 0 client or server connection can be connected to other id can only be used
	Connect to a remote server

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5.3. AT + CIPSEND

		AT + CIPSEND: sending data
Test command:	Response	OK
AT + CIPSEND =?		
	Description	None
		Response Returns the specified length of data.
Set command:		After receiving the instruction to wrap return ">", and then start
1) Single Connection		Receive serial data, when the data length when full length
(+ CIPMUX = 0)	Response	Sending data.
AT + CIPSEND = <length>		If you do not establish a connection or connection is disconnected, the return
		ERROR
2) multi-way connector		If the data is sent successfully, the return SEND OK

(+ CIPMUX = 1)
AT + CIPSEND =   Description   Command parameters:

<Id>, <length>   <Id> id number needed for transport connection

<Length> numeric parameter, indicating that long to send data

Degree

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5.4. AT + CIPCLOSE

                                AT + CIPCLOSE: Close TCP or UDP
Test command: Response   OK

AT + CIPCLOSE =?   Description   None

                                              If the input is correct, return

                                              OK

Set command: If the connection is not, returns

   When multiple connection Response   Link is not

   AT + CIPCLOSE = <id>

                                              If you turn off No. 0 connection, and the connection is used

                                              server returns

                                              Cant close (Close 0 No server connection requires heavy

                                              Kai)

                                Description   Command parameters:

                                              <Id> id need to close the connection

                                              If the input is correct, return

                                              OK

Instruction:

When single connection AT + CIPCLOSE	Response	If no connection is to return ERROR
		If you want to turn off the server to return we must restart (connection requires restart)
	Description	None
Description		After the state closed for unlink

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5.5. AT + CIFSR

AT + CIFSR: Get Local IP Address

Test command: AT + CIFSR =?	Response	OK
	Description	None
Execute the command: AT + CIFSR	Response	+ CIFSR: <IP address> OK Or ERROR
	Description	Response Returns: <IP address> - the IP address of the machine currently (Station)

5.6. AT + CIPMUX

AT + CIPMUX: start multiple connections

Query command: AT + CIPMUX?	Response	+ CIPMUX: <mode> OK
	Description	None
Set command: AT + CIPMUX = <mode>	Response	OK If already in the connected state, the return Link is builded Command parameters:
	Description	<Mode>

0 single connection mode
More than one-way connection mode

Instruction	Response	None
	Description	None

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5.7. AT + CIPSERVER

AT + CIPSERVER: configured as a server

Automatically create a server monitor server after opening

		OK
Instruction:	Response	If the number 0 connection is occupied, return
AT + CIPSERVER =		Link is builded
<Mode> [, <port>]		
		Close need to restart the server
		Command parameters:
		<Mode>
	Description	0 off server mode
		An open server mode
		<Port> port number, the default value is 333

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6 ，   **+ IPD**   Receiving network data

+ IPD: receiving network data

Reference	Description
1) Single Connection	When this command is issued instruction module, when the module is receiving network data
(+ CIPMUX = 0)	+ IPD and the serial port to send data
+ IPD, <len>: <data>	
	<Id> id number received connection
1) connected to the multiplexer	<Len> Data Length
(+ CIPMUX = 1)	<Data> data received
+ IPD, <id>, <len>: <data>	