WH-L101-L-C AT Command Set

This AT Command Set is for WH-L101-L-C module(Include ***-L*** and ***-H*** frequency band).

(Firmware V0.04)

File version: 1.0.1

Content

1. What is the AT command.

AT command is used for controlling module. You can use AT command to configure and query the settings.

2. How to use the AT command

For USR device is in transparent mode normally, you must enter AT command mode at first. Then you can send AT command to configure or query the settings. After you configure the USR device, you should restart the USR device to make the settings take effect. Every time module restart will work in work mode rather AT command mode.
Every AT command must add character carriage return <CR> and line feed <LF>. In Hex, <CR> is 0x0D
<LF> is 0x0A.

2.1. How to enter AT command mode

Please read this FAQ about entering AT command mode:
http://www.usriot.com/enter-serial-command-mode/

3. AT command set

Command	Function
ENTM	Exit AT command mode and enter work mode
E	Query/Set AT command echo function enable/disable
Z	Restart the module
CFGTF	Save current settings as default settings
RELD	Restore default settings
CLEAR	Restore factory settings
VER	Query firmware version
UART	Query/Set serial port parameters
SPD	Query/Set LoRa air rate level
AID	Query/Set application ID
NID	Query/Set node ID
CH	Query/Set channel
PWR	Query/Set transmitting power
WTM	Query/Set waking up interval
PTM	Query/Set serial port waiting time
STM	Query/Set transmitting timeout time
ITM	Query/Set idle time

RTO	Query/Set receiving timeout time

4. AT command details

Special Characters		
Character	Note	Hex
<CR>	Carriage Return	0x0D
<LF>	Line Feed	0x0A

4.1. AT+ENTM

Format	
Query	AT+ENTM<CR>
Return	<CR><LF>OK<CR><LF>

4.2. AT+E

Parameter	Description	Default Value	Range
<Status>	Status of AT command Echo function	ON	ON/OFF
Format			
Query	AT+E<CR>		
Return	<CR><LF>OK=<Status><CR><LF>		
Set	AT+E=<Status><CR>		
Return	<CR><LF>+OK<CR><LF>		

4.3. AT+Z

Format	
Set	AT+Z<CR>
Return	<CR><LF>OK<CR><LF>

4.4. AT+CFGTF

Format	
Set	AT+CFGTF<CR>
Return	<CR><LF>+CFGTF:SAVED<CR><LF><CR><LF>OK<CR><LF>

4.5. AT+RELD

Format	
Set	AT+RELD<CR>
Return	<CR><LF>REBOOTING<CR><LF>

4.6. AT+CLEAR

Format	
Set	AT+CLEAR<CR>
Return	<CR><LF>REBOOTING<CR><LF>

4.7. AT+VER

Parameter	Description
<VER>	Firmware version of the module
Format	
Query	AT+VER<CR>
Return	<CR><LF>+VER:<VER><CR><LF><CR><LF>OK<CR><LF>

4.8. AT+UART

Parameter	Description	Default Value	Range
<Baud rate>	Baud rate	115200	1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200
<Data bits>	Data bits	8	5, 6, 7, 8
<Stop bits>	Stop bits	1	1, 2
<Parity>	Parity	NONE	NONE, EVEN, ODD
<Flow Control>	Flow Control	NFC	NFC: No flow control(RS232)
			485: Enable RS485
Format			
Query	AT+UART<CR>		
Return	<CR><LF>+UART:<Baud rate>,<Data bits>,<Stop bits>,<Parity><Flow Control><CR><LF><CR><LF>OK<CR><LF>		
Set	AT+UART=<Baud rate>,<Data bits>,<Stop bits>,<Parity><Flow Control><CR>		
Return	<CR><LF>OK<CR><LF>		

4.9. AT+SPD

Parameter	Description	Default Value	Range
<Class>	LoRa air rate level	5	1: 268bps
			2: 488bps
			3: 537bps
			4: 878bps
			5: 977bps
			6: 1758bps
			7: 3125bps
			8: 62500bps
			9: 10937bps
			10: 21875bps
Format			
Query	AT+SPD<CR>		
Return	<CR><LF>+SPD:<Class><CR><LF><CR><LF>OK<CR><LF>		
Set	AT+SPD=<Class><CR>		
Return	<CR><LF>OK<CR><LF>		

4.10.AT+AID

Parameter	Description	Default Value	Range
<ADDR>	Application ID	00000002	0~0xFFFFFFFE
Format			
Query	AT+AID<CR>		
Return	<CR><LF>+AID:<ADDR><CR><LF><CR><LF>OK<CR><LF>		
Set	AT+AID=<ADDR><CR>		
Return	<CR><LF>OK<CR><LF>		

4.11.AT+NID

Parameter	Description	Default Value	Range
<ADDR>	Node ID	00000001	0~0xFFFFFFFE
Format			
Query	AT+NID<CR>		
Return	<CR><LF>+NID:<ADDR><CR><LF><CR><LF>OK<CR><LF>		
Set	AT+NID=<ADDR><CR>		
Return	<CR><LF>OK<CR><LF>		

4.12.AT+CH

Parameter	Description	Default Value	Range
<Channel>	Channel	72	0~127
Format			
Query	AT+CH<CR>		
Return	<CR><LF>+CH:<Channel><CR><LF><CR><LF>OK<CR><LF>		
Set	AT+CH=<Channel><CR>		
Return	<CR><LF>OK<CR><LF>		

Note: Working frequency range is (398+ch)MHz

4.13.AT+PWR

Parameter	Description	Default Value	Range
<Status>	Transmitting power	20db	10db~20db
Format			
Query	AT+PWR<CR>		
Return	<CR><LF>+PWR:<Status><CR><LF><CR><LF>OK<CR><LF>		
Set	AT+PWR=<Status><CR>		
Return	<CR><LF>OK<CR><LF>		

4.14.AT+WTM

Parameter	Description	Default Value	Range
<Time>	Waking up interval	2000ms	500~4000ms
Format			
Query	AT+WTM<CR>		
Return	<CR><LF>+WTM:<Time><CR><LF><CR><LF>OK<CR><LF>		
Set	AT+WTM=<Time><CR>		
Return	<CR><LF>OK<CR><LF>		

4.15.AT+PTM

Parameter	Description	Default Value	Range
<Time>	Serial port waiting time	2000ms	10~6000ms
Format			
Query	AT+PTM<CR>		
Return	<CR><LF>+PTM:<Time><CR><LF><CR><LF>OK<CR><LF>		
Set	AT+PTM=<Time><CR>		
Return	<CR><LF>OK<CR><LF>		

Note:

- Active reporting mode: After external MCU waking up module and module receives serial data during time set by AT+PTM command, module will transmit data and enter low-power mode after finish transmission.
- Passive waking mode: To wait serial data. If module receives serial data during time set by AT+PTM command, module will transmit data and enter low-power mode after finish transmission.

4.16.AT+STM

Parameter	Description	Default Value	Range
<Time>	Transmitting timeout time	6000ms	500~15000ms
Format			
Query	AT+STM<CR>		
Return	<CR><LF>+STM:<Time><CR><LF><CR><LF>OK<CR><LF>		
Set	AT+STM=<Time><CR>		
Return	<CR><LF>OK<CR><LF>		

Note:

- Passive waking mode: Time set by AT+STM is maximum module serial data receiving time add maximum module transmitting time.
- Active reporting mode: Time set by AT+STM is module serial data receiving time add maximum module transmitting time after waking up by external MCU.
- In any mode, module will enter low-power mode after transmitting data. And module will enter low-power mode if total time is greater than time set by AT+STM.
- In any mode, time set by AT+STM must be greater than time set by AT+PTM.

4.17.AT+ITM

Parameter	Description	Default Value	Range
<Time>	Idle time. In low-power mode, after powering module, module will enter sleep mode after this idle time.	2000ms	10~8000ms
Format			
Query	AT+ITM<CR>		
Return	<CR><LF>+ITM:<Time><CR><LF><CR><LF>OK<CR><LF>		
Set	AT+ITM=<Time><CR>		
Return	<CR><LF>OK<CR><LF>		

4.18.AT+RTO

Parameter	Description	Default Value	Range
<Time>	Receiving timeout time. Timeout time of module waiting LoRa concentrator transmitting data.	2000ms	0~15000ms

Format	
Query	**AT+RTO<CR>**
Return	**<CR><LF>+RTO:<Time><CR><LF><CR><LF>OK<CR><LF>**
Set	**AT+RTO=<Time><CR>**
Return	**<CR><LF>OK<CR><LF>**

5. Contact

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7. Update History

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