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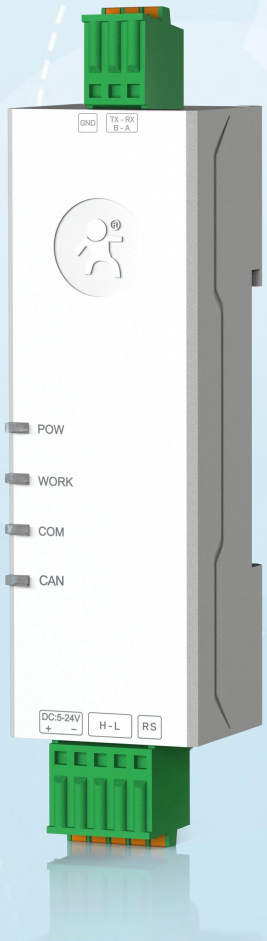
USR-CAN114/112

AT Command



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Directory

1. The AT instruction sets the protocol

This document provides a detailed description of the AT directive supported by the USR-CAN114 / 112. The device supports entering the AT instructions through the serial port.

Serial port AT instruction refers to the instruction set that the user transmits commands through UART and module in command mode, and the use format of AT instruction will be explained in detail later.

After the successful startup, the module can be set through UART.

The default UART port parameters of the module are: port rate 115200, no check, 8-bit data bit, and 1-bit stop bit.

<Instruction>

Switch from working mode to temporary command mode:

1. The serial port device will continuously send "+ + +" to the module. After CAN114 / 112 receives the "+ + +", it will send an "A" to the serial port device. No data can be sent during the package time before sending the + + + message.

2. When the serial port device receives an 'A', it must send a 'A' to the CAN114 / 112 within 3 seconds.

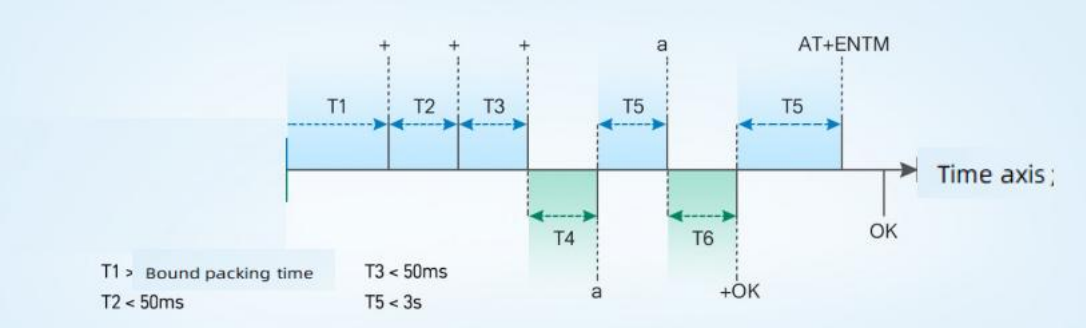
3. CAN114 / 112 After receiving the "a", send the "+ OK" to the serial port device and enter the "AT instruction mode".

4. After receiving the "+ OK", the serial port device knows that the module has entered the "AT instruction mode" and can send AT instructions to it.

Switching from AT instruction mode to network transmission transmission time sequence:

1. The serial port device sends the instruction "AT + ENTM" to CAN114 / 112.

2. CAN114 / 112 After receiving the instruction, return "OK" and return to the previous working mode.



1.Switch the command mode time sequence

2. Directive introduction

AT instruction is "question and answer" instruction, which is divided into two parts: "answer" and "answer"."Ask" means that the device sends AT commands to CAN114 / 112, and "Answer" means that CAN114 / 112 replies to the device。

1 symbol description

symbolic name	meaning
<>	The included content is required
[]	The included content is non-essential
{}	Included content is a string of this special meaning in the document
~	Parameter range, example A~B, the parameter range is from A to B
CMD	Indicates the instruction code
OP	Indicates the operator

para-n	Indicates the parameter
CR	Represents the "return operator" in the ASCII code and the hexadecimal number as 0x0D
LF	Represents "newline" in ASCII code and hexadecimal number as 0x0A

2.1. Format of the "ask" in the instruction

Directive string: AT+<CMD>[op][para-1,para-2,para-3,para-4...]<CR>

2 symbol description

command code	meaning	Is it a necessity
AT+	AT command header	yes
CMD	Functional attributes of the instruction	yes
OP	Operator, such as =,,,?, =?	No
PARA	The parameters executed	No
CR	Enter the car, the command end character	yes

Instructions type description:

3 symbol description

Type	Directive string format	instruction
0	<AT+><CMD>?<CR>	Do the action of the instruction or query the current parameter value
1	<AT+><CMD><CR>	Do the action of the instruction or query the current parameter value
2	<AT+><CMD>=[para-1,para-2,para-3,para-4...]<CR>	Set the parameter value for the instruction

3. AT Commands

4 AT order set

number	instruct	functional description
Basic instructions		
1	AT	test
2	AT+E	Query / set display enable
3	AT+Z	Restart the module

4	AT+ENTM	Exit configuration mode
5	AT+VER	Query the firmware version number
6	AT+CFGTF	Save the run parameters is the user parameter
7	AT+RELD	The recovery module is set to the user's default parameters
8	AT+CLEAR	Restore the factory and restart
9	AT+MID	Query / set the device name
10	AT+SN	Query the SN code
11	AT+UART	Query / set the serial port parameters
The CAN communication instruction		
1	AT+CAN	Query / set the base CAN parameters
2	AT+CANBAUD	Query / set the phase buffer and frequency division value of the custom baud rate
3	AT+CANLT	Query / set the CAN filtering mode
4	AT+ADDLIST	Query / set the filter frame ID whitelist
5	AT+DELLIST	Delete the corresponding frame ID in the whitelist of the filter frame ID
6	AT+TRDIR	Query / set the CAN conversion transfer direction
7	AT+TMODE	Query / set the CAN protocol transformation mode
8	AT+MSG	Query / set the enable frame ID, enable frame information
9	AT+MARK	Query / set the transparent band ID parameter position and length
10	AT+UDMHT	Query / set the frame header and frame tail in the custom conversion mode
11	AT+PACKLEN	Query / set the subcontract length of the serial port

3.1. Format of the "answer" in the instruction

Note: The response information of instructions is divided into two types: show back and no back. The display means that when entering an instruction, CAN114 / 112 will return the input content first, and then respond to the instruction. The CAN114 / 112 does not return the input and only responds to the instructions. In the following instructions, the no-back display pattern is taken as an example.

command string ： <CR><LF>+<RSP>[op] [para-1,para-2,para-3,para-4...]<CR><LF>

5 symbol description

command code	meaning	Is it a necessity
CR	Return to the car	Yes
LF	line break	yes
+	Response message prefix	yes
RSP	Response string, "OK" indicates success	yes
para-n	An "ERR" indicates a failure	No
CR	Query returns parameter or error code	yes
LF	Return to the car	yes

3.2. AT error prompt

The error code is as follows:

6 Error code list

Error code	explain
ERROR:1	Invalid command format, which does not meet the AT instruction format
ERROR:2	Invalid command, the AT instruction was not found
ERROR:3	Invalid operator, not match the query or set format
ERROR:4	Invalid parameter, parameter range, or quantity is incorrect

4. AT Commands explanation

4.1. AT

	explain	Examples and Remarks
function	test	
query	AT{CR}{LF} {CR}{LF}OK{CR}{LF}	AT OK
set up	/	
parameter	/	

4.2. AT+E

	explain	Examples and Remarks

function	Query / set display enable	
query	AT+E<CR>Or AT+E?<CR> <CR><LF>+E:<status><CR><LF> <CR><LF>OK<CR><LF>	AT+E +E:OFF OK
set up	AT+E=<status><CR> <CR><LF>OK<CR><LF>	AT+E=ON OK
parameter		
status	Back to show the state ON：open OFF：close	by default OFF

4.3. AT+Z

	Explain	Examples and Remarks
function	Equipment restart	
query	/	/
set up	AT+Z<CR> <CR><LF>OK<CR><LF>	AT+Z OK
parameter	/	

4.4. AT+ENTM

	Explain	Examples and Remarks
function	Exit AT command mode and enter the transmission mode	After the command is correctly executed, the module switches from AT command mode to transmission mode
query	/	
set up	AT+ENTM<CR> <CR><LF>OK<CR><LF>	AT+ENTM OK
parameter	/	

4.5. AT+VER

	Explain	Examples and Remarks

function	Query Module firmware version	
query	AT+VER<CR>Or AT+VER?<CR> <CR><LF>+VER:<ver><CR><LF> <CR><LF>OK<CR><LF>	AT+VER +VER:V1.0.00.000000.0000 OK
set up	/	/
parameter		
ver	Firmware version number	

4.6. AT+CFGTF

	Explain	**Examples and Remarks**
function	Will the current parameter Save as the user default parameter	
query	/	/
set up	AT+CFGTF<CR> <CR><LF>OK<CR><LF> <CR><LF><save_sta><CR><LF>	AT+CFGTF OK saved
parameter		
save_sta	<save_sta>: keep parameter fruit saved - keep parameter success failed - keep parameter defeate	

4.7. AT+RELD

	Explain	**Examples and Remarks**
function	Recovery module set up Default for user parameter	
query	/	/
set up	AT+RELD<CR> <CR><LF>OK<CR><LF>	AT+RELD OK rebooting..
parameter	/	

4.8. AT+CLEAR

	Explain	**Examples and Remarks**
function	Restore factory	

query	/	/
set up	AT+CLEAR<CR> <CR><LF>OK<CR><LF>	AT+CLEAR OK rebooting...
parameter	/	

4.9. AT+MID

	Explain	**Examples and Remarks**
function	query/set up Module name	
query	AT+MID<CR>Or AT+MID?<CR> <CR><LF>+MID:< name ><CR><LF> <CR><LF>OK<CR><LF>	AT+MID +MID:USR-TCP232-302 OK
set up	AT+MID=<ModuleName><CR> <CR><LF>OK<CR><LF>	AT+MID=USR-CAN114 OK
parameter		
Module Name	Module name, 1 to 14 bytes, not empty	Default device model

4.10. AT+SN

	Explain	**Examples and Remarks**
function	Query SN	
query	AT+SN<CR>Or AT+SN?<CR> <CR><LF>+SN:<SN><CR><LF> <CR><LF>OK<CR><LF>	AT+SN +SN:03500324092600069753 OK
set up	/	
parameter		
SN	module SN	

4.11. AT+UART

	Explain	**Examples and Remarks**
function	query/set up Port interface parameter	
query	AT+UART<CR>Or AT+UART?<CR> <CR><LF>+UART:<baudrate,data_bits,stop_bit,parity >	AT+UART +UART:115200,8,1,NONE

	<CR><LF> <CR><LF>OK<CR><LF>	OK
set up	AT+UART=<baudrate,data_bits,stop_bit,parity><CR><LF> <CR><LF>OK<CR><LF>	AT+UART=115200,8,1,NONE OK
parameter		
baudrate	Baud rate，600~230.4K(bps)	Windows default：115200
data_bits	data bit，7、8	Windows default：8
stop_bits	stop bit ，1、2	Windows default：1
parity	check bit： 8 data bits 0：NONE，1：EVEN，2：ODD。 7data bits 1：EVEN，2：ODD，3：MARK，4：SPACE。	Windows default：NONE

4.12. AT+CAN

	Explain	**Examples and Remarks**
function	query/set up CAN parameter	
query	AT+CAN<CR>Or AT+CAN?<CR> <CR><LF>+CAN:<baudrate,can_id,mode ><CR><LF> <CR><LF>OK<CR><LF>	AT+CAN +CAN:125,0,NDTF OK
set up	AT+CAN=<baudrate,can_id,mode><CR><LF> <CR><LF>OK<CR><LF>	AT+CAN=125,0,NDTF OK
parameter		
baudrate	CANBaud rate range：5~1000(kbps) custom（自定义）、5、10、20、50、100、120、125、150、200、250、400、500、600、750、1000	Windows default：100
can_id	CAN id:16 In-system format，without 0x range： Standard frame：0-7FF Extended frame：0-1FFFFFFF	Windows default：0
mode	frame pattern :NDTF(Standard frame)、EDTF(Extended frame)	Windows default：NDTF

4.13. AT+CANBAUD

	Explain	**Examples and Remarks**

function	query/set upcustom Baud rate Phase buffer segment and frequency division value	set up Phase buffer segment and frequency division,It can be calculated automatically CAN Baud rate。 set up CANBaud rate Automatically becomes a custom，AT+CAN Automatically become custom。 account form：Baud rate=60M / ((1 + BS1 + BS2) * BRP)
query	AT+CANBAUD<CR>Or AT+CANBAUD?<CR> <CR><LF>+CANBAUD:<BS1,BS2,BRP><CR><LF> <CR><LF>OK<CR><LF>	AT+CANBAUD +CANBAUD:6,1,75 OK
set up	AT+CANBAUD=<BS1,BS2,BRP><CR><LF> <CR><LF>OK<CR><LF>	AT+CANBAUD=6,1,75 OK
parameter		
BS1	Phase buffer1，range：1~16	Windows default：6
BS2	Phase buffer2，range：1~8	Windows default：1
BRP	Frequency points，range：1~1024	Windows default：75

4.14. AT+CANLT

	Explain	**Examples and Remarks**
function	query/set upCAN Filter mode	
query	AT+CANLT<CR>Or AT+CANLT?<CR> <CR><LF>+CANLT:<mode><CR><LF> <CR><LF>OK<CR><LF>	AT+CANLT +CANLT:OFF OK
set up	AT+CANLT=<mode>{CR} {CR}{LF}OK{CR}{LF}	AT+CANLT=OFF OK
parameter		
mode	filtered model ， OFF:Close the filter NDTF:Filter standard frame EDTF:Filter the extended frame USER: custom field	by default OFF

4.15. AT+ADDLIST

	Explain	Examples and Remarks
function	query/set up Filter frame ID whitelist	
query	AT+ADDLIST<CR>Or AT+ADDLIST?<CR> <CR><LF>+ADDLIST:<mode,can_id><CR><LF> <CR><LF>OK<CR><LF>	AT+ADDLIST +ADDLIST:NDTF,1 OK
set up	AT+ADDLIST=<mode,can_id>{CR} {CR}{LF}OK{CR}{LF}	AT+SDPEN=NDTF,1 OK
parameter		
mode	frame pattern :NDTF (Standard frame) 、EDTF(Extended frame)	Default null
can_id	CAN id:16 Into the format，without 0x range： Standard frame：0-7FF Extended frame：0-1FFFFFFF	

4.16. AT+DELLIST

	Explain	Examples and Remarks
function	Delete the corresponding frame ID in the whitelist of the filter frame ID	
query	/	/
set up	AT+DELLIST=<mode,can_id>{CR} {CR}{LF}OK{CR}{LF}	AT+DELLIST=NDTF,1 OK
parameter		
mode	frame pattern :NDTF (Standard frame) 、EDTF(Extended frame)	
can_id	CAN id:16 in a decimal format, without 0x range： Standard frame：0-7FF Extended frame：0-1FFFFFFF	

4.17. AT+TRDIR

	Explain	Examples and Remarks
function	query/set up CAN Convert the transmission direction	
query	AT+TRDIR<CR>Or AT+TRDIR?<CR> <CR><LF>+TRDIR:<mode><CR><LF> <CR><LF>OK<CR><LF>	AT+TRDIR +TRDIR:BOTHWAY OK
set up	AT+TRDIR=<mode>{CR} {CR}{LF}OK{CR}{LF}	AT+TRDIR=BOTHWAY OK
parameter		
mode	Transmission direction: BOTHWAY:bipolar transmission CAN-UART:CAN to serial port only UART-CAN:Serial port to the CAN only	by default BOTHWAY

4.18. AT+TMODE

	Explain	Examples and Remarks
function	query/set up CAN Protocol conversion mode	
query	AT+TMODE<CR>Or AT+TMODE?<CR> <CR><LF>+TMODE:<mode><CR><LF> <CR><LF>OK<CR><LF>	AT+TMODE +TMODE:TRANS OK
set up	AT+TMODE=<mode>{CR} {CR}{LF}OK{CR}{LF}	AT+TMODE=TRANS OK
parameter		
mode	Conversion mode: TRANS: Transparent conversion TPRTL: Clear band ID conversion PROTOL: Standard conversion MODBUS: MODBUS change USER: Custom frame head and frame tail conversion	by default TRANS

4.19. AT+MSG

	Explain	Examples and Remarks
function	query/set up Enabling frame ID, enabling frame information	
query	AT+MSG<CR>Or AT+MSG?<CR> <CR><LF>+MSG:<sta1,sta2><CR><LF> <CR><LF>OK<CR><LF>	AT+MSG +MSG:0,0 OK
set up	AT+MSG=<sta1,sta2>{CR} {CR}{LF}OK{CR}{LF}	AT+MSG=0,0 OK
parameter		
sta1	Enable frame ID: 1：open 0：close	by default：0
sta2	Enable frame information: 1：open 0：close	by default：0

4.20. AT+MARK

	Explain	Examples and Remarks
function	query/set up Transparent band ID position and length	
query	AT+MARK<CR>Or AT+MARK?<CR> <CR><LF>+MARK:<site,length><CR><LF> <CR><LF>OK<CR><LF>	AT+MARK +MARK:0,2 OK
set up	AT+MSG=<site,length>{CR} {CR}{LF}OK{CR}{LF}	AT+MARK=0,2 OK
parameter		
site	Transparent band ID parameter position： range0~7	Windows default：0
mode	Transparent band ID parameter length： Standard frame：range1~2 Extended frame：range1~4	Windows default：2

4.21. AT+UDMHT

	explain	Examples and Remarks
function	Query / set the frame header and frame tail in the custom conversion mode	
query	AT+UDMHT<CR>Or AT+UDMHT?<CR> <CR><LF>+UDMHT:<frame1,frame2><CR><LF> <CR><LF>OK<CR><LF>	AT+UDMHT +UDMHT:AA,FF OK
set up	AT+UDMHT=<frame1,frame2>CR} {CR}{LF}OK{CR}{LF}	AT+UDMHT=AA,FF OK
parameter	/	
frame1	Custom frame header, 16 decimal, 1 byte (00 to FF)	Windows default:AA
frame2	Custom frame tail, 16 px, 1 byte (00 to FF)	Windows default:FF

4.22. AT+PACKLEN

	explain	Examples and Remarks
function	Query / set the length of serial port subcontracting	
query	AT+PACKLEN<CR> or AT+PACKLEN?<CR> <CR><LF>+PACKLEN:<length><CR><LF> <CR><LF>OK<CR><LF>	AT+PACKLEN +PACKLEN:512 OK
set up	AT+PACKLEN=<length>CR} {CR}{LF}OK{CR}{LF}	AT+PACKLEN=512 OK
parameter		
length	Serial port subcontracting length, range: 256~512	Default value: 512

5. Contact information

Official Website： www.pusr.com

Official Shop： shop.usriot.com

Technical Support：h.usriot.com

Inquiry Email： inquiry@usriot.com

Skype & WhatsApp： +86 13405313834

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7. Update history

Firmware version	Update content	Refresh time
V1.0.0	first edition	2025-02-10

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