

# USR-N520 AT Command Set

(Firmware 3033 V1.0.4)

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## 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
<b>E</b>	Query/Set AT command echo
<b>Z</b>	Restart the USR device
<b>VER</b>	Query firmware version
<b>ENTM</b>	Exit serial AT command mode and enter work mode
<b>MAC</b>	Query MAC address
<b>USERMAC</b>	Set MAC address
<b>RELD</b>	Restore factory settings
<b>WANN</b>	Query/Set WAN port parameters
<b>MID</b>	Query/Set module name
<b>DNS</b>	Query/Set DNS address
<b>WEBU</b>	Query/Set settings web server username and password
<b>WEBPORT</b>	Query/Set settings web server port number
<b>SEARCH</b>	Query/Set search port and keyword in LAN
<b>PLANG</b>	Query/Set default language of web server
<b>RSTIM</b>	Query/Set Timeout Reset time
<b>UARTCLBUF</b>	Query/Set Clear UART cache before module connection enable/disable

<b>UARTn</b>	Query/Set serial port n parameters
<b>UARTMDn</b>	Query/Set serial port n work mode
<b>UARTTLn</b>	Query/Set serial package time and length of serial port n
<b>RFCENn</b>	Query/Set baud rate synchronization function enable/ disable of serial port n
<b>SOCKAn</b>	Query/Set socket A parameters of serial port n
<b>SOCKBn</b>	Query/Set socket B parameters of serial port n
<b>SOCKLKA</b>	Query socket A connection status of serial port n
<b>SOCKLKBn</b>	Query socket B connection status of serial port n
<b>SOCKSLn</b>	Query/Set serial port n impersistent connection function enable/ disable
<b>SHORTOn</b>	Query/Set serial port n impersistent connection function time
<b>SOCKTONn</b>	Query/Set serial port n Timeout Reconnection time
<b>MODTCPn</b>	Query/Set serial port n Modbus TCP function enable/disable
<b>MODPOLLn</b>	Query/Set serial port n Modbus Polling enable/disable
<b>MODTON</b>	Query/Set serial port n Modbus Polling time
<b>NETPRn</b>	Query/Set serial port n Network Printing enable/disable
<b>WEBSOCKETPORT1</b>	Query/Set serial port 1 websocket port number
<b>REGENn</b>	Query/Set serial port n identity packet enable/disable
<b>REGTCPn</b>	Query/Set serial port n Sending Method of identity packet
<b>REGUSERn</b>	Query/Set serial port n User's identity packet data
<b>REGCLOUDn</b>	Query/Set serial port n USR Cloud ID and password
<b>HTPTPn</b>	Query/Set serial port n HTTP method
<b>HTPURLn</b>	Query/Set serial port n URL
<b>HTPHEADn</b>	Query/Set serial port n HTTP header
<b>HTPCHDn</b>	Query/Set serial port n filtering HTTP header of response data enabled/disabled
<b>HEARTENn</b>	Query/Set serial port n heartbeat packet enabled/disabled
<b>HEARTTPn</b>	Query/Set serial port n type of heartbeat packet
<b>HEARTDTn</b>	Query/Set serial port n user's heartbeat packet data
<b>HEARTTMn</b>	Query/Set serial port n heartbeat packet interval time

**Note:** USR-N520 has 2 serial ports, so n=1,2.

## 4. AT command details

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

## 4.1. AT+E

Parameter	Description	Default Value	Range
<Status>	Echo of AT command	ON	ON: Enable the echo
			OFF: Disable the echo
Format			
Query	AT+E<CR>		
Return	<CR><LF>+OK=<Status><CR><LF>		
Set	AT+E=<Status><CR>		
Return	<CR><LF>+OK<CR><LF>		

## 4.2. AT+Z

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

## 4.3. AT+VER

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

## 4.4. AT+ENTM

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

## 4.5. AT+MAC

Parameter	Description	Range
<MAC>	MAC address of the module.	USR MAC start with D8B04C
<b>Format</b>		
Query	AT+MAC<CR>	
Return	<CR><LF>+OK=<MAC><CR><LF>	

## 4.6. AT+USERMAC

Parameter	Description	Range
<MAC>	MAC address	USR MAC start with D8B04C
<b>Format</b>		
Set	AT+USERMAC=<MAC><CR>	
Return	<CR><LF>+OK<CR><LF>	

## 4.7. AT+RELD

<b>Format</b>		
Set	AT+RELD<CR>	
Return	<CR><LF>+OK<CR><LF>	

## 4.8. AT+WANN

Parameter	Description	Default Value	Range
<Mode>	Method of how to get IP address	STATIC	STATIC: Get the IP address manually
			DHCP: Get the IP address automatically
<IP address>	IP address	192.168.0.7	0.0.0.0~255.255.255.255
<Mask>	Subnet mask	255.255.255.0	0.0.0.0~255.255.255.255
<Gateway>	Gateway address	192.168.0.1	0.0.0.0~255.255.255.255
<b>Format</b>			

Query	AT+WANN<CR>
Return	<CR><LF>+OK=<Mode>,<IP address>,<Mask>,<Gateway><CR><LF>
Set	AT+WANN=<Mode>,<IP address>,<Mask>,<Gateway><CR>
Return	<CR><LF>+OK<CR><LF>

## 4.9. AT+MID

Parameter	Description	Default Value	Range
<Name>	Module name	USR-N520	1~15 Bytes
<b>Format</b>			
Query	AT+MID<CR>		
Return	<CR><LF>+OK=<Name><CR><LF>		
Set	AT+MID=<Name><CR>		
Return	<CR><LF>+OK<CR><LF>		

## 4.10. AT+DNS

Parameter	Description	Default Value	Range
<Address>	DNS server address	208.67.222.222	0.0.0.0~255.255.255.255
<b>Format</b>			
Query	AT+DNS<CR>		
Return	<CR><LF>+OK=<Address><CR><LF>		
Set	AT+DNS=<Address><CR>		
Return	<CR><LF>+OK<CR><LF>		

## 4.11. AT+WEBU

Parameter	Description	Default Value	Range
<Username>	Username of module	admin	1~5 bytes
<Password>	Password of module	admin	1~5 bytes
<b>Format</b>			
Query	AT+WEBU<CR>		
Return	<CR><LF>+OK=<Username>,<Password><CR><LF>		



Set	AT+WEBU=<Username>,<Password><CR>
Return	<CR><LF>+OK<CR><LF>

## 4.12. AT+WEBPORT

Parameter	Description	Default Value	Range
<Port>	Port of web server	80	1~65535
<b>Format</b>			
Query	AT+WEBPORT<CR>		
Return	<CR><LF>+OK=<Port><CR><LF>		
Set	AT+WEBPORT=<Port><CR>		
Return	<CR><LF>+OK<CR><LF>		

## 4.13. AT+SEARCH

Parameter	Description	Default Value	Range
<Port>	UDP Port for searching	48899	1~65535
<Keyword>	Search keyword	WWW.USR.CN	1~20 bytes
<b>Format</b>			
Query	AT+SEARCH<CR>		
Return	<CR><LF>+OK=<Port>,<Keyword><CR><LF>		
Set	AT+SEARCH=<Port>,<Keyword><CR>		
Return	<CR><LF>+OK<CR><LF>		

## 4.14. AT+PLANG

Parameter	Description	Default Value	Range
<Language>	Language of web server	EN	EN: English
			CH: Chinese
<b>Format</b>			
Query	AT+PLANG<CR>		
Return	<CR><LF>+OK=<Language><CR><LF>		

<b>Set</b>	<b>AT+PLANG=&lt;Language&gt;&lt;CR&gt;</b>
<b>Return</b>	<b>&lt;CR&gt;&lt;LF&gt;+OK&lt;CR&gt;&lt;LF&gt;</b>

#### 4.15. AT+RSTIM

Parameter	Description	Default Value	Range
<Time>	Time of Timeout Reset	3600s	0,60-65535s
<b>Format</b>			
<b>Query</b>	<b>AT+RSTIM&lt;CR&gt;</b>		
<b>Return</b>	<b>&lt;CR&gt;&lt;LF&gt;+OK=&lt;Time&gt;&lt;CR&gt;&lt;LF&gt;</b>		
<b>Set</b>	<b>AT+RSTIM=&lt;Time&gt;&lt;CR&gt;</b>		
<b>Return</b>	<b>&lt;CR&gt;&lt;LF&gt;+OK&lt;CR&gt;&lt;LF&gt;</b>		

#### 4.16. AT+UARTCLBUF

Parameter	Description	Default Value	Range
<Status>	Whether clear serial port cache before module connection	OFF	ON/OFF
<b>Format</b>			
<b>Query</b>	<b>AT+UARTCLBUF&lt;CR&gt;</b>		
<b>Return</b>	<b>&lt;CR&gt;&lt;LF&gt;+OK=&lt;Status&gt;&lt;CR&gt;&lt;LF&gt;</b>		
<b>Set</b>	<b>AT+UARTCLBUF=&lt;Status&gt;&lt;CR&gt;</b>		
<b>Return</b>	<b>&lt;CR&gt;&lt;LF&gt;+OK&lt;CR&gt;&lt;LF&gt;</b>		

#### 4.17. AT+UARTn

Parameter	Description	Default Value	Range
<Baudrate>	Baudrate	115200	600~1024000
<Data bits>	Data bits	8	5,6,7,8
<Stop bits>	Stop bits	1	1,2
<Parity>	Parity	NONE	NONE,EVEN,ODD,MASK,SPACE

<Flow Control>	Flow Control	NFC	NFC: No flow control
			FCH: Hardware flow control(RTS/CTS)
<b>Format</b>			
Query	AT+UARTn<CR>		
Return	<CR><LF>+OK=<Baudrate>,<Data bits>,<Stop bits>,<Parity><Flow Control><CR><LF>		
Set	AT+UARTn=<Baudrate>,<Data bits>,<Stop bits>,<Parity><Flow Control><CR>		
Return	<CR><LF>+OK<CR><LF>		

#### 4.18. AT+UARTMDn

Parameter	Description	Default Value	Range
<Mode>	Serial port n work mode	SWITCH	SWITCH/RS232/RS422/RS485
<b>Format</b>			
Query	AT+UARTMDn<CR>		
Return	<CR><LF>+OK=<Mode><CR><LF>		
Set	AT+UARTMDn=<Mode><CR>		
Return	<CR><LF>+OK<CR><LF>		

#### 4.19. AT+UARTTLn

Parameter	Description	Default Value	Range
<Time>	Serial port packaging time	0	0~255 ms
<Length>	Serial port packaging length	0	0~1460 bytes
<b>Format</b>			
Query	AT+UARTTLn<CR>		
Return	<CR><LF>+OK=<Time>,<Length><CR><LF>		
Set	AT+UARTTLn=<Time>,<Length><CR>		
Return	<CR><LF>+OK<CR><LF>		

## 4.20. AT+RFCENn

Parameter	Description	Default Value	Range
<Status>	Status of baud rate synchronization function	ON	ON/OFF
<b>Format</b>			
Query	AT+RFCENn<CR>		
Return	<CR><LF>+OK=<Status><CR><LF>		
Set	AT+RFCENn=<Status><CR>		
Return	<CR><LF>+OK<CR><LF>		

## 4.21. AT+SOCKAn

Parameter	Description	Default Value	Range
<Protocol>	Network protocol	TCPS	TCPS: TCP Server mode
			TCPC: TCP Client mode
			UDPS: UDP Server mode
			UDPC: UDP Client mode
			HTPC: HTTP Client mode
<IP address>	Remote Server IP address (in client mode)	192.168.0.201	0.0.0.0~255.255.255.255
<Port>	Port number	n=1,2 port=23,26	1~65535 Local port in Server mode Remote port in Client mode
<b>Format</b>			
Query	AT+SOCKAn<CR>		
Return	<CR><LF>+OK=<Protocol>,<IP address>,<Port><CR><LF>		
Set	AT+SOCKAn=<Protocol>,<IP address>,<Port><CR>		
Return	<CR><LF>+OK<CR><LF>		

## 4.22. AT+SOCKBn

Parameter	Description	Default Value	Range
<Protocol>	Network protocol	NONE	TCPC: TCP Client mode
			UDPC: UDP Client mode

<IP address>	Remote Server IP address (in client mode)	192.168.0.201	0.0.0.0~255.255.255.255
<Port>	Port number	n=1,2 port=20105/20108	1~65535 Local port in Server mode Remote port in Client mode
<b>Format</b>			
Query	AT+SOCKBn<CR>		
Return	<CR><LF>+OK=<Protocol>,<IP address>,<Port><CR><LF>		
Set	AT+SOCKBn=<Protocol>,<IP address>,<Port><CR>		
Return	<CR><LF>+OK<CR><LF>		

## 4.23. AT+SOCKLKA

Parameter	Description	Default Value	Range	Description
<Status>	Status of socket A of serial port n	IDLE	IDLE	Module is booting or disable Keep-alive
			LISTEN	Waiting client (Module is in TCP Server mode)
			CONNECTING	Module is connecting to TCP Server (Module is in TCP Client mode)
			CONNECTED	TCP connection is established
			CONNECTED(n)	n is the number of TCP clients which connect to module (Module is in TCP server mode)
			ERROR	Connection Error
<b>Format</b>				
Query	AT+SOCKLKA n<CR>			
Return	<CR><LF>+OK=<Status><CR><LF>			

## 4.24. AT+SOCKLKBn

Parameter	Description	Default Value	Range	Description
<Status>	Status of socket B of serial port n	IDLE	IDLE	Module is booting or disable Keep-alive
			LISTEN	Waiting client (Module is in TCP Server mode)
			CONNECTING	Module is connecting to TCP Server (Module is in TCP Client mode)
			CONNECTED	TCP connection is established
			CONNECTED(n)	n is the number of TCP clients which connect to module (Module is in TCP server mode)
			ERROR	Connection Error
Format				
Query	AT+SOCKLKBn<CR>			
Return	<CR><LF>+OK=<Status><CR><LF>			

## 4.25. AT+SOCKSLn

Parameter	Description	Default Value	Range
<Status>	Status of serial port n impersistent connection function	OFF	ON/OFF
Format			
Query	AT+SOCKSLn<CR>		
Return	<CR><LF>+OK=<Status><CR><LF>		
Set	AT+SOCKSLn=<Status><CR>		
Return	<CR><LF>+OK<CR><LF>		

## 4.26. AT+SHORTOn

Parameter	Description	Default Value	Range
<Time>	Impersistent connection time	3s	2-255s
<b>Format</b>			
Query	AT+SHORTOn<CR>		
Return	<CR><LF>+OK=<Time><CR><LF>		
Set	AT+SHORTOn=<Time><CR>		
Return	<CR><LF>+OK<CR><LF>		

## 4.27. AT+SOCKTONn

Parameter	Description	Default Value	Range
<Time>	Timeout Reconnection time	86400s	1-99999s
<b>Format</b>			
Query	AT+SOCKTONn<CR>		
Return	<CR><LF>+OK=<Time><CR><LF>		
Set	AT+SOCKTONn=<Time><CR>		
Return	<CR><LF>+OK<CR><LF>		

## 4.28. AT+MODTCPn

Parameter	Description	Default Value	Range
<Status>	Status of serial port n Modbus TCP function	OFF	ON/OFF
<b>Format</b>			
Query	AT+MODTCPn<CR>		
Return	<CR><LF>+OK=<Status><CR><LF>		
Set	AT+MODTCPn=<Status><CR>		
Return	<CR><LF>+OK<CR><LF>		

## 4.29. AT+MODPOLLn

Parameter	Description	Default Value	Range
<Status>	Status of serial port n Modbus Polling function	OFF	ON/OFF
<b>Format</b>			
Query	AT+MODPOLLn<CR>		
Return	<CR><LF>+OK=<Status><CR><LF>		
Set	AT+MODPOLLn=<Status><CR>		
Return	<CR><LF>+OK<CR><LF>		

## 4.30. AT+MODTON

Parameter	Description	Default Value	Range
<Time>	Modbus POLLING time	200s	200-9999s
<b>Format</b>			
Query	AT+MODTON<CR>		
Return	<CR><LF>+OK=<Time><CR><LF>		
Set	AT+MODTON=<Time><CR>		
Return	<CR><LF>+OK<CR><LF>		

## 4.31. AT+NETPRn

Parameter	Description	Default Value	Range
<Status>	Status of serial port n Network Printing function	OFF	ON/OFF
<b>Format</b>			
Query	AT+NETPRn<CR>		
Return	<CR><LF>+OK=<Status><CR><LF>		
Set	AT+NETPRn=<Status><CR>		
Return	<CR><LF>+OK<CR><LF>		



## 4.32. AT+WEBSOCKET1

Parameter	Description	Default Value	Range
<Port>	Port of websocket	6432	1~65535
<b>Format</b>			
Query	AT+WEBSOCKET1<CR>		
Return	<CR><LF>+OK=<Port><CR><LF>		
Set	AT+WEBSOCKET1=<Port><CR>		
Return	<CR><LF>+OK<CR><LF>		

## 4.33. AT+REGENn

Parameter	Description	Default Value	Range
<Status>	Status of identity packet	OFF	OFF: Disable the identity packet
			MAC: Use MAC address as identity packet
			CLOUD: Using USR Cloud ID as Identity packet
			USR: Use the user's identity packet
<b>Format</b>			
Query	AT+REGENn<CR>		
Return	<CR><LF>+OK=<Status><CR><LF>		
Set	AT+REGENn=<Status><CR>		
Return	<CR><LF>+OK<CR><LF>		

## 4.34. AT+REGTCPn

Parameter	Description	Default Value	Range
<Method>	Method of Sending identity packet	First	First: Send Identity packet before first packet after the connected
			Every: Send Identity packet in every packet.
			ALL: Sending identity packet with both methods.

Format	
Query	AT+REGTCPn<CR>
Return	<CR><LF>+OK=<Method><CR><LF>
Set	AT+REGTCPn=<Method><CR>
Return	<CR><LF>+OK<CR><LF>

### 4.35. AT+REGUSERn

Parameter	Description	Default Value	Range
<Data>	User's identity packet data	www.usr.cn	Length: 1~40 bytes
Format			
Query	AT+REGUSERn<CR>		
Return	<CR><LF>+OK=<Data><CR><LF>		
Set	AT+REGUSERn=<Data><CR>		
Return	<CR><LF>+OK<CR><LF>		

### 4.36. AT+REGCLOUDn

Parameter	Description	Range
<ID>	ID of USR Cloud	Length: 20 bytes
<Password>	Password of USR Cloud	Length: 8 bytes
Format		
Query	AT+REGCLOUDn<CR>	
Return	<C+R><LF>+OK=<ID>,<Password><CR><LF>	
Set	AT+REGCLOUDn=<ID>,<Password><CR>	
Return	<CR><LF>+OK<CR><LF>	

### 4.37. AT+HTPTPn

Parameter	Description	Default Value	Range
<Method>	HTTP method	GET	GET: HTTP GET
			POST: HTTP POST
Format			
Query	AT+HTPTPn<CR>		
Return	<CR><LF>+OK=<Method><CR><LF>		

<b>Set</b>	<b>AT+HTPTPn=&lt;Method&gt;&lt;CR&gt;</b>
<b>Return</b>	<b>&lt;CR&gt;&lt;LF&gt;+OK&lt;CR&gt;&lt;LF&gt;</b>

### 4.38. AT+HTPURLn

Parameter	Description	Default Value	Range
<URL>	HTTP URL	/1.php?	Length:1~100 bytes
<b>Format</b>			
<b>Query</b>	<b>AT+HTPURLn&lt;CR&gt;</b>		
<b>Return</b>	<b>&lt;CR&gt;&lt;LF&gt;+OK=&lt;URL&gt;&lt;CR&gt;&lt;LF&gt;</b>		
<b>Set</b>	<b>AT+HTPURLn=&lt;URL&gt;&lt;CR&gt;</b>		
<b>Return</b>	<b>&lt;CR&gt;&lt;LF&gt;+OK&lt;CR&gt;&lt;LF&gt;</b>		

### 4.39. AT+HTPHEADn

Parameter	Description	Default Value	Range
<Header>	HTTP Header	User_Agent: Mozilla/4.0	Length: 0~180 bytes
<b>Format</b>			
<b>Query</b>	<b>AT+HTPHEADn&lt;CR&gt;</b>		
<b>Return</b>	<b>&lt;CR&gt;&lt;LF&gt;+OK=&lt;Header&gt;&lt;CR&gt;&lt;LF&gt;</b>		
<b>Set</b>	<b>AT+HTPHEADn=&lt;Header&gt;&lt;CR&gt;</b>		
<b>Return</b>	<b>&lt;CR&gt;&lt;LF&gt;+OK&lt;CR&gt;&lt;LF&gt;</b>		

### 4.40. AT+HTPCHDn

Parameter	Description	Default Value	Range
<Status>	Status of filtering HTTP header of response data	ON	ON/OFF
<b>Format</b>			
<b>Query</b>	<b>AT+HTPCHDn&lt;CR&gt;</b>		
<b>Return</b>	<b>&lt;CR&gt;&lt;LF&gt;+OK=&lt;Status&gt;&lt;CR&gt;&lt;LF&gt;</b>		
<b>Set</b>	<b>AT+HTPCHDn=&lt;Status&gt;&lt;CR&gt;</b>		
<b>Return:</b>	<b>&lt;CR&gt;&lt;LF&gt;+OK&lt;CR&gt;&lt;LF&gt;</b>		

#### 4.41. AT+HEARTENn

Parameter	Description	Default Value	Range
<Status>	Status of heartbeat packet	OFF	ON/OFF
<b>Format</b>			
Query	AT+HEARTENn<CR>		
Return	<CR><LF>+OK=<Status><CR><LF>		
Set	AT+HEARTENn=<Status><CR>		
Return	<CR><LF>+OK<CR><LF>		

#### 4.42. AT+HEARTTPn

Parameter	Description	Default Value	Range
<Type>	Type of heartbeat packet	NONE	NONE: Disable the heartbeat packet
			NET: Send heartbeat packet to network
			COM: Send heartbeat to serial port
<b>Format</b>			
Query	AT+HEARTTPn<CR>		
Return	<CR><LF>+OK=<Type><CR><LF>		
Set	AT+HEARTTPn=<Type><CR>		
Return	<CR><LF>+OK<CR><LF>		

#### 4.43. AT+HEARTDTn

Parameter	Description	Default Value	Range
<Data>	Heartbeat packet data	www.usr.cn	Length: 1~40 bytes
<b>Format</b>			
Query	AT+HEARTDTn<CR>		
Return	<CR><LF>+OK=<Data><CR><LF>		
Set	AT+HEARTDTn=<Data><CR>		
Return	<CR><LF>+OK<CR><LF>		

## 4.44. AT+HEARTTMn

Parameter	Description	Default Value	Range
<Time>	Heartbeat packet interval	30	1~65535 seconds
<b>Format</b>			
Query	AT+HEARTTMn<CR>		
Return	<CR><LF>+OK=<Time><CR><LF>		
Set	AT+HEARTTMn=<Time><CR>		
Return	<CR><LF>+OK<CR><LF>		

## 5. Contact

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## 6. Disclaimer

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## 7. Update History

2017-08-21 V1.0.0 created. Based on firmware version 3033 V1.0.4