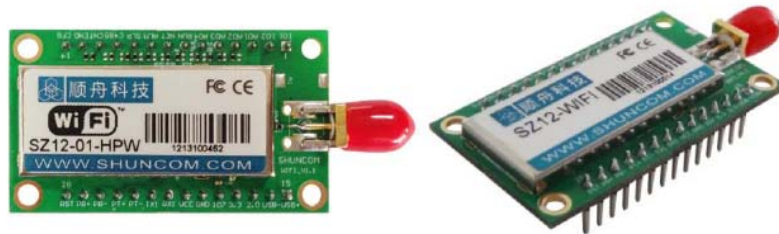




DEVETECH ELECTRONICS CO. LTD

**Wi-Fi MODULE
CUSTOMER: DACHS ELECTRONICA
P/N: SZ12-01-HPW**



DESIGNED BY	
CHECKED BY	
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Revision control record			
Date	Revision	Change description	Approved



1. General description

The SZ12-01-HPW Serial to WiFi module is an 802.11 b/g/n WiFi Radio SiP with on board antenna or optional external antenna with a U.FL connector.

1.1. Main features

- Standard 2.54 double pin type interface
- Baud rate range: 9600-115200 bps
- Power supply: 3.3V or 5V optional
- 802.11 b/g/n compliant
- IEEE 802.11 compliant RF transceiver
- The only serialized MAC address
- Data rate: Up to 150Mbps
- Range: Maximum 500 meters open
- Work in the ISM band 2.400-2.484 GHz
- 14 Channels can be selected separately or domain restrictions
- Support for 802.1x and 802.1i security: WEP, WPA-PSK and WPA2-PSK
- Two wireless network types are supported: AP (server) and STA (client)
- Optional external antenna with ultra-small coaxial (U.FL) connector
- FCC, IC, ETSI and ARIB certified
- Supports multiple network protocols: TCP, UDP, DHCP, ICMP, DNS, etc.
- Support serial transparent transmission mode
- Available to provide upper computer interface for configuration parameters
- Configurable though simple AT commands

1.2. Application example

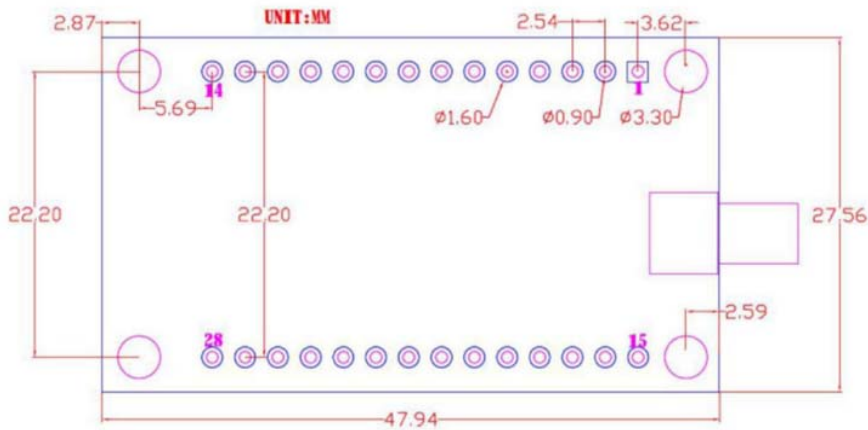
- PDA, Pocket PC, computing devices
- Building automation and smart energy control
- Industrial sensing and remote equipment monitoring
- Warehousing, logistics and freight management
- PC and gaming peripherals
- Printers, scanners, alarm and video systems
- Medical application including patient monitoring and remote diagnostics

1.3 Product overview



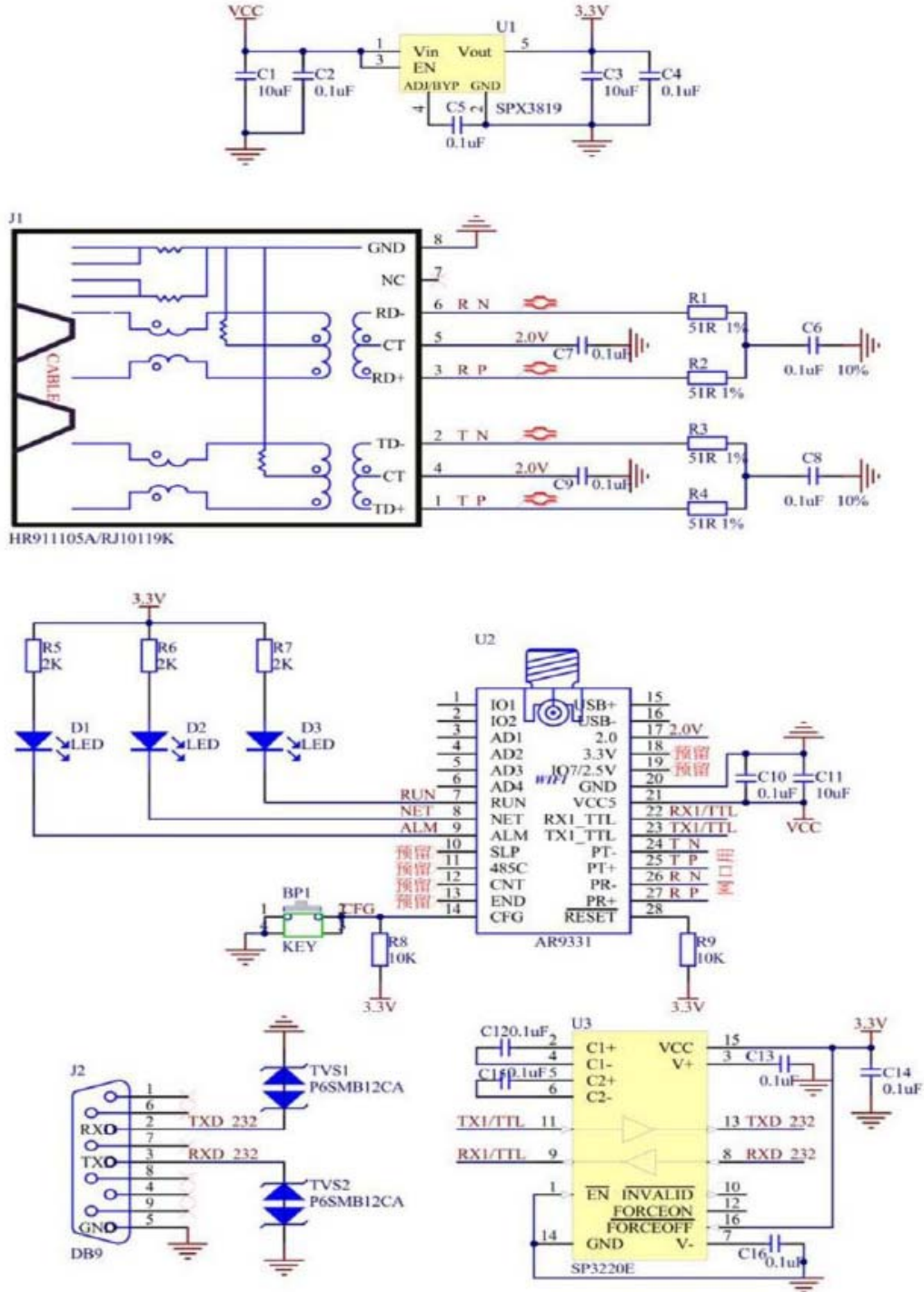
Top view

1.4 Dimensions



47.94mmX27.56mmX10mm (L*W*H)

1.5 Pin description





Pin No.	Pin definition	Descriptions
1	IO1	
2	IO2	
3	AD1	
4	AD2	
5	AD3	
6	AD4	
7	RUN	
8	NET	AP mode: always on; STA mode: flash once 1s.
9	ALM	Alarm
10	SLP	Sleep
11	485C	Reserved, common IO port
12	CNT	
13	END	
14	CFG	Cofigue
15	USB+	USB Data Plus
16	USB-	USB Data Minus
17	2.0	Network port power supply
18	3.3V	3.3V power supply. This pin is left floating with 5V power supply
19	IO7/2.5V	2.5V IO power supply, level matching
20	GND	Ground, power ground
21	VCC5	
22	RX1_TTL	UART Receive (TTL)
23	TX1_TTL	UART Transmit (TTL)
24	PT-	Network port, 10M/100M adaptive
25	PT+	Network port, 10M/100M adaptive
26	PR-	Network port, 10M/100M adaptive
27	PR+	Network port, 10M/100M adaptive
28	RESET	Reset

Table 7.4. General GPIO Characteristics

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
V_{OH}	Output high voltage	---	2.44	--	--	V
V_{OL}	Output Low voltage	---	--	--	0.1	V
V_{IH}	Input high voltage	---	0.7	--	--	V
V_{IL}	Input Low voltage	---	0.3	--	--	V

IO port electrical level

2. Technical specification

	Item	Parameters
Wireless	Wireless standard	IEEE802.11b/g/n
	Frequency range	2.400GHz-2.484GHz
	Receive sensitivity	-91 dBm typical
	Transmission rate	Up to 150Mbps
	Modulation	DSSS
	Transmit power	16dBm
Hardware	Serial type	UART ETH
	Serial rate	9600~115200 bps
	Operating voltage	5V or 3.3V optional
	Antenna options	IPEX connector or SMA
	Operating current	80Ma
	Certifications	FCC, IC, ETSI, ARIB
Software	Network type	AP/STA
	Security mechanisms	WEP/WPA-PSK/WPA2-PSK
	Network protocol	TCP/UDP/ICMP/DHCP/DNS
	Serial command	AT+ instruction set
	Reconnection	1S
	Reset	CFG
Operating environment	Operating temperature	-20°C ~ 85°C
	Storage temperature	-40°C~ 125°C

3. Antenna

This wifi module provides IPEX antenna interface or SMA interface (optional one). It is certified for use with multiple antennas. Only when using the following antenna, or the material and function of the using antenna is equivalent to the following antennas, modular certification is valid.



3.1 External antenna

CODE	Type	(dBI)	VSWR max	Connector	Vendor
RFA-02-P05	PCB	2	2.0	IPEX	Aristotle
RFA-02-L6H1-70-35	Bipolar	2	2.0	IPEX	Aristotle
RFA-02-D3	Bipolar	1.5	2.0	IPEX	Aristotle
RFA-02-L2H1	Bipolar	2	2.0	IPEX	Aristotle
RFA-02-3-C5H1	Bipolar	3	2.0	IPEX	Aristotle
RFA-02-5-C7H1	Bipolar	5	2.0	IPEX	Aristotle
RFA-02-5-F7H1	Bipolar	5	2.0	IPEX	Aristotle
WF2400-15001A	Bipolar	5	2.0	IPEX	Saytec
WF2400-15001AR	Bipolar	5	2.0	RF-IPEX	Saytec
WF2400-10001I	Bipolar	2	2.0	IPEX	Saytec
WF2400-10001R	Bipolar	2	2.0	RF-IPEX	Saytec
AN2400-5901RS SMASFR8-3152H-00X00I	Omni	9	2.0	IPEX	Saytec
AN2400-5901RS SMASFR8-315H-00X00IR	Omni	9	2.0	RF-IPEX	Saytec

Certified external antennas

4. AP/STA

Wireless network connection is divided into AP (server) and STA (client) network connection, Devetech WIFI module supports these two connection modes at the same time.

AP

AP, which refers to the wireless access point, is the creator of a wireless network, the central node of the network. The commonly seen wireless router in general family or office is an AP, the public WiFi hotspot is also an AP.

STA

STA, the station, each connected to the wireless network terminals (such as laptops, mobile phones, WiFi modules, and other network devices that can be networked) can be referred to as a station.

5. AT Command

5.1. Set Network SSID

AT+SZ_SSID=

Network Service Set Identifier (SSID) can be up to 32 characters and is a unique identifier (network name) for a wireless network. The Devetech WiFi module must use



the SSID, Passphrase and WiFi security to communicate with a wireless network. The SSID is normally supplied by a network administrator.

For example, AT+SZ_SSID=SHUNCOM/r/n

5.2 Set networktype

AT+SZ_NETWORKTYPE=

5.3 Set networktype security type

AT+SZ_SECURITY=

Select the WiFi network security to use for communication with a WiFi network. Below is a list of WiFi security modes. The Devetech Wifi module must use one of the WiFi security modes with the associated SSID and Passphrase to communicate with a wireless network. The WiFi security is normally supplied by a network administrator. The network WiFi security modes are listed below.

WiFi security	Description
Open	No WiFi security
WEP64	Wired equivalent privacy
WEP128	
WPA/WPA2PHASE	WiFi protected Access/WiFi Protected Access 2

For example,

OPEN: AT+SZ_SECURITY=OPEN/r/n
WEP64: AT+SZ_SECURITY=WEP64/r/n
WEP128: AT+SZ_SECURITY=WEP128/r/n
WPA-PSK: AT+SZ_SECURITY=WPA/WPA2PHASE/r/n
WPA2-PSK: AT+SZ_SECURITY=WPA/WPA2PHASE/r/n

5.4 Set security key

AT+SZ_SECURITY_KEY=

Security key can be up to 32 characters and is a unique security keyword for access to a wireless network. A system (PC, Smartphone, Tablet, etc) must use the security key to associate with the Devetech WiFi Access Point to communicate with the Devetech WiFi module.

For example,

WEP64, ASCII, passphrase is 12345: AT+SZ_SECURITY_KEY=12345/r/n
WEP64, hex1, passphrase is 12345: AT+SZ_SECURITY_KEY=3132333435/r/n
WPA/WPA2-PSK, passphrase is 123456789: AT+SZ_SECURITY_KEY=123456789/r/n



5.5 Set network DHCP

AT+SZ_DHCP=

Dynamic Host Configuration Protocol (DHCP) is used to query a network for an available IP Address that would be used for communications on the network.

The Devetech WiFi module can use DHCP or a user defined IP address. The Devetech WiFi module must have an IP address to communicate with a wireless network.

AT+SZ_DHCP=ENABLE/r/n.....Enabled network supplied IP address

AT+SZ_DHCP=DISABLE/r/n.....Disabled user supplied IP address

5.6 Set network IP address

AT+SZ_IP_DEFAULT=

Set network IP address allows the user to define the IP address that the Devetech WiFi module will use on a wireless network. If DHCP is disabled, the IP address must be set to allow the Devetech WiFi module to work correctly on a wireless network. The IP address must be entered in dotted-decimal notation, which is defined as xxx.xxx.xxx.xxx for the network address. If DHCP is enabled, the IP address will be set by the wireless network on a network join.

For example, AT+SZ_IP_DEFAULT=192.168.0.123/r/n

5.7 Set network IP mask

AT+SZ_MASK_DEFAULT=

Set network IP mask is a user defined value for the network net mask (subnetting of the network) used on the WiFi network. If DHCP is disabled, the net mask must be set to allow the Devetech WiFi module to work correctly on a wireless network. The net mask must be entered in dotted-decimal notation, which is defined as xxx.xxx.xxx.xxx.

If DHCP is enabled, the net mask will be set by the wireless network on a network join.

For example, AT+SZ_MASK_DEFAULT=255.255.255.0/r/n

5.8 Set network gateway

AT+SZ_GATE_DEFAULT=

Set network gateway is a defined gateway IP address used by the devices on the network to access other networks or as a default gateway when no other IP address matches any other routes in the network routing table. The gateway IP address must be entered in dotted-decimal notation, which is defined as xxx.xxx.xxx.xxx.

For example, AT+SZ_GATE_DEFAULT=192.168.1.1/r/n

5.9 Set network DNS

AT+SZ_DNS_DEFAULT=

Set network Domain Name System (DNS) is a user defined address used for translating human readable domain names into numerical identifiers for network devices. The DNS must be entered in dotted-decimal notation, which is defined as xxx.xxx.xxx.xxx.

For example, AT+SZ_DNS_DEFAULT=192.168.1.1/r/n



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NOTES
