

OWMH-DS6311-01

Product Specification

Version	Issue date	Changes	Remark
0.1	2018/11/14	Initial Version	

IMPORTANT

This document contains important Information and therefore should not be disclosed to third parties without prior written consent of ORing Industrial Networking Co. Ltd.

Signature:

Author:	Reviewed by:	Approved by:	Remarks:
Rino Pan			

1. Introduction

OWMH-DS6311-01 module is designed for easy-design-in low cost and suitable for Wi-Fi applications. The module can support WAN, LAN, UART, SPI, I2S, SDXC and GPIO interfaces and work for 2T2R mode.

2. Technical specification

Items		Specification				
Supported Standard and Protocol		IEEE 802.11n, IEEE 802.11g, IEEE 802.11b, IEEE 802.11a, IEEE 802.3, IEEE 802.3u, CSMA/CA, CSMA/CD, TCP/IP, DHCP, ICMP, NAT, PPPoE				
Dimension		80x70x1.6mm				
Power consumption		< 350mA				
Operating Temperature Range		-30 ~ 75 deg. C				
Storage Temperature Range		-40 ~ 85 deg. C				
LAN	WAN Port	4 x 10/100M adaptive RJ45 port				
	LAN Port	1 x 10/100/1000M adaptive RJ45 port				
RF Parameters	Frequency	2.4~2.4835GHz				
	Range	5.180~5.240 GHz & 5.745~5.825 GHz				
	Baud Rate	1T1R:				
		MCS index	Data rate (Mbit/s)			
			20 MHz channel		40 MHz channel	
			800 ns	400 ns	800 ns	400 ns
		0	6.5	7.2	13.5	15
		1	13	14.4	27	30
		2	19.5	21.7	40.5	45
		3	26	28.9	54	60
		4	39	43.3	81	90
		5	52	57.8	108	120
		6	58.5	65	121.5	135
		7	65	72.2	135	150
		2T2R				
		MCS	Data rate (Mbit/s)			

		index	20 MHz channel		40 MHz channel	
			800 ns	400 ns	800 ns	400 ns
		8	13.00	14.40	27.00	30.00
		9	26.00	28.90	54.00	60.00
		10	39.00	43.30	81.00	90.00
		11	52.00	57.80	108.00	120.00
		12	78.00	86.70	162.00	180.00
		13	104.00	115.60	216.00	240.00
		14	117.00	130.00	243.00	270.00
		15	130.00	144.40	270.00	300.00
		IEEE 802.11g : 54/48/36/24/18/12/9/6(adaptive)				
		IEEE 802.11b : 11/5.5/2/1M (adaptive)				
	Number of Channel	13				
	Modulation Scheme	DBPSK 、DQPSK 、CCK and OFDM(BPSK/QPSK/16-QAM/64-QAM)				
	Sensitivity @ PER	802.11a: -92dBm ± 2dBm@6Mbps, 802.11a: -76dBm ± 2dBm@54Mbps 802.11b: -98dBm ± 2dBm@1Mbps, 802.11b: -85dBm ± 2dBm@11Mbps 802.11g: -76dBm ± 2dBm@54Mbps 802.11gn HT20: -75dBm ± 2dBm@MCS7, 802.11gn HT40: -72dBm ± 2dBm@MCS7 802.11an HT20: -74dBm ± 2dBm@MCS7, 802.11an HT40: -71dBm ± 2dBm@MCS7				
	Output Power	802.11a: 24dBm ± 1.5dBm@6Mbps, 802.11a: 12dBm ± 1.5dBm@54Mbps 802.11b: 23dBm ± 1.5dBm@1Mbps, 802.11b: 17dBm ± 1.5dBm@11Mbps 802.11g: 16dBm ± 1.5dBm@54Mbps 802.11gn HT20: 15dBm ± 1.5dBm @MCS7, 802.11gn HT40: 14dBm ± 1.5dBm @MCS7 802.11an HT20: 12dBm ± 1.5dBm @MCS7, 802.11an HT40: 11dBm ± 1.5dBm @MCS7				
	Antenna	Two IPEX I connectors for two external antenna(2T2R)				
WIFI Operation Mode		AP/Client/Repeater				
System Service		Virtual Server : Internal web server for browser to access				
Device Management		Area setting Restore to default factory setting Software upgrade Reboot				

	Change password
WLAN Security Mode	OPENWEP SHAREDWEP WEPAUTO WPA WPA-PSK WPA2 WPA2-PSK WPAPSKWPA2PSK WPA1WPA2(WPA and WPA2 hybrid mode) 802.1x

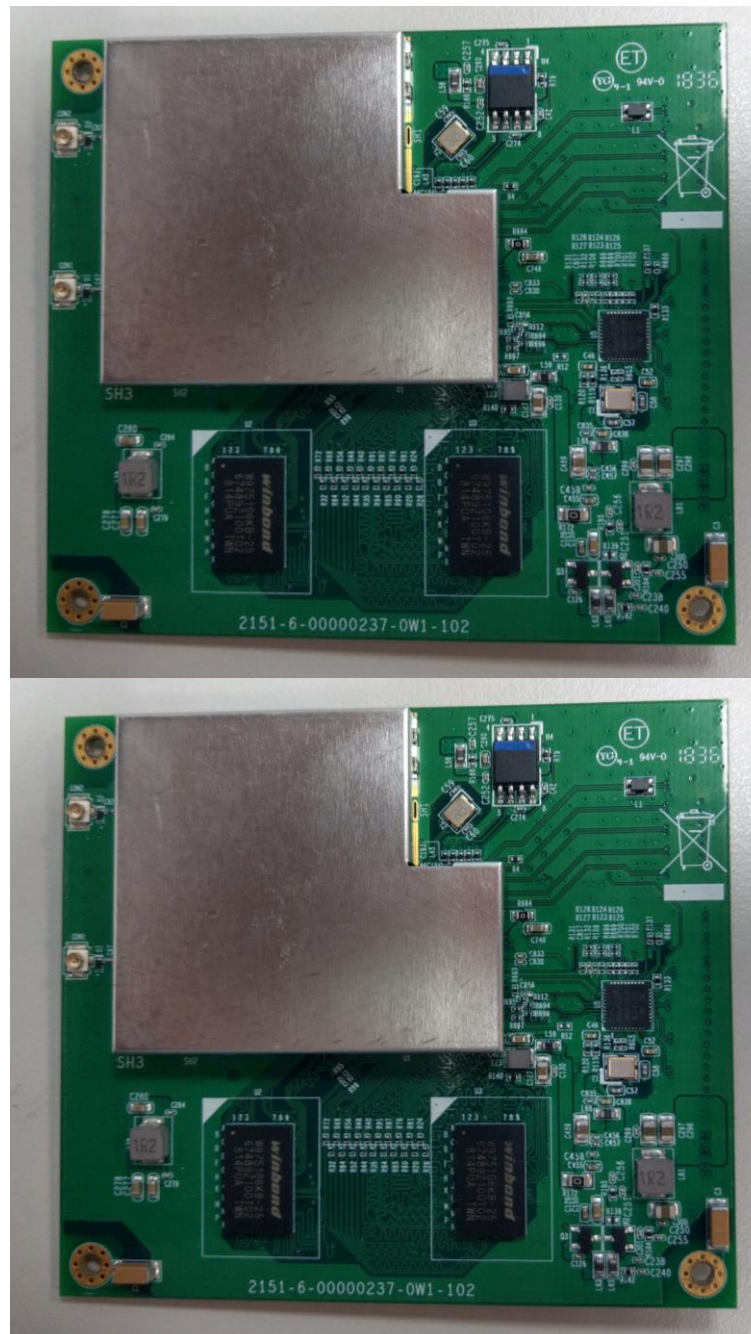
3. Software features

- Support AP (Access point) 、 Client (Wi-Fi Station) mode 、 Repeater(AP-Client) mode
- **AP mode**
 - Default operation mode. In this mode, the module work as an Access Point, don't need any configuration.
 - User can use PC via RJ45 or smart phone via Wi-Fi to login AP mode and change the default configuration (through browser).
- **Client mode**
 - In this mode, module is a Wi-Fi station.
- **Repeater mode**
 - In this mode, module is AP + Client mode.

4. Development tool:

We provide development tool for easy connection of power, RS-232, LAN, WAN, and USB port.

5. Module Dimension: 80x70x1.6mm



6. Pin Assignment

J1:

Description	Function	Pin #	Pin #	Function	Description
5V input	5V	1	2	5V	5V input
5V input	5V	3	4	5V	5V input
5V input	5V	5	6	5V	5V input
3.3V input	3.3V	7	8	3.3V	3.3V input
3.3V input	3.3V	9	10	3.3V	3.3V input
3.3V input	3.3V	11	12	3.3V	3.3V input
Power ground	GND	13	14	GPIO21	LED_LAN_LINK
Media-dependent interface A	TXVPA	15	16	GPIO22	NA
Media-dependent interface A	TXVNA	17	18	GPIO18	LED_SIM1
Power ground	GND	19	20	GPIO20	LED_LAN_ACT
Media-dependent interface B	TXVPB	21	22	GPIO19	LED_SIM2
Media-dependent interface B	TXVNB	23	24	GPIO0	LED_STATUS
Power ground	GND	25	26	GPIO1	LED_WLAN
Media-dependent interface C	TXVPC	27	28	GPIO2	NA
Media-dependent interface C	TXVNC	29	30	GPIO3	NA
Power ground	GND	31	32	GPIO4	LED_WAN
Media-dependent interface D	TXVPD	33	34	PCIE_RST_OUT	PCI Express reset
Media-dependent interface D	TXVND	35	36	PCIE_TX_N	Differential transmit
Power ground	GND	37	38	PCIE_TX_P	Differential transmit
for 10/100 BASE-T link	LED_10_100	39	40	PCIE_CLKOUT_N	Differential reference clock
for 1000 BASE-T link	LED_1000	41	42	PCIE_CLKOUT_P	Differential reference clock
for 10/100/1000 BASE-T activity	LED_ACT	43	44	PCIE_RX_N	Differential receive
Power ground	GND	45	46	PCIE_RX_P	Differential receive

J2 :

Description	Function	Pin #	Pin #	Function	Description
Tx positive for port 1	P1_TX+	1	2	GND	Power ground
Tx negative for port 1	P1_TX-	3	4	GPIO11	LED_WLAN_RSSI1
Rx negative for port 1	P1_RX-	5	6	SW_RESET	Software reset
Rx positive for port 1	P1_RX+	7	8	GPIO17	Power ON/OFF
Rx positive for port 0	P0_RX+	9	10	GPIO15	LED_WLAN_RSSI3
Rx negative for port 0	P0_RX-	11	12	GPIO12	LED_WLAN_RSSI2
Tx positive for port 0	P0_TX+	13	14	GPIO16	SIM_SEL
Tx negative for port 0	P0_TX-	15	16	UART_TXD	UART TXD signal
USB signal poistive	USB_D+	17	18	UART_RXD	UART RXD signal
USB signal negative	USB_D-	19	20	GND	Power ground

IDS-6311GTH+ GPIO Signals pin define			
GPIO	Signal	Description (Default)	Direction
GPIO0	LED_STATUS	TCK	Input
GPIO1	LED_WLAN	TDI	Input
GPIO2	NA	TDO	Output
GPIO3	NA	TMS	Input
GPIO4	LED_WAN	CLK_OBS5[1]	Output
GPIO5	SPI_nCS	SPI_CS	Output
GPIO6	SPI_CLK	SPI_CLK	Output
GPIO7	SPI_MOSI	SPI_MOSI	Output
GPIO8	SPI_MISO	SPI_MISO	Input
GPIO9	UART_Rx	UART0_SIN	Input
GPIO10	UART_Tx	UART0_SOUT	Output
GPIO11	LED_WLAN_RSSI1	Output Software configurable	Output
GPIO12	LED_WLAN_RSSI2	Output Software configurable	Output
GPIO13	INT_9344 for AR8035 interrup	Output Software configurable	Input
GPIO14	SW default reset	Output Software configurable	Input
GPIO15	LED_WLAN_RSSI3	Output Software configurable	Input
GPIO16	SIM_SEL	Output Software configurable	Output
GPIO17	Power ON/OFF	Output Software configurable	Input
GPIO18	SIM1_LED	Output Software configurable	Output
GPIO19	SIM2_LED	Output Software configurable	Output
GPIO20	LED_LAN_ACT	Output Software configurable	Output
GPIO21	LED_LAN_LINK	Output Software configurable	Output
GPIO22	NA	Output Software configurable	Output

7. Memory configuration

Depending on customer's request, the module can be shipped with following configuration:

Flash size: 8MB, 16MB NOR Flash

DDR2 size: 64MB, 128MB

8. Mechanical Application Notes

1. CON0 and CON1 are IPEX1 connectors on top side
2. J1 is 2*23 pins 1.27mm female header on bottom side for signals
3. J2 is 2*10 pins 1.27mm female header on bottom side for signals
4. The mechanical drawing in .dxf format is available under request.

9. Professional installation instruction

1. Installation personal
This product is designed for specific application and needs to be installed by a qualified personal who has RF and related rule knowledge. The general user shall not attempt to install or change.
2. Installation location
The product shall be installed at a location where the radiating antenna can be kept 20cm from nearby person in normal operation condition to meet regulatory RF exposure requirement.
3. External antenna
Use only the antennas which have been approved by the applicant. The non-approved antenna(s) may produce unwanted spurious or excessive RF transmitting power which may lead to the violation of FCC Part15C/E & Canada limit and is prohibited.

10.Compliance

FCC Statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) this device may not cause harmful interference and (2) this device must accept any interference received, including interference that may cause undesired operation.

Device cannot be sold via retail to the general public or by mail order; it must be sold to authorized dealers or installers only.

FCC Caution: To assure continued compliance, any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment. (Example - use only shielded interface cables when connecting to computer or peripheral devices).

End Product Labeling

This transmitter module is authorized only for use in devices where the antenna may be installed such that 20 cm may be maintained between the antenna and users. The final end product must be labeled in visible area with the following: "Contains FCC ID: WHD-OWMDS6311-01"

End Product Manual Information

The user manual for end users must include the following information in a prominent location "IMPORTANT NOTE: To comply with FCC RF exposure compliance requirements, the antenna used for this transmitter must be installed to provide a separation distance of at least 20cm from all persons and must not be colocated or operating in conjunction with any other antenna or transmitter." This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions (1) This device may not cause harmful interference and (2) This device must accept any interference received, including interference that may cause undesired operation.

IMPORTANT NOTE: In the event that these conditions can not be met (for example certain laptop configurations or colocation with another transmitter), then the FCC authorization is no longer considered valid and the FCC ID can not be used on the final product. In these circumstances, the OEM integrator will be responsible for reevaluating the end product (including the transmitter) and obtaining a separate FCC authorization. This device is intended only for OEM integrators under the following conditions: The antenna must be installed such that 20 cm is maintained between the antenna and users. As long as a condition above is met, further transmitter test will not be required. However, the OEM integrator is still responsible for testing their end product for any additional compliance requirements required with this module installed (for example, digital device emissions, PC peripheral requirements, etc.).