RfNet
Wireless • Innovation • Networking

Seamless Wireless Transmitter
WV-SWT-1212

Key Features: WV-SWT-1212

WV-SWT is a Seamless Wireless Transmitter with two types of wireless technologies, Industrial Wireless LAN and Cellular, integrated into one box solution.

There are two Giga LAN ports for external device to connect to it and seamlessly connect to Wireless LAN or Cellular wireless network automatically.

SWT is target for use in a mobile vehicle environment where vehicle could seamlessly connect to either Wireless LAN or Cellular network with automatic fail over between the two wireless networks.
* Optional 3G/4G/LTE

Model

WV-SWT-1212
- Wireless Radio IEEE802.11a/b/g/n + 3G/4G Radio

WV-SWT-1212-2N
- Dual Wireless Radio IEEE802.11a/b/g/n

WV-SWT-1212-NAC
- Wireless Radio IEEE802.11a/b/g/n/ac, with wireless data rate of up to 867Mbps

- Built-in embedded MIPS controller board with Wireless LAN Access Point/Client/Repeater mode.
- * Modular 3G Router with Firewall (easily upgradable to 4G LTE)
- Support wireless fast roaming
- Support seamless connection between WLAN and Cellular network with automatic failover between the two networks.
- Up to 300 Mbps 300 Mbps 2x2 MiMo WLAN
- * Up to DC-HSPA+: Downlink 42Mbps, Uplink 5.7Mbps
- * Up to LTE-FDD DL/UL: 100/50 Mbps (optional)
- Wide DC voltage range 11 ~ 56 V DC (with in-rush, voltage surge, over current, over voltage protection)
- Operating temperature range 0°C to +65°C

Product Specifications

Main Features	
Wide range of DC input	11~56Vdc
Power Consumption	12.5 W (Max 17 Watts)
Modular approach	* 3G modem are easily replaceable for technology upgrading
Automotive friendly	Reduced interface connector to improve reliability in harsh automotive environment. • 2 x LTW Shielded RJ45 Panel mount connector • 2xN (Female) WiFi • 2xN (Female) 3/3.5G/LTE (* for 3/3.5/LTE and WiFi)
Installation	Secured mounting to flat panel.
Protection Cover	Dust protection cover
MTBF for 2.4GHz and 5GHz Radios	180,000hrs 74,000hrs with LTE

Environmental and Reliability	
IP Rating	IP54
Operating Temperature	0°C to + 65°C
Storage Temperature	-40°C to + 75°C
Humidity	10% ~ 90% Max non-condensing
EN 50155	Yes
EN 50121-3-2 EMC/EMI	Yes
EN 61373 Shock Vibration	Yes
EN 60068-1/2/30 Climatic	Yes

Regulatory & Warranty	
Regulatory	iDA
Warranty	2 years
RoHS	Yes

Accessories	
Power Adaptor	Optional
Quick Installation Guide	Yes
User Manual	Yes (Softcopy)
POE Injector for Camera	Optional

Firewall (Stateful)	
IP Filtering	Source and Destination IP
Port Filtering	Source and Destination IP
MAC Address Filtering	Yes

AP Statistic Monitoring	
System	• MAC ID • S/N • Firmware Version Hardware Version
Wireless	• Wireless Activity Chart RSSI Chart • Link Rate • Association Status (including MAC/IP/RSSI)

Management	
Access Method	Web base, Telnet
Access Level	• Level 1: Normal User (Basic setting and Monitoring) • Level 2: Super User (Advance Setting and Firmware Upgrade) • Level 3: OEM User (OEM Setting)
SNMP	SNMP V1, V2C, V3 (Read and Write)
AP Configuration	• Wireless parameters • Network parameters • Wireless security
Firmware Upgrade	Firmware Upgrade on the Fly
Filtering	Broadcast and Multicast
Last Good Setting	Allow save and load last good
Software Reset	Software Systems RESET Software Factory
VPN Pass Through	Yes
VLAN Pass Through	Yes
VLAN Support	Yes, 802.1g
FTP/FTPS Pass Through	Yes
HTTP/HTTPS Pass Through	Yes
Time Setting	• Current Time • Time Zone • NTP Client
AP Monitoring	Ping for External devices at selected interval (client mode)

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Product Specifications

* 3.75G GSM Radio Specifications	
Operating Frequency	900/2100 MHz
Backward Compatible With 2.5G and 3G Network	The radio is backward compatible with 2.5G, 3G and 3.5G GSM/UMTS network
Peak Data Rate	DC-HSPA+: DL 42Mbps, UL 5.7Mbps or HSPA+ DL 21Mbps, UL 2Mbps
Antenna	One

* LTE Radio Specifications (Optional)	
Backward Compatible With 2.5G And 3G Network	The LTE Radio Shall Be Backward Compatible With 2.5G, 3G, 3.5G And 3.75G GSM/UMTS Network
Operating Frequency (LTE)	B1: 1921 MHz ~1980 MHz (UL)/ 2110 MHz ~2170 MHz (DL) B3: 1710 MHz ~1785 MHz (UL)/ 1805 MHz ~1880 MHz (DL) B7: 2500 MHz ~2570 MHz (UL)/ 2620 MHz ~2690 MHz (DL) B8: 880 MHz ~915 MHz (UL)/ 925 MHz ~960 MHz (DL) B20: 832 MHz ~862 MHz (UL)/ 791 MHz ~821 MHz (DL)
Operating Frequency (GSM)	900/2100 MHz
Peak Data Rate	LTE-FDD DL/UL: 100/50 Mbps or 50/35 Mbps DC-HSPA+: DL 42Mbps, UL 5.7Mbps, or HSPA+ DL 21Mbps, UL 2Mbps
Antenna	Dual SMA(F) Antenna connector for MIMO

Wireless LAN Modulation		
802.11b	DSSS	5.5/11Mbps: CCK 2Mbps: DQPSK 1Mbps: DBPSK
802.11a/g	OFDM/DSSS	48/54Mbps: 64-QAM 24/36Mbps: 16-QAM 12/18Mbps: QPSK 6/9Mbps: BPSK
802.11n	OFDM/DSSS	MCS 0/8: BPSK MCS 1/9: QPSK MCS 2/10: QPSK MCS 3/11: 16-QAM MCS 4/12: 16-QAM MCS 5/13: 64-QAM MCS 6/14: 64: QAM MCS 7/15: 64-QAM

Interface Connectors	
Power In	2 line
LAN	8 line
Hidden RESET Button	Pin hole
3G Antenna *4G LTE Antenna (Optional)	1 x N (F) connector 2 x N (F) connector
WiFi Antenna	2 x N (F) connector
*SIM Slot	One
Power LED	Power Up Status
Wireless LAN 802.11a/b/g/n/ac	
Chipset	Atheros AR9344
Memory	DDR2 SDRAM: 128Mbytes Flash: 16Mbytes
Network Standard	IEEE 802.11 a/b/g/n/ac, 802.11d, 802.11e, 802.11i, WPA2, WMM
802.11a/b/g/n Capabilities	2x2 MIMO with 2 Spatial Streams up to 300MBps
802.11ac Capabilities	Streams up to 867Mbps
Null Frequencies Operation	Support null frequencies +/- 5MHz (Optional)
Supported Data Rate	802.11b/g :1,2,5.5,11,6,9,12,18,24,36,48 and 54Mbps 802.11a : 6,9,12,18,24,36,48 and 54 Mbps 802.11n : MCS 0-15 up to 300Mbps 802.11ac : up to 867Mbps
Operating Frequency	2412.0 ~ 2483.5 MHz, or 5.150 ~ 5.850 MHz
Support Concurrent Clients	64 concurrent clients
Wireless Mode	AP/Bridge/Repeater
Multiple SSID	Support up to 16 ESSID (Access point Mode)
Channel Bandwidth	5/10/20/40MHz
Minimum Channel Step	5MHz (Open Band)
WEP	Open system Shared-Key
WPA/WPA2	WPA-PSK/WPA2-PSK WPA/WPA2 (TLS, TTLS, PEAP)
802.1x	802.1x Radius authentication
Suppress SSID	Yes
Wireless Client to Client Isolation	Yes

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Product Specifications

Tx Power and Rx Sensitivity at 5GHz

Band	Data Rate [Mbps]	Tx Power [Per Radio]	Rx Sensitivity
802.11a	6	23*	-92
	9	23*	-90
	12	23*	-89
	18	23*	-87
	24	23*	-84
	36	23*	-80
	48	20	-76
	54	17	-74
	MCS0/8	23*	-92
	MCS1/9	23*	-88
802.11a/n	MCS 2/10	23*	-85
20MHz	MCS 3/11	23*	-82
	MCS 4/12	22	-79
	MCS 5/13	18	-75
	MCS 6/14	17	-74
	MCS 7/15	17	-72
	MCS0/8	21	-88
	MCS1/9	21	-84
	MCS 2/10	21	-81
802.11a/n	MCS 3/11	21	-78
40MHz	MCS 4/12	21	-74
	MCS 5/13	16	-70
	MCS 6/14	16	-69
	MCS 7/15	14	-66

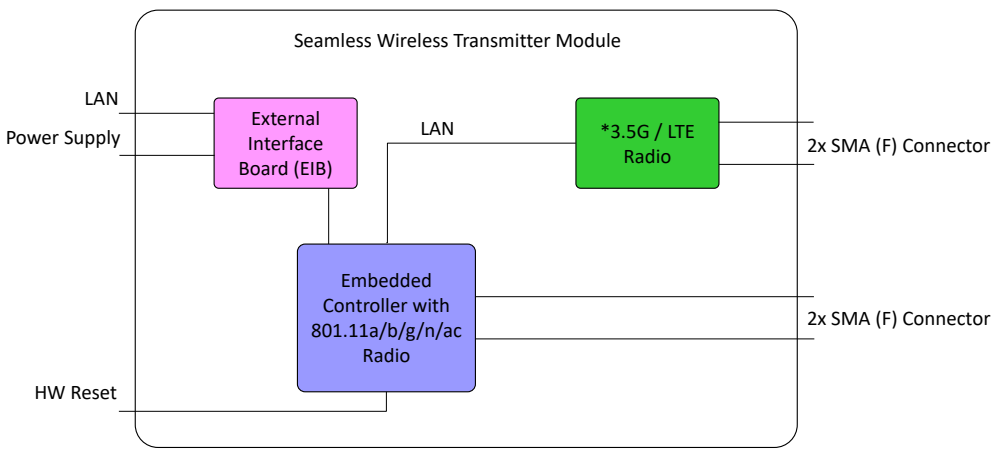
Tolerance: +/- 2dB

Note:
- = Max Power is -3dB less @ Frequency ≥ 5805MHz

Tx Power and Rx Sensitivity at 2.4GHz

Band	Data Rate [Mbps]	Tx Power [Per Radio]	Rx Sensitivity
802.11b/g	1~11	17	-92
	6	17	-92
	9	17	-92
	12	17	-92
	18	17	-88
	24	17	-87
	36	16	-81
	48	15	-77
	54	9	-73
	MCS0/8	16	-90
	MCS1/9	16	-89
802.11g/n	MCS 2/10	16	-87
20MHz	MCS 3/11	16	-84
	MCS 4/12	16	-81
	MCS 5/13	12	-77
	MCS 6/14	11	-75
	MCS 7/15	8	-73
	MCS0/8	10	-87
	MCS1/9	10	-85
	MCS 2/10	10	-83
802.11g/n	MCS 3/11	10	-81
40MHz	MCS 4/12	10	-78
	MCS 5/13	9	-74
	MCS 6/14	8	-72
	MCS 7/15	7	-70

Tolerance: +/- 2



SWT Block Diagram

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