

TWMR-5006

EN50155 Multifunction VPN Router w/1x WiFi 11ac + 1 LTE 4G + 2 serial ports + 6 Gigabit X-coded Ethernet Switch w/Load Balancing**, TWCC**, VPN, Protocol Gateway, Storage**; 24V / WV input

Built-in 6 Gigabit X-coded Ethernet switch

- WIFI radio for 802.11ac/a/b/g/n with 5GHz or 2.4GHz;
- Support WIFI 802.11e traffic prioritization and WMM
- MIMO technology 3T3R up to 6 antenna; Detachable antenna connectors with 6 SMA/QMA** type incl. 3 WIFI + 3 LTE
- Unlimited concurrent users
- Fast roaming < 50ms**, 802.11r work with Lantech controller</p>
- Supports AP/ BRIDGE/Client modes
- Advanced wireless security WEP64/128bits/WPA/WPA-PSK (TKIP*,AES)/WPA2/WPA2-PSK (TKIP*,AES)
- Optional TWCC** (Train Wireless Carriage Coupling)for auto wireless coupling
- VPN router for Multi-site VPN, OpenVPN, L2TP, IPsec, PPTP**
- Load Balancing** support 8 mechanism
- Support NAT and Firewall
- Support Modbus or DNP3** gateway on serial ports
- Support 2 RS422/485 ports with 2.5KV isolation or 2x RS232 ports
- Optional 2 GT smart bypass protection
- Galvanic isolation on WV model from 16.8V~137.5V input; 24V model input from 9V~60V
- Environmental monitoring for router inside info with voltage, current, temperature; WIFI & LTE graphic signal strength & TX/RX rate display
- Optional external USB to micro SD** for configuration management, storage backup or multi-media content suit with load-balancing route
- Editable login page of captive portal for hot-spot application
- USB port to backup, restore the configuration file and upgrade firmware*; Dual image firmware*



OVERVIEW

Lantech TWMR-5006 series is a next generation EN50155 multi-function VPN router w/ 1 x 802.3ac Wi-Fi + 1 x LTE modem +6 Gigabit X-coded Ethernet switch + 2 serial ports that supports advanced function of VPN, Load-balancing**(Premium pack), TWCC**, Protocol gateway(Modbus,DNP3**), Storage**, Wi-Fi roaming** and LTE dual SIM fail-over for industrial applications. The dual core CPU with 1.6GHz + 256M flash enables the router to multi-task smoothly.

Optional TWCC** (Train Wireless Carriage Coupling) for auto coupling

TWMR-5006 supports optional TWCC** (Train Wireless Carriage Coupling) that enables auto wireless coupling to

reconnect APs.

LTE design 4G/3G w/2SIMs for redundancy

With one mobile LTE module (1L model), 2 SIM card slots, TWMR-5006 provides redundant link between two service providers.

Both GPS and Russian GLONASS systems are supported.

IEEE 802.11ac one band radio up to 1.3GMbps bandwidth With IEEE 802.11ac capability, TWMR-5006 can operate either 5GHz or 2.4GHz bands, offering the maximum speed of 1.3GMbps bandwidth it is also compatible with 802.11g/n that



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can work with 2.4GHz for longer range transmission.

MIMO technology with 3T3R and standard SMA / optional QMA type connectors

Lantech TWMR-5006 series adapts MIMO technology with smart antenna transmission and reception for 3T3R. With six external detachable antenna SMA/QMA** connectors and optional antennas, TWMR-5006 can have better Wi-Fi & LTE/GPS coverage. It can support unlimited concurrent users for WIFI hotspot application.

Optional 802.11r fast roaming < 50ms**

TWMR-5006 support fast roaming < 50ms** in coordination with Lantech Wireless Controller to allow encryption keys to be stored on all of the APs in a network. Client mode supports PMK** Caching and pre-authentication.

Wireless WMM QoS

TWMR-5006 supports 802.11e standard which defines a set of Quality of Service for wireless LAN applications as well as WMM (WIFI multimedia)

Advanced security & 16 SSIDs

The security support standards including 64/128bits WEP, WPA/WPA2 PSK (TKIP*, AES), 802.1x** ensures the best security and active defense against security treads. Lantech TWMR-5006 support up to 16 SSIDs, each SSID has its independent security and encryption.

Load Balancing** with 8 mechanism for multi-WANs (premium license)

TWMR-5006 supports Load Balancing** for LTE/WAN connections. There are eight schemes for Load Balancing** function:

Pack	Algorithm	Description
Standard	Fixed	Manually route by traffic type through fixed WAN link.
Basic Failover Package		Routes connections through preferred WAN link while others stand-by. Sequentially activate another link if preferred link fail occurs. Once failover will not failback until link loss.
	Priority	Routes connections through preferred WAN link as primary while others follow by. Ex. Wi-Fi client>LTE>others
	Weighted Round-Robin	Evenly distribute the traffic over all working WAN links in circular order according to the specified weights.

	Custom Route	Routing through the selected WAN for each specific traffic, ex: TCP/UDP port number and IP address.
Full Package (incl. basic package)	Sticky Session*	Binding all connections in an application session to particular WAN link to ensure all connections in the session are routed to the same WAN link , that is suitable for security services like online payment etc.
	Smallest Load*	Routes connections through the WAN link with highest free bandwidth ratio. The ratio = 1 - (traffic load / the capability of a WAN link). The traffic load could be defined by downstream, upstream or total traffic
	Fastest*	Routes connections through the WAN link with lowest latency

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2 port serial connection, Modbus / DNP3** gateway

It builds in 2 port serial connection for RS232; RS422/ RS485 in which RS422/RS485 has 2.5KV isolation protection.

The built-in Modbus gateway can convert Modbus RTU/ASCII to Modbus TCP for device control.

It also can support optional DNP3** gateway over serial ports

VPN and firewall

Besides traditional VPN peer to peer tunneling, TWMR-5006 support latest Multi-Site VPN function that is an efficient way for mesh tunneling. The registration is under cloud service and encrypted by SSH makes the connection easy and safe.

It supports Multi-Site VPN, Open VPN, L2TP, IPsec and PPTP** for various VPN applications.

The built-in Layer-4 firewall includes DoS**, IP address filter / Mac address filter* / TCP/UDP port number.

Optional 2 GT smart bypass protection

The optional bypass relay is set to bypass the router to the next one when power is off in order to protect the network from crashing. Lantech bypass caters to remain in bypass mode until the router is completely booting up when power is back to avoid another network lost. Also it will be activated when detecting the router is hanged or link down.

DIDO for alarm & email** notice; Event log; Remote Web/SMS** control

2 sets of DIDO function can support additional high/low physical contact for designate applications besides Port / Power events, for example, DIDO function can trigger alarm if the router was moved or stolen. In case of events, the TWMR-5006 will immediately send email** and trap.

The event log can be sent via syslog, email**s or trigger the alarm relay.

When the router is at remote area with limited access, Web/SMS** control can help to get router status or remotely reboot by Web/SMS**

Wide range dual isolated input voltage from 9V-60VDC (24V model) or 16.8-137.5V (WV model)

The TWMR-5006 is able to work from dual 9VDC to 60VDC input voltage (24V model) or $16.8V \sim 137.5V$ DC isolated input (WV model) that is particular good for vehicle, rail train, depot etc applications.

Environmental monitoring for inside router info& alerting; Graphic WIFI & LTE signal strength and TX/RX rate display The built-in environmental monitoring can detect router ambient temperature, voltage, current where can send the syslog, email** and SMS** alert when abnormal.

The graphic WIFI & LTE signal strength and TX/RX rate display shows connection status at a glance

Cloud/Host based InstaView**/InstaAir** software for router / fleet management and monitoring

Lantech InstaView** can offer fixed location router central management, configuration, and monitoring via secured Cloud or Host server. InstaAir** can offer fleet router management

including the GPS tracking, remote configuration/upgrade, monitoring/alerting and report function

Optional external USB to micro SD** for storage backup or multimedia resources; Dual image firmware*

The optional external USB to micro SD** can have configuration management, data backup or pre-store the multimedia resources for content application. User can designate the route via load-balancing scheme to upload/download the data per request.

It supports dual-image firmware* to choose which one to start.

Editable login page of captive portal

The TWMR-5006 supports editable captive portal function that allows administrator to force end-users redirect to authentication page.

USB port for back up, restore configuration and upgrade firmware*

The built-in USB port can upload/download configuration and upgrade the firmware* through USB dongle for router replacement

Ruggedized EN50155 design and FCC*/CE* & E-marking** certificate

The TWMR-5006 series is verified with EN50155*, EN61373*, EN45545 standard with IP65/54 housing. It passed serious tests under extensive Industrial EMI and environmental vibration and shocks standards. With CE* & FCC* radio certification for Wi-Fi and LTE and E-marking** certificate, the TWMR-5006 is best for outdoor community, vehicle, power substation, process control automation etc. For more usage flexibilities, TWMR-5006 supports operating temperature from -20°C to 70°C or -40°C to 70°C(-E).

FEATURES & BENEFITS

- High Speed Air Connectivity: WLAN interface support 1.3GMbps
- Built-in 6 Gigabit X-coded Ethernet ports
- Dual DC input from 9V~60VDC (24V model) or 16.8V~137.5VDC isolated power input (WV model)
- Optional 2 GT smart bypass relay protection when detecting power lost as well as CPU hang-up or link down. Deferring bypass time until router is completely boot-up.
- Optional TWCC** (Train Wireless Carriage Coupling) for auto wireless coupling
- Dual band 2.4G and 5GHz with 802.11ac/a/b/g/n
- Support 2.4Ghz operating within the following frequency bands:
 - 2.412~2.472 GHz
- Support 5Ghz operating within the following frequency bands:

5.180~5.825 GHz

- MIMO smart antenna technology with 3T3R
- 6 STANDARD SMA / OPTIONAL QMA type connectors for Wi-Fi & LTE, GPS
- Unlimited concurrent WIFI users
- Output power : <24dBM</p>
- Transmit power adjustment
- VAP (virtual access point) support up to 16 SSIDs
- Operation modes : AP/ BRIDGE / Client
- Traffic control for each SSID**
- Band preference for same SSID services on dual band**
- Rate selection to disable low data rate access**
- Highly Security Capability: WEP64/128bits/ WPA/ WPA-PSK (TKIP*,AES)/ WPA2/ WPA2-PSK (TKIP*,AES)
- HTTP/HTTPS/Telnet/SSH & Administration access
- Support IPv6** & IPv4 protocol

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- Radius Authentication, EAP-MD5, EAP-TLS, EAP-TTLS, PEAP; SSID broadcast disable supported**
- Multiple channel bandwidths of 20MHz and 40MHz for 2.4G.
- Multiple channel bandwidths of 20MHz, 40MHz and 80MHz for 5G only.
- Wi-Fi Multimedia (WMM) and 802.11e traffic prioritization
- Support Multi-Site VPN for mesh tunneling as well as Open VPN, L2TP, IPsec and PPTP** fro secured network connection
- The built-in Layer-4 firewall includes DoS**, IP address filter / Mac address filter* / TCP/UDP port number-
- Support SNMP*v1/v2c/v3
- Support NAT/DMZ
- One LTE 4G/3G w/ 2 SIM card design(1L model) for mobile redundancy
- GPS/ GLONASS (built-in LTE module) connection
- 802.11r Fast roaming** (Optional) <50ms between APs by Wireless Controller
- Load Balancing** supports 8 mechanism between multiple WANs

Pack	Algorithm	Description
Standard	Fixed	Manually route by traffic type through fixed WAN link.
Basic Package	Failover	Routes connections through preferred WAN link while others stand-by. Sequentially activate another link if preferred link fail occurs. Once failover will not failback until link loss.
	Priority	Routes connections through preferred WAN link as primary while others follow by. Ex. Wi-Fi client>LTE>others
	Weighted Round-Robin	Evenly distribute the traffic over all working WAN links in circular order according to the specified weights.
	Custom Route	Routing through the selected WAN for each specific traffic, ex: TCP/UDP port number and IP address.
Full Package (incl. basic package)	Sticky Session*	Binding all connections in an application session to particular WAN link to ensure all connections in the session are routed to the same WAN link , that is suitable for security services like online payment etc.

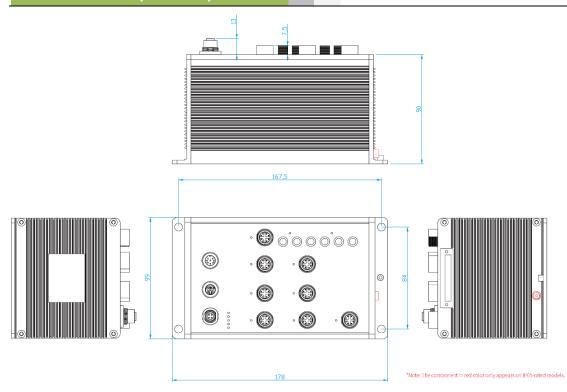


Smallest Load*	Routes connections through the WAN link with highest free bandwidth ratio. The ratio = 1 - (traffic load / the capability of a WAN link). The traffic load could be defined by downstream, upstream or total traffic
Fastest*	Routes connections through the WAN link with lowest latency time.

- Built-in 2 x serial ports(RS232/RS422/485)
- Serial port with 2.5KV isolation on RS422/485
- Supports 2DI/ 2DO(Digital Input / Output)
- Built-in Modbus gateway converting Modbus RTU/ASCII to Modbus/TCP for serial ports
- Optional DNP3 gateway with serial ports
- Event alerting by Syslog, Email**, SMS** text, Relay ; Permanent local log rotation / Maxi 1K records
- Remote Web/SMS** control to get status or re-boot by Web or SMS*
- Support SNTP to synchronize system clock
- Support LLDP discovery protocol
- Support DHCP Server and Client
- Graphic LTE & WIFI signal strength & TX/RX rate display
- Built-in environmental monitoring for system input voltage, current and ambient temperature; Able to set alert when abnormal
- Optional external USB to micro SD** for configuration management, storage backup or multimedia resource
- Firmware upgradeable through TFTP/FTP/HTTP
- Configuration backup and restoration
 - Supports text configuration file for system quick installation
 - USB port to upload/download configuration by USB dongle
 - Insta View/AIR** for centralized configuration deployment, backup & upgrade
- Dual image firmware*
- IP 65/54 housing for water proof environment
- Wall-mount installation
- Cloud/Host based InstaAIR** for router management/configuration/monitoring
- Support editable captive portal login page
- Visible LED to show the power & port link and activity
- Operation temperature -20~70C or -40~70C(-E)



DIMENSIONS (unit=mm)



WLAN Interface 802.11ain/ac(5Gbp 9 20dBm @ 6-24Mbps Coperating Mode AP/5RIDGE/Client modes 9 10/3rd8m @ MCS3 (HT2040) Radio Frequency DSSS, OFDM 9 19/8rd8m @ MCS3 (HT2040) Wireless Standard IEEE 802.11a/g/n 2.4GHz 19/8rd8m @ MCS3 (HT2040) 19/8rd8m @ MCS3 (HT2040) Wireless bandwidth SGHz: Up to 1300Mbps 2.4GHz. Up to 4500Mbps 3/33dBm @ MCS3 (VH140/80) 2.4GER @ 2.11b: DSSS 802.11a/g: OFDM (BP5K, QP5K, 16-QAM, 64-QAM) 3/33dBm @ MCS3 (VH120/40) 002.11a: OFDM (BP5K, QP5K, 16-QAM, 64-QAM) 802.11a: 5-81dBm @ 48Mbps 5-81dBm @ 48Mbps 0FDM (BP5K, QP5K, 16-QAM, 64-QAM) 802.11a: 0FDM (BP5K, QP5K, 16-QAM, 64-QAM) 5-93dBm @ MCS0 (VH120/40) 02.11a: 0FDM (BP5K, QP5K, 16-QAM, 64-QAM) 5-93dBm @ MCS0 (VH120/40) 5-81dBm @ 48Mbps 2.412GHz-2.472GHz, 5150MHz IEEE802.11b: 1/2/5.5/11 Mbps 5-80dBm @ MCS0 (VH120/40) 5-90dBm @ MCS0 (VH120/40) 1EEE802.11b: 1/2/5.5/11 Mbps IEEE802.11b: 1/2/5.5/11 Mbps 5-80dBm @ MCS0 (VH120/40) 5-80dBm @ MCS0 (VH120/40) 1EEE802.11b: 1/2/5.5/11 Mbps IEEE802.11b: 1/2/5.5/11 Mbps SSID Doadcast dasble	SPECI	FICATION		
Operating AP/SRUSS_OFEM 19/18dBm @ MCS0 (HT20/40) Frequency Type DSS, OFEM 19/18dBm @ MCS0 (HT20/40) Wireless Standard IEEE 802.11ac/n/a 5GHz. 19/18dBm @ MCS0 (HT20/40) Wireless Standard IEEE 802.11ac/n/a 5GHz. 13/13dBm @ MCS0 (HT20/40) Wireless Standard IEEE 802.11ac/n/a 5GHz. 13/13dBm @ MCS0 (HT20/40) Wireless bandwidth 5GHz: Up to 1300Mbps 2.4GHz. 13/13dBm @ MCS0 (VHT20/40) 802.11a/g: OFDM (BPSK, QPSK, 16-QAM, 64-QAM) 802.11a/g: ≤ 46dBm @ 48Mbps 0FDM (BPSK, QPSK, 16-QAM, 64-QAM) 543dBm @ MCS0 (HT20/40) ≤ 49dBm @ MCS0 (HT20/40) 2.412CHz - 2.472CHz, 5150MHz - 5850MHz ≤ 49dBm @ MCS0 (HT20/40) ≤ 49dBm @ MCS0 (HT20/40) 2.412CHz - 2.472CHz, 5150MHz - 5850MHz Encryption Security ¥94Bm @ MCS0 (HT20/40) IEEE802.11a: tr 2 / 55 / 11 Mbps IEEE802.11a: tr 2 / 55 / 11 Mbps Encryption Security WFP: (64-bit, 122-bit key supported) WFe1 (64-bit, 122-bit key supported) WFA - 28GBm @ MCS0 (HT20/40) ≤ 46dBm @ MCS0 (HT20/40) 2.412CHz - 2.472CHz, 550MHz Encryption Security WFP: (64-bit, 122-bit key supported) WFe1 (64-bit key pre-sharet key supported)	WLAN Interf	ace	802.11a/n/ac(5Gbp	20dBm @ 6~24Mbps
Nation Productivy DSSS, GPDM Type 16/16dBm @ MCS7 (HT20/40) Wireless Standard IEEE 802.11b/g/n 2.4GHz Wireless Standard IEEE 802.11b/g/n 2.4GHz Wireless bandwidth 5GHz: Up to 1300Mbps 2.4GHz: Up to 450Mbps 92dBm @ CS8 (VHT20/40/80) 802.11b/g/n 2.4GHz 13/13dBm @ MCS8 (VHT20/40/80) Wodulation 802.11b/g/n 2.4GHz Wodulation 802.11a/g: OFDM (BPSK, QPSK, 16-QAM, 64-QAM) 802.11a/g: OFDM (BPSK, QPSK, 16-QAM, 64-QAM) 540Bm @ 24Mbps 244dBm @ MCS0 (VHT20/40) 540Bm @ CS8 (VHT20/40) Solution: OFDM (BPSK, QPSK, 16-QAM, 64-QAM) 802.11a/g: OFDM (BPSK, QPSK, 16-QAM, 64-QAM) 540Bm @ CS0 (VHT20/40) Solution: 2412GHz-2.472GHz, 5150MHz-5850MHz Transmission Rate IEEE802.11b / 12 / 18 / 24 / 36 / 48 / 54 Mbps IEEE802.11b / 12 / 55 / 11 Mbps IEEE802.11b / 12 / 55 / 11 Mbps IEEE802.11b / 12 / 55 / 11 Mbps IEEE802.11b / 12 / 55 / 11 Mbps IEEE802.11b / 12 / 55 / 11 Mbps IEEE802.11b / 12 / 55 / 11 Mbps IEEE802.11b / 12 / 55 / 11 Mbps IEEE802.11b / 12 / 55 / 11 Mbps IEEE802.11b / 12 / 25 / 12 / 18 / 24 / 36 / 48 / 54 Mbps	Operating Mode	AP/BRIDGE/Client modes	s)	16dBm @ 36~54Mbps
Type 16/16/dBm @ MCS0 (VHT20/40) Wireless Standard IEEE 802.11ac/n/a 5GHz IEEE 802.11b/g/n 2.4GHz 19/18/18dBm @ MCS0 (VHT20/40/80) Wireless bandwidth 5GHz: Up to 1300Mbps 2.4GHz: Up to 1300Mbps 2.4GHz: Up to 1300Mbps 2.4GHz: Up to 1300Mbps 64-0AM) 802.11a/g: OFDM (BPSK, QPSK, 16-0AM, 64-0AM) 802.11a/g: OFDM (BPSK, QPSK, 16-0AM, 64-0AM) 802.11a/g: OFDM (BPSK, QPSK, 16-0AM, 64-0AM) 802.11a:: OFDM (BPSK, QPSK, 16-0AM, 54-0AM) 802.11a:: OFDM (BPSK, QPSK, 16-0AM, 54-0AM) 802.11a:: DFDM (BPSK, QPSK, 16-0AM, 54-0AM) <t< th=""><th>Radio Frequency</th><th>DSSS, OFDM</th><th></th><th>19/18dBm @ MCS0 (HT20/40)</th></t<>	Radio Frequency	DSSS, OFDM		19/18dBm @ MCS0 (HT20/40)
Wireless Standard IEEE 802.111/ab/u3 SGH2 IEEE 802.111/ab/u3 AGH2 13/13/13dBm @ MCS8 (VHT20/40/80) Wireless bandwidth SGH2: Up to 450Mbps SGH2: Up to 450Mbps 6-18Mbps 802.11ag; OFDM (BPSK, QPSK, 16-QAM, 64-QAM) 6-292dBm @ 6-18Mbps 802.11a; OFDM (BPSK, QPSK, 16-QAM, 64-QAM) 5-86dBm @ 24Mbps 802.11a; OFDM (BPSK, QPSK, 16-QAM, 64-QAM) 5-80dBm @ 54Mbps 90dBm @ MCS0 (HT20/40) 5-90dBm @ MCS0 (HT20/40) 2-412GH2: 2472GH2, 5150MH2 5-80dBm @ MCS0 (HT20/40) 1EEE 802.111a; up to 1300Mbps 5-90dBm @ MCS0 (HT20/40) IEEE 802.111a; up to 1300Mbps 5-90dBm @ MCS0 (VHT20/40/80) IEEE 802.111a; up to 1300Mbps 5-90dBm @ MCS0 (VHT20/40) IEEE 802.111a; up to 1300Mbps 5-90dBm @ MCS9 (VHT40/80) IEEE 802.111a; up to 450Mbps 5-86dBm @ MCS9 (VHT40/80) IEEE 802.111a; up to 450Mbps 580D readcast diable Vireless Security X-24B(per chain) 18dBm @ 1-11Mbps 5-92dBm @ ACS0 (HT20/40) Selb broadcast diable Cellular Interface 2-92dBm @ ACS0 (HT20/40) SBID broadcast Gable 2-92dBm @ 6-18Mbps 5-92dBm @ 6-18Mbps				· · · · · · · · · · · · · · · · · · ·
Wireless bandwidth IEEE 802.11b/g/n (2.4GHz 13/13dBm @ MCS9 (VHT40/80) Modulation 802.11b: DSSS = 92dBm @ 6-18Mbps 802.11b: DSSS 802.11b: DSSS = 94dBm @ 24Mbps 802.11b: DSSS 802.11b: DSSS = 86dBm @ 24Mbps 902.11b: DSSS 802.11b: DSSS = 84dBm @ 36Mbps 0FDM (BPSK, QPSK, 16-QAM, 64-QAM) 802.11a: = 93dBm @ 54Mbps 0FDM (BPSK, QPSK, 16-QAM, 64-QAM) = 93dBm @ MCS0 (VHT20/40) = 71dBm/≤-80dBm @ MCS7 (HT20/40) 0FDM (BPSK, QPSK, 16-QAM, 64-QAM) = 93dBm @ MCS0 (VHT20/40/80) = 93dBm @ MCS0 (VHT20/40/80) 1EEE 802.11a:: 0FDM (BPSK, QPSK, 16-QAM, 64-QAM) = 96dBm @ MCS0 (VHT20/40/80) = 96dBm @ MCS0 (VHT20/40/80) 1EEE 802.11a:: 0FDM (BPSK, QPSK, 16-QAM, 64-QAM) = 96dBm @ MCS0 (VHT20/40/80) = 96dBm @ MCS0 (VHT20/40/80) 1EEE 802.11a:: 0FDM (BPSK, QPSK, 16-QAK, 5550MHz IEEE 802.11a:: Immediate 80.11a: 1EEE 802.11b:: 12 / 28 / 28 / 31 / 34 / 36 / 48 / 54 Mbps IEEE 802.11a: WEP : (64bit, 128-bit key supported) IEEE 802.11b:: 10 / 18 / 18 / 24 / 36 / 48 / 54 Mbps Immediate 80.11a* Immediate 80.11a* 802.11b:: 10 / 20 / 3		IEEE 802.11ac/n/a 5GHz		, , , , , , , , , , , , , , , , , , ,
Writess bandwidth ScHz: Up to 1300Mpps 2:4CHz: Up to 450Mbps 5:42:Up to 1300Mpps Modulation 802.11b; DSSS 5:42:Up to 1300Mpps 802.11ag;		IEEE 802.11b/g/n 2.4GHz		· · · · · ·
Modulation 2:44Hz: Up to 450Mbps Modulation 802.11b: DSSS 802.11a;g: OFDM (BPSK, QPSK, 16-QAM, 64-QAM) 5:48dBm @ 24Mbps 802.11a; OFDM (BPSK, QPSK, 16-QAM, 64-QAM) 5:48dBm @ 24Mbps 802.11a; OFDM (BPSK, QPSK, 16-QAM, 64-QAM) 5:48dBm @ 24Mbps 92:11a; OFDM (BPSK, QPSK, 16-QAM, 64-QAM) 5:48dBm @ 48Mbps 92:412GHz-2,472GHz, 5150MHz-5850MHz 5:48dBm @ MCS0 (HT20/40) IEEE 802.11b; (jr) (2/15) / 11 Mbps 5:48dBm @ MCS0 (HT20/40)(80) IEEE 802.11b; (jr) (2/16) / 2/15 / 11 Mbps 5:48dBm @ MCS9 (HT20/40)(80) IEEE 802.11b; (jr) (2/16) / 2/15 / 11 Mbps 5:48dBm @ MCS9 (HT20/40)(80) IEEE 802.11b; (jr) (2/16) / 2/15 / 11 Mbps 5:48dBm @ MCS9 (HT20/40)(80) IEEE 802.11b; (jr) (2/16) / 2/15 / 11 Mbps 5:48dBm @ MCS9 (HT20/40)(80) IEEE 802.11b; (jr) (2/40) 5:48dBm @ MCS9 (HT20/40)(80) IEEE 802.11b; (jr) (2/40) 1:48br @ 1-11Mbps 18dBm @ 1-11Mbps 5:49dBm @ ACS7 (HT20/40) Receiver Sensitivity Rx + 2dB 5:95dBm @ 1-11Mbps 5:92dBm @ 6-54Mbps 5:95dBm @ 2:92dBm @ 6-18Mbps 5:94dBm @ 48Mbps 5:94dBm @ 2:4Mbps 5:94dBm @ 2:94dBm @ 48Mbps 5:95dBm @ 2:4Mbps <t< th=""><th>Wireless bandwidth</th><th>5GHz: Up to 1300Mbps</th><th></th><th>× /</th></t<>	Wireless bandwidth	5GHz: Up to 1300Mbps		× /
Modulation 802.11a: B02.11a; OFDM (BPSK, QPSK, 16-QAM, 64-QAM) ≤-86dBm @ 24Mbps S02.11a: OFDM (BPSK, QPSK, 16-QAM, 64-QAM) ≤-81dBm @ 48Mbps S02.11a: OFDM (BPSK, QPSK, 16-QAM, 64-QAM) ≤-93dBm @ MCS0 (HT20/40) S02.11a: OFDM (BPSK, QPSK, 16-QAM, 64-QAM) ≤-93dBm @ MCS0 (HT20/40) OFDM (BPSK, QPSK, 16-QAM, 64-QAM) ≤-93dBm @ MCS0 (HT20/40) S02.11a: OFDM (BPSK, QPSK, 16-QAM, 64-QAM) ≤-93dBm @ MCS0 (HT20/40) Vertices ≤-93dBm @ MCS0 (HT20/40) Frequency 2.412GHz-2.472GHz, 5150MHz-5850MHz IEEE 802.111b: 1/ 2/ 5.5/ 11 Mbps IEEE802.111b: 0/ 12/ 18/ 24 J36 / 48 / 54 Mbps S0/2040m @ CS0-MCS7 (HT20/40) S02.11b/g/n(2.4Gbp s) S10 broadcast disable Cellular Interface Cellular Interface S02.300/2500 MHz S-95dBm @ A-11Mbps S		2.4GHz: Up to 450Mbps		-
802.11a/g: GFDM (BPSK, QPSK, 16-QAM, 64-QAM) S02.11a: GFDM (BPSK, QPSK, 16-QAM, 64-QAM) S02.11a: GFDM (BPSK, QPSK, 16-QAM, 64-QAM) S02.11ac: OFDM (BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM) S-90dBm @ MCS0 (VHT20/40) S-90dBm @ MCS1 (VHT20/40) S-90dBm @ MCS1 (VHT20/40) S-90dBm @ MCS1 (VHT20/40) SI IEEE 802.11a: up to 450Mbps IEEE 802.11b: 1/2/5.5/11 Mbps IEEE 802.11a: up to 450Mbps IEEE 802.11b: 1/2/5.5/11 Mbps IEEE 802.11a: up to 450Mbps IEEE 802.11b: 1/2/5.5/11 Mbps IEEE 802.11a: up to 450Mbps IEEE 802.11b: 1/2/5.5/11 Mbps IEEE 802.11a: up to 450Mbps IEEE 802.11b: 1/2/5.5/11 Mbps IEEE 802.11a: up to 450Mbps IEEE 802.11b: 0/ p 12/18/24/36/48/54 Mbps SID Output Power Tx +/-2dB(per chain) MSCHAPV3 and PEAP ** 802.11b/g/n(2.4Gbp 13dBm @ 1-11Mbps 9.92dBm @ 6-54Mbps SID broadcast disable 0/200dBm @ MCSO-MCS7 (HT20/40) GPS, Glonass (EU/Americas) Receiver Sensitivity Rx +/- 2dB SiD broadcast disable 9.92dBm @ 6-14Mbps SidBm @ 24Mbps <th>Modulation</th> <th>802.11b: DSSS</th> <th></th> <th>·</th>	Modulation	802.11b: DSSS		·
OFDM (BPSK, QPSK, 16-QAM, 64-QAM) ≤-81dBm @ 48Mbps OFDM (BPSK, QPSK, 16-QAM, 64-QAM) ≤-93dBm @ MCS0 (HT20/40) S02.11ac: GFDM (BPSK, QPSK, 16-QAM, 64-QAM) OFDM (BPSK, QPSK, 16-QAM, 64-QAM), ≤-93dBm @ MCS0 (HT20/40) S-90dBm @ MCS0 (VHT20/40/80) ≤-90dBm @ MCS0 (VHT20/40/80) Z-412GHz-2.472GHz, 5150MHz ≤-66dBm @ MCS0 (VHT20/40/80) Transmission Rate IEEE 802.11a // 2 / 15 / 11 Mbps IEEE802.11b: 1/ 2 / 5.5 / 11 Mbps IEEE802.11a // 2 / 18 / 24 / 36 / 48 / 54 Mbps IEEE802.11b: 1/ 2 / 5.5 / 11 Mbps IEEE802.11a // 2 / 56 / 14 / 24 / 36 / 48 / 54 Mbps IEEE802.11b: 1/ 2 / 5.5 / 11 Mbps IEEE802.11a // 2 / 56 / 14 / 24 / 36 / 48 / 54 Mbps IEEE802.11b: 1/ 2 / 5.5 / 11 Mbps IEEE802.11a // 2 / 56 / 14 / 24 / 36 / 48 / 54 Mbps IEEE802.11b: 1/ 2 / 5.6 / 11 Mbps IEEE802.11a // 2 / 56 / 14 / 24 / 36 / 48 / 54 Mbps IEEE802.11b: 1/ 2 / 5.6 / 14 / 24 / 36 / 48 / 54 Mbps SiD broadcast disable 0xCort Power Tx +/ 2dB(per chain) 18dBm @ 1-11Mbps 802.111* Urue 4500Mps 20/20dBm @ MCS0 / HT20/40) SiD broadcast disable 20/20dBm @ CS0-MCS7 (HT20/40) GPS, Glonass, El/JAmericas) 9-95dBm @ 1-11Mbps SiD broadcast disable		802.11a/g:		
802.11n: OFDM (BPSK, QPSK, 16-QAM, 64-QAM) 802.11ac: OFDM (BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM) = -80dBm @ 54Mbps S -93dBm @ MCS0 (HT20/40) Operating Frequency IEEE 802.11 a/b/g/n ISM Band, 2.412GHz-2.472GHz, 5150MHz-5850MHz = -90dBm @ MCS0 (VHT20/40)(80) Transmission Rate IEEE802.11a / 2/ / 55 / 11 Mbps IEEE802.11b / 2 / 36 / 48 / 54 Mbps Encryption Security WEP : (64-bit , 128-bit key supported) WPA-PSK (256-bit key pre-shared key supported) WeA-PSK (256-bit key pre-shared key supported) Wireless Security 802.111: BadBm @ 1-11Mbps S -92dBm @ 6-54Mbps S -92dBm @ 1-11Mbps S -92dBm @ 24Mbps S -92dBm @ 24Mbps S -93dBm @ 48Mbps S -93dBm @ MCS7 (HT20/40) S -76dBm @ MCS7 (HT20/40)		OFDM (BPSK, QPSK, 16-QAM, 64-QAM)		·
OFDM (BPSK, QPSK, 16-QAM, 64-QAM) \$ 		802.11n:		
802.11ac: OFDM (BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM) ≤ -71dBm/≤-80dBm @ MCS7 (HT20/40) Operating Frequency IEEE 802.11 a/b/g/n ISM Band, ≤ -90dBm @ MCS0 (VHT20/40/80) 2-402Hz-2.472CHz, 5150MHz-5850MHz ≤ -66dBm @ MCS9 (VHT20/40/80) Transmission Rate IEEE 802.11ac: up to 1300Mbps IEEE 802.11a (j 6 / 9 / 12 / 18 / 24 / 36 / 48 / 54 Mbps IEEE 802.11a (j 6 / 9 / 12 / 18 / 24 / 36 / 48 / 54 Mbps IEEE 802.11a (j 6 / 9 / 12 / 18 / 24 / 36 / 48 / 54 Mbps IEEE 802.11a (j 6 / 9 / 12 / 18 / 24 / 36 / 48 / 54 Mbps IEEE 802.11a (j 6 / 9 / 12 / 18 / 24 / 36 / 48 / 54 Mbps IEEE 802.11a (j 6 / 9 / 12 / 18 / 24 / 36 / 48 / 54 Mbps IEEE 802.11a (j 6 / 9 / 12 / 18 / 24 / 36 / 48 / 54 Mbps IEEE 802.11a (j 0 + 0450Mbps UPA.PSK (256-bit key pre-shared key supported) WPA.PSK (256-bit key pre-shared key supported) WPA.PSK (256-bit key pre-shared key supported) OKC** and 802.11r** EAP,MD5,EAP,TLS,EAP,TLS,EAP 18dBm @ 1 - 11Mbps s) 13dBm @ 1 - 11Mbps ≤ -95dBm @ 36Mbps ≤ -86dBm @ 24Mbps ≤ -86dBm @ 24Mbps ≤ -86dBm @ 36Mbps ≤ -86dBm @ 36Mbps ≤ -86dBm @ 36Mbps ≤ -80dBm @ 54Mbps ≤ -80dBm @ 54Mbps ≤ -80dBm @ 40K50 (HT20/40) ≤ -76dBm @ MCS0 (HT20/40) Band Options APAC & Australia (APAC model) LTE: 2100/1800/850/2600/900/850/850/1500/700/2600/19 00/2300/2500 MHz (B1/B3/B5/B7/B8/B18/B19/B21/B28/B3/B39/B40/B4 1)		OFDM (BPSK, QPSK, 16-QAM, 64-QAM)		•
OPDM (BPSK, 16-QAM, 64-QAM, 256-QAM) Operating IEEE 802.11 a/b/g/n ISM Band, Frequency 2.412GHz-2.472GHz, 5150MHz-5850MHz Transmission Rate IEEE802.11a:: up to 1300Mbps IEEE802.11b: 1/ 2 / 5.5 / 11 Mbps IEEE802.11a:: up to 450Mbps IEEE802.11b: 1/ 2 / 5.5 / 11 Mbps IEEE802.11a:: up to 450Mbps IEEE802.11b: 1/ 2 / 5.5 / 11 Mbps IEEE802.11a: up to 450Mbps IEEE802.11b: up to 450Mbps WPA WPA2 : IEEE802.11i: WP to 450Mbps IEEE802.11b: up to 450Mbps Wireless Security 802.11b/g/n(2.4Gbp 0utput Power Tx +/- 2dB(per chain) 18dBm @ 6 -54Mbps 20/20dBm @ McS0-MCS7 (HT20/40) Receiver Sensitivity Rx +/- 2dB SID broadcast disable 2-93dBm @ 1-11Mbps GPS, Glonass (EU/Americas) 2-93dBm @ 1-11Mbps GPS, Glonass (EU/Americas) 2-93dBm @ 6-18Mbps GPS, Glonass (EU/Americas) 2-93dBm @ 54Mbps GPS, Glonass (EU/Americas) 2-83dBm @ 24Mbps Saddm @ 36Mbps 2-81dBm @ 48Mbps GPS, Glonass (EU/Americas) 2-81dBm @ 48Mbps GPS, Glonass (EU/Americas) 2-81dBm @ McS0 (HT20/40) ITE: 2-94dBm @ McS0 (HT20/4		802.11ac:		· · · · · ·
Operating Frequency IEEE 802.11 a/b/g/n ISM Band, 2.412GHz-2.472GHz, 5150MHz-5850MHz ≤ -69dBm @ MCS8 (VHT20/40/80) Transmission Rate IEEE802.11ac: up to 1300Mbps IEEE802.11b: 1/2/5.5/11 Mbps IEEE802.11a/g: 6 / 9 / 12 / 18 / 24 / 36 / 48 / 54 Mbps IEEE802.11a/g: 6 / 9 / 12 / 18 / 24 / 36 / 48 / 54 Mbps IEEE802.11a/g: 6 / 9 / 12 / 18 / 24 / 36 / 48 / 54 Mbps IEEE802.11b/g/n(2.4Gbp s) Encryption Security WEP : (64-bit , 128-bit key supported) WPA./PSK (256-bit key pre-shared key supported) WPA.PSK (256-bit key pre-shared key supported) OKC** and 802.11r** EAP,MD5,EAP,TLS,EAP,TTLS,EAP 802.11b/g/n(2.4Gbp s) 18dBm @ 1~11Mbps 18dBm @ 1~11Mbps 20/20dBm @ MCS0-MCS7 (HT20/40) Receiver Sensitivity Rx +/- 2dB ≤ -95dBm @ 1-11Mbps ≤ -95dBm @ 1-11Mbps ≤ -85dBm @ 36Mbps ≤ -85dBm @ 36Mbps ≤ -85dBm @ 36Mbps ≤ -85dBm @ 36Mbps ≤ -86dBm @ 48Mbps ≤ -86dBm @ 4KCS0 (HT20/40) ≤ -76dBm @ MCS7 (HT20/40) Wireless Security SID broadcast disable Band Options APAC & Australia (APAC model) LTE: 2100/1800/850/2600/900/850/850/1500/700/2600/19 00/2300/2500 MHz (B1/B3/B5/B7/B8/B18/B19/B21/B28/B38/B39/B40/B4 1)		OFDM (BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM)		
Frequency 2.412GHz-2.472GHz, 5150MHz-5850MHz Transmission Rate IEEE802.11a: up to 1300Mbps IEEE802.11b: 1/2/5.5/11 Mbps IEEE802.11a/g: 6 / 9 / 12 / 18 / 24 / 36 / 48 / 54 Mbps IEEE802.11a/g: 6 / 9 / 12 / 18 / 24 / 36 / 48 / 54 Mbps IEEE802.11a/g: 6 / 9 / 12 / 18 / 24 / 36 / 48 / 54 Mbps IEEE802.11a/g: 6 / 9 / 12 / 18 / 24 / 36 / 48 / 54 Mbps IEEE802.11b/g/n(2.4Gbp Security WEP : (64-bit , 128-bit key supported) WPA./PSK (256-bit key pre-shared key supported) OKC** and 802.11r** EAP,MD5,EAP,TLS,EAP,TTLS,EAP 802.11b/g/n(2.4Gbp 18dBm @ 1~11Mbps 18dBm @ 1~11Mbps 20/20dBm @ MCS0-MCS7 (HT20/40) Receiver Sensitivity Rx +/- 2dB ≤ -95dBm @ 1-11Mbps ≤ -95dBm @ 1-11Mbps ≤ -88dBm @ 24Mbps ≤ -88dBm @ 24Mbps ≤ -88dBm @ 24Mbps ≤ -88dBm @ 36Mbps ≤ -88dBm @ 36Mbps ≤ -86dBm @ MCS0 (HT20/40) ≤ -96dBm @ MCS7 (HT20/40) ≤ -76dBm @ MCS7 (HT20/40) Band Options APAC & Australia (APAC model) LTE: 2100/1800/850/2600/900/850/850/1500/700/2600/19 00/2300/2500 MHz (B1/B3/B5/B7/B8/B18/B19/B21/B28/B38/B39/B40/B4 1)	Operating	IEEE 802.11 a/b/g/n ISM Band,		· · · ·
Transmission Rate IEEE802.11ac: up to 1300Mbps IEEE802.11ac: up to 1300Mbps IEEE802.11ac: up to 1300Mbps IEEE802.11a/g: 6 / 9 / 12 / 18 / 24 / 36 / 48 / 54 Mbps WEP : (64-bit ,128-bit key supported) IEEE802.11a/g: 6 / 9 / 12 / 18 / 24 / 36 / 48 / 54 Mbps WPA.PSK (256-bit key pre-shared key supported) IEEE802.11b/g/n(2.4Gbp Output Power Tx +/ 2dB(per chain) Wireless Security 802.11b/g/n(2.4Gbp 18dBm @ 1-11Mbps Sib Droadcast disable 20/20dBm @ MCS0-MCS7 (HT20/40) Wireless Security SIb Droadcast disable 20/20dBm @ ACS0-MCS7 (HT20/40) GPS, Glonass, EU/Americas) GPS, Glonass, Beidou, Galileo (APAC model) 2-95dBm @ 1-11Mbps SebdBm @ 24Mbps Location Solutions GPS, Glonass, Beidou, Galileo (APAC model) 2-88dBm @ 24Mbps SebdBm @ 36Mbps SebdBm @ 36Mbps Dol/300/2500 MHz 3-94dBm @ MCS0 (HT20/40) SebdBm @ MCS0 (HT20/40) 1) 1	Frequency	2.412GHz~2.472GHz, 5150MHz~5850MHz		· · · ·
IEEE802.11: 1/2 / 5.5 / 111 Mbps IEEE802.11a/g: 6 / 9 / 12 / 18 / 24 / 36 / 48 / 54 Mbps IEEE802.11a/g: 6 / 9 / 12 / 18 / 24 / 36 / 48 / 54 Mbps IEEE802.11n: up to 450Mbps Output Power Tx +/- 2dB(per chain) 802.11b/g/n(2.4Gbp s) 18dBm @ 1-11Mbps 18dBm @ 6-54Mbps 20/20dBm @ MCS0-MCS7 (HT20/40) Receiver Sensitivity Rx +/- 2dB ≤ -95dBm @ 1-11Mbps ≤ -95dBm @ 1-11Mbps ≤ -95dBm @ 24Mbps ≤ -88dBm @ 24Mbps ≤ -88dBm @ 24Mbps ≤ -88dBm @ 36Mbps ≤ -86dBm @ 36Mbps ≤ -86dBm @ 36Mbps ≤ -86dBm @ 48Mbps ≤ -86dBm @ 48Mbps ≤ -86dBm @ MCS0 (HT20/40) ≤ -96dBm @ MCS7 (HT20/40)	Transmission Rate	IEEE802.11ac: up to 1300Mbps	Encryption Socurity	× /
IEEE 802.11a/g: 6 / 9 / 12 / 18 / 24 / 36 / 48 / 54 Mbps IEEE 802.11a/g: 6 / 9 / 12 / 18 / 24 / 36 / 48 / 54 Mbps IEEE 802.11b/g/n(2.4Gbp S) Wireless Security SD broadcast disable Cellular Interface Location Solutions GPS, Glonass (EU/Americas) GPS, Glonass, Beidou, Galileo (APAC model) S SadBm @ 24Mbps SetBatm @ 36Mbps SetBatm @ 48Mbps SetBatm @ 48Mbps SetBatm @ MCS0 (HT20/40) SetAdBm @ MCS0 (HT20/40) SetAdBm @ MCS0 (HT20/40)		IEEE802.11b: 1 / 2 / 5.5 / 11 Mbps		
IEEE 802.11n: up to 450Mbps OKC** and 802.11r** 802.11b/g/n(2.4Gbp Output Power Tx +/- 2dB(per chain) 18dBm @ 1-11Mbps 18dBm @ 6-54Mbps 20/20dBm @ McS0-MCS7 (HT20/40) MsCHAPv3 and PEAP ** Si SSID broadcast disable 20/20dBm @ AcS0-MCS7 (HT20/40) GPS, Glonass (EU/Americas) S-95dBm @ 1-11Mbps GPS, Glonass (EU/Americas) S-92dBm @ 6-18Mbps GPS, Glonass (EU/Americas) S-92dBm @ 6-18Mbps GPS, Glonass, Beidou, Galileo (APAC model only) Sattable APAC & Australia (APAC model) ITE: 2100/1800/850/2600/900/850/850/1500/700/2600/19 Se3dBm @ 36Mbps Se3dBm @ 36Mbps Se3dBm @ 48Mbps Se3dBm @ McS0 (HT20/40) Se76dBm @ MCS7 (HT20/40) 1)		IEEE802.11a/g: 6 / 9 / 12 / 18 / 24 / 36 / 48 / 54 Mbps		
IEEE Output Power Tx +/- 2dB(per chain) EAP,MD5,EAP,TLS,EAP,TLS,EAP 802.11b/g/n(2.4Gbp 18dBm @ 1-11Mbps MsCHAPv3 and PEAP ** s) 18dBm @ 1-54Mbps SID broadcast disable 20/20dBm @ MCS0-MCS7 (HT20/40) SID broadcast disable e-95dBm @ 1-11Mbps SID broadcast disable ≤-95dBm @ 1-11Mbps GPS, Glonass (EU/Americas) ≤-92dBm @ 6-18Mbps GPS, Glonass, Beidou, Galileo (APAC model only) ≤-88dBm @ 24Mbps Band Options ≤-85dBm @ 36Mbps EAPMD5,EAP,TLS,EAP,TLS,EAP ≤-86dBm @ 36Mbps GPS, Glonass (EU/Americas) ≤-86dBm @ 36Mbps Band Options APAC & Australia (APAC model) LTE: 2100/1800/850/2600/900/850/1500/700/2600/19 00/2300/2500 MHz (B1/B3/B5/B7/B8/B18/B19/B21/B28/B38/B39/B40/B4 1) ≤-76dBm @ MCS7 (HT20/40) 1)		IEEE802.11n: up to 450Mbps		
802.11b/g/n(2.4Gbp 18dBm @ 1~11Mbps MsCHAPv3 and PEAP ** s) 18dBm @ 6-54Mbps 20/20dBm @ MCS0-MCS7 (HT20/40) Receiver Sensitivity Rx +/- 2dB ≤ -95dBm @ 1~11Mbps GPS, Glonass (EU/Americas) GPS, Glonass, Beidou, Galileo (APAC model only) GPS, Glonass, Beidou, Galileo (APAC model only) ≤ -88dBm @ 24Mbps GPS, Glonass, Beidou, Galileo (APAC model only) ≤ -88dBm @ 36Mbps GPS, Glonass, Beidou, Galileo (APAC model only) Sand Options APAC & Australia (APAC model) LTE: 2100/1800/850/2600/900/850/500/700/2600/19 GPS, Glonass, Beidou, Galileo (APAC model) LTE: 2-80dBm @ 54Mbps GPS, Glonass, Beidou, Galileo (APAC model) GPS, Glonass, Beidou, Galileo (APAC model) LTE: 2-80dBm @ 54Mbps GPS, Glonass, Beidou, Ball (APAC model) GPS, Glonass, Beidou, Galileo (APAC model) LTE: 2-80dBm @ 54Mbps (B1/B3/B5/B7/B8/B18/B19/B21/B28/B38/B39/B40/B4 Sender @ MCS0 (HT20/40) 1)	IEEE	Output Power Tx +/- 2dB(per chain)		
s) 18dBm @ 6-54Mbps 20/20dBm @ MCS0-MCS7 (HT20/40) SSID broadcast disable Receiver Sensitivity Rx +/- 2dB ≤ -95dBm @ 1-11Mbps ≤ -95dBm @ 1-11Mbps GPS, Glonass (EU/Americas) GPS, Glonass, Beidou, Gallieo (APAC model only) ≤ -88dBm @ 24Mbps ≤ -88dBm @ 36Mbps ≤ -88dBm @ 54Mbps ≤ -88dBm @ 36Mbps ≤ -88dBm @ 54Mbps ≤ -80dBm @ 54Mbps ≤ -80dBm @ 54Mbps ≤ -80dBm @ 54Mbps ≤ -94dBm @ MCS0 (HT20/40) ≤ -76dBm @ MCS7 (HT20/40)	802.11b/g/n(2.4Gbp	18dBm @ 1~11Mbps		
20/20dBm @ MCS0-MCS7 (HT20/40) Receiver Sensitivity Rx +/- 2dB ≤-95dBm @ 1-11Mbps ≤-95dBm @ 1-11Mbps ≤-92dBm @ 6-18Mbps ≤-88dBm @ 24Mbps ≤-88dBm @ 36Mbps ≤-88dBm @ 36Mbps ≤-81dBm @ 48Mbps ≤-80dBm @ 54Mbps ≤-80dBm @ 54Mbps ≤-80dBm @ KCS0 (HT20/40) ≤-76dBm @ MCS7 (HT20/40)	s)	18dBm @ 6~54Mbps	Wireless Security	
Band Options APAC & Australia (APAC model) LTE: 2100/1800/850/2600/900/850/850/1500/700/2600/19 00/2300/2500 MHz ≤-94dBm @ AdMbps ≤-80dBm @ 54Mbps ≤-94dBm @ MCS0 (HT20/40) 1)		, , ,	· · · ·	rface
Series GPS, Glonass, Beidou, Galileo (APAC model only) Series GPS, Glonass, Beidou, Galileo (APAC model only) Series Series		-		
≤ -92dBm @ 6-18Mbps Band Options APAC & Australia (APAC model) LTE: 2100/1800/850/2600/900/850/850/1500/700/2600/19 00/2300/2500 MHz ≤ -80dBm @ 54Mbps 00/2300/2500 MHz 00/2300/2500 MHz ≤ -94dBm @ MCS0 (HT20/40) 1) 1)				
≤-85dBm @ 36Mps LIE: 2100/1800/850/2600/900/850/850/1500/700/2600/19 ≤-81dBm @ 48Mps 2100/1800/850/2500 MHz ≤-80dBm @ 54Mps 00/2300/2500 MHz ≤-94dBm @ MCS0 (HT20/40) (B1/B3/B5/B7/B8/B18/B19/B21/B28/B38/B39/B40/B4 ≤-76dBm @ MCS7 (HT20/40) 1)			Band Options	
≤ -81dBm @ 48Mbps 00/2300/2500 MHz ≤ -80dBm @ 54Mbps 00/2300/2500 MHz ≤ -94dBm @ MCS0 (HT20/40) (B1/B3/B5/B7/B8/B18/B19/B21/B28/B38/B39/B40/B4 ≤ -76dBm @ MCS7 (HT20/40) 1)				LTE:
≤-80dBm @ 54Mps (B1/B3/B5/B7/B8/B18/B19/B21/B28/B38/B39/B40/B4 ≤-94dBm @ MCS0 (HT20/40) 1) ≤-76dBm @ MCS7 (HT20/40)				
≤-94dBm @ MCS0 (HT20/40) 1) ≤-76dBm @ MCS7 (HT20/40)				
≤-76dBm @ MCS7 (HT20/40)				X • • • • • • • • • • • • • • • • • • •
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IEEE Output Power Tx +/- 2dB(per chain) EUNA & USA model	IEEE			EUNA & USA model

Datasheet Version 5.4

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	LTE:	Timor	Puilt in Paol Time Cleak to keep track of time
	2100/1800/2600/900/800 MHz	Timer	Built-in Real Time Clock to keep track of time always(RTC)
	(B1/B2/B3/B4/B5/B7/B12/B13/B20/B25/B26/B29/B30	Discovery	IEEE 802.1ab Link Layer Discovery Protocol (LLDP)
	/B41)	SNMP trap	Device cold / warm start
	WorldWide (WW model)		Port link up / link down DI / DO high / low
	LTE:	Environmental	System status for input voltage, current, ambient
	2100/1900/1800/1700/850/2600/900/1800/700/8/	Monitoring	temperature to be shown in GUI and sent alerting if
	50/850/800/850/700/2300/1500/2500/3500/3700/520 0/3600/1700		any abnormal status
	(B1/B2/B3/B4/B5/B7/B8/B9/B12/B13/B18/B19/B20/B	Graphic signal	Graphic LTE & Wi-Fi signal strength & TX / RX rate
	26/B28/B29/B30/B32/B41/B42/B43/B46/B48/B66)	display Remote	display To reboot or get status of router by Web/SMS**
Data Rates – LTE	APAC & Australia (APAC model)	Web/SMS** control	to report of get status of fourier by web/owlo
Dala Nales – LTL	Downlink (Cat 6):	Captive portal	Editable captive portal login page
	FDD: 300 Mbps	Maintenance	Firmware upgradeable through TFTP/FTP/HTTP
	TDD: 222 Mbps Uplink (Cat 6):	Configuration backup & restore	Supports text configuration file for quick system installation
	FDD: 50 Mbps		USB port to upload/download configuration by USB
	TDD: 26 Mbps		dongle
	Americas (US model) / EMEA (EU model)		Dual image firmware* InstaView/AIR** for mass configuration/upgrade
	Downlink (Category 3):	Physical Po	rts & System
	100 Mbps (20 MHz bandwidth)	Connectors	10/100/1000T: 6x ports M12 8-pole X-coded with Auto
	50 Mbps (10 MHz bandwidth) Uplink (Category 3):		MDI/MDI-X function
	50 Mbps (20 MHz bandwidth)		USB/Console connector: 1 x M12 8-pole A-coded
	25 Mbps (10 MHz bandwidth)		DIDO : 1 x M12 5-pole A-coded Power Input connector : 1 x M12 4-pole A-coded
Software			Serial connector : 2 DB9
IPv6/4	Present		SIM card slots : 2
Login Security TWCC**	Supports IEEE802.1x** Authentication/RADIUS Optional Train Wireless Carriage Coupling for Auto		SMA/QMA ^{**} connector for LTE: 3 (female) SMA/QMA ^{**} connector for Wi-Fi: 3 (male)
IWCC	wireless Coupling	Serial Baud Rate	1000Kbps high data rate,250kbps normal for RS232;
Access Security	HTTP/HTTPS/Telnet/SSH & Administration;		20Mbps high data rate,250kbps normal for
	SNMP*v1/v2/v3 access for authentication via	Serial Data Bits	RS422/485
Protocol	MD5/SHA(v3) and Encryption via DES/AES(v3) PPPoE Client, DHCP server/client, Adjustable MTU,	Serial Parity	5, 6, 7, 8 odd, even, none, mark, space
1 1010001	Port forwarding (NAPT), DMZ; NAT, SNTP,	Serial Stop Bits	1, 1.5, 2
	Firewall(Firewall(DoS**; IP address filter / Mac	RS-232	TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND
	address filter* / TCP/UDP port number),VRRP**, DDNS*	RS-422	Tx+,Tx-, Rx+, Rx-,GND
Management	SNMP*v1,v2c,v3/Web/Telnet/CLI	RS-485 (2-wire)	Data+, Data-,GND
Load Balancing**	8 schemes for multiple WAN	Isolation protection	RS422/485 2.5KV isolation; 8KV contact & 15KV air RS232 8KV contact and 15KV air ESD
Load Balancing** Fixed	8 schemes for multiple WAN Manually route by traffic type through fixed WAN link.		RS232 8KV contact and 15KV air ESD DIDO 3KV isolation
Load Balancing** Fixed Basic Package*	8 schemes for multiple WAN Manually route by traffic type through fixed WAN link.		RS232 8KV contact and 15KV air ESD DIDO 3KV isolation Input power 1.5KVA isolation
Load Balancing** Fixed	8 schemes for multiple WAN Manually route by traffic type through fixed WAN link. * Routes connections through preferred WAN link while		RS232 8KV contact and 15KV air ESD DIDO 3KV isolation
Load Balancing** Fixed Basic Package*	8 schemes for multiple WAN Manually route by traffic type through fixed WAN link. * Routes connections through preferred WAN link while others stand-by. Sequentially activate another link if		RS232 8KV contact and 15KV air ESD DIDO 3KV isolation Input power 1.5KVA isolation 2 Digital Input (DI) : Level 0: -30-2V / Level 1: 10~30V Max. input current:8mA
Load Balancing** Fixed Basic Package* Failover	8 schemes for multiple WAN Manually route by traffic type through fixed WAN link. Routes connections through preferred WAN link while others stand-by. Sequentially activate another link if preferred link failure occurs.		RS232 8KV contact and 15KV air ESD DIDO 3KV isolation Input power 1.5KVA isolation 2 Digital Input (DI) : Level 0: -30-2V / Level 1: 10~30V Max. input current:8mA 2 Digital Output(DO): Open collector to 40 VDC,
Load Balancing** Fixed Basic Package*	8 schemes for multiple WAN Manually route by traffic type through fixed WAN link. Routes connections through preferred WAN link while others stand-by. Sequentially activate another link if preferred link failure occurs. Routes connections through preferred WAN link while	DI/DO	RS232 8KV contact and 15KV air ESD DIDO 3KV isolation Input power 1.5KVA isolation 2 Digital Input (DI) : Level 0: -30-2V / Level 1: 10-30V Max. input current:8mA 2 Digital Output(DO): Open collector to 40 VDC, 200mA
Load Balancing** Fixed Basic Package* Failover	8 schemes for multiple WAN Manually route by traffic type through fixed WAN link. Routes connections through preferred WAN link while others stand-by. Sequentially activate another link if preferred link failure occurs. Routes connections through preferred WAN link while others stand-by. Sequentially activate other links if	DVDO	RS232 8KV contact and 15KV air ESD DIDO 3KV isolation Input power 1.5KVA isolation 2 Digital Input (DI) : Level 0: -30-2V / Level 1: 10-30V Max. input current:8mA 2 Digital Output(DO): Open collector to 40 VDC, 200mA D IS
Load Balancing** Fixed Basic Package* Failover Priority	8 schemes for multiple WAN Manually route by traffic type through fixed WAN link. Routes connections through preferred WAN link while others stand-by. Sequentially activate another link if preferred link failure occurs. Routes connections through preferred WAN link while others stand-by. Sequentially activate other links if overflow occurs.	DI/DO	RS232 8KV contact and 15KV air ESD DIDO 3KV isolation Input power 1.5KVA isolation 2 Digital Input (DI) : Level 0: -30-2V / Level 1: 10-30V Max. input current:8mA 2 Digital Output(DO): Open collector to 40 VDC, 200mA DTS Per unit: Power 1 (Green), Power 2 (Green), P-Fail (Red), Ring Master(Green), System Ready(Green),
Load Balancing** Fixed Basic Package* Failover Priority Weighted	8 schemes for multiple WAN Manually route by traffic type through fixed WAN link. Routes connections through preferred WAN link while others stand-by. Sequentially activate another link if preferred link failure occurs. Routes connections through preferred WAN link while others stand-by. Sequentially activate other links if overflow occurs. Evenly distribute the traffic over all working WAN links	DI/DO LED Indicate Power & System indicator	RS232 8KV contact and 15KV air ESD DIDO 3KV isolation Input power 1.5KVA isolation 2 Digital Input (DI) : Level 0: -30-2V / Level 1: 10-30V Max. input current:8mA 2 Digital Output(DO): Open collector to 40 VDC, 200mA DTS Per unit: Power 1 (Green), Power 2 (Green), P-Fail
Load Balancing** Fixed Basic Package* Failover Priority	8 schemes for multiple WAN Manually route by traffic type through fixed WAN link. Routes connections through preferred WAN link while others stand-by. Sequentially activate another link if preferred link failure occurs. Routes connections through preferred WAN link while others stand-by. Sequentially activate other links if overflow occurs.	DI/DO LED Indicato Power & System indicator 10/100/1000Base-T (X) port indicator	RS232 8KV contact and 15KV air ESD DIDO 3KV isolation Input power 1.5KVA isolation 2 Digital Input (DI) : Level 0: -30-2V / Level 1: 10-30V Max. input current:8mA 2 Digital Output(DO): Open collector to 40 VDC, 200mA DTS Per unit: Power 1 (Green), Power 2 (Green), P-Fail (Red), Ring Master(Green), System Ready(Green), Storage(Green), Serial1/Serial2(Green)
Load Balancing** Fixed Basic Package* Failover Priority Weighted Round-Robin	8 schemes for multiple WAN Manually route by traffic type through fixed WAN link. * Routes connections through preferred WAN link while others stand-by. Sequentially activate another link if preferred link failure occurs. Routes connections through preferred WAN link while others stand-by. Sequentially activate other links if overflow occurs. Evenly distribute the traffic over all working WAN links in circular order according to the specified weights	DVDO LED Indicato Power & System indicator 10/100/1000Base-T (X) port indicator SIM	RS232 8KV contact and 15KV air ESD DIDO 3KV isolation Input power 1.5KVA isolation 2 Digital Input (DI) : Level 0: -30-2V / Level 1: 10-30V Max. input current:8mA 2 Digital Output(DO): Open collector to 40 VDC, 200mA DTS Per unit: Power 1 (Green), Power 2 (Green), P-Fail (Red), Ring Master(Green), System Ready(Green), Storage(Green), Serial1/Serial2(Green) Link/Activity (Green), Speed (Yellow) Green for Link/Act
Load Balancing** Fixed Basic Package* Failover Priority Weighted Round-Robin Custom Route Full Package in	8 schemes for multiple WAN Manually route by traffic type through fixed WAN link. * Routes connections through preferred WAN link while others stand-by. Sequentially activate another link if preferred link failure occurs. Routes connections through preferred WAN link while others stand-by. Sequentially activate other links if overflow occurs. Evenly distribute the traffic over all working WAN links in circular order according to the specified weights Routing through the selected WAN for each specific	DVDO LED Indicate Power & System indicator 10/100/1000Base-T (X) port indicator SIM GPS	RS232 8KV contact and 15KV air ESD DIDO 3KV isolation Input power 1.5KVA isolation 2 Digital Input (DI) : Level 0: -30-2V / Level 1: 10-30V Max. input current:8mA 2 Digital Output(DO): Open collector to 40 VDC, 200mA DTS Per unit: Power 1 (Green), Power 2 (Green), P-Fail (Red), Ring Master(Green), System Ready(Green), Storage(Green), Serial1/Serial2(Green) Link/Activity (Green), Speed (Yellow) Green for Link/Act
Load Balancing** Fixed Basic Package* Failover Priority Weighted Round-Robin Custom Route	8 schemes for multiple WAN Manually route by traffic type through fixed WAN link. * Routes connections through preferred WAN link while others stand-by. Sequentially activate another link if preferred link failure occurs. Routes connections through preferred WAN link while others stand-by. Sequentially activate other links if overflow occurs. Evenly distribute the traffic over all working WAN links in circular order according to the specified weights Routing through the selected WAN for each specific traffic ex: TCP/UDP port number and IP address. cl. basic package** Binding all connections in an application session to	DI/DO LED Indicate Power & System indicator 10/100/1000Base-T (X) port indicator SIM GPS Fault	RS232 8KV contact and 15KV air ESD DIDO 3KV isolation Input power 1.5KVA isolation 2 Digital Input (DI) : Level 0: -30-2V / Level 1: 10-30V Max. input current:8mA 2 Digital Output(DO): Open collector to 40 VDC, 200mA DTS Per unit: Power 1 (Green), Power 2 (Green), P-Fail (Red), Ring Master(Green), System Ready(Green), Storage(Green), Serial1/Serial2(Green) Link/Activity (Green), Speed (Yellow) Green for Link/Act Green for Link/Act Red: Ethernet link down or power down
Load Balancing** Fixed Basic Package* Failover Priority Weighted Round-Robin Custom Route Full Package in	8 schemes for multiple WAN Manually route by traffic type through fixed WAN link. * Routes connections through preferred WAN link while others stand-by. Sequentially activate another link if preferred link failure occurs. Routes connections through preferred WAN link while others stand-by. Sequentially activate other links if overflow occurs. Evenly distribute the traffic over all working WAN links in circular order according to the specified weights Routing through the selected WAN for each specific traffic ex: TCP/UDP port number and IP address. cl. basic package** Binding all connections in an application session to particular WAN link to ensure all connections in the	DVDO LED Indicate Power & System indicator 10/100/1000Base-T (X) port indicator SIM GPS	RS232 8KV contact and 15KV air ESD DIDO 3KV isolation Input power 1.5KVA isolation 2 Digital Input (DI) : Level 0: -30-2V / Level 1: 10-30V Max. input current:8mA 2 Digital Output(DO): Open collector to 40 VDC, 200mA DTS Per unit: Power 1 (Green), Power 2 (Green), P-Fail (Red), Ring Master(Green), System Ready(Green), Storage(Green), Serial1/Serial2(Green) Link/Activity (Green), Speed (Yellow) Green for Link/Act Green for Link/Act Red: Ethernet link down or power down
Load Balancing** Fixed Basic Package* Failover Priority Weighted Round-Robin Custom Route Full Package in	8 schemes for multiple WAN Manually route by traffic type through fixed WAN link. * Routes connections through preferred WAN link while others stand-by. Sequentially activate another link if preferred link failure occurs. Routes connections through preferred WAN link while others stand-by. Sequentially activate other links if overflow occurs. Evenly distribute the traffic over all working WAN links in circular order according to the specified weights Routing through the selected WAN for each specific traffic ex: TCP/UDP port number and IP address. CI. basic package** Binding all connections in an application session to particular WAN link to ensure all connections in the session are routed to the same WAN link , that is	DVDO LED Indicate Power & System indicator 10/100/1000Base-T (X) port indicator SIM GPS Fault Fault contace	RS232 8KV contact and 15KV air ESD DIDO 3KV isolation Input power 1.5KVA isolation 2 Digital Input (DI) : Level 0: -30-2V / Level 1: 10-30V Max. input current:8mA 2 Digital Output(DO): Open collector to 40 VDC, 200mA DTS Per unit: Power 1 (Green), Power 2 (Green), P-Fail (Red), Ring Master(Green), System Ready(Green), Storage(Green), Serial1/Serial2(Green) Link/Activity (Green), Speed (Yellow) Green for Link/Act Green for Link/Act Red: Ethernet link down or power down
Load Balancing** Fixed Basic Package* Failover Priority Weighted Round-Robin Custom Route Full Package in Sticky Session*	8 schemes for multiple WAN Manually route by traffic type through fixed WAN link. * Routes connections through preferred WAN link while others stand-by. Sequentially activate another link if preferred link failure occurs. Routes connections through preferred WAN link while others stand-by. Sequentially activate other links if overflow occurs. Evenly distribute the traffic over all working WAN links in circular order according to the specified weights Routing through the selected WAN for each specific traffic ex: TCP/UDP port number and IP address. cl. basic package** Binding all connections in an application session to particular WAN link to ensure all connections in the session are routed to the same WAN link , that is suitable for security services like online payment etc.	DI/DO LED Indicate Power & System indicator 10/100/1000Base-T (X) port indicator SIM GPS Fault Fault contac Relay	RS232 8KV contact and 15KV air ESD DIDO 3KV isolation Input power 1.5KVA isolation 2 Digital Input (DI) : Level 0: -30-2V / Level 1: 10-30V Max. input current:8mA 2 Digital Output(DO): Open collector to 40 VDC, 200mA DTS Per unit: Power 1 (Green), Power 2 (Green), P-Fail (Red), Ring Master(Green), System Ready(Green), Storage(Green), Serial1/Serial2(Green) Link/Activity (Green), Speed (Yellow) Green for Link/Act Green for Link/Act Red: Ethernet link down or power down Ct Relay output to carry capacity of 1A at 24VDC
Load Balancing** Fixed Basic Package* Failover Priority Weighted Round-Robin Custom Route Full Package in	8 schemes for multiple WAN Manually route by traffic type through fixed WAN link. * Routes connections through preferred WAN link while others stand-by. Sequentially activate another link if preferred link failure occurs. Routes connections through preferred WAN link while others stand-by. Sequentially activate other links if overflow occurs. Evenly distribute the traffic over all working WAN links in circular order according to the specified weights Routing through the selected WAN for each specific traffic ex: TCP/UDP port number and IP address. CI. basic package** Binding all connections in an application session to particular WAN link to ensure all connections in the session are routed to the same WAN link , that is	DI/DO LED Indicate Power & System indicator 10/100/1000Base-T (X) port indicator SIM GPS Fault Fault contace Relay Power	RS232 8KV contact and 15KV air ESD DIDO 3KV isolation Input power 1.5KVA isolation 2 Digital Input (DI) : Level 0: -30-2V / Level 1: 10-30V Max. input current:8mA 2 Digital Output(DO): Open collector to 40 VDC, 200mA DTS Per unit: Power 1 (Green), Power 2 (Green), P-Fail (Red), Ring Master(Green), System Ready(Green), Storage(Green), Serial1/Serial2(Green) Link/Activity (Green), Speed (Yellow) Green for Link/Act Green for Link/Act Red: Ethernet link down or power down Ct Relay output to carry capacity of 1A at 24VDC
Load Balancing** Fixed Basic Package* Failover Priority Weighted Round-Robin Custom Route Full Package in Sticky Session*	8 schemes for multiple WAN Manually route by traffic type through fixed WAN link. * Routes connections through preferred WAN link while others stand-by. Sequentially activate another link if preferred link failure occurs. Routes connections through preferred WAN link while others stand-by. Sequentially activate other links if overflow occurs. Evenly distribute the traffic over all working WAN links in circular order according to the specified weights Routing through the selected WAN for each specific traffic ex: TCP/UDP port number and IP address. cl. basic package** Binding all connections in an application session to particular WAN link to ensure all connections in the session are routed to the same WAN link , that is suitable for security services like online payment etc. Routes connections through the WAN link with highest free bandwidth ratio. The ratio = 1 - (traffic load / the capability of a WAN	DI/DO LED Indicate Power & System indicator 10/100/1000Base-T (X) port indicator SIM GPS Fault Fault contac Relay Power Input power Power consumption	RS232 8KV contact and 15KV air ESD DIDO 3KV isolation Input power 1.5KVA isolation 2 Digital Input (DI) : Level 0: -30-2V / Level 1: 10-30V Max. input current:8mA 2 Digital Output(DO): Open collector to 40 VDC, 200mA DTS Per unit: Power 1 (Green), Power 2 (Green), P-Fail (Red), Ring Master(Green), System Ready(Green), Storage(Green), Serial1/Serial2(Green) Link/Activity (Green), Speed (Yellow) Green for Link/Act Green for Link/Act Red: Ethernet link down or power down Ct Relay output to carry capacity of 1A at 24VDC
Load Balancing** Fixed Basic Package* Failover Priority Weighted Round-Robin Custom Route Full Package in Sticky Session*	8 schemes for multiple WAN Manually route by traffic type through fixed WAN link. * Routes connections through preferred WAN link while others stand-by. Sequentially activate another link if preferred link failure occurs. Routes connections through preferred WAN link while others stand-by. Sequentially activate other links if overflow occurs. Evenly distribute the traffic over all working WAN links in circular order according to the specified weights Routing through the selected WAN for each specific traffic ex. TCP/UDP port number and IP address. cl. basic package** Binding all connections in an application session to particular WAN link to ensure all connections in the session are routed to the same WAN link , that is suitable for security services like online payment etc. Routes connections through the WAN link with highest free bandwidth ratio. The ratio = 1 - (traffic load / the capability of a WAN link).	DVDO LED Indicato Power & System indicator 10/100/1000Base-T (X) port indicator SIM GPS Fault Fault contac Relay Power Input power Power consumption (Typ.)	RS232 8KV contact and 15KV air ESD DIDO 3KV isolation Input power 1.5KVA isolation 2 Digital Input (DI) : Level 0: -30-2V / Level 1: 10-30V Max. input current:8mA 2 Digital Output(DO): Open collector to 40 VDC, 200mA DTS Per unit: Power 1 (Green), Power 2 (Green), P-Fail (Red), Ring Master(Green), System Ready(Green), Storage(Green), Serial1/Serial2(Green) Link/Activity (Green), Speed (Yellow) Green for Link/Act Green for Link/Act Red: Ethernet link down or power down :t Relay output to carry capacity of 1A at 24VDC Dual DC input, isolated 16.8VDC-137.5VDC for (WV model); Dual 9V-60VDC (24Vmodel) 20 Watts
Load Balancing** Fixed Basic Package* Failover Priority Weighted Round-Robin Custom Route Full Package in Sticky Session*	8 schemes for multiple WAN Manually route by traffic type through fixed WAN link. * Routes connections through preferred WAN link while others stand-by. Sequentially activate another link if preferred link failure occurs. Routes connections through preferred WAN link while others stand-by. Sequentially activate other links if overflow occurs. Evenly distribute the traffic over all working WAN links in circular order according to the specified weights Routing through the selected WAN for each specific traffic ex: TCP/UDP port number and IP address. cl. basic package** Binding all connections in an application session to particular WAN link to ensure all connections in the session are routed to the same WAN link , that is suitable for security services like online payment etc. Routes connections through the WAN link with highest free bandwidth ratio. The ratio = 1 - (traffic load / the capability of a WAN link). The traffic load could be defined by downstream,	DVDO LED Indicato Power & System indicator 10/100/1000Base-T (X) port indicator SIM GPS Fault Fault contac Relay Power Input power Power consumption (Typ.) Physical Ch	RS232 8KV contact and 15KV air ESD DIDO 3KV isolation Input power 1.5KVA isolation 2 Digital Input (DI) : Level 0: -30-2V / Level 1: 10-30V Max. input current:8mA 2 Digital Output(DO): Open collector to 40 VDC, 200mA DTS Per unit: Power 1 (Green), Power 2 (Green), P-Fail (Red), Ring Master(Green), System Ready(Green), Storage(Green), Serial1/Serial2(Green) Link/Activity (Green), Speed (Yellow) Green for Link/Act Green for Link/Act Red: Ethernet link down or power down Ct Relay output to carry capacity of 1A at 24VDC Dual DC input, isolated 16.8VDC-137.5VDC for (WV model); Dual 9V-60VDC (24Vmodel) 20 Watts aracteristic
Load Balancing** Fixed Basic Package* Failover Priority Weighted Round-Robin Custom Route Full Package in Sticky Session* Smallest Load*	8 schemes for multiple WAN Manually route by traffic type through fixed WAN link. * Routes connections through preferred WAN link while others stand-by. Sequentially activate another link if preferred link failure occurs. Routes connections through preferred WAN link while others stand-by. Sequentially activate other links if overflow occurs. Evenly distribute the traffic over all working WAN links in circular order according to the specified weights Routing through the selected WAN for each specific traffic ex: TCP/UDP port number and IP address. cl. basic package** Binding all connections in an application session to particular WAN link to ensure all connections in the session are routed to the same WAN link , that is suitable for security services like online payment etc. Routes connections through the WAN link with highest free bandwidth ratio. The ratio = 1 - (traffic load / the capability of a WAN link). The traffic load could be defined by downstream, upstream or total traffic	DVDO LED Indicato Power & System indicator 10/100/1000Base-T (X) port indicator SIM GPS Fault Fault contac Relay Power Input power Power consumption (Typ.) Physical Ch Enclosure	RS232 8KV contact and 15KV air ESD DIDO 3KV isolation Input power 1.5KVA isolation 2 Digital Input (DI) : Level 0: -30-2V / Level 1: 10-30V Max. input current:8mA 2 Digital Output(DO): Open collector to 40 VDC, 200mA DTS Per unit: Power 1 (Green), Power 2 (Green), P-Fail (Red), Ring Master(Green), System Ready(Green), Storage(Green), Serial1/Serial2(Green) Link/Activity (Green), Speed (Yellow) Green for Link/Act Green for Link/Act Red: Ethernet link down or power down :t Relay output to carry capacity of 1A at 24VDC Dual DC input, isolated 16.8VDC-137.5VDC for (WV model); Dual 9V-60VDC (24Vmodel) 20 Watts aracteristic IP 65/54 aluminum case
Load Balancing** Fixed Basic Package* Failover Priority Weighted Round-Robin Custom Route Full Package in Sticky Session*	8 schemes for multiple WAN Manually route by traffic type through fixed WAN link. * Routes connections through preferred WAN link while others stand-by. Sequentially activate another link if preferred link failure occurs. Routes connections through preferred WAN link while others stand-by. Sequentially activate other links if overflow occurs. Evenly distribute the traffic over all working WAN links in circular order according to the specified weights Routing through the selected WAN for each specific traffic ex: TCP/UDP port number and IP address. cl. basic package** Binding all connections in an application session to particular WAN link to ensure all connections in the session are routed to the same WAN link , that is suitable for security services like online payment etc. Routes connections through the WAN link with highest free bandwidth ratio. The ratio = 1 - (traffic load / the capability of a WAN link). The traffic load could be defined by downstream,	DVDO LED Indicate Power & System indicator 10/100/1000Base-T (X) port indicator SIM GPS Fault Fault contace Relay Power Input power Power consumption (Typ.) Physical Ch Enclosure Dimension Weight	RS232 8KV contact and 15KV air ESD DIDO 3KV isolation Input power 1.5KVA isolation 2 Digital Input (DI) : Level 0: -30-2V / Level 1: 10-30V Max. input current:8mA 2 Digital Output(DO): Open collector to 40 VDC, 200mA DTS Per unit: Power 1 (Green), Power 2 (Green), P-Fail (Red), Ring Master(Green), System Ready(Green), Storage(Green), Serial1/Serial2(Green) Link/Activity (Green), Speed (Yellow) Green for Link/Act Green for Link/Act Red: Ethernet link down or power down t Relay output to carry capacity of 1A at 24VDC Dual DC input, isolated 16.8VDC-137.5VDC for (WV model); Dual 9V-60VDC (24Vmodel) 20 Watts aracteristic IP 65/54 aluminum case 178 (W) x 99 (D) x 103 (H) mm 1000g
Load Balancing** Fixed Basic Package* Failover Priority Weighted Round-Robin Custom Route Full Package in Sticky Session* Smallest Load* Fastest* Fast	8 schemes for multiple WAN Manually route by traffic type through fixed WAN link. Routes connections through preferred WAN link while others stand-by. Sequentially activate another link if preferred link failure occurs. Routes connections through preferred WAN link while others stand-by. Sequentially activate other links if overflow occurs. Evenly distribute the traffic over all working WAN links in circular order according to the specified weights Routing through the selected WAN for each specific traffic ex: TCP/UDP port number and IP address. cl. basic package** Binding all connections in an application session to particular WAN link to ensure all connections in the session are routed to the same WAN link , that is suitable for security services like online payment etc. Routes connections through the WAN link with highest free bandwidth ratio. The ratio = 1 - (traffic load / the capability of a WAN link). The traffic load could be defined by downstream, upstream or total traffic Routes connections through the WAN link with lowest	DVDO LED Indicate Power & System indicator 10/100/1000Base-T (X) port indicator SIM GPS Fault Fault contate Relay Power Input power Power consumption (Typ.) Physical Ch Enclosure Dimension	RS232 8KV contact and 15KV air ESD DIDO 3KV isolation Input power 1.5KVA isolation 2 Digital Input (DI) : Level 0: -30-2V / Level 1: 10-30V Max. input current:8mA 2 Digital Output(DO): Open collector to 40 VDC, 200mA DTS Per unit: Power 1 (Green), Power 2 (Green), P-Fail (Red), Ring Master(Green), System Ready(Green), Storage(Green), Serial1/Serial2(Green) Link/Activity (Green), Speed (Yellow) Green for Link/Act Green for Link/Act Red: Ethernet link down or power down t Relay output to carry capacity of 1A at 24VDC Dual DC input, isolated 16.8VDC-137.5VDC for (WV model); Dual 9V-60VDC (24Vmodel) 20 Watts aracteristic IP 65/54 aluminum case 178 (W) x 99 (D) x 103 (H) mm 1000g
Load Balancing** Fixed Basic Package* Failover Priority Weighted Round-Robin Custom Route Full Package in Sticky Session* Smallest Load* Fastest* Fast Roaming<50ms**	8 schemes for multiple WAN Manually route by traffic type through fixed WAN link. Routes connections through preferred WAN link while others stand-by. Sequentially activate another link if preferred link failure occurs. Routes connections through preferred WAN link while others stand-by. Sequentially activate other links if overflow occurs. Evenly distribute the traffic over all working WAN links in circular order according to the specified weights Routing through the selected WAN for each specific traffic ex: TCP/UDP port number and IP address. cl. basic package** Binding all connections in an application session to particular WAN link to ensure all connections in the session are routed to the same WAN link , that is suitable for security services like online payment etc. Routes connections through the WAN link with highest free bandwidth ratio. The ratio = 1 - (traffic load / the capability of a WAN link). The traffic load could be defined by downstream, upstream or total traffic Routes connections through the WAN link with lowest latency time. 802.11r <50ms work with Lantech controller	DVDO LED Indicate Power & System indicator 10/100/1000Base-T (X) port indicator SIM GPS Fault Fault contate Relay Power Input power Power consumption (Typ.) Physical Ch Enclosure Dimension Weight Environmen Storage	RS232 8KV contact and 15KV air ESD DIDO 3KV isolation Input power 1.5KVA isolation 2 Digital Input (DI) : Level 0: -30-2V / Level 1: 10-30V Max. input current:8mA 2 Digital Output(DO): Open collector to 40 VDC, 200mA DTS Per unit: Power 1 (Green), Power 2 (Green), P-Fail (Red), Ring Master(Green), System Ready(Green), Storage(Green), Serial1/Serial2(Green) Link/Activity (Green), Speed (Yellow) Green for Link/Act Green for Link/Act Red: Ethernet link down or power down t Relay output to carry capacity of 1A at 24VDC Dual DC input, isolated 16.8VDC-137.5VDC for (WV model); Dual 9V-60VDC (24Vmodel) 20 Watts aracteristic IP 65/54 aluminum case 178 (W) x 99 (D) x 103 (H) mm 1000g
Load Balancing** Fixed Basic Package* Failover Priority Weighted Round-Robin Custom Route Full Package in Sticky Session* Smallest Load* Fastest* Fast	8 schemes for multiple WAN Manually route by traffic type through fixed WAN link. * Routes connections through preferred WAN link while others stand-by. Sequentially activate another link if preferred link failure occurs. Routes connections through preferred WAN link while others stand-by. Sequentially activate other links if overflow occurs. Evenly distribute the traffic over all working WAN links in circular order according to the specified weights Routing through the selected WAN for each specific traffic ex: TCP/UDP port number and IP address. cl. basic package** Binding all connections in an application session to particular WAN link to ensure all connections in the session are routed to the same WAN link , that is suitable for security services like online payment etc. Routes connections through the WAN link with highest free bandwidth ratio. The ratio = 1 - (traffic load / the capability of a WAN link). The traffic load could be defined by downstream, upstream or total traffic Routes connections through the WAN link with lowest latency time.	DVDO LED Indicate Power & System indicator 10/100/1000Base-T (X) port indicator SIM GPS Fault Fault contace Relay Power Input power Power consumption (Typ.) Physical Ch Enclosure Dimension Weight Environmen	RS232 8KV contact and 15KV air ESD DIDO 3KV isolation Input power 1.5KVA isolation 2 Digital Input (DI) : Level 0: -30-2V / Level 1: 10-30V Max. input current:8mA 2 Digital Output(DO): Open collector to 40 VDC, 200mA DTS Per unit: Power 1 (Green), Power 2 (Green), P-Fail (Red), Ring Master(Green), System Ready(Green), Storage(Green), Serial1/Serial2(Green) Link/Activity (Green), Speed (Yellow) Green for Link/Act Green for Link/Act Red: Ethernet link down or power down t Relay output to carry capacity of 1A at 24VDC Dual DC input, isolated 16.8VDC-137.5VDC for (WV model); Dual 9V-60VDC (24Vmodel) 20 Watts aracteristic IP 65/54 aluminum case 178 (W) x 99 (D) x 103 (H) mm 1000g tal
Load Balancing** Fixed Basic Package* Failover Priority Weighted Round-Robin Custom Route Full Package in Sticky Session* Smallest Load* Fastest* Fast Roaming<50ms** WMM	8 schemes for multiple WAN Manually route by traffic type through fixed WAN link. Routes connections through preferred WAN link while others stand-by. Sequentially activate another link if preferred link failure occurs. Routes connections through preferred WAN link while others stand-by. Sequentially activate other links if overflow occurs. Evenly distribute the traffic over all working WAN links in circular order according to the specified weights Routing through the selected WAN for each specific traffic ex: TCP/UDP port number and IP address. cl. basic package** Binding all connections in an application session to particular WAN link to ensure all connections in the session are routed to the same WAN link , that is suitable for security services like online payment etc. Routes connections through the WAN link with highest free bandwidth ratio. The ratio = 1 - (traffic load / the capability of a WAN link). The traffic load could be defined by downstream, upstream or total traffic Routes connections through the WAN link with lowest latency time. 802.11r <50ms work with Lantech controller Wi-Fi multimedia and 802.11e traffic prioritization WEP64/128bits/WPA/WPA-PSK (TKIP*,AES)/ WPA2/WPA2-PSK	DVDO LED Indicate Power & System indicator 10/100/1000Base-T (X) port indicator SIM GPS Fault Fault contate Relay Power Input power Power consumption (Typ.) Physical Ch Enclosure Dimension Weight Environmen Storage Temperature Operating Temperature	RS232 8KV contact and 15KV air ESD DIDO 3KV isolation Input power 1.5KVA isolation 2 Digital Input (DI) : Level 0: -30-2V / Level 1: 10-30V Max. input current:8mA 2 Digital Output(DO): Open collector to 40 VDC, 200mA DTS Per unit: Power 1 (Green), Power 2 (Green), P-Fail (Red), Ring Master(Green), System Ready(Green), Storage(Green), Serial1/Serial2(Green) Link/Activity (Green), Speed (Yellow) Green for Link/Act Green for Link/Act Green for Link/Act Red: Ethernet link down or power down t Relay output to carry capacity of 1A at 24VDC Dual DC input, isolated 16.8VDC-137.5VDC for (WV model); Dual 9V-60VDC (24Vmodel) 20 Watts aracteristic IP 65/54 aluminum case 178 (W) x 99 (D) x 103 (H) mm 1000g tal -40°C ~ 85°C (-40°F ~ 185°F) -20°C - 70°C (-4°F ~ 158°F)
Load Balancing** Fixed Basic Package* Failover Priority Weighted Round-Robin Custom Route Full Package in Sticky Session* Smallest Load* Fastest* Fast Roaming<50ms** WMM Security	8 schemes for multiple WAN Manually route by traffic type through fixed WAN link. * Routes connections through preferred WAN link while others stand-by. Sequentially activate another link if preferred link failure occurs. Routes connections through preferred WAN link while others stand-by. Sequentially activate other links if overflow occurs. Evenly distribute the traffic over all working WAN links in circular order according to the specified weights Routing through the selected WAN for each specific traffic ex. TCP/UDP port number and IP address. cl. basic package** Binding all connections in an application session to particular WAN link to ensure all connections in the session are routed to the same WAN link , that is suitable for security services like online payment etc. Routes connections through the WAN link with highest free bandwidth ratio. The ratio = 1 - (traffic load / the capability of a WAN link). The traffic load could be defined by downstream, upstream or total traffic Routes connections through the WAN link with lowest latency time. 802.11r <50ms work with Lantech controller Wi-Fi multimedia and 802.11e traffic prioritization WEP64/128bits/ WPA/WPA-PSK (TKIP*,AES)/ WPA2/WPA2-PSK (TKIP*,AES)/SSH/SSL/HTTPS	DI/DO LED Indicate Power & System indicator 10/100/1000Base-T (X) port indicator SIM GPS Fault Fault Contace Relay Power Input power Power consumption (Typ.) Physical Ch Enclosure Dimension Weight Environmen Storage Temperature Operating Humidity	RS232 8KV contact and 15KV air ESD DIDO 3KV isolation Input power 1.5KVA isolation 2 Digital Input (DI) : Level 0: -30-2V / Level 1: 10-30V Max. input current:8mA 2 Digital Output(DO): Open collector to 40 VDC, 200mA DTS Per unit: Power 1 (Green), Power 2 (Green), P-Fail (Red), Ring Master(Green), System Ready(Green), Storage(Green), Serial1/Serial2(Green) Link/Activity (Green), Speed (Yellow) Green for Link/Act Green for Link/Act Red: Ethermet link down or power down t Relay output to carry capacity of 1A at 24VDC Dual DC input, isolated 16.8VDC-137.5VDC for (WV model); Dual 9V-60VDC (24Vmodel) 20 Watts aracteristic IP 65/54 aluminum case 178 (W) x 99 (D) x 103 (H) mm 1000g tal -40°C - 85°C (-40°F - 158°F) -20°C - 70°C (-4°F - 158°F) -20°C - 70°C (-4°F - 158°F) -20°C - 70°C (-4°F - 158°F)
Load Balancing** Fixed Basic Package* Failover Priority Weighted Round-Robin Custom Route Full Package in Sticky Session* Smallest Load* Fastest* Fast Roaming<50ms** WMM	8 schemes for multiple WAN Manually route by traffic type through fixed WAN link. Routes connections through preferred WAN link while others stand-by. Sequentially activate another link if preferred link failure occurs. Routes connections through preferred WAN link while others stand-by. Sequentially activate other links if overflow occurs. Evenly distribute the traffic over all working WAN links in circular order according to the specified weights Routing through the selected WAN for each specific traffic ex: TCP/UDP port number and IP address. cl. basic package** Binding all connections in an application session to particular WAN link to ensure all connections in the session are routed to the same WAN link , that is suitable for security services like online payment etc. Routes connections through the WAN link with highest free bandwidth ratio. The ratio = 1 - (traffic load / the capability of a WAN link). The traffic load could be defined by downstream, upstream or total traffic Routes connections through the WAN link with lowest latency time. 802.11r <50ms work with Lantech controller Wi-Fi multimedia and 802.11e traffic prioritization WEP64/128bits/WPA/WPA-PSK (TKIP*,AES)/ WPA2/WPA2-PSK (TKIP*,AES)/SSH/SSL/HTTPS Radius Authentication, EAP-MD5, EAP-TLS, EAP-TTLS, PEAP; SSID broadcast disable	DVDO LED Indicate Power & System indicator 10/100/1000Base-T (X) port indicator SIM GPS Fault Fault Contace Relay Power Input power Power consumption (Typ.) Physical Ch Enclosure Dimension Weight Environmen Storage Temperature Operating Umenidity Regulatory a	RS232 8KV contact and 15KV air ESD DIDO 3KV isolation Input power 1.5KVA isolation 2 Digital Input (DI) : Level 0: -30-2V / Level 1: 10-30V Max. input current:8mA 2 Digital Output(DO): Open collector to 40 VDC, 200mA DTS Per unit: Power 1 (Green), Power 2 (Green), P-Fail (Red), Ring Master(Green), System Ready(Green), Storage(Green), Serial1/Serial2(Green) Link/Activity (Green), Speed (Yellow) Green for Link/Act Green for Link/Act Green for Link/Act Red: Ethermet link down or power down t Relay output to carry capacity of 1A at 24VDC Dual DC input, isolated 16.8VDC-137.5VDC for (WV model); Dual 9V-60VDC (24Vmodel) 20 Watts aracteristic IP 65/54 aluminum case 178 (W) x 99 (D) x 103 (H) mm 1000g tal -40°C - 85°C (-40°F - 158°F) -20°C - 70°C (-4°F - 158°F)
Load Balancing** Fixed Basic Package* Failover Priority Weighted Round-Robin Custom Route Full Package in Sticky Session* Smallest Load* Fastest* Fast Roaming<50ms** WMM Security Authentication	8 schemes for multiple WAN Manually route by traffic type through fixed WAN link. * Routes connections through preferred WAN link while others stand-by. Sequentially activate another link if preferred link failure occurs. Routes connections through preferred WAN link while others stand-by. Sequentially activate other links if overflow occurs. Evenly distribute the traffic over all working WAN links in circular order according to the specified weights Routing through the selected WAN for each specific traffic ex: TCP/UDP port number and IP address. cl. basic package** Binding all connections in an application session to particular WAN link to ensure all connections in the session are routed to the same WAN link, that is suitable for security services like online payment etc. Routes connections through the WAN link with highest free bandwidth ratio. The ratio = 1 - (traffic load / the capability of a WAN link). The traffic load could be defined by downstream, upstream or total traffic Routes connections through the WAN link with lowest latency time. 802.11r <50ms work with Lantech controller Wi-Fi multimedia and 802.11e traffic prioritization WEP64/128bits/WPA/WPA-PSK (TKIP*,AES)/ WPA2/WPA2-PSK (TKIP*,AES)/SSH/SSL/HTTPS Radius Authentication, EAP-MD5, EAP-TLS, EAP-TTLS, PEAP; SSID broadcast disable supported**	DI/DO LED Indicate Power & System indicator 10/100/1000Base-T (X) port indicator SIM GPS Fault Fault Contace Relay Power Input power Power consumption (Typ.) Physical Ch Enclosure Dimension Weight Environmen Storage Temperature Operating Humidity	RS232 8KV contact and 15KV air ESD DIDO 3KV isolation Input power 1.5KVA isolation 2 Digital Input (DI) : Level 0: -30-2V / Level 1: 10-30V Max. input current:8mA 2 Digital Output(DO): Open collector to 40 VDC, 200mA DTS Per unit: Power 1 (Green), Power 2 (Green), P-Fail (Red), Ring Master(Green), System Ready(Green), Storage(Green), Serial1/Serial2(Green) Link/Activity (Green), Speed (Yellow) Green for Link/Act Green for Link/Act Red: Ethermet link down or power down t Relay output to carry capacity of 1A at 24VDC Dual DC input, isolated 16.8VDC-137.5VDC for (WV model); Dual 9V-60VDC (24Vmodel) 20 Watts aracteristic IP 65/54 aluminum case 178 (W) x 99 (D) x 103 (H) mm 1000g tal -40°C - 85°C (-40°F - 158°F) -20°C - 70°C (-4°F - 158°F) -20°C - 70°C (-4°F - 158°F) -20°C - 70°C (-4°F - 158°F)
Load Balancing** Fixed Basic Package* Failover Priority Weighted Round-Robin Custom Route Full Package in Sticky Session* Smallest Load* Fastest* Fast Roaming<50ms** WMM Security	8 schemes for multiple WAN Manually route by traffic type through fixed WAN link. Routes connections through preferred WAN link while others stand-by. Sequentially activate another link if preferred link failure occurs. Routes connections through preferred WAN link while others stand-by. Sequentially activate other links if overflow occurs. Evenly distribute the traffic over all working WAN links in circular order according to the specified weights Routing through the selected WAN for each specific traffic ex: TCP/UDP port number and IP address. cl. basic package** Binding all connections in an application session to particular WAN link to ensure all connections in the session are routed to the same WAN link , that is suitable for security services like online payment etc. Routes connections through the WAN link with highest free bandwidth ratio. The ratio = 1 - (traffic load / the capability of a WAN link). The traffic load could be defined by downstream, upstream or total traffic Routes connections through the WAN link with lowest latency time. 802.11r <50ms work with Lantech controller Wi-Fi multimedia and 802.11e traffic prioritization WEP64/128bits/WPA/WPA-PSK (TKIP*,AES)/ WPA2/WPA2-PSK (TKIP*,AES)/SSH/SSL/HTTPS Radius Authentication, EAP-MD5, EAP-TLS, EAP-TTLS, PEAP; SSID broadcast disable	DVDO LED Indicato Power & System indicator 10/100/1000Base-T (X) port indicator SIM GPS Fault Fault contac Relay Power Input power Power consumption (Typ.) Physical Ch Enclosure Dimension Weight Environmen Storage Temperature Operating Humidity Regulatory a EMC	RS232 8KV contact and 15KV air ESD DIDO 3KV isolation Input power 1.5KVA isolation 2 Digital Input (DI) : Level 0: -30-2V / Level 1: 10-30V Max. input current:8mA 2 Digital Output(DO): Open collector to 40 VDC, 200mA DrS Per unit: Power 1 (Green), Power 2 (Green), P-Fail (Red), Ring Master(Green), System Ready(Green), Storage(Green), Serial1/Serial2(Green) Link/Activity (Green), Speed (Yellow) Green for Link/Act Green for Link/Act Green for Link/Act Red: Ethernet link down or power down Ct Relay output to carry capacity of 1A at 24VDC Dual DC input, isolated 16.8VDC-137.5VDC for (WV model); Dual 9V-60VDC (24Vmodel) 20 Watts aracteristic IP 65/54 aluminum case 178 (W) x 99 (D) x 103 (H) mm 1000g tal $-40^{\circ}\text{C} - 70^{\circ}\text{C} (-40^{\circ}\text{F} - 158^{\circ}\text{F})$ $-20^{\circ}\text{C} - 70^{\circ}\text{C} (-40^{\circ}\text{F} - 158^{\circ}\text{F})$ $-20^{\circ}\text{C} - 70^{\circ}\text{C} (-40^{\circ}\text{F} - 158^{\circ}\text{F})$ -5% to 95% Non-condensing approvals FCC Part 15 Class A, EN55032

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EN50155 Multifunction Router + Switch



Stability Testing Railway verification MTBF

EN61000-4-6 (CS), EN61000-4-8, EN61000-4-11 EN61373 (Shock & Vibration) EN50155*, 50121*,45545

495,724 Hrs (IEC62830 standards)

Warranty 5 years

*Future Release **Optional

RF Performance Table

	Data Rate	TX Power (per chain)	TX Power (3 chains)	Tolerance	RX Specifications Sensitivity	Tolerance
	1Mbps	20dBm	25dBm	±2dB	-95dBm	±2dB
2.4GHz	2Mbps	20dBm	25dBm	±2dB	-94dBm	±2dB
802.11b	5.5Mbps	20dBm	25dBm	±2dB	-92dBm	±2dB
	11Mbps	20dBm	25dBm	±2dB	-90dBm	±2dB
	6Mbps	21dBm	26dBm	±2dB	-94dBm	±2dB
	9Mbps	21dBm	26dBm	±2dB	-93dBm	±2dB
	12Mbps	21dBm	26dBm	±2dB	-93dBm	±2dB
2.4GHz	18Mbps	21dBm	26dBm	±2dB	-90dBm	±2dB
802.11g	24Mbps	21dBm	26dBm	±2dB	-90dBm	±2dB
	36Mbps	20dBm	25dBm	±2dB	-85dBm	±2dB
	48Mbps	19dBm	24dBm	±2dB	-82dBm	±2dB
	54Mbps	18dBm	23dBm	±2dB	-80dBm	±2dB
	MCS 0	21dBm	26dBm	±2dB	-94dBm	±2dB
	MCS 1	21dBm	26dBm	±2dB	-92dBm	±2dB
	MCS 2	21dBm	26dBm	±2dB	-89dBm	±2dB
2.4GHz 802.11n	MCS 3	20dBm	25dBm	±2dB	-84dBm	±2dB
HT20	MCS 4	20dBm	25dBm	±2dB	-83dBm	±2dB
	MCS 5	20dBm	25dBm	±2dB	-80dBm	±2dB
	MCS 6	18dBm	23dBm	±2dB	-79dBm	±2dB
	MCS 7	16dBm	21dBm	±2dB	-77dBm	±2dB
	MCS 0	20dBm	25dBm	±2dB	-93dBm	±2dB
	MCS 1	20dBm	25dBm	±2dB	-91dBm	±2dB
	MCS 2	20dBm	25dBm	±2dB	-89dBm	±2dB
2.4GHz	MCS 3	19dBm	24dBm	±2dB	-84dBm	±2dB
802.11n HT40	MCS 4	19dBm	24dBm	±2dB	-82dBm	±2dB
	MCS 5	19dBm	24dBm	±2dB	-80dBm	±2dB
	MCS 6	18dBm	23dBm	±2dB	-79dBm	±2dB
	MCS 7	16dBm	21dBm	±2dB	-75dBm	±2dB

	Data Rate	TX Power (per chain)	TX Power (3 chains)	Tolerance	RX Specifications Sensitivity	Tolerance
	6Mbps	20dBm	25dBm	±2dB	-94dBm	±2dB
	9Mbps	20dBm	25dBm	±2dB	-94dBm	±2dB
	12Mbps	20dBm	25dBm	±2dB	-92dBm	±2dB
5GHz	18Mbps	20dBm	25dBm	±2dB	-91dBm	±2dB
802.11a	24Mbps	20dBm	25dBm	±2dB	-90dBm	±2dB
	36Mbps	18dBm	23dBm	±2dB	-86dBm	±2dB
	48Mbps	16dBm	21dBm	±2dB	-83dBm	±2dB
	54Mbps	15dBm	20dBm	±2dB	-80dBm	±2dB
	MCS 0	19dBm	24dBm	±2dB	-93dBm	±2dB
	MCS 1	19dBm	24dBm	±2dB	-90dBm	±2dB
	MCS 2	19dBm	24dBm	±2dB	-87dBm	±2dB
5GHz	MCS 3	18dBm	23dBm	±2dB	-83dBm	±2dB
802.11n/ac VHT20	MCS 4	18dBm	23dBm	±2dB	-80dBm	±2dB
VHIZU	MCS 5	17dBm	22dBm	±2dB	-77dBm	±2dB
	MCS 6	16dBm	21dBm	±2dB	-74dBm	±2dB
	MCS 7	14dBm	19dBm	±2dB	-73dBm	±2dB
	MCS 8	13dBm	18dBm	±2dB	-71dBm	±2dB
5GHz 802.11n/ac	MCS 0	18dBm	23dBm	±2dB	-90dBm	±2dB
VHT40	MCS 1	18dBm	23dBm	±2dB	-88dBm	±2dB

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	MCS 2	18dBm	23dBm	±2dB	-85dBm	±2dB
	MCS 3	17dBm	22dBm	±2dB	-82dBm	±2dB
	MCS 4	17dBm	22dBm	±2dB	-80dBm	±2dB
	MCS 5	16dBm	21dBm	±2dB	-75dBm	±2dB
	MCS 6	15dBm	20dBm	±2dB	-73dBm	±2dB
	MCS 7	14dBm	19dBm	±2dB	-73dBm	±2dB
	MCS 8	13dBm	18dBm	±2dB	-70dBm	±2dB
	MCS 9	13dBm	18dBm	±2dB	-68dBm	±2dB
	MCS 0	18dBm	23dBm	±2dB	-89dBm	±2dB
	MCS 1	18dBm	23dBm	±2dB	-87dBm	±2dB
	MCS 2	18dBm	23dBm	±2dB	-85dBm	±2dB
	MCS 3	17dBm	22dBm	±2dB	-83dBm	±2dB
5GHz 802.11ac	MCS 4	17dBm	22dBm	±2dB	-80dBm	±2dB
VHT80	MCS 5	16dBm	21dBm	±2dB	-78dBm	±2dB
	MCS 6	15dBm	20dBm	±2dB	-75dBm	±2dB
	MCS 7	14dBm	19dBm	±2dB	-72dBm	±2dB
	MCS 8	13dBm	18dBm	±2dB	-70dBm	±2dB
	MCS 9	13dBm	18dBm	±2dB	-68dBm	±2dB

ORDERING INFOMATION

All standard models are non-conformal coating, optional conformal coating are with –C model name; Optional bypass models are available with –BT model name; QMA connector models are with –Q model name; -40~70C operational models are with –E model name.

- TWMR-5006-1L-1AC-2S-24V-65-EUNA......P/N: 8650-011 EN50155 Multifunction VPN Router w/1x Wi-Fi 11ac + 1 LTE 4G SMA connectors + 2 serial RS232 ports + 6 Gigabit X-coded Ethernet switch for Load Balancing**, TWCC**, VPN, Protocol Gateway; EU and US band; dual 9V–60VDC; IP65; -20~70C
- TWMR-5006-1L-1AC-2S-24V-65-WW......P/N: 8650-012 EN50155 Multifunction VPN Router w/1x Wi-Fi 11ac + 1 LTE 4G SMA connectors + 2 serial RS232 ports + 6 Gigabit X-coded Ethernet switch for Load Balancing**, TWCC**, VPN, Protocol Gateway; Worldwide band; dual 9V~60VDC; IP65; -20–70C
- TWMR-5006-1L-1AC-2SA-24V-65-EUNA......P/N:8650-0111 EN50155 Multifunction VPN Router w/1x Wi-Fi 11ac + 1 LTE 4G SMA connectors + 2 isolated serial RS-422/485 ports + 6 Gigabit X-coded Ethernet switch for Load Balancing**, TWCC**, VPN, Protocol Gateway; EU and US band ; dual 9V~60VDC; IP65 : -20~70C
- TWMR-5006-1L-1AC-2SA-24V-65-APAC......P/N:8650-0131 EN50155 Multifunction VPN Router w/1x Wi-Fi 11ac + 1 LTE 4G SMA connectors + 2 isolated serial RS-422/485 ports + 6 Gigabit X-coded Ethernet switch for Load Balancing**, TWCC**, VPN, Protocol Gateway; APAC band ; dual 9V~60VDC; IP65 ; -20~70C
- TWMR-5006-1L-1AC-2S-WV-65-WW......P/N: 8650-022 EN50155 Multifunction VPN Router w/1x Wi-Fi 11ac + 1 LTE 4G SMA connectors + 2 serial RS-232 ports + 6 Gigabit X-coded Ethernet switch for Load Balancing**, TWCC**, VPN, Protocol Gateway; Worldwide band; dual isolated 16.8V~137.5VDC; IP65; -20~70C
- TWMR-5006-1L-1AC-2S-WV-65-APAC......P/N: 8650-023

EN50155 Multifunction VPN Router w/1x Wi-Fi 11ac + 1 LTE 4G SMA connectors + 2 serial RS-232 ports + 6 Gigabit X-coded Ethernet switch for Load Balancing**, TWCC**, VPN, Protocol Gateway; APAC band; dual isolated 16.8V~137.5VDC; IP65; -20~70C

- TWMR-5006-1L-1AC-2SA-WV-65-WW......P/N:8650-0221 EN50155 Multifunction VPN Router w/1x Wi-Fi 11ac + 1 LTE 4G SMA connectors + 2 isolated serial RS422/485 ports + 6

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Gigabit X-coded Ethernet switch for Load Balancing**, TWCC**, VPN, Protocol Gateway; Worldwide band ; dual isolated 16.8V~137.5VDC; IP65 ; -20~70C

- TWMR-5006-1L-1AC-2SA-WV-65-APAC......P/N:8650-0231 EN50155 Multifunction VPN Router w/1x Wi-Fi 11ac + 1 LTE 4G SMA connectors + 2 isolated serial RS422/485 ports + 6 Gigabit X-coded Ethernet switch for Load Balancing**, TWCC**, VPN, Protocol Gateway; APAC band ; dual isolated 16.8V~137.5VDC; IP65 ; -20~70C
- TWMR-5006-1L-1AC-2S-24V-54-EUNA......P/N: 8650-031 EN50155 Multifunction VPN Router w/1x Wi-Fi 11ac + 1 LTE 4G SMA connectors + 2 serial RS232 ports + 6 Gigabit X-coded Ethernet switch for Load Balancing**, TWCC**, VPN, Protocol Gateway; EU and US band; dual 9V~60VDC; IP54; -20~70C
- TWMR-5006-1L-1AC-2S-24V-54-APAC......P/N: 8650-033 EN50155 Multifunction VPN Router w/1x Wi-Fi 11ac + 1 LTE 4G SMA connectors + 2 serial RS232 ports + 6 Gigabit X-coded Ethernet switch for Load Balancing**, TWCC**, VPN, Protocol Gateway; APAC band; dual 9V~60VDC; IP54; -20~70C

- TWMR-5006-1L-1AC-2SA-24V-54-APAC......P/N:8650-0331 EN50155 Multifunction VPN Router w/1x Wi-Fi 11ac + 1 LTE 4G SMA connectors + 2 isolated serial RS422/485 ports + 6 Gigabit X-coded Ethernet switch for Load Balancing**, TWCC**, VPN, Protocol Gateway; APAC band ; dual 9V~60VDC; IP54 ; -20~70C
- TWMR-5006-1L-1AC-2S-WV-54-EUNA......P/N: 8650-041 EN50155 Multifunction VPN Router w/1x Wi-Fi 11ac + 1 LTE 4G SMA connectors + 2 serial RS232 ports + 6 Gigabit X-coded

Ethernet switch for Load Balancing**, TWCC**, VPN, Protocol Gateway; EU and US band; dual isolated 16.8V~137.5VDC; IP54; -20~70C

- TWMR-5006-1L-1AC-2S-WV-54-WW......P/N: 8650-042 EN50155 Multifunction VPN Router w/1x Wi-Fi 11ac + 1 LTE 4G SMA connectors + 2 serial RS232 ports + 6 Gigabit X-coded Ethernet switch for Load Balancing**, TW CC**, VPN, Protocol Gateway; Worldwide band; dual isolated 16.8V~137.5VDC; IP54; -20~70C
- TWMR-5006-1L-1AC-2SA-WV-54-EUNA......P/N:8650-0411 EN50155 Multifunction VPN Router w/1x Wi-Fi 11ac + 1 LTE 4G SMA connectors + 2 isolated serial RS422/485 ports + 6 Gigabit X-coded Ethernet switch for Load Balancing**, TWCC**, VPN, Protocol Gateway; EU and US band ; dual isolated 16.8V~137.5VDC; IP54 ; -20~70C

MSD Series

USB to Micro SD 128GB Dongle	P/N:8850-110
USB to Micro SD 256GB Dongle	P/N:8850-113
Software License	
LOAD BALANCING Basic Package	
LOAD BALANCING Full Package	P/N: 9000-102
TWCC	P/N: 9000-103
DNP3 GATEWAY	P/N- 9000-106
WIRELESS ROAMING	P/N: 9000-107



OPTIONAL ACCESSORIES

LTE Antenna

ANT11000041	791-960/1710~2170/2500~2700MHZ, SMA plug, EU
ANT11000042	704-960/1710~2170MHZ, SMA plug, US

Wireless Connector Adapter

ADA11000052 RP SMA Jack Base, Length : 1M

Wireless Antenna

ANT11000050

2.4G&5.8GHz SMA Omni-directional / dipole antenna, 2dBi or 5.8GHz 3dBi 2.4G&5.8GHz SMA Omni-directional / dipole antenna, 5dBi

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