TPWMR-5004

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

- Built-in 4 Gigabit X-coded PoE Ethernet managed switch +2 WAN/LAN ports
- 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
- Fast roaming**, 802.11r work with Lantech controller
- 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**, L2 over GRE
- Load Balancing** support 8 mechanism
- Optional EMMC Flash storage on-board**
- Support NAT and Firewall
- Support Modbus 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 with PoE budget 60W
- Environmental monitoring for router inside info with voltage, current, temperature and total PoE load; WIFI & LTE graphic signal strength & TX/RX rate display
- 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 TPWMR-5004 series is a next generation EN50155 multi-function VPN router w/ 1 x 802.3ac Wi-Fi + 1 x LTE modem +4 Gigabit X-coded PoE Ethernet switch + 2 WAN/LAN ports + 2 serial ports that supports advanced function of VPN, Load-balancing**(Premium pack), EMMC Flash Storage**, TWCC**, Protocol gateway(Modbus*), 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

TPWMR-5004 series 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, TPWMR-5004 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, TPWMR-5004 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 can work with 2.4GHz for longer range transmission.

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

Lantech TPWMR-5004 series adapts MIMO technology with smart antenna transmission and reception for 3T3R. With six external detachable antenna SMA/QMA** connectors and optional antennas, TPWMR-5004can have better Wi-Fi & LTE/GPS coverage.

antech



Optional 802.11r fast roaming **

TPWMR-5004 support fast roaming** (optional) 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

Optional EMMC Flash storage**

The optional EMMC flash storage on router can offer 8G/16G/32G capacity.

Wireless WMM QoS

TPWMR-5004 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 TPWMR-5004 support up to 16 SSIDs, each SSID has its independent security and encryption.

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

TPWMR-5004 supports Load Balancing** for LTE/WAN connections. There are eight schemes for Load Balancing** function:

function: Pack	Algorithm	Description
	Aigonaini	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.

2 port serial connection, Modbus gateway

It builds 2 port serial connection for RS232; RS422/ 485 in which RS422/485 has 2.5KV isolation protection. The built-in Modbus gateway can convert Modbus RTU/ASCII to Modbus TCP for device control.

Support various VPN applications and firewall

Besides traditional VPN peer to peer tunneling, TPWMR-5004 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 L2 over GRE, NAT, and PPTP** for various VPN applications. The built-in Layer-4 firewall includes DoS**, IP address filter / Mac address filter* / TCP/UDP port number.

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 TPWMR-5004 will immediately send email** and trap. The event log can be sent via syslog, emails 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 input voltage from 16.8~137.5VDC (WV model); Built-in 4 port PoE at/af switch with 60W budget The TPWMR-5004 is able to work from 16.8~137.5V (WV with

isolation) for 4 port PoE at/af with PoE budget 60W that is particular good for vehicle, rail train, depot etc. application

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 and total PoE load where can send the syslog, email** and SMS** alert when abnormal.

Built-in Managed Switch Function

Managed switch function is built-in and provides various L2+ functions for network access deployment. It delivers ports and PoE management, VLAN, QoS, multicast, redundant ring, and security functions.

Editable login page of captive portal

Editable login page of captive portal

The TMR-5006 supports editable captive portal function that allows administrator to force end-users redirect to



authentication page.

Dual image firmware*

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

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

The built-in USB ports can upload/download/upgrade the firmware through USB dongle for router replacement.

Editable login page of captive portal

The TPWMR-5004 supports editable captive portal function that allows administrator to force end-users redirect to authentication page.

FEATURES & BENEFITS

- High Speed Air Connectivity: WLAN interface support 1.3GMbps
- Built-in 4 Gigabit X-coded PoE Ethernet managed switch + 2 WAN/LAN ports
- Dual DC input from 16.8V~137.5VDC isolated input with 60W PoE budget(WV model)
- Optional TWCC** (Train Wireless Carriage Coupling) for auto wireless coupling
- EMMC-FLASH storage**8/16/32G
- 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:
 - 5.180~5.825GHz
- MIMO smart antenna technology with 3T3R
- 6 STANDARD SMA / OPTIONAL QMA type connectors for Wi-Fi & LTE, GPS
- 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
- 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

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

The TPWMR-5004series is verified with EN50155*, EN61373*, EN45545 standard with IP65/54 housing. It passed tests under extensive Industrial EMI and environmental vibration and shocks standards. With CE* & FCC* radio certification for LTE and E-marking** certificate, the TPWMR-5004 is best for outdoor community, vehicle, power substation, process control automation etc. For more usage flexibilities, TPWMR-5004 supports operating temperature from -20°C to 70°C or-40°C to 70°C(-E model) .

Open VPN, L2TP, IPsec L2 over GRE, 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) between APs by Wireless Controller
- Load Balancing** supports 8 mechanism between multiple WANs

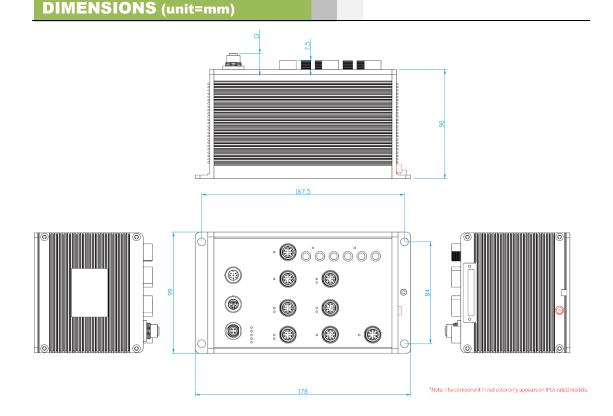
Pack	Algorithm	Description
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Full Package (incl. basic package)	Sticky Session*	Binding all connections in an application session to particular WAN link to ensure all connections in the session are routed to the same WAN link , that is suitable for security 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
- Event alerting by Syslog, SNMP Trap, 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
- Firmware upgradeable through TFTP/FTP/HTTP
- Configuration backup and restoration
 - Supports text configuration file for system quick
 installation
 - USB port to upload/download firmware by USB dongle
- Dual image firmware*
- IP 65/54 housing for water proof environment
- Support editable captive portal login page
- Wall-mount installation
- Visible LED to show the power & port link and activity
- Operation temperature -20~70C or -40~70C (-E)



SPECIFICATION			
WLAN Interface		Wireless bandwidth	5GHz: Up to 1300Mbps
Operating Mode	AP/BRIDGE/Client modes		2.4GHz: Up to 450Mbps
Radio Frequency Type	DSSS, OFDM	Modulation	802.11b: DSSS 802.11a/g:
Wireless Standard	IEEE 802.11ac/n/a 5GHz IEEE 802.11b/g/n 2.4GHz		OFDM (BPSK, QPSK, 16-QAM, 64-QAM) 802.11n:

Datasheet Version 5.7

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Receiver Sensitivity Rx 4- 2dB Inits in circular order accounts. Vireitas Senutry 54:080m @ 24Mbps Eventy distribute the traffic over all working WAN - 44:08m @ 24Mbps Solin Eventy distribute the traffic over all working WAN - 44:08m @ 24Mbps Solin Eventy distribute the traffic over all working WAN - 44:08m @ 24Mbps Solin Eventy distribute the traffic over all working WAN - 44:08m @ 24Mbps Solin Eventy distribute the traffic over all working WAN - 44:08m @ 24Mbps Solin Eventy distribute the traffic over all working WAN - 49:08m @ MCSS (VHT20/40) Soliny Session Binding all connections in an application session are routed to the same WAN link, that is suitable for security services like online payment - 64:08m @ MCSS (VHT20/400) Solicly Session Siticly Session - Encryption Security WPA: (X64bit N2b): fixe yreshared key supported) Note analy working WAN link with highest free bandwich ratio. - Motteracc GFS, Glonass (EU/Americas) Fastest* Routes connections through the WAN link with links in traffic over 10k working WAN WAN link with links in traffic over 10k working WAN WAN link with links in traffic over 10k working WAN WAN link with links in traffic over 10k working WAN WAN link with links in traffic over 10k working WAN WAN link with links in traffic over 10k working				while others stand-by. Sequentially activate other
SeldBm @ 24Mbps Robin Inks in circular order according to the specified weights SeldBm @ 34Mbps SeldBm @ 34Mbps <				links if overflow occurs.
Seades @ 38Mps weights Stable @ 48Mps Custom Route Seades @ MCS0 (HT2040) Custom Route Stable @ MCS0 (HT2040) Stable Sig package* Stable @ MCS0 (HT2040) Stable Sig package Seades @ MCS0 (HT2040) Stable Sig package* Stable Sig package Binding all connections in an application session particular WAN link to ensure all connections in session are routed to the same WAN link , that is session are routed to the same WAN link , that is session are routed to the same WAN link with highest fee bandwidth ratio. MCC** and 802.11*** EAPMDS, EAPTLS, EAP TTLS, EAP MSCHAPV3 and PEAP ** Wireless Security Stable for security services like online payment worker was and pEAP ** Wireless Security Stable Size connections through the WAN link with highest fee bandwidth ratio. Cellular Interface Festest* Location Solutions GPS, Clonass, EdU/Americas) GPS,		≦-92dBm @ 6~18Mbps	Weighted Round-	Evenly distribute the traffic over all working WAN
= 41dBm @ 4Mbps Routing through the selected WAN for each spectra interaction in a application session array interaction in a application session array interaction in a application session arrouted to the search WAN link in that is easier arrouted to the search WAN link in the session arrouted to the search WAN link in the session arrouted to the search WAN link in the session arrouted to the search WAN link in the last of the search warrouted to the search warrouted to the search WAN link with link in the session arrouted to the search WAN link with link in the session arrouted to the search WAN link with link in the session arrouted to the search warrouted to the search warrouted to the search warrouted to the search warrouted to the search warroute all connections in through the WAN link with link in the session arrouted to the search warrouted to the search warrouted to the search warrouted to the search warrouted to the search warroute and the warroute and the warroute and the search warroute and the warroute and the warroute and the warroute and the search warroute and the warroute and the search warroute and the search warroute and the search warroute and the search warroute and the warroute and the warroute and the warroute and the search warroute and the search warroute and the warroute and warroute and the warroute and the warroute and the warroute			Robin	links in circular order according to the specified
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= -93dBm @ MCS0 (HT20/40) = -71dBm/= -60dBm @ MCS7 (HT20/40) = -93dBm @ MCS7 (HT20/40)<			Custom Route	
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≤-90dBm @ MCS0 (VHT2040/80) ≤-69dBm @ MCS0 (VHT2040/80) ≤-69dBm @ MCS0 (VHT2040/80) Encryption Security WEP : (64-bit 1,28-bit key supported) WPA-WPA2 : IEEE802.11(WEP and AES encryption) WPA-WPA2 : IEEE802.11(WEP and AES encryption) WAP-VPA2 : IEEE802.11(WEP and AES encryption) WAP-WPA2 : IEEE802.11(WEP and AES encryption) WAP-WPA2 : IEEE802.11(WEP and AES encryption) WAP-WPA2 : IEEE802.11(WEP and AES encryption) Wireless Security Still broadcast disable Cellular Interface Location Solutions GPS, Gionass, Beidou, Galileo (APAC model only) APAC & Australia (APAC model) LTE: 2100/1800/850/850/1500/700/2600/19 2100/1800/850/850/950/950/950/950/950/950/950/950/950/9			· · · · · · · · · · · · · · · · · · ·	
Seddim @ MCS8 (VHT2/40/80) session are routed to the same WAN link , that is suitable for security services like online payment suitable for security services like online payment (WPA,WPA2: IEEE802.11(WEP and AES encryption) WPA,AWPA2: IEEE802.11(WEP and AES encryption) WFAAVA3 and PEAP** Wireless Security SSID broadcast disable Smallest Load* The ratic = 1 - (traffic load / the capability of a W/ link, ith, link, ith link, link). Location Solutions GPS, Glonass, Edi/Americas) GPS, Glonass, Beldou, Galileo (APAC model only) APA2 (MAA SUSA model LTE: 2100/1800/2500/900/850/500/700/2600/19 00/2500/900/850/500/700/2600/19 00/2500/900/850/500/700/2600/19 00/2500/900/850/500/700/2600/19 00/2500/900/850/500/700/2600/19 00/2500/900/850/2500/3500/3700/2500 16 sets 11 Band Options ENA & USA model LTE: 2100/1800/2500/900/850/250/250/250/250/250/250/250/250/250/2		≦-90dBm @ MCS0 (VHT20/40/80)		
S-868dm @ MCS9 (VH 4080) suitable for security services like online payment Encryption Security WPA /WPA2 : IEEE802.11i(WEP and AES encryption) Routes connections through the VAN link with highest free bandwidth ratio. The ratio = 1 - (traffic load / the capability of a W/ link). Wireless Security SSID broadcast disable Fastest* Cellular Interface Routes connections through the VAN link with loatech controller Location Solutions GPS, Glonass (EU/Americas) Routes connections through the VAN link with loatech controller Jonation Solutions GPS, Glonass (EU/Americas) Routes connections through the VAN link with loatech controller Jonation Solutions GPS, Glonass (EU/Americas) Routes connections through the VAN link with loatech controller Jonation Solutions GPS, Glonass (EU/Americas) Routes connections through the VAN link with loatech controller Jonation Solutions GPS, Glonass (EU/Americas) Radius Authentication Radius Authentication, EAP-MDS, EAP-TLS, EAF Jonation Solutions GPS, Glonass (EU/Americas) SSID Galue Authentication, EAP-MDS, EAP-TLS, EAF Jonation Solutions GPS, Glonass (EU/Americas) SSID Galue Authentication, EAP-MDS, EAP-TLS, EAF Jonation Solutions GPS, Glonass (EU/Americas) <td< td=""><td></td><td></td><td></td><td></td></td<>				
Encryption Security WE+* (64-bit, 122-bit key supported) Wreless Security Smallest Load* Wreless Security Smallest Load* Wreless Security SSID broadcast disable Cellular Interface Pastest* Location Solutions GPS, Glonass (EU/Americas) GPS, Glonass (EU/Americas) GPS, Glonass (EU/Americas) GPS, Glonass, Beidou, Galieo (APAC model) Fastest* Location Solutions CPS, Glonass, Beidou, Galieo (APAC model) UTE: 2100/1800/850/2600/900/850/7500/700/2600/19 2100/1800/850/2600/900/850/7500/700/2500/3500/500/700/2600/19 Authentication RUNE EUNA & USA model LTE: 2100/1800/850/2600/900/850/850/7500/700/2600/19 2100/1800/850/2600/900/800 MHz Finite call of a stats Billow (WW model) Timer LTE: 2100/1800/8507/260/900/800 MHz Billow (WW model) Discovery LTE: 2100/1800/8507/07/02/300/1500/250/350/350/350/250 2100/1900/1800/1700/850/2600/900/1800/700/700//02/800/260/900/1800/700/700//02/800/250/350/350/350/350/350/350/350/350/350/3		· · ·		suitable for security services like online payment etc.
WPA-PSK (256-bit key pre-shared key supported) OKC** and 802.11r** In Pratice 1 - I (traffic load / the capability of a WJ link). EAP/RDS, EAP,TLS, EAP,TLS, EAP MSCHAPV3 and PEAP ** The traffic load / the capability of a WJ link). Wireless Security SSID broadcast disable Cellular Interface Fastest* Location Solutions GPS, Glonass, Beidou, Gailleo (APAC model) LTE: Fastest* 2100/1800/850/2600/900/850/850/1500/700/2600/19 00/2300/2500 MHz Fastest* 2100/1800/850/2600/900/850/850/1500/700/2600/19 00/2300/2500 MHz Authentication Band Options EUNA & USA model LTE: 2100/1800/850/2600/900/850/850/1500/700/2600/19 00/2300/2500 MHz 1) EUNA & USA model LTE: LTE: 2100/1900/1800/1700/2500/980/850/850/1500/700/2600/19 0/2300/2500 MHz Timer Bilsovery IEEE 802.11 the Layer Discovery Protocol (LLI SNMP trap Discovery IEEE 802.14 bLink Layer Discovery Protocol (LLI SNMP trap Discovery IEEE 802.14 bLink Layer Discovery Protocol (LLI SNMP trap Discovery IEEE 802.14 bLink Layer Discovery Protocol (LLI SNMP trap Discovery IEEE 802.14 bLink Layer Discovery Protocol (LLI SNMP trap Discovery IEEE 802.14 bLink Layer Discovery Protocol (LLI SNMP trap Discovery IEEE 802.14 bLink L	Encryption Security		Smallest Load*	Routes connections through the WAN link with
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Cellular Interface Tasks Notices Location Solutions GPS, Glonass (EU/Americas) GPS, Glonass, Beidou, Galileo (APAC model only) Fast Roaming** 802.11r work with Lantech controller Band Options APAC & Australia (APAC model) Wi-Fi multimedia and 802.11e traffic prioritization Uters 2100/1800/850/2600/900/850/850/1500/700/2600/19 Wi-Fi multimedia and 802.11e traffic prioritization VerBe4/128bts/ WPA/ WPA-PSK (TKIP* AE WPA/2 WPA2-PSK (B1/B3/B5/B7/B8/B18/B21/B28/B3/B39/B4/B4 1) Authentication EUNA & USA model TLS: FAPAC & Australia (APAC model) LTE: 2100/1800/2600/900/800 MHz SID 16 sets B1/B2/B3/B4/B5/B7/B8/B12/B13/B20/B25/B26/B29/B30 Timer Built-in Real Time Clock to keep track of time always(RTC) Discovery IEEE 802.1ab Link Layer Discovery Protocol (LLI SNMP trap Discovery IEEE 802.1ab Link Layer Discovery Protocol (LLI SNMP trap Device cold / warm stat Port link up / link down DI / DO high / low System status for input voltage, current , ambient temperature to be shown in GUI and sent alerting any abnormal status Graphic LTE & Wi-Fi signal strength & TX / RX rate 0/3600/1700 (B1/B2/B3/B4/E5/B7/B8/B9/B12/B13/B18/B19/B2/		MsCHAPv3 and PEAP **		
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D0/2300//200 //H2 TTLS, PEAP; SSID broadcast disable supported' (B1/B3/B5/B7/B8/B18/B19/B21/B28/B38/B39/B40/B4 TTLS, PEAP; SSID broadcast disable supported' 1) EUNA & USA model 16 sets LTE: 2100/1800/2600/900/800 MHz Built-in Real Time Clock to keep track of time always(RTC) 2100/1800/2600/900/800 MHz Discovery IEEE 802.1ab Link Layer Discovery Protocol (LLI SMMP trap 0/200/1800/1700/850/2600/900/1800/700/700/8/ SMMP trap Device cold / warm start Port link up / link down 0/3000/1700/850/2600/900/1800/700/700/8/ Environmental System status for input voltage, current , ambient display 0/3600/1700 (B1/B2/B3/B4/B5/B7/B8/B9/B12/B13/B18/B19/B20/B Environmental System status for input voltage, current , ambient display 0/3600/1700 (B1/B2/B3/B4/B5/B7/B8/B9/B12/B13/B18/B19/B20/B Graphic signal Graphic LTE & Wi-Fi signal strength & TX / RX ra display 0/3600/1700 Remote To reboot or get status of router by Web/SMS** Veb/SMS** control Data Rates – LTE APAC & Australia (APAC model) Maintenance Firmware upgradeable through TFTP/FTP/HTTP/Configuration Downlink (Cat 6): FDD: 300 Mbps Supports text configuration file for quick system			Authentication	
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2100/1800/2600/900/800 MHz (B1/B2/B3/B4/B5/B7/B12/B13/B20/B25/B26/B29/B30 /B41) Discovery IEEE 802.1ab Link Layer Discovery Protocol (LLI SMMP trap WorldWide (WW model) LTE: 2100/1900/1800/1700/850/2600/900/1800/700/700/8/ 50/850/800/850/700/2300/1500/2500/3500/3700/520 0/3600/1700 Environmental Monitoring Discovery Benvice in the status S0/B50/800/850/700/2300/1500/2500/3500/3700/520 0/3600/1700 Environmental Monitoring System status for input voltage, current , ambient temperature to be shown in GUI and sent alerting any abnormal status Caraphic signal 26/B28/B29/B30/B32/B41/B42/B43/B46/B48/B66) Graphic signal display Graphic LTE & Wi-Fi signal strength & TX / RX ratios display Data Rates – LTE APAC & Australia (APAC model) Downlink (Cat 6): FDD: 300 Mbps APAC & Australia (APAC model) Downlink (Cat 6): Maintenance Firmware upgradeable through TETP/FTP/HTTP Configuration back up & restore Supports text configuration file for quick system back up & restore				
Data Rates - LTE APAC & Australia (APAC model) Downlink (Cat 6): FDD: 300 Mbps Port link up / link down DI / DO high / low Port link up / link down DI / DO high / low Port link up / link down DI / DO high / low Port link up / link down DI / DO high / low Port link up / link down DI / DO high / low Port link up / link down DI / DO high / low Port link up / link down DI / DO high / low Port link up / link down DI / DO high / low Port link up / link down DI / DO high / low Port link up / link down DI / DO high / low Port link up / link down DI / DO high / low Port link up / link down DI / DO high / low Port link up / link down DI / DO high / low Environmental Monitoring System status for input voltage, current , ambient temperature to be shown in GUI and sent alerting any abnormal status Graphic signal display Graphic signal display Graphic signal display Data Rates - LTE APAC & Australia (APAC model) Downlink (Cat 6): FDD: 300 Mbps Port link up / link down DI / DOWN			Discovery	IEEE 802.1ab Link Layer Discovery Protocol (LLDP)
Data Rates - LTE APAC & Australia (APAC model) Downlink (Cat 6): FDD: 300 Mbps DI / DO high / low DI / DO high / low DI / DO high / low Di / DO high / low Environmental Monitoring Bi / Do / Bo / 1800/1700/850/2500/3500/3500/3700/250 Graphic signal display Graphic signal display Graphic signal display To reboot or get status of router by Web/SMS** Data Rates - LTE APAC & Australia (APAC model) Downlink (Cat 6): FDD: 300 Mbps Maintenance Firmware upgradeable through TFTP/FTP/HTTP Configuration backup & prestore Supports text configuration file for quick system		(B1/B2/B3/B4/B5/B7/B12/B13/B20/B25/B26/B29/B30	SNMP trap	
WorldWide (WW model) LTE: 2100/1900/1800/1700/850/2600/900/1800/700/700/8/ 50/850/800/850/700/2300/1500/2500/3500/3700/520 0/3600/1700 Environmental Monitoring System status for input voltage, current , ambient temperature to be shown in GUI and sent alerting any abnormal status 0/3600/1700/850/2600/900/1800/700/700/80/ 0/3600/1700 Graphic signal display Graphic LTE & Wi-Fi signal strength & TX / RX ratic display 0/3600/1700 B1/B2/B3/B4/B5/B7/B8/B9/B12/B13/B18/B19/B20/B 26/B28/B29/B30/B32/B41/B42/B43/B46/B48/B66) To reboot or get status of router by Web/SMS** Data Rates - LTE APAC & Australia (APAC model) Downlink (Cat 6): FDD: 300 Mbps APAC & Sustralia (APAC model) Downlink (Cat 6): FDD: 300 Mbps Maintenance Firmware upgradeable through TETP/FTP/HTTP Supports text configuration file for quick system back up & restore		/B41)		
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50/850/800/850/700/2300/1500/2500/3500/3700/520 Graphic signal display Graphic LTE & Wi-Fi signal strength & TX / RX radisplay 0/3600/1700 (B1/B2/B3/B4/B5/B7/B8/B9/B12/B13/B18/B19/B20/B 26/B28/B29/B30/B32/B41/B42/B43/B46/B48/B66) Graphic signal display Graphic LTE & Wi-Fi signal strength & TX / RX radisplay Data Rates - LTE APAC & Australia (APAC model) Downlink (Cat 6): FDD: 300 Mbps APAC & Australia (APAC model) Downlink (Cat 6): FDD: 300 Mbps Maintenance Firmware upgradeable through TFTP/FTP/HTTP Configuration		LTE:		temperature to be shown in GUI and sent alerting if
Data Rates - LTE APAC & Australia (APAC model) Downlink (Cat 6): FDD: 300 Mbps APAC & Australia (APAC model) Downlink (Cat 6): FDD: 300 Mbps APAC & Cator Continue of the cator C				
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APAC & Australia (APAC model) Web/SMS** control Data Rates - LTE APAC & Australia (APAC model) Captive portal Downlink (Cat 6): FDD: 300 Mbps Maintenance				
Data Rates - LTE APAC & Australia (APAC model) Maintenance Firmware upgradeable through TFTP/FTP/HTTP Downlink (Cat 6): FDD: 300 Mbps Configuration Supports text configuration file for quick system		26/B28/B29/B30/B32/B41/B42/B43/B46/B48/B66)		
Downlink (Cat 6): Maintenance Firmware upgradeable through FF1P/F1P/F1P FDD: 300 Mbps Configuration Supports text configuration file for quick system	Data Rates_ITE	APAC & Australia (APAC model)	Captive portal	
FDD: 300 Mbps Contiguration Supports text contiguration file for quick system backup & restore				
		FDD: 300 Mbps	Configuration backup & restore	Supports text configuration file for quick system installation
IDD: 222 Mbps				
Uplink (Cat 6): Cost port of upload dominant of your of upload dominant				dongle

Datasheet Version 5.7

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EN50155 Multifunction Router + PoE Switch



	Dual image firmware*	Power & System	Per unit: Power 1 (Green), Power 2 (Green), P-Fail
IPv6/4	Present	indicator	(Red), Ring Master(Green), System Ready(Green),
Login Security	Supports IEEE802.1x** Authentication/RADIUS		Serial1/Serial2(Green)
TWCC**	Optional Train Wireless Carriage Coupling for Auto	10/100/1000Base-	Link/Activity (Green), Speed (Yellow), PoE (Green)
	wireless Coupling	T(X) port indicator	
Access Security	HTTP/HTTPS/Telnet/SSH & Administration;	SIM	Green for Link/Act
	SNMP*v1/v2/v3 access for authentication via	GPS	Green for Link/Act
	MD5/SHA(v3) and Encryption via DES/AES(v3)	Fault	Red: Ethernet link down or power down
Physical Po	rts & System	Fault contac	ct contract of the second s
Connectors	10/100/1000T: 6x ports M12 8pole X-coded incl. 2	Relay	Relay output to carry capacity of 1A at 24VDC
Connectors	WAN/LAN ports and 4 PoE ports	Power	
	USB/Console connector: 1 x M12 8-pole A-coded	Input power	Dual DC input, isolated 16.8VDC~137.5VDC for (WV
	STANDARD SMA / OPTIONAL QMA connector : 3		model)
	male WIFI + 3 female LTE	PoE budget	60W
	Power Input connector : 1 x M12 4-pole A-coded	Power consumption	20W Watts
	DIDO : 1 x M12 5-pole A-coded	(Typ.)	
Serial Baud Rate	1000Kbps high data rate,250kbps normal for RS232 ; 20Mbps high data rate,250kbps normal for	Physical Ch	aracteristic
		Enclosure	IP 65/54 aluminum case
	RS422/485	Dimension	178 (W) x 99 (D) x 103 (H) mm
Serial Data Bits	5, 6, 7, 8	Weight	1000g
Serial Parity	odd, even, none, mark, space	Environmen	Ital
Serial Stop Bits	1, 1.5, 2	Storage	-40°C ~ 85°C (-40°F ~ 185°F)
RS-232	TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND	Temperature	
RS-422	Tx+,Tx-, Rx+, Rx-,GND	Operating	-20°C ~ 70°C (-4°F ~ 158°F)
RS-485 (2-wire)	Data+, Data-,GND	Temperature	-40°C ~ 70°C (-40°F ~ 158°F) -E model
Isolation protection	RS422/485 2.5KV isolation; 8KV contact & 15KV air	Operating Humidity	5% to 95% Non-condensing
	RS232 8KV contact and 15KV air ESD	Regulatory	approvais
	DIDO 3KV isolation	EMC	FCC Part 15 Class A, EN55032
	Input power 1.5KVA isolation	EMS	EN61000-4-2 (ESD), EN61000-4-3 (RS), EN61000-
DI/DO	2 Digital Input (DI) :		4-4 (EFT), EN61000-4-5 (Surge), EN61000-4-6 (CS),
	Level 0: -30~2V / Level 1: 10~30V		EN61000-4-8, EN61000-4-11
	Max. input current:8mA	Stability Testing	EN61373 (Shock & Vibration)
	2 Digital Output(DO): Open collector to 40 VDC,	Railway verification	EN50155*, 50121*,45545
	200mA	MTBF	NA
EMMC Storage**	8/16/32 GB	Warranty	5 years
LED Indicate	ors		*Future Release
			**Ontional

**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	MCS 3	20dBm	25dBm	±2dB	-84dBm	±2dB
802.11n 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
2.4GHz 802.11n HT40	MCS 2	20dBm	25dBm	±2dB	-89dBm	±2dB
	MCS 3	19dBm	24dBm	±2dB	-84dBm	±2dB
	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

EN50155 Multifunction Router + PoE Switch



	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
VH120	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
	MCS 0	18dBm	23dBm	±2dB	-90dBm	±2dB
	MCS 1	18dBm	23dBm	±2dB	-88dBm	±2dB
	MCS 2	18dBm	23dBm	±2dB	-85dBm	±2dB
	MCS 3	17dBm	22dBm	±2dB	-82dBm	±2dB
5GHz 802.11n/ac	MCS 4	17dBm	22dBm	±2dB	-80dBm	±2dB
VHT40	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
5GHz 802.11ac VHT80	MCS 1	18dBm	23dBm	±2dB	-87dBm	±2dB
	MCS 2	18dBm	23dBm	±2dB	-85dBm	±2dB
	MCS 3	17dBm	22dBm	±2dB	-83dBm	±2dB
	MCS 4	17dBm	22dBm	±2dB	-80dBm	±2dB
	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 coated, optional conformal coated models are available with –C model name; QMA connector models are with –Q model name; -40~70C models are with –E model name.

TPWMR-5004-1L-1AC-2S-WV-65-EUNA......P/N: 8643-021

EN50155 Multifunction VPN Router w/1x Wi-Fi 11ac + 1 LTE 4G SMA connectors + 2 serial ports + 4 Gigabit X-coded Ethernet PoE switch + 2 WAN/LAN w/Load balancing**, TWCC**, VPN, Protocol Gateway; EU and US band; dual 16.8V~137.5VDC; IP65; -20~70C

- TPWMR-5004-1L-1AC-2S-WV-65-WW......P/N: 8643-022 EN50155 Multifunction VPN Router w/1x Wi-Fi 11ac + 1 LTE 4G SMA connectors + 2 serial RS-232 ports + 4 Gigabit X-coded Ethernet PoE switch + 2 WAN/LAN w/Load balancing**, TWCC**, VPN, Protocol Gateway; Worldwide band; dual 16.8V~137.5VDC; IP65; -20~70C
- TPWMR-5004-1L-1AC-2S-WV-65-APAC......P/N: 8643-023 EN50155 Multifunction VPN Router w/1x Wi-Fi 11ac + 1 LTE 4G SMA connectors + 2 serial RS-232 ports + 4 Gigabit X-coded Ethernet PoE switch + 2 WAN/LAN w/Load balancing**, TWCC**, VPN, Protocol Gateway; APAC band; dual 16.8V~137.5VDC; IP65; -20~70C
- TPWMR-5004-1L-1AC-2SA-WV-65-WW......P/N: 8643-0221



EN50155 Multifunction VPN Router w/1x Wi-Fi 11ac + 1 LTE 4G SMA connectors + 2 isolated serial RS422/485 ports + 4 Gigabit X-coded Ethernet PoE switch + 2 WAN/LAN w/Load balancing**, TWCC**, VPN, Protocol Gateway; Worldwide band; dual 16.8V~137.5VDC; IP65; -20~70C

- TPWMR-5004-1L-1AC-2SA-WV-65-APAC......P/N: 8643-0231 EN50155 Multifunction VPN Router w/1x Wi-Fi 11ac + 1 LTE 4G SMA connectors + 2 isolated serial RS422/485 ports + 4 Gigabit X-coded Ethernet PoE switch + 2 WAN/LAN w/Load balancing**, TWCC**, VPN, Protocol Gateway; APAC band; dual 16.8V~137.5VDC: IP65: -20~70C TPWMR-5004-1L-1AC-2S-WV-54-EUNA......P/N: 8643-041 EN50155 Multifunction VPN Router w/1x Wi-Fi 11ac + 1 LTE 4G SMA connectors + 2 serial RS232 ports + 4 Gigabit X-coded Ethernet PoE switch + 2 WAN/LAN w/Load balancing**, TWCC**, VPN, Protocol Gateway; EU and US band; dual 16 8V~137 5VDC: IP54: -20~70C TPWMR-5004-1L-1AC-2S-WV-54-WW......P/N: 8643-042 EN50155 Multifunction VPN Router w/1x Wi-Fi 11ac + 1 LTE 4G SMA connectors + 2 serial RS232 ports + 4 Gigabit X-coded Ethernet PoE switch + 2 WAN/LAN w/Load balancing**, TWCC**, VPN, Protocol Gateway; Worldwide band; dual 16 8V~137 5VDC: IP54: -20~70C TPWMR-5004-1L-1AC-2S-WV-54-APAC......P/N: 8643-043 EN50155 Multifunction VPN Router w/1x Wi-Fi 11ac + 1 LTE 4G SMA connectors + 2 serial RS232 ports + 4 Gigabit X-coded Ethernet PoE switch + 2 WAN/LAN w/Load balancing**, TWCC**, VPN, Protocol Gateway; APAC band; dual 16.8V~137.5VDC: IP54: -20~70C TPWMR-5004-1L-1AC-2SA-WV-54-EUNA......P/N: 8643-0411 EN50155 Multifunction VPN Router w/1x Wi-Fi 11ac + 1 LTE 4G SMA connectors + 2 isolated serial RS422/485 ports + 4 Gigabit X-coded Ethernet PoE switch + 2 WAN/LAN w/Load balancing**, TWCC**, VPN, Protocol Gateway; EU and US band; dual 16.8V~137.5VDC; IP54; -20~70C TPWMR-5004-1L-1AC-2SA-WV-54-WW......P/N: 8643-0421 EN50155 Multifunction VPN Router w/1x Wi-Fi 11ac + 1 LTE 4G SMA connectors+ 2 isolated serial RS422/485 ports + 4 Gigabit X-coded Ethernet PoE switch + 2 WAN/LAN w/Load balancing**, TWCC**, VPN, Protocol Gateway; Worldwide band; dual 16.8V~137.5VDC; IP54; -20~70C

EMMC Flash Storage

- BG.....P/N: 8850-113
- 16G.....P/N: 8850-114
 32G.....P/N: 8850-115
- = 52G.....P/N. 0030-11

Software License

LOAD BALANCING Basic Package......P/N: 9000-101
 LOAD BALANCING Full Package.....P/N: 9000-102
 TWCC......P/N: 9000-103
 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

ANT11000051

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

Lantech Communications Global Inc.

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