JETWAVE

Industrial Cellular Router/Gateway

JetWave 2316-LTE Series

Industrial Cellular + 802.11n 2.4G IP Gateway, 4GT + 2G SFP Gigabit Switch

-Long Term Evolution (LTE) technology, 2x2 DL-MIMO, max. 100MDL/50M UL
-1GT WAN, support Static Route and RIP protocol
-6-port Gigabit Switch, 4GT + 2x100/1000Base-X SFP, Wire-speed Switching, LAN to WAN/LTE Routing
-Rapid Super Ring (RSR) Redundancy protocol, can be integrated with Korenix Managed Switch
-Support 256 VLAN tagging and QoS
-802.11n 2.4G, up to 300Mbps WLAN, Auto-offload
-WAN to Cellular redundant and Dual SIM Redundancy
-RSR Redundant Gateway as Router Redundancy
-NAT/Firewall/DMZ and Secure VPN Connectivity
-OPCuA for Industrial M2M Communication
-Korenix View, Mobile Manager, SNMP, Korenix NMS
-1xRS232/422/485 Serial communication
-USB Configuration/Firmware restoring
-Dual DC 24V(12-48V), -40~70℃

LTE Gateway　　**802.11n WIFI**　　**Dual SIM**　　**RSR Ring**

CE R&TTE

Overview

The JetWave 2316 series is an industrial grade Cellular LTE Router with multiple Ethernet Ports. The JetWave 2316 Series equips with next generation wide temperature Long Term Evolution(LTE) module, on-board 802.11n WIFI interface and up to 7 Gigabit Ethernet Ports, one for WAN and 6-port for LAN.

Two 100/1000Base-X SFP Fiber port design provides great flexibility for field installation. The LAN switch also supports Korenix Rapid Super Ring (RSR), provides millisecond level Ring recovery time, 256 VLANs, traffic prioritizing and can be integrated with Korenix Managed Switch.

The JetWave 2316 supports Cellular communication features, such as the multiple ports to LTE routing, LTE/WIFI auto-offload, WAN to LTE redundant, dual SIM standby, SNMP and Mobile Manager Server for remote monitoring. The OPC UA is designed for industrial M2M communication, a popular protocol for industrial automation and M2M applications.
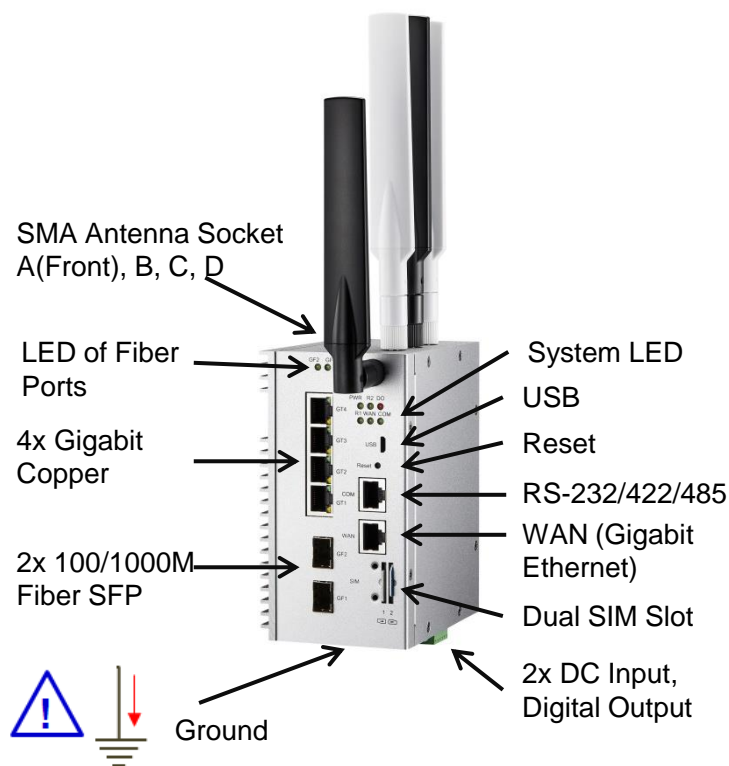
The JetWave 2316 also provide different type VPN Client technology and 1-1 OpenVPN Server for secure M2M connectivity. The product supports dual 24V(12-48V)DC input, USB, Digital Output and -40~70℃ wide operating temperature.

Model Name	4G LTE	3G UMTS/HSPA	WIFI	Ethernet	USB/DO /COM	SIM	Operating Temp.
JetWave 2316-LTE-E	LTE-E	V	2.4G 802.11n	1xGT WAN, 4xGT+2x 100/1000M SFP	1xUSB, 1xDO,1xCOM	2	-40~70℃
JetWave 2316-LTE-U	LTE-U	V	-	1xGT WAN, 4xGT+2x 100/1000M SFP	1xUSB, 1xDO,1xCOM	2	-40~70℃

*LTE-E: 800(20)/900(8)/1800(3)/2600(7)/2100(1)MHz, Backward compatible WCDMA FDD Band 8/3/1
*LTE-U: 700(17)/850(5)/AWS(4)/1900(2)MHz, Backward compatible WCDMA FDD Band 5/4/2

Appearance

SMA Antenna Socket A(Front), B, C, D

LED of Fiber Ports

4x Gigabit Copper

2x 100/1000M Fiber SFP

Ground

System LED

USB

Reset

RS-232/422/485

WAN (Gigabit Ethernet)

Dual SIM Slot

2x DC Input, Digital Output

3G/LTE 2.4G WIFI

Antenna	JetWave 2316-E	JetWave 2316-U
A	LTE-Aux	LTE-Aux
B	WIFI 1-1	-
C	LTE-Main	LTE-Main
D	WIFI 1-2	-

Dimension

75.00

124.00

115.00

140.00
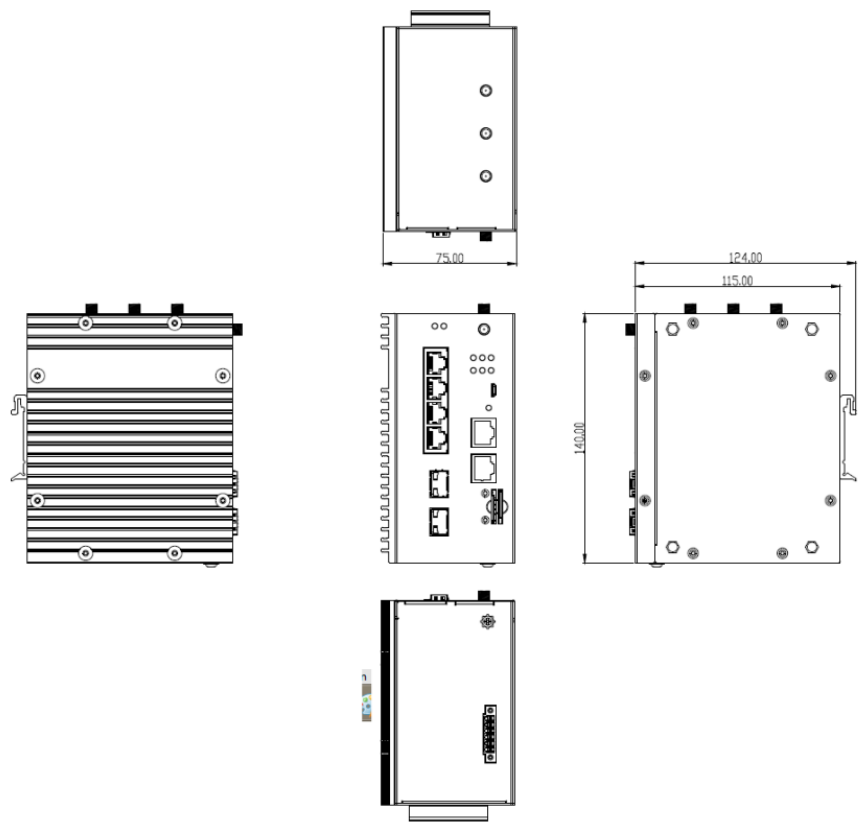
Next Generation Long Term Evolution (LTE)

The product can support the next generation Long Term Evolution (LTE) 2x2 DL MIMO technology to reach up to 100M Downlink and 50M Uplink speed. The embedded LTE module also backward compatible with UMTS/HSPA connection which enables remote and mobile control to the LAN and WIFI interfaces.
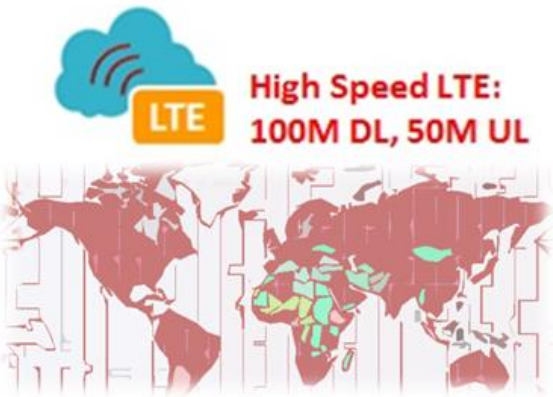
Multi-port Switch & Build in WAN/LTE Interface

The 6 gigabit LAN ports support non-blocking switching performance, 802.1Q VLAN and QoS for network optimizing and Korenix Ring Redundancy protocol, Rapid Super Ring. These ports can work independent, connect to other LAN 80211n Wireless LAN. The interface is the uplink pa control room.

Secure Remote

The product support VPN for secure remote connection. VPN provides secure communication between the central office and the remote sites through the public Internet. Choose the JetBox 5630 (IWC 5630) as VPN server, JetWave 2310/2316 series as VPN client is the ideal secure remote connection solution.
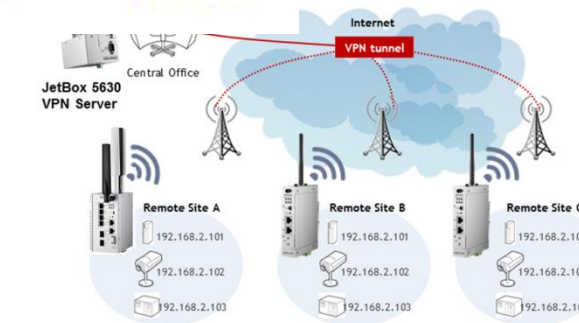
Industrial OPC UA Communication and Mobile Manager Utility

The product supports the industrial M2M protocol, OPC Unified Architecture (UA). OPC UA integrates existing OPC specifications, providing a common architecture for accessing information through standard IP network. OPC UA has high reliability, security and allows you access the device through the firewall. Mobile Manager is the tool to collect the dynamic IP address of the remote devices and monitor their latest status through the cellular network.

Rapid Super Ring Redundancy

The product supports Rapid Super Ring(RSR) redundant protocol. Choose two Ethernet ports, includes the 100/1000M Fiber ports, to act as the Ring member ports for long distance wire Ring connection. The RSR provides millisecond level recovery time once one of the link failed. The Rapid Super Ring can interoperate with other RSR aware Managed Ethernet Switches.
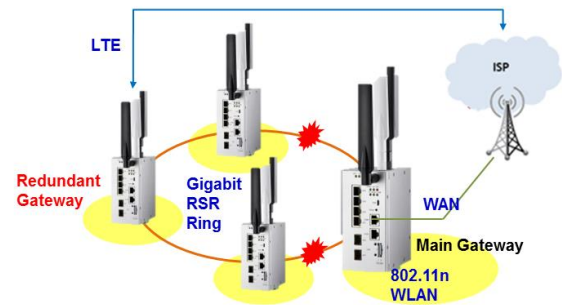

RSR Redundant Gateway

The product supports RSR Redundant Gateway design, the main and redundant gateway exchanges the same Gateway settings with each other while the RSR ring is normal. Once the main gateway is shutdown or the RSR Ring Abnormal, the backup gateway is activated to ensure your edge client devices still can access the internet through backup gateway.
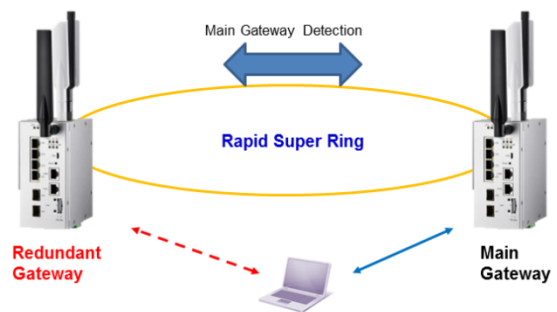
WAN to LTE Redundancy

The product supports WAN to LTE redundant, while the WAN port is connected, it is the primary connection to the carrier provider. Once the WAN port fails, the LTE can be the backup interface.
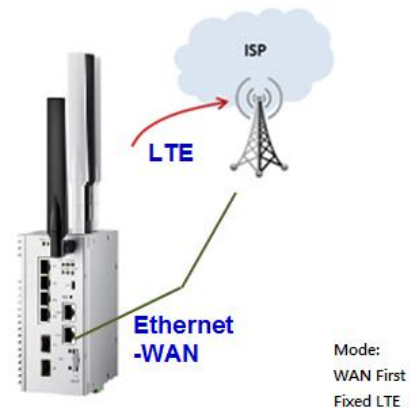
Dual SIM Standby for LTE Redundancy

The product also supports dual SIM standby, while the primary SIM connection fails, the second SIM recovers to the other carrier provider.
With the WAN to LTE redundant and Dual SIM standby, the product provides two level protection to ensure the non-stop LTE communication.
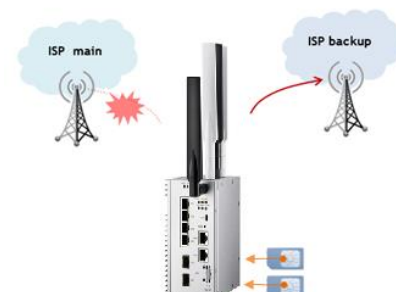
Specification

Technology	
Standard	IEEE 802.3 for 10BaseT, IEEE 802.3u for 10/100Base-TX, IEEE 802.3ab for 1000BaseT, IEEE 802.3z Gigabit Ethernet Fiber IEEE 802.11n/g Wireless LAN IEEE 802.11i Wireless Security 3GPP Release 6,7,8 3G UMTS/HSDPA/HSUPA 3GPP Release 9 Long Term Evolution (LTE) IEEE 802.1Q VLAN IEEE802.1p Class of Service

Interface	
Ethernet Port – WAN	1x 100/1000Base-T(X) RJ-45
Ethernet Port – LAN	4x 100/1000Base-T(X) RJ-45 + 2x 1000Base-X/100Base-FX SFP Socket Switching: Store and Forward or Cut-Throughput Non-blocking Switching Performance, 12Gbps for 6 front ports, 1Mbit on-chip memory. Throughput: 14,880pps for 10M, 148,800pps for 100M, 1,488,100pps for Gigabit Ethernet Port Packet Size: Typical 64~1522 bytes and up to 10K Jumbo frame MAC Table: 8K MAC Address table with automatic learning and aging
Serial COM	1x Software selectable RS-232/422/485
Cellular	Long Term Evolution (LTE, cat. 3)
WIFI	IEEE802.11n 2.4G Band, 2T2R MIMO
SIM Socket	2 (Dual SIM Standby)
Power Input	2x 24VDC (12~48VDC) input
Relay Output	1xRelay Output, 1A@24VDC
Reset	Reset Switch, Reset to Default over 7 seconds
LED	System: PWR, Radio 1, Radio 2, DO, WAN, COM Ethernet Copper Port Link/Speed LED, Ethernet Fiber Link/Act LED
SMA Antenna Socket	4 sockets available, 2x LTE, 2x WIFI A: LTE-AUX, B: 802.11n-Main, C: LTE-Main, D: 802.11n-Aux

WIFI	
CPU	Qualcomm Atheros 700MHz
Operating Frequency	FCC : 2.412~2.462GHz CE : 2.412~2.472GHz (Programmable for different country regulations)
MIMO	2T2R
RF Modulation	802.11g/n: OFDM (BPSK,QPSK,16-QAM,64QAM)
RF Output Power	13dBm at 802.11g, 11dBm at 802.11n HT40 (MCS0/8, 2422MHz) <17dB EIRP for CE (ETSI 300 328, include 4dBi default antenna)
RF Sensitivity	802.11g: -82dBm@6Mbps,1Rx; -65dBm@54Mbps,1Rx 802.11n HT20: -82dBm@MCS0,1Rx; -64dBm@MCS7,1Rx 802.11n HT40: -79dBm@MCS0,1Rx; -61dBm@MCS7,1Rx
Attached Antenna	LTE: 791-960Mhz:1 dbi/1710-1880Mhz: 3dBi/1920-2170Mhz:2.5dBi/2500-2700Mhz:3.5dBi peak gain, -40~85℃ temperature, RP SMA Plug, Black Color 802.11n: 2.4GHz, omin-direction 4dBi gain, -40~85℃ temperature, RP SMA Plug, White Color

Cellular LTE	
LTE Standard	3GPP Release 9 Long Term Evolution (LTE), 2x2 DL-MIMO LTE category 3: max. 100 Mbps DL, 50 Mbps UL Backward compatible with HSPA: UMTS/HSPA+: Five band 800/850/900/1900/2100MHz GSM/GPRS/EDGE: Quad band 850/900/1800/1900MHz
LTE-E Band (2316-LTE-E)	LTE: 800/900/1800/2600/2100 MHz, FDD-Band (20,8,3,7, 1) UMTS/HSPA+: 900/1800/2100 MHz, FDD-Band (8,3,1) GSM/GPRS/EDGE: 900/1800 MHz
LTE-U Band (2316-LTE-U)	LTE: 700/850/AWS(1700/2100)/1900 MHz, FDD-Band (17,5,4,2) UMTS/HSPA+: 850/AWS(1700/2100)/1900 MHz, FDD-Band (5,4,2) GSM/GRPS/EDGE: 850/900/1800/1900 MHz

Management	
Management	Web GUI, Telnet, SNMP, IP Setup, Management VLAN ID, Configuration Backup/Restore, Firmware Upgrade, Reload Default, Ping, DO Events, DO Alarms, SNTP, Cellular Time
WLAN Setup	Multiple SSID, Radio on/off, SSID Broadcast, Frequency selection, VLAN ID, Advanced Settings, Traffic Shapping, Link Fault Pass-Through(Link Integration)
Cellular LTE	Cellular Configuration/Status, SIM Security, Debug Log, Auto IP Report, Watchdog, Mobile Management, Dual SIM Standby, Cellular/WAN Redundant, WAN/WIFI to LTE Auto Offload
Router/Gateway	Hardware-based NAT Routing, Static Route, RIP Protocol, DHCP Server/Client
L2 Switch	IEEE 802.1Q VLAN, max. 256 VLANs, Quality of Service for traffic prioritizing Korenix Rapid Super Ring (RSR) Technology for Ring Redundancy, RSR Redundant Gateway
SNMP	Simple Network Management Protocol v1/v2c/v3, Function-based MIB, SNMP Trap
Status & Log	System Information, ARP Table, DHCP Client List, System Event Log
OPCuA	OPCuA for Industrial M2M communication
Utility/NMS	Support Korenix View Utility, Korenix Mobile Manager, Korenix NMS
Security	
Secured Access	HTTPS, SSH, IEEE 802.1X, Radius Server
Firewall	Firewall Setting, DMZ, Port forwarding
VPN	Open VPN Client, 1-1 Open VPN Server
Power Requirement	
Power	Dual DC24V (12~48VDC) input
Power Consumption	Standby Mode: 3.36W (Power on only) Full Load: Max. 9.84 Watts *Suggest to reserve 15% tolerance power in practical installation.
Mechanical	
Enclosure	Aluminum housing
External Antenna	Reverse SMA Female connector, Nylok anti-loosen paste
Mounting	Din-Rail
Dimension	140 mm(H) x 115 mm(D) x 75mm(W)
Weight	900g with package
Environmental	
Operating Temperature	-40 ~ 70℃
Operating Humidity	5% ~ 95% (operating)
Storage Temperature	-40 ~ 85 ℃
Approvals	

Certification	R&TTE:
	  CE EN55022/55024
	  EN 61000-6-2/4 Industrial Environment
	  EN 301 489-1/17/24
	  EN 301 908-1
	  EN 300 328 V1.8.1
	  EN50385/EN62311 MPE assessment
	  Safety EN60950-1
	FCC Part 15B (JetWave 2316-LTE-U)

Warranty	5 years
Ordering Information	
JetWave 2316-LTE-E	Industrial Cellular + 802.11n 2.4G WIFI IP Gateway, 4xGT+2G SFP Gigabit Switch, LTE Band 20/8/3/7/1
JetWave 2316-LTE-U	Industrial Cellular IP Gateway, 4xGT+2G SFP Gigabit Switch, LTE Band 17/5/4/2
Includes	Product Unit, Quick Installation Guide Default Antennas, 2x LTE(Black color), 2xWIFI(White Color) *Please download user manual from Korenix Web Site
Korenix Mobile Manager	Korenix Mobile Manager Utility for Industrial Cellular Router management and monitoring *Please download Utility from Korenix Web Site