



AP316

Datasheet

Aiming to create better and safer working environments and life experiences through the products we deliver.



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Wireless Backup for ERPS v2 Network by exclusive LTE PoE Router

AP316

Industrial Cellular PoE Routing Switch

The unique LTE PoE router AP316 provides ultra-resilient network by latest G.8032 ERPS v2 ring technology with 6 Giga ports, 2-port 100/1000M fiber ports, and simultaneous high-speed LTE routing. The LTE can backup network in case of ring failure and works as a redundant gateway. Dual SIM standby enables auto switch to secondary cellular network if primary network disconnects. Moreover, the router offers 4 Gigabit PoE/PoE+ ports for feeding IP cam or wireless AP. Integrated firewall ensures safe data transmission. Compact size and ruggedized design bring reliable deployment under the harshest conditions.



High Throughput Network Performance

- LTE Cat.4, 2x2 MIMO, **150M downlink and 50M uplink**
- 4G/3G/2G full cellular network compatibility
LTE-E: FDD B1/3/5/7/8/20; TDD B38/40/41 LTE-CN: FDD B1/3/5/8; TDD B38/39/40/41 LTE-U: FDD B2/B4/B12
- 4-port **Gigabit PoE** plus 2-port **Gigabit SFP**, high flexibility for selecting cable types and distances

ITU-T G.8032 v1/v2 ERPS Ring Redundancy

- An ITU standard Ring redundancy Protocol
- Provide sub-50ms protection and recovery switching for Ethernet traffic
- Interoperate with 3rd party industrial switch and still remain fast recovery time STP/RSTP
- Efficient network interconnection and topology with ERPS Chain, multiple chains

Management Features

- Various configuration paths, including WebGUI, CLI and SNMP
- LLDP topology control
- Support **VLAN, IGMP snooping, QoS**, rate control, port mirror
- ANMS- NMS system for individual node monitoring
- AIAS- Remote configuration software utility for distributed management

Enhanced Cyber Security for Critical Application

- Firewall for traffic classification
- DMZ, port forwarding, NAT for LAN protection
- OpenVPN, Ipsec, L2TP for secure connection
- Port Security
- HTTPs/SSH secure login, TACACS+

Cloud Management Service

- Support Amazon AWS & Microsoft Azure cloud service
- Support proprietary ATMS cloud service
- Interactive monitoring dashboard and map shows the status, signal strength, location etc.

Extreme PoE Capability

- Provides 4-port IEEE 802.3af/at compliance PoE, up to **30W** per port
- Up to 120W PoE power budget
- Complete PoE management including per-port Power
- **Budget Control, PoE Scheduling and PoE Status**

Rugged Design for Wayside

Surveillance, ITS Application

- NEMA TS2 compliance for ITS application
- Effective heat dissipation design for operating in **-40~75°C** environments
- Railway EMC: **EN50121-4** compliance
- CE Marking
- IEC61000-6-2/IEC61000-6-4 heavy industrial EMC
- Emission: FCC part 15 B Class A



Function interface

SMA Antenna Socket

- Up to 2 SMA

Gigabit Ethernet

- 4-port 100/1000M RJ45
- IEEE 802.3af/at

Fiber Ethernet

- 2 x 100/1000M SFP Connector



Dual SIM Redundancy

- 2 x SIM with tray holder

System LED

- 2 x Power
- 1 x System Status
- 1 x DO
- 2 x Fiber Port
- 1 x Ring
- 1 x Radio
- 4 x PoE

USB Extension Port

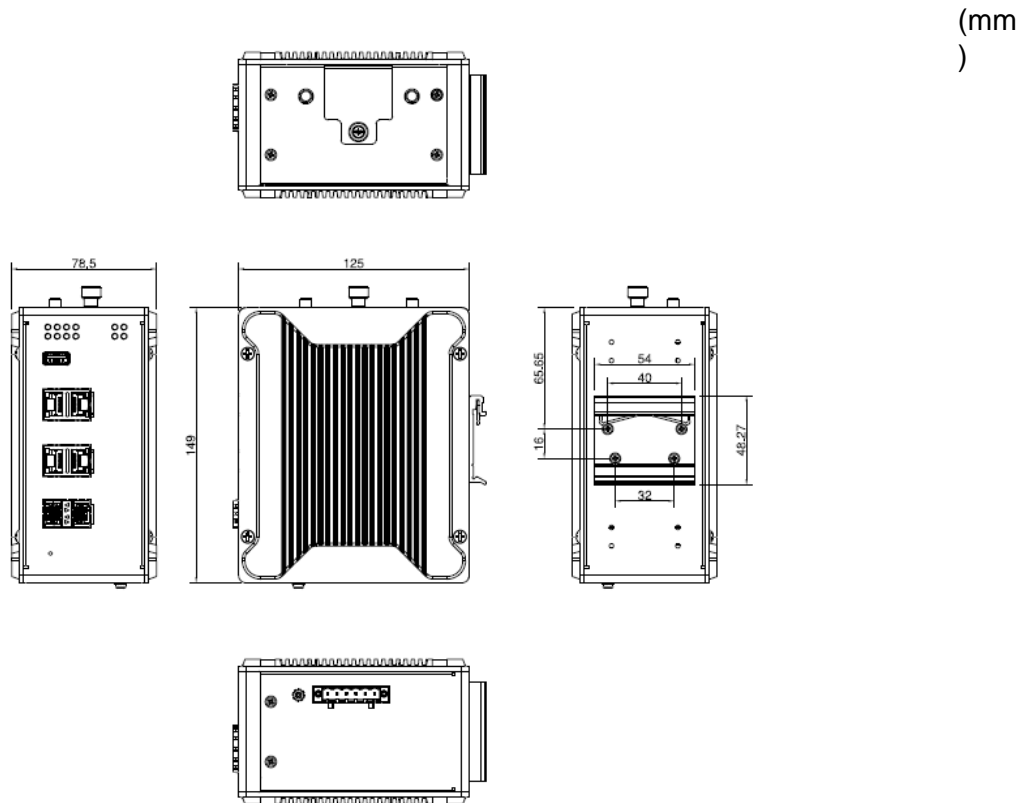
- USB for Configuration/ Firmware update
- External Storage

Integrated Power Connector

- 1 x 4-pin terminal block
- 2 pin booster power input
- 2 pin DO
- Front Panel easy installation



Installation dimensions



Technology	
Standard	3GPP Release 11 Long Term Evolution (LTE), fallback 3GPP Release 7,8,9 for HSPA/UMTS IEEE 802.3 10Base-T Ethernet IEEE 802.3u 100Base-TX Fast Ethernet IEEE 802.3u 100Base-FX Fast Ethernet Fiber IEEE 802.3x Flow Control and back-pressure IEEE 802.3ab 1000Base-T Gigabit Ethernet copper IEEE 802.3z Gigabit Ethernet Fiber IEEE 802.3af/at Power-over-Ethernet IEEE 802.1AB Link Layer Discovery Protocol (LLDP) IEEE 802.1p Class of Service (CoS) IEEE 802.1Q VLAN ITU-T G.8032 Ethernet ring protection switching (ERPS) IEEE 802.1D-2004 Rapid Spanning Tree Protocol (RSTP)
Interface	
Ethernet Port	4 x 100/1000MBase-T RJ45, Auto Negotiation 2 x 100/1000MBase SFP
System LED	2 x Power: Green On 1x SYS: Ready: (Green On), Firmware Updating: (Green Blinking) 1 x DO: Red On 2 x Fiber: Link (Green On), Activity (Green Blinking) 1 x Ring: Off: Ring disabled, Green On: Ring normal (Not RPL Owner), Green Blinking: Ring normal (RPL Owner), Amber On: Ring abnormal, Amber Blinking: Ring port fail 1 x Radio Ra: Radio status, 4G connection: Green On, 2/3G connection: Green blinking, Disconnected: Off 4 x PoE status: Green On
Ethernet Port LED	Link (Green On), Activity (Green Blinking)
Reset	System Reset(2~6 Seconds) / Default Settings Reset(over 7 Seconds)
USB	1 x USB for Configuration/Firmware Update
Power Input, Digital Output	6-Pin Removable Terminal Block Connector 4 Pin for Redundant Power 2 Pin for DO (Relay Alarm) DO: Dry Relay Output with 0.5A/24V DC
Cellular Properties	
Standard	GSM/GPRS/EDGE 3GPP Release 6 UMTS/HSPA 3GPP Release 8 LTE 3GPP Release 11
Data Rate	GPRS: DL: max. 85.6 kbps, UL: max. 85.6 kbps EDGE: DL: max. 236.8 kbps, UL: max. 236.8 kbps HSPA: DL: max. 42 Mbps, UL: max. 5.76 Mbps LTE-FDD Cat.4: DL: max. 150 Mbps, UL: max. 50 Mbps, 2x2 DL MIMO LTE-TDD Cat.4: DL: max. 130 Mbps, UL: max. 35 Mbps, 2x2 DL MIMO
Band Information: LTE-E	LTE: FDD B1/B3/B5/B7/B8/B20 (2100/1800/850/2600/900/800MHz) LTE: TDD B38/B40/B41 (2600/2300/2500MHz) WCDMA: FDD B1/B5/B8 (2100/850/900MHz) GSM: B3/B8 (1800/900MHz)
Band Information: LTE-U	FDD LTE: B2/B4/B12 (1900/1700/700MHz) WCDMA: B2/B4/B5 (1900/1700/850MHz)

Band Information: LTE-CN	LTE FDD: B1/B3/B5/B8 (2100/1800/850/900MHz) LTE TDD: B38/B39/B40/B41 (2600/1900/2300/2500MHz) TD-SCDMA: B34/B39 (2000/1900MHz) WCDMA: B1/B8 (2100/900MHz) CDMA: BC0 GSM: 900/1800MHz
Antenna	
LTE Antenna (Default)	Frequency: 704~960/1710~2690 MHz Gain: 2 dBi Dimension: 161xΦ13 mm
Power Requirement	
Input Voltage	48VDC(46~57VDC, 50~57VDC suggested for IEEE802.3at)
Reverse Polarity Protect	Yes
Input Current	2.36A@54VDC
Power Consumption	Max 8.64W@54VDC full traffic without PD Loading, suggest to reserve 15% tolerance
PoE	
Power forwarding mode	Alternative A
PoE Power Budget	System: Max. 120W@75°C Per Port: Max. 30W
PoE Standard	IEEE 802.3af/at
Management	System/Port Power Budget Control, PD Alive Check, PoE Scheduling, PoE Status
Software	
Management Interface	CGI WebGUI, Command Line Interface (CLI), Telnet, SNMP
User Management	Radius client, TACACS+, local database
Time Management	SNTP, Cellular Time
IoT	AWS Agent, Azure Agent, ATMS Agent
Network Management	IPv4, DDNS, SNMP v1/v2c/v3/Trap, MIB II, Entity MIB, MIBs, DHCP server/client, TFTP, System Log, ARP response over 802.2 LLC SNAP, Proxy ARP, DNS (client/proxy)
Traffic Management	NAT Routing, NAPT(SNAT/DNAT), Flow Control, VLAN, Class of Service, QoS, Rate Control, IGMP Snooping v2, Port Mirror
Routing	Static Route
Security	Firewall, DMZ, Port Forwarding, HTTPs, SSH, Port Security
Redundancy Protocol	ITU-T G.8032 v1/v2 Ethernet Ring Protection Switching (ERPS) Rapid Spanning Tree Protocol (RSTP), VRRP
VPN	IPsec, OpenVPN, L2TP
Cellular Configuration	Radio on/off, 4G LTE/3G HSPA Configuration, SIM Security, Connection Status, Cellular to Eth-WAN Redundancy, GPS positioning(by model)
Utility	AIAS, ANMS, Ping, Traceroute
Mechanical	
Installation	DIN Rail
Enclosure Material	Steel Metal with Aluminum
Dimension	78.5 x 149 x 125 mm(W x H x D) / without DIN Rail Clip
Ingress Protection	IP30
Weight	Around 800g
Environmental	
Operating Temperature & Humidity	-40°C~75°C , 5%~95% Non- Condensing
Storage Temperature	-40°C~85°C
MTBF	>200,000 hours
Warranty	5 years

Approval	
Safety	EN60950-1 Compliance
EMC	EN61000-6-2/EN61000-6-4
EMI	CISPR 22, FCC part 15B Class A
EMS	EN61000-4-2 ESD, EN61000-4-3 RS, EN61000-4-4 EFT, EN61000-4-5, EN61000-4-6 CS, EN61000-4-8 Magnetic Field
Radio	R&TTE / RED Safety EN60950-1 EN50385/EN62311 MPE assessment EN 55022/55024 EN 301 489-1/52 EN 301 908-1 EN60950-1 FCC Part 15B
Traffic Control	NEMA-TS2 Compliance
Railway	EN50121-4 Compliance



Ordering Information

Model Name	Description
AP316-WLAN-SFP	Industrial Wireless Ring Network IloT Routing POE Gateway,802.11 b/g/n WLAN Cat. 4. 2x2 MIMO,4G/3G/2G, 4-Port Gigabit POE Plus 2-Port Gigabit SFP,ITU standard ring redundancy protocol, under 50ms protection and recovery switch, dual power 46 to 57VDC
AP316-LTE-SFP	Industrial Wireless Ring Network IloT Routing POE Gateway,LTE CAT.4, 2x2 MIMO,4G/3G/2G, 4-Port Gigabit POE Plus 2-Port Gigabit SFP,ITU Standard Ring Redundancy Protocol, Protection and Recovery Switching below 50ms, Dual Power 46 to 57VDC
	Package List
	1 x Product Unit
	1 x 6-pin Removable Terminal Connector
	1 x Quick Installation Guide
	1 x Attached Din Clip
	Default Enclosed Antenna: AP316-LTE: 2 x LTE Antennas, Black
Ordering Information	
A-LTE-3-NM	LTE Antenna, LTE WW 3dBi, N-type male
C-RF-R-RSF_RSM-1M	RF cable, RP-SMA female to RP-SMA male, 1M
C-RF-C2-NF_RSM-2M	RF cable, N-type female to RP-SMA male, CFD200, 2M