

AirWan-M12

11n WiFi and 4G cellular router with positioning (GNSS),
for road applications and tramway



- 4G LTE router + positioning (GNSS)
- WiFi router (with fast roaming <30ms) or access point
- M12 & FAKRA connectors, ITxPT compliant
- Automatic Cellular <> WiFi switching
- Designed for road & trams applications
- ECE R10, EN50155, shocks & vibrations proof...
- Compact case, wall mounting
- Centralized administration and configurations management



Introduction

AirWan-M12 is a simple, reliable and cost-effective solution for connecting fleets of vehicles such as buses, trams, trucks, emergency and public safety vehicles, etc., thanks to its cellular (2G/3G/4G LTE), dual-band WiFi (2.4/5GHz) and GNSS (GPS, Galileo, GLONASS, Beidou) interfaces, as well as its 2 Fast Ethernet ports.

Mobility : AirWan-M12 is equipped with high-speed wireless technologies for transmitting data to and from vehicles. For public transport applications (bus and trams), AirWan-M12 makes it possible to pool all data streams (SAE, ticketing, PIS, CCTV...) on a single router. Its WiFi roaming capabilities (<30 ms) ensure continuous data transmission as buses move to the depot. Its automatic switching capabilities between WiFi and 4G ensure service continuity when they go into operation. AirWan-M12 allows vehicles tracking with its GNSS feature. It is also rugged (shock and vibration proof), E-marked ECE R10 and maintenance-free.

Administration and product monitoring : can be achieved directly from a web browser or from WaveManager, the centralized administration software provided by ACKSYS. Besides, its advanced routing and filtering functions make it easy to deploy large fleets of vehicles.

Technical Characteristics overview

Ethernet Interface	2 ports Fast Ethernet 10/100 auto-sensing, Base TX, auto MDI/MDIX, 4-points M12 D-coded Ethernet interface
Cellular Interfaces + Navigation	1 LTE radio category 4, 3GPP E-UTRA release 11, MIMO DL with Rx diversity LTE, UMTS/HSPA+, GSM/GPRS/EDGE (worldwide) Single Nano SIM Multi-constellation GNSS (GPS, Galileo, GLONASS, Beidou). Requires an active antenna.
Cellular radio data rate	150 Mbps ↓ & 50 Mbps ↑ (maximum radio data rate)
Cellular operating frequencies	LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B12/B13/B18/B19/B20/B25/B26/B28 LTE-TDD: B38/B39/B40/B41 WCDMA: B1/B2/B4/B5/B6/B8/B19 GSM: B2/B3/B5/B8
WiFi Interface	1 radio IEEE 802.11a/b/g/n 2T2R, 2.4 / 5 GHz, ANI (Adaptive Noise Immunity)
WiFi radio data rate	802.11a: 6, 9, 12, 18, 24, 36, 48 and 54 Mbps 802.11b/g: 1, 2, 5.5, 6, 9, 11, 12, 18, 24, 36, 48 and 54 Mbps 802.11n: MCS0-7, 2T2R 2 streams (6.5 to 300 Mbps)
WiFi operating frequencies	ISM : 2.4-2.483 GHz (up to 14 channels) UNII : 5.15-5.25 GHz (up to 4 channels) UNII-2 : 5.25-5.35 GHz (up to 4 channels) UNII-2 ext : 5.470-5.725 GHz (up to 11 channels) UNII-3 : 5.725-5.825 GHz (up to 4 channels) Supports DFS and TPC
Output power	WiFi : • 2.4 GHz : up to 20.5 dBm • 5 GHz : up to 18 dBm LTE / 4G : • GSM : up to 33 dBm
Sensitivity max	WiFi : • 2.4 GHz : -92 dBm • 5 GHz : -96 dBm LTE WCDMA B5/B8 : -110.5 dBm
Radio connectors	5 fakra connectors : WiFi (2 x codage I), LTE (2 x codage D), GNSS (1 x codage C) according to ITxPT standard
Security	Firewall, DoS, https, filtrage MAC, WPA2/WAP3-Personal & Enterprise (IEEE 802.1X radius), WEP, tunnels L2 (GRE), VPN (OpenVPN, IPsec), SNMP V3, isolation of clients in AP mode, Wireless Intrusion Detection System (WIDS)
WiFi Modes	AP, client, MESH (IEEE 802.11s), infrastructure, AD-HOC, fast roaming (less than 30 ms), WMM QoS
Ethernet networking	Frames filtering, bridging, repeater, STP/RSTP, VLAN, DHCP (server & client), DNS relay
Ethernet routing	Multicast (PIM), IP redundancy (VRRP), static routes, NAT router, router
Administration	http, https, SNMP agent (V1, V2C, V3), WaveManager administration software
LEDs signaling	Radio: activity and status Ethernet : link 10/100, activity Power : on-off Diagnostic
Power supply	7 to 48 VDC, 3 point Phoenix connector or PoE 802.3af
Consumption	9W typical power consumption / Recommended power supply: 12W
Dimensions & weight	Product: compact rugged aluminium enclosure, (147 x 41 x 100 mm), 420 g
Environment	IP40 seal rating • Operating: -20°C to +60°C (HR 0-99%)
Standards and certifications	CE (RED) Security : EN 62368-1, EN62311 CEM : EN301-489 Radio: • WiFi : EN 300 328 (2.4 GHz), EN 301 893 (5 GHz, DFS) • LTE : EN 301 908 [-1, -2, -13], EN 301 511, EN 303 413
	FCC Radio: • WiFi : FCC ID Z9W-RMB • LTE : FCC ID 2ATM8EG25G, IC 25391-EG25G
	Automotive CEM : ECE R10 (UTAC E2/ R10) Environmental: • Shock and vibration : EN 61373 • Fire/smoke : UNR118, RoHS, WEEE
	Railway CEM : EN 50155 Environmental: • Shock and vibration : EN 61373 • Fire/smoke : EN45545
Warranty	5 years

Ordering references

AirWan-M12/17	WiFi router (802.11n)+ 4G/LTE (world) + multi-constellation GNSS interface, 2 ports Fast Ethernet, shipped without antennas
Additional accessories	
PWS12-UNI-PH3	AC (110V / 220V) to 12VDC power adapter with cable terminated by a 3-pin Phoenix terminal block

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