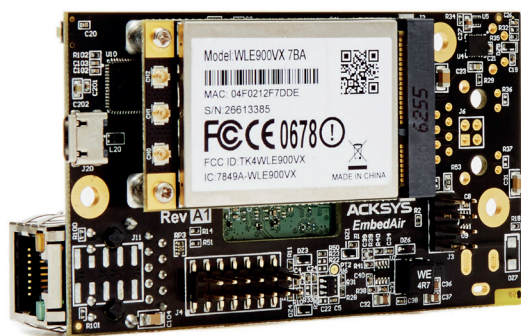# EmbedAir1000

Ready to use industrial wireless router module

- Industrial grade module

- Ready to use standalone, requiring no external software or drivers

- Radio performances :
  - 11n, up to 300 Mbps radio data rate (2 streams)
  - 11ac, up to 1.3 Gbps radio data rate (3 streams)

- Easy to fit small sized PCB (L:89 x l:51 x h:28mm)

- Simultaneous AP and client/repeater/Mesh modes

- Seamless roaming for mobile applications

- State-of-the-art advanced security

- Easy to use web based configuration, SNMP V3

Introduction

EmbedAir1000 module by ACKSYS is designed to quickly and easily add an WiFi connectivity to any Ethernet equipment or simply to allow you to build your own industrial WiFi device.

Ready to use standalone, requiring no external software or drivers, EmbedAir1000 reduces dramatically development costs, shorten time to market and ensures the sustainability of your device.

EmbedAir1000 is an extremely compact state-of-the-art solution and supports WiFi access point, client, repeater & MESH point modes. These functions can be operated simultaneously. EmbedAir1000 offers routing, filtering and advanced security features including 801.11i (EAP authentication with Radius server/ WPA/WPA2 Enterprise), tunnels with fully encrypted data, firewall, VLAN...

Its 802.11ac 3T3R WiFi interface reaches 1.3 Gbps (radio data rate) and supports any kind of Ethernet based protocols such as UDP, TCP, Profinet, Modbus/TCP, Safe Ethernet, Ethernet IP...

EmbedAir1000 meets the industrial requirements (shocks, vibrations, large temperature range, long-lasting product design...) of applications such as onboard computers, CCTV, medical equipment, mining equipment, military DCE, explosion proof devices...
Its fast roaming feature (<30ms) makes it also ideal for any kind of mobile applications such as AGVs for example.

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Technical characteristics overview

Ethernet interface	1-port Gigabit Ethernet 10/100/1000 Base TX auto-sensing, auto MDI/MDIX cross-over, RJ45 or TTL Ethernet interface (HE10 connector)
Serial interface	One serial port (TTL level)
WiFi interface	WiFi 1 : 802.11a/b/g/n, MIMO 2T2R, 2.4 / 5 GHz WiFi 2 : 802.11a/b/g/n/ac, MIMO 3T3R, 2.4 / 5 GHz
WiFi radio data rate	WiFi 1 : 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, 2 streams (6.5 to 300 Mbps) WiFi 2 : 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, 3 streams (6.5 to 450 Mbps) 802.11ac: MCS0-9, 3 streams (6.5 Mbps to1.3 Gbps)
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 1 : 2.4 GHz : up to 23.5 dBm (aggregate) / 5 GHz : up to 21 dBm (aggregate) WiFi 2 : 2.4 GHz : up to 23.8 dBm (aggregate) / 5 GHz : up to 22.8 dBm (aggregate)
Sensitivity	WiFi 1 receiver : -92 dBm for 802.11 b/g/n and -96 dBm for 802.11a/n WiFi 2 receiver : -94 dBm for 802.11 b/g/n and -93 dBm for 802.11a/n/ac
Antennas	WiFi 1 : 2 Hirose UFL connectors WiFi 2 : 3 Hirose UFL connectors
Security	Firewall, DoS, https, MAC filtering, WPA/WPA2-Personal & Enterprise (IEEE 802.1X/RADIUS), WEP, tunnels L2 (GRE), VPN (OpenVPN), SNMP V3
WiFi modes	Access point, client, MESH (IEEE 802.11s), SRCC (Smart Redundant Carriage Coupling), 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 - status	Ethernet : link 10/100/1000 - activity	Power : on-off
Power supply	+5VDC on an HE10 connector or micro USB (1.2A mini / 2.5A recommended)
Consumption	5.7 Watts typical, 13.6 Watts maximum (dual radio mode)
Dimensions & weight	Small sized PCB L : 89 x l : 51 x h : 28 mm, 45 g
Standards	WiFi 1 : CE (RED) and FCC (FCC ID : Z9W-RMB) certified. WiFi 2 : CE (RED) and FCC (FCC ID : TK4WLE900VX) certified.
Environment	Operating temperature : -40 to +75°C, storage -40 to +85°C Humidity : 5% to 95% (non-condensing)
Warranty	1 year

Ordering references

EmbedAir1000/R2	WiFi module (11n 2T2R + 11ac 3T3R) RJ45 Ethernet interface (delivered without antenna nor pigtail cable)
EmbedAir1000/T2	WiFi module (11n 2T2R + 11ac 3T3R) TTL Ethernet interface (delivered without antenna nor pigtail cable)
EmbedAir/CB	Evaluation board with 3 x WL-KIT-ANT-1C (antenna kits) and 1 x PWS12-UNI (+12VDC power supply). EmbedAir1000 /R2 or /T2 module must be ordered with.
ACCESSORIES	
WL-KIT-ANT-1C	Flat & swivel omnidirectional antenna, RPSMA, 2.4 GHz 3dBi gain / 5 GHz 4dBi gain with pigtail cable (14 cm, ø 1.37 mm, UFL to RPSMA)

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