

# Wi-Fi Wireless

Industrial | Enterprise | OEM



- ✓ Bridges & Routers
- ✓ Access Points
- ✓ OEM Modules



**ADVANTECH**

*Enabling an Intelligent Planet*

[www.advantech.com](http://www.advantech.com)

## Dual-band Wi-Fi Networking

with IEEE 802.11 a/b/g/n devices

Ensure successful connectivity of dual-band Wi-Fi devices with Advantech's wireless access points, Ethernet bridges, routers and whether you need a Wi-Fi access point to connect wireless LAN users to a wired network and to each other, or a Wi-Fi Ethernet bridge/router to connect a wired device to a wireless network, Advantech has a wide range of solutions for all your industrial applications.

Boxed and module products deliver RF technology, networking stacks, advanced security, transmit power and receive sensitivity and meet wide temperature and shock/vibration specifications of demanding M2M industrial applications. For OEM applications, rugged dual-band modules are an outstanding choice for reducing integration costs and providing quick time-to-market. Backwards compatible with previous generations, too.

### Applications

- Machine to Machine (M2M)
- Industrial Automation & Control
- Energy Management
- First Responders
- Medical Devices
- Retail & POS
- Vehicle Telematics
- Material Handling & Logistics
- Test & Measurement
- Mining
- Charging Station

### Custom Configuration Service

Advantech offers pre-configuration services for the BB-WLNN/ABDNA product line including factory programming with your specific configuration along with a custom part number for easy ordering and shipping. It can save time and allow faster field deployment when your products arrive preconfigured and ready to go.

Advantech also offers a design/development kit for its open board OEM modules for quick time-to-market and reduced integration cost.

For more information about these and other modifications, please contact your Advantech sales representative.

### Wireless Technologies Support

Advantech's world-class technical support is available around the globe – online, on the phone and in the field. Our technical support experts are dedicated to helping you re-envision, re-scope and re-structure your data communication applications.

Whether you have a simple question, a complex project installation question or an “outside-the-box” problem, the Advantech technical support team is standing by to provide assistance.



Test & Measurement



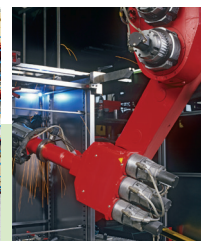
Energy Management



Retail / PoS / ATM



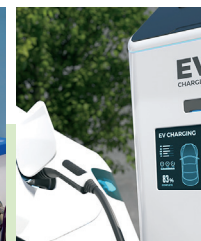
AGV Application



Factory Automation



Medical Cart Application



Charging Station

## INDUSTRIAL

### \_Ethernet Bridges/Routers

- Plug&play 10/100 Ethernet (NAT3 router) to IEEE 802.11a/b/g/n, Wi-Fi compliant
- 2.4 and 5 GHz dual band (RP-SMA omni-directional 5 dBi antenna, included)
- Up to 150 Mbps Maximum data rate (Theoretical)
- -30 to +85 °C wide operating temperature range
- LED Indicators: Power, Link, COMM, POST (power on self test)
- Network protocols – TCP/IP, ARP, ICMP, DHCP, DNS, UDAP, TFTP, UDP, PING, HTTP, FTP
- 5-36 Vdc power (TB or DC jack) (sold separately)
- Advanced Enterprise wireless security
- Encrypted configuration
- Command Line Interface (ASCII)
- Rugged IP30 metal box, panel mount (DIN rail mounting brackets, optional, sold separately)
- FCC, CE



### Industrial Bridge/Router

- Bridges connect separate networks, or devices on separate networks, via MAC address
- Routers route data traffic between two or more LAN/WAN networks via software-configured address
- One Ethernet port
- Advanced Enterprise Security – 802.11i, WPA2, EAP, LEAP, WEP, SSH, SSL, other

## ENTERPRISE

### Ethernet Bridges/Routers

- 10/100 Ethernet to 802.11a/b/g/n Wi-Fi
- 2.4 and 5 GHz dual band (Integrated RP-SMA omni-directional 2 dBi antenna, included)
- Up to 150 Mbps Maximum data rate (Theoretical)
- -20 to +85 °C operating temperature
- LED Indicators: Power, Link, COMM
- Network protocols – TCP/IP, ARP, ICMP, DHCP, DNS, UDAP, TFTP, UDP, PING
- 5 Vdc power input
- Advanced Enterprise wireless security
- Encrypted configuration
- Command-Line interface (ASCII)
- Compact nylon plastic enclosure, desktop or panel mount
- FCC, CE



### Enterprise Bridges/Routers

- Bridges connect separate networks, or devices on separate networks, as needed, via MAC address
- Routers route data traffic between two or more LAN/WAN networks via software-configured address
- RJ45 connector
- 5 Vdc (via AC or USB port, by model)
- Advanced Enterprise Security – 802.11i, WPA/2, EAP, LEAP, WEP, SSH, SSL, other

## OEM EMBEDDED MODULES

- \_Open Board Modules
- \_Carrier Boards
- \_Design/Development Kit

*Open board design is ideal for OEMs when space is limited, an enclosure is not needed, integrating into other assemblies – all with quick time-to-market and reduced integration costs.*

- RS-232/422/485 serial or 10/100 Ethernet to 802.11a/b/g/n Wi-Fi
- 2.4 and 5 GHz dual band with MHF4 antenna connectors
- Up to 300 Mbps Maximum data rate (Theoretical)
- Advanced Enterprise wireless security – 802.11i, WPA/2, EAP, LEAP, WEP, SSH, SSL, other
- Power consumption, extends battery life in mobile devices
- FCC, CE, OpenWrt supported



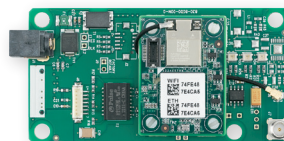
### 802.11a/b/g/n Evaluation Design & Development Kit

- Convenient, portable kit aids developers with OEM module/s
- Observe, configure, test, evaluate BB-WLNN embedded modules
- Access module interfaces or change device function – router, bridge, access point, serial device server
- Includes the following:
  - (1) BB-WLNN-EK-DP551 module (mounted to EVB)
  - (1) 5 Vdc power supply, 2.1mm barrel jack, cable
  - (2) 2dBi, 2.4GHz/5GHz, 50 Ohm, omni-directional antenna
  - (1) DB9/DB9 serial cable (null modem)
  - (1) USB to serial adapter
  - (1) Cat5 Ethernet cable
  - (1) Quick Start Guide
 Optional powering: (4) AA 1.5V batteries, not included.



### Open Board Modules

- UART interface, Ethernet router/adaptor, serial device server driver control, GPIO interface options
- Wide operating temperature range: -30 to +85 °C
- TCP/IP, ARP, ICMP, DHCP, DNS, UDAP, TFTP, UDP, PING
- Command Line Interface (ASCII)



### Embedded OEM & Carrier Boards

- Carrier boards: Ethernet, antenna connector, power connector, power pad option
- Wide operating temperature ranges (by model)
- TCP/IP, ARP, ICMP, DHCP, DNS, UDAP, TFTP, UDP, PING (HTTP, FTP by model)
- Command Line Interface (ASCII) (by model)

# Success Stories



**Mobile Wi-Fi in Healthcare**



## Wi-Fi Ethernet Bridge/Router

- 10/100 Mbps to 802.11a/b/g/n
- Dual-band (2.4 GHz, 5 GHz)
- Wide operating temperature: -20 to +85 °C
- Compact size (6.1 x 9.9 x 3.2 cm)
- 5 Vdc external power
- Advanced Enterprise Class wireless security (WPA2-Enterprise, WPA, WEP, EAP)
- OEM open-board version available

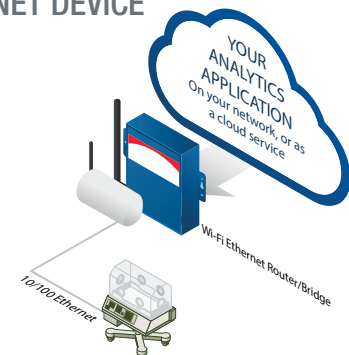
## Challenge & Solution

Implementing Wi-Fi mobile medical devices has been a boon for the healthcare industry, improving patient care and solving network constraints. Yet, these benefits hinge on one major factor: maintaining reliable and secure Wi-Fi network connections. Signals from patient and visitor personal devices can saturate the license-free 2.4 GHz band leading to poor connections, timeouts and data retries. How can we prevent saturation from crushing a network for those who rely on it?

Dual-band Wi-Fi is the answer. There is no interference from other devices typically encountered in a medical setting.

ABDNA-ER-DP551 dual-band Wi-Fi Ethernet bridge/router from Advantech, connects equipment to networks via the 2.4 GHz and 5 GHz license-free bands. Users can switch between the two frequencies for the best wireless connection.

## Wi-Fi for ETHERNET DEVICE





## Wi-Fi Forklift Fleet Connectivity



### Wi-Fi Embedded Open Board Module

- 10/100 Mbps to 802.11a/b/g/n
- Dual-band (2.4 GHz, 5 GHz)
- Wide operating temperature: -30 ~ +85 °C
- Low-power consumption
- Advanced Enterprise Class wireless security (WPA2-Enterprise, WPA, WEP, EAP, SSH)
- Compact, open board – suitable for OEMs

### Challenge & Solution

Owners of large warehouses have discovered that equipping their forklift fleets with mobile wireless communication provides great advantages:

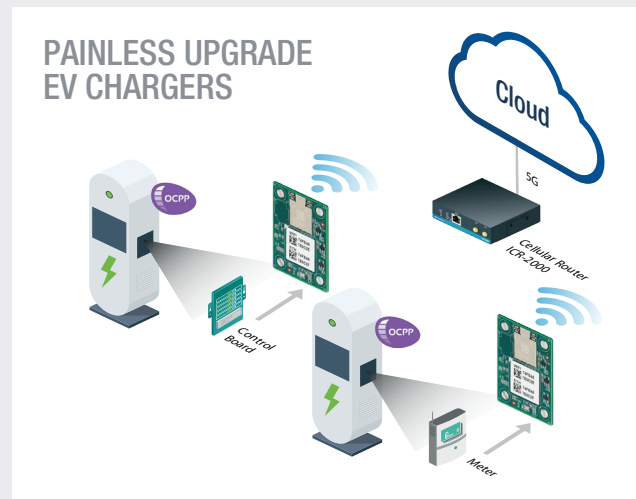
- Central control can ensure that only authorized operators are using the equipment.
- Collisions and accidents can be reduced.
- Processes like checklist inspection can be automated.

Advantech helped one of their customers with an embedded telematics solution for forklifts that could provide high mobility while supplying excellent range and bandwidth.

The solution used Model BB-WLNNA-AN-DP551 (UART Interface). The device connects forklifts to networks via either the 2.4 GHz and 5 GHz license-free bands. When the 2.4 GHz band is overcrowded, the device can operate at 5 GHz instead.



## Wi-Fi Connection at the EV Chargers



### Challenge & Solution

Electric vehicles (EVs) are becoming more ubiquitous to led to a huge explosion in the demand for EV charging facilities. This rapid growth has correspondingly to let legacy devices need to upgrade and the government also want to remote monitor power usage of charging.

Advantech BB-WLNNA Communication Module supports OpenWrt, providing Self-developed functions to build customized Image, achieving the following advantages:

- Add Wi-Fi Module to upgrade OCPP Standard for charge station equipment upgrade.
- Legacy Device, like Meter, add Wi-Fi Module with OCPP to add Wi-Fi/Ethernet feature to upload data to government cloud database.

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