

## Airborne Embedded Wireless Ethernet Board Solutions Ethernet to 802.11b/g Wireless LAN

ABDG-BR-DP553/DP554 and ABDG-ET-DP553/DP554



Airborne™ is a line of highly integrated 802.11 radios and device servers, designed to address the demands of complex machine-to-machine (M2M) applications. Utilizing the latest 802.11, microprocessor and network technologies, the Airborne family of products provide a broad encompassing solution for wireless applications requiring performance, reliability and advanced security.

The Airborne Ethernet Bridge family allows an Ethernet enabled device to connect to a high performance wireless 802.11 network. The integrated Network Address Translation (NAT) functionality provides plug and play connectivity and simple integration to any system with an Ethernet port. The Ethernet interface supports auto rate detection up to 100Mb/s. The ABDG-xx-DP55x includes a full featured 802.11b/g radio and a high performance ARM9 MCU running embedded Linux.

### Enterprise Class Security

WPA2-Enterprise is the leading wireless security standard for enterprise networks and is fully supported by the Airborne Enterprise products. The integrated supplicant supports a wide range of EAP processes including:

- EAP-TLS/MSCHAPv2
- EAP-TLS/MD5
- EAP-TTLS/MSCHAPv2
- PEAPv0/MSCHAPv2
- LEAP

Airborne supports the most flexible certificate delivery and management available in the embedded device market, along with WEP, WPA, WPA2, 802.11i and Pre-shared Key (PSK), no other wireless solution provides a more comprehensive security solution.

### Reliability

Designed by Quatech specifically to meet the demands of the industrial, automotive and medical markets, the Airborne Embedded Ethernet Bridge Board has the widest operating temperature range and highest level of reliability available, all backed by a five year limited warranty. Quatech also provides FCC Modular certification, minimizing requirements for further regulatory testing by original equipment manufacturers.

### Applications

Previous generations of Airborne Embedded Ethernet Bridges have been integrated and deployed into a wide range of applications across various industries including:

- Medical equipment
- Vehicle telematics & diagnostics
- Material handling & logistics
- Industrial Automation
- Test & measurement
- Security & access control

Quatech's Airborne Enterprise Ethernet Bridge Module extends the reputation of the family further by drawing on experience of Quatech application engineers across hundreds of wireless M2M deployments.

### Model Selection Guide

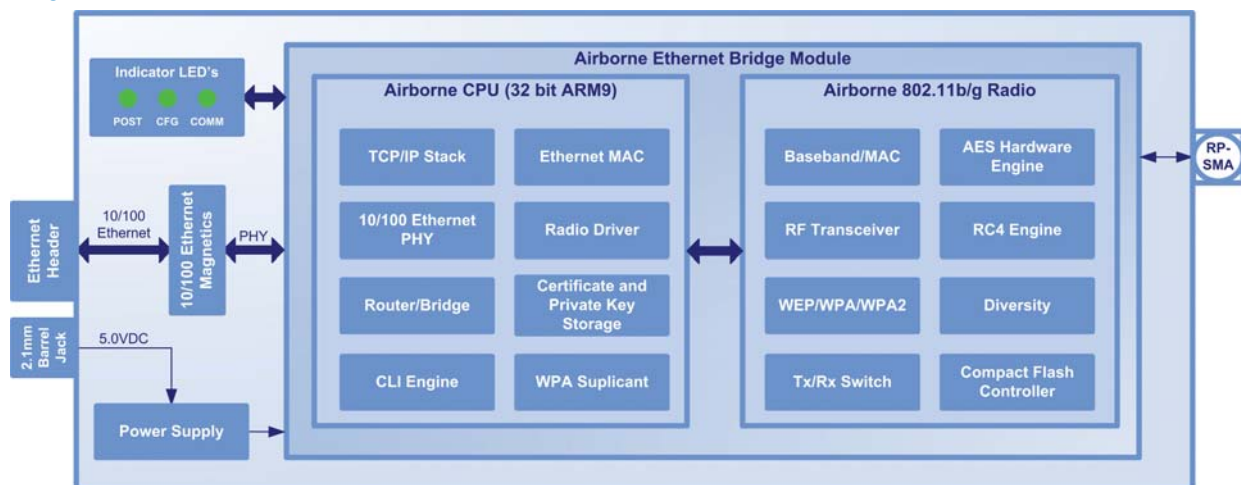
| Model No.     | Interface                 | WiFi      | NAT | Security           |     |      |      |     |
|---------------|---------------------------|-----------|-----|--------------------|-----|------|------|-----|
|               | 10/100 Ethernet interface | 802.11b/g |     | WEP (64 & 128 bit) | WPA | WPA2 | LEAP | EAP |
| ABDG-BR-DP553 | ■                         | ■         | 2.5 | ■                  | ■   | ■    | ■    | ■   |
| ABDG-ET-DP553 | ■                         | ■         | 3   | ■                  | ■   | ■    | ■    | ■   |
| ABDG-BR-DP554 | ■                         | ■         | 2.5 | ■                  | ■   | ■    | ■    | ■   |
| ABDG-ET-DP554 | ■                         | ■         | 3   | ■                  | ■   | ■    | ■    | ■   |
| ABDG-ET-DP503 | ■                         | ■         | 3   | ■                  | ■   | ■    | ■    | ■   |

### KEY FEATURES

- Extended operating temperatures (-20° to +85°C) and environmental specifications
- Plug-n-Play Ethernet to 802.11 Connectivity
- Enterprise Class wireless security (WPA2-Enterprise, WPA2-PSK, WPA-PSK, WEP, EAP) with Certificates
- Plug-and-Play LAN and Internet Connectivity
- Integrated RP-SMA Connector
- Integrated Ethernet Magnetics & Header
- Software-Configurable 802.11b/g Interface
- Advanced utilities for discovery, configuration and management of Airborne Ethernet device
- 3 Status indicator lights
- On board power supply
- Worldwide Certification Support- FCC Part 15 Class B Sub C Modular Approval, IOC, CE, ETSI, ROHS, WEEE
- 5 year warranty

The advanced technologies implemented in the Quatech Enterprise 802.11 Ethernet Bridge provide an industry-leading solution with breakthrough performance and security for M2M applications and drop in replacements for existing 802.11b and 802.11b/g networking bridge boards.

## Block Diagram



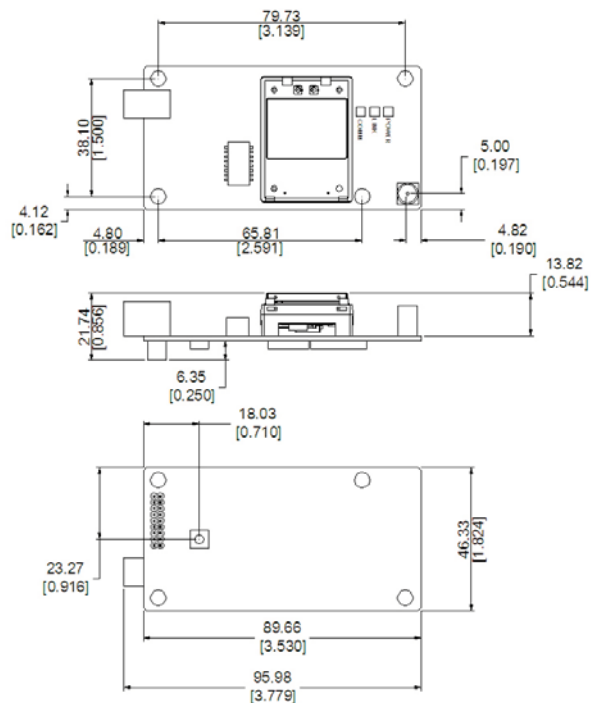
## Package Contents

| Model Number                   | Package Includes:                                                                   |
|--------------------------------|-------------------------------------------------------------------------------------|
| ABDG-BR-DP55x<br>ABDG-ET-DP55x | Airborne Wireless Ethernet Bridge Board<br>Airborne Wireless Ethernet Adapter Board |
| Available Separately           |                                                                                     |
| ACH0-CA-DP003                  | Ethernet Cable with RJ45 (Male) Connector                                           |
| ACH2-AT-DP002                  | Antenna, Omni 2dBi, RP-SMA                                                          |

## Specifications

|                                       |                                                                                                                                                                                                                                                                                                    |
|---------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Technology                            | IEEE 802.11b/g, WiFi compliant                                                                                                                                                                                                                                                                     |
| Wired Interface                       | 10/100 Ethernet (auto sense), RJ-45 Plug                                                                                                                                                                                                                                                           |
| Frequency                             | 2.4 ~ 2.4835 GHz (US/Canada/Europe)<br>2.4 ~ 2.497 GHz (Japan)                                                                                                                                                                                                                                     |
| Modulation Technology                 | DSSS, CCK, OFDM                                                                                                                                                                                                                                                                                    |
| Modulation Type                       | DBPSK, DQPSK, CCK, BPSK, QPSK, 16QAM, 64QAM                                                                                                                                                                                                                                                        |
| Network Access Modes                  | Infrastructure, Ad Hoc                                                                                                                                                                                                                                                                             |
| Channels                              | USA/Canada: 11 channels<br>Europe: 13 channels<br>France: 4 channels<br>Japan: 14 channels (13 channels for 802.11g)                                                                                                                                                                               |
| Wireless Data Rate                    | 802.11b = 11, 5.5, 2, 1 Mbps<br>802.11g = 54, 48, 36, 24, 18, 12, 9, 6 Mbps                                                                                                                                                                                                                        |
| MAC                                   | CSMA/CA with ACK, RTS, CTS                                                                                                                                                                                                                                                                         |
| Network Protocols                     | TCP/IP, ARP, ICMP, DHCP, DNS, UDP, TFTP, UDP, PING                                                                                                                                                                                                                                                 |
| Receive Sensitivity                   | 54Mb/s = -69dBm<br>6 Mb/s = -86dBm<br>1Mb/s = -86dBm                                                                                                                                                                                                                                               |
| Security Protocols                    | Disabled, WEP 64 & 128bit, WPA (TKIP), WPA (AES), WPA2 (AES), 802.1x (EAP) Supplicant<br>Supports WPA & WPA2 Enterprise supplicants EAP-TLS/MSCHAPV2, EAP-TTLS/MSCHAPV2, EAP-TTLS(MD5), EAP-PEAPv0/MSCHAPv2, LEAP<br>Zero host security footprint<br>Supports Certificate, delivery and management |
| Network Address Translation (NAT)     | ABDG-BR-DP553/DP554, Client Bridge<br>ABDG-ET-DP553/DP554, NAT3 Router                                                                                                                                                                                                                             |
| Antenna                               | Integrated RP-SMA Connector                                                                                                                                                                                                                                                                        |
| Supply                                | 5.0VDC +/-5%, 500mA                                                                                                                                                                                                                                                                                |
| Supply In-rush Current                | 3000mA (MAX) for 20ms                                                                                                                                                                                                                                                                              |
| DC Characteristics                    | Operating Current (Tx, 802.11g) = 500mA Typ.<br>Operating Current (Rx, 802.11g) = 530mA Typ.<br>Power Save (Snooze) = 10mA Typ.<br>Power Down (Sleep) = 1mA Typ.                                                                                                                                   |
| Environmental                         | Operating Temperature: -20°C - +85°C, Storage: -55°C - +150°C<br>Relative humidity: 5% - 95% (non-condensing)<br>Vibration: 20G peak-to-peak, 20Hz-2KHz swept<br>Shock: 1500G peak-to-peak, 0.5mS duration                                                                                         |
| LED Indicators                        | 3 Indicator LED (POST, LINK, COMM)                                                                                                                                                                                                                                                                 |
| Dimensions (without mounting bracket) | 89.7mm L x 46.3mm W x 14.5mm T<br>(3.53 in. x 1.82 in. x 0.57 in.)                                                                                                                                                                                                                                 |
| Agency Approvals                      | Worldwide Certificate Support- FCC Part 15 Class B Sub C Modular Approval, IEC, CE, ETSI, ROHS, WEEE                                                                                                                                                                                               |

## Mechanical Outline



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