



Anybus® Wireless Bridge

Ethernet-WLAN

INSTALLATION GUIDE

HMSI-27-201 SP2107 2.2 ENGLISH



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1 Installation



Caution

This equipment emits RF energy in the ISM (Industrial, Scientific, Medical) band. Make sure that all medical devices used in proximity to this device meet appropriate susceptibility specifications for this type of RF energy.

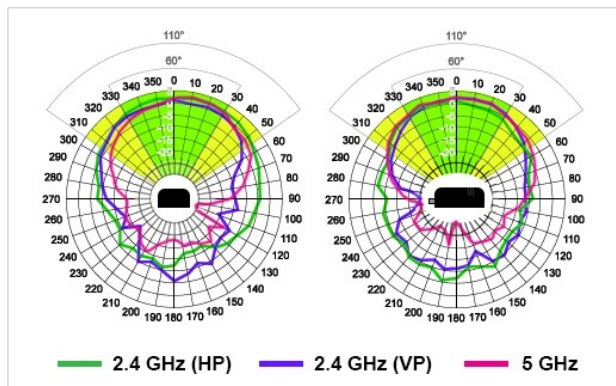


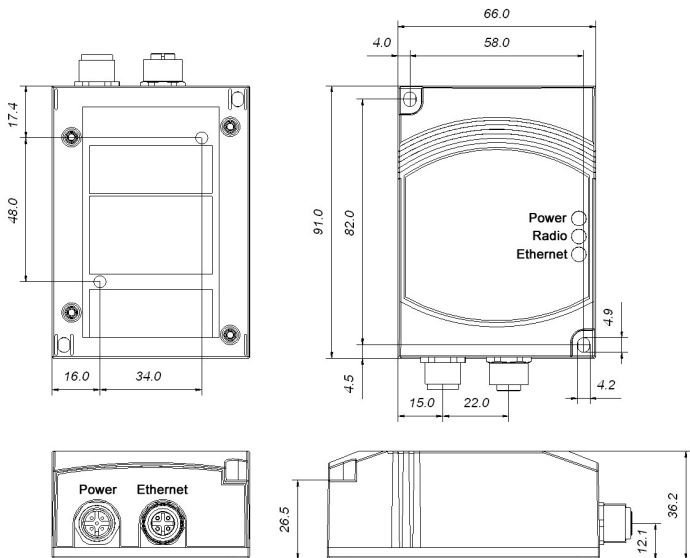
This product contains parts that can be damaged by electrostatic discharge (ESD). Use ESD protective measures to avoid equipment damage.

Make sure that you have all the necessary information about the capabilities and restrictions of your local network environment before installing the Anybus Wireless Bridge. Contact your network administrator if in doubt.

For optimal reception devices should be oriented front-to-front with a line of sight between them clear of obstructions. A minimum distance of 50 cm between the devices should be observed to avoid interference.

Internal Antenna Characteristics





Power connector pinning A-coded male M12



1. Vin + (9-30V)
2. Digital Input Ground
3. Vin Ground
4. Digital Input + (9-30V) or digital output
5. N/C (May be used for shield ground)

Ethernet connector pinning D-coded female M12



1. Transmit +
2. Receive +
3. Transmit -
4. Receive -

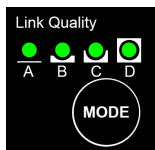
2 LED Indicators

Status LED Indicators



| LED Indication | | Meaning |
|----------------|-----------------|----------------------------------|
| PWR | OFF | No power/application not running |
| | Steady Green | Application is running |
|))) | OFF | No wireless activity |
| | Steady Blue | Wireless connection established |
| | Flashing Blue | Wireless data activity |
| | Steady Purple | Attempting wireless connection |
| | Steady Red | Error |
| LAN | OFF | No Ethernet connection |
| | Steady Yellow | Ethernet link is present |
| | Flashing Yellow | Ethernet data activity |

Link Quality LED Indicators



Press **MODE** to check wireless signal quality in infrastructure mode.

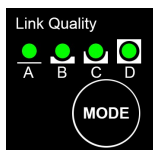
All 4 LEDs lit = excellent signal quality.



Keeping MODE pressed for more than 5 seconds will reboot the unit.

3 Configuration

SMART Configuration Modes



The most common configurations can be set up quickly by using the **MODE** button and the **A-B-C-D** LEDs to select one of the SMART modes.

1. Power on the Wireless Bridge, then immediately press and release **MODE**.
2. Press **MODE** repeatedly to cycle through the configuration modes until the desired mode is indicated.
3. Press and hold **MODE** until the LEDs go out or blink, then release it. The unit will restart in the selected configuration mode.



If the unit is not restarted within 20 seconds of selecting a configuration mode it will exit SMART configuration and return to the previous settings.

| | |
|-----------------------|---|
| Ad-hoc | WLAN devices are connecting directly to each other. Maximum throughput = 11 Mbit/s. |
| Infrastructure | WLAN devices are connecting via an access point. Maximum throughput = 14 Mbit/s. |
| Single Client | The Wireless Bridge acts as a wireless interface for the Ethernet device it is connected to, and will clone its MAC address. This means that only one Ethernet device can be connected to each Wireless Bridge. |
| Multiclient | Same as Single Client mode but allowing multiple devices to communicate on the IP layer. |
| UDP Tunnel | Ethernet packages are encapsulated in UDP packages and transferred transparently between two units. This mode has significantly lower throughput than the Single Client and Multiclient modes. |

SMART Configuration Modes

| MODE | WLAN Type | Operation | Description | LED | | | |
|------|----------------|---------------|---|-----|---|---|---|
| | | | | A | B | C | D |
| 1 | — | — | Enable DHCP server | ● | | | |
| 2 | — | — | Reset to factory defaults | | ● | | |
| 3 | — | — | Reset IP settings | ● | ● | | |
| 4 | Ad-hoc | UDP Tunnel | Wait for auto configuration | | | ● | |
| 5 | Ad-hoc | UDP Tunnel | Initiate auto configuration | ● | | ● | |
| 6 | Ad-hoc | UDP Tunnel | Wait for auto configuration (PROFINET priority) | | ● | ● | |
| 7 | Ad-hoc | UDP Tunnel | Initiate auto configuration (PROFINET priority) | ● | ● | ● | |
| 8 | Infrastructure | UDP Tunnel | Wait for auto configuration | | | | ● |
| 9 | Infrastructure | UDP Tunnel | Initiate auto configuration | ● | | | ● |
| 10 | Infrastructure | UDP Tunnel | Initiate auto configuration (wired) | | ● | | ● |
| 11 | Ad-hoc | Single Client | Wait for MAC address | ● | ● | | ● |
| 12 | Ad-hoc | Multiclient | Initiate auto configuration | | | ● | ● |

Enable DHCP Server

Activates a built-in DHCP server, which makes it possible to access the Wireless Bridge without manually configuring the IP address of the connecting computer. The computer must be set up for DHCP and be connected directly to the unit, not through a network.

The DHCP server will stay enabled until the unit is restarted.

PROFINET priority

PROFINET network traffic will be prioritized.

Advanced Configuration

Advanced configuration can be carried out using the settings in the built-in web interface and/or by issuing AT commands. For more information, see the *Anybus Wireless Bridge User Manual* available at www.anybus.com/support.

4 Example 1: Ethernet Bridge



This example describes two Wireless Bridges using UDP tunneling over an ad-hoc network to connect two Ethernet network segments.

1. Reset both Wireless Bridges to the factory default settings using SMART configuration mode 2 (LED B).



2. On the first Wireless Bridge, activate SMART mode 4 (LED C). The LED will blink while the unit is waiting for a connection.



3. On the second Wireless Bridge, activate SMART mode 5 (LED A+C). The LEDs will blink until the units have connected.



4. When the Wireless Bridges have connected successfully the))) LED on both units will show a steady blue light. The first unit will have IP address 192.168.0.98 and the second 192.168.0.99.

5 Example 2: Single Clients



This example describes two Ethernet devices connecting via two Wireless Bridges in Single Client mode over an ad-hoc network.

Single Client mode has higher performance than UDP Tunneling since no encapsulation of the Ethernet packages is required. Only one Ethernet device can be connected to each Wireless Bridge.

1. Reset both Wireless Bridges to the factory default settings using SMART configuration mode 2 (LED B).



2. On the first Wireless Bridge, activate SMART configuration mode 4 (LED C). The LED will blink while the unit is waiting for a connection.



3. On the second Wireless Bridge, activate SMART configuration mode 5 (LED A+C). The LEDs will blink until the units have connected.



4. When the Wireless Bridges have established a connection, activate SMART configuration mode 11 (LED A+B+D) on the first unit.



5. Activate SMART configuration mode 11 on the second Wireless Bridge. The LEDs will blink while the unit enters client mode and retrieves the MAC address of the other unit.



6. The first unit will now have IP address 192.168.0.98 and the second 192.168.0.99. The units will be operating in ad-hoc mode.

For more use cases and advanced configuration examples, see the *Anybus Wireless Bridge User Manual* available at www.anybus.com/support.

6 Technical Data

Technical Specifications

| Model | 2.4 GHz | 5 GHz | Dual-band |
|-----------------------|--|--------------|------------------|
| Order code | 021440-B | 021450-B | 024120-B |
| Dimensions (LxWxH) | 91 x 66 x 36.2 mm | | |
| Weight | 120 g | | 130 g |
| Operating temperature | -30 to +65 °C | | |
| Storage temperature | -40 to +85 °C | | |
| Humidity | RH 5–90 % non-condensing | | |
| Input voltage | 9–30 V DC (SELV) | | |
| Power consumption | 1.8 W (typical) | | |
| Enclosure material | Plastic | | |
| Mechanical rating | IP65 | | |
| Mounting | Screw holes for wall mounting | | |
| Power connector | M12 male A-coded | | |
| Ethernet connector | M12 female D-coded | | |
| Antenna | Internal | | External |
| Receiver sensitivity | -94 dBm max. | -87 dBm max. | -94/-87 dBm max. |
| Maximum range | 400 m | 200 m | 400/200 m |
| Ethernet interface | 10/100BASE-T with automatic MDI/MDIX cross-over | | |
| Ethernet protocols | IP, TCP, UDP, LLDP, HTTP, ARP, DHCP, DNS, SNMP | | |
| Default IP address | 192.168.0.98 | | |
| WLAN interface | 802.11b/g/n | 802.11n | 802.11b/g/n |
| WLAN security | WEP 64, WEP 128, WPA-PSK, WPA2-PSK, TKIP, CCMP (AES), LEAP, PEAP | | |
| Certifications | CE, cULus, Haz.Loc. Class 1 Div. 2, ETSI, R&TTE, FCC/CFR 47 part 15, IC/RSS, MIC (2.4 GHz) | | |

| Typical current consumption at 24 VDC | Mean (mA) | Max (mA) |
|--|-----------|----------|
| Startup | — | 58.8 |
| Idle | 58.7 | 58.8 |
| Idle, Ethernet | 69.0 | 69.1 |
| Idle + 4 x Mode LEDs | 74.2 | 74.3 |
| Connecting | 63.2 | 63.9 |
| Connected, Data | 63.2 | 64.8 |
| Connected, Data, Ethernet | 73.4 | 75.5 |
| Connected, Data, Ethernet, 4 x Mode LEDs | 78.6 | 80.7 |

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