# Anybus® Wireless Bridge II™

## STARTUP GUIDE

SCM-1202-013/SP2167-EN 1.7 ENGLISH


HMS Connecting Devices™

# Important User Information

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# 1 Preparation

## 1.1 About This Document

This document describes how to install Anybus Wireless Bridge II and set up a basic configuration.

For additional documentation, configuration examples, FAQs, troubleshooting guides and technical support, please visit www.anybus.com/support.

## 1.2 Product Description

Anybus Wireless Bridge II provides wireless communication over WLAN and/or Bluetooth® to wired networks.

Typical applications for Anybus Wireless Bridge II include:

- Adding wireless cloud connectivity to industrial devices
- Accessing devices from a laptop, smartphone or tablet
- Ethernet cable replacement between devices

**Limitations:**

Bluetooth PAN (Personal Area Network) may not work with some devices due to different implementations of Bluetooth by different manufacturers.

WLAN 5 GHz cannot be used at the same time as WLAN 2.4 GHz or Bluetooth.

## 1.3 Model Name – Certification Identifier

The model name is used to identify the product for various certifications. It consists of a model prefix followed by two designators for the specific interface configuration and functionality.

| | | |
|---|---|---|
| **Prefix** | AWB3 | Anybus Wireless Bridge II |
| **Interface configuration** | A<br>B | Internal antenna (Closed Type), interfaces: Dual M12<br>External antenna (Open Type), interfaces: Dual M12, RP-SMA |
| **Functionality** | A<br>B | Ethernet with digital input<br>Ethernet w/o digital input |

**Example:** AWB3AA = Anybus Wireless Bridge II with internal antenna, Ethernet networking and digital input.

# 2 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.

**Caution**
The M12 power and LAN connectors must be provided with tool operated mechanical lock nuts that are tightened by the installer.

This product is recommended for use in both industrial and domestic environments. For industrial environments it is mandatory to use the functional earth connection to comply with immunity requirements. For domestic environments the functional earth must be omitted if a shielded Ethernet cable is used, in order to meet emission requirements.

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

Anybus Wireless Bridge II can be screw-mounted directly onto a flat surface or mounted on a standard DIN rail using the optional DIN mounting kit.

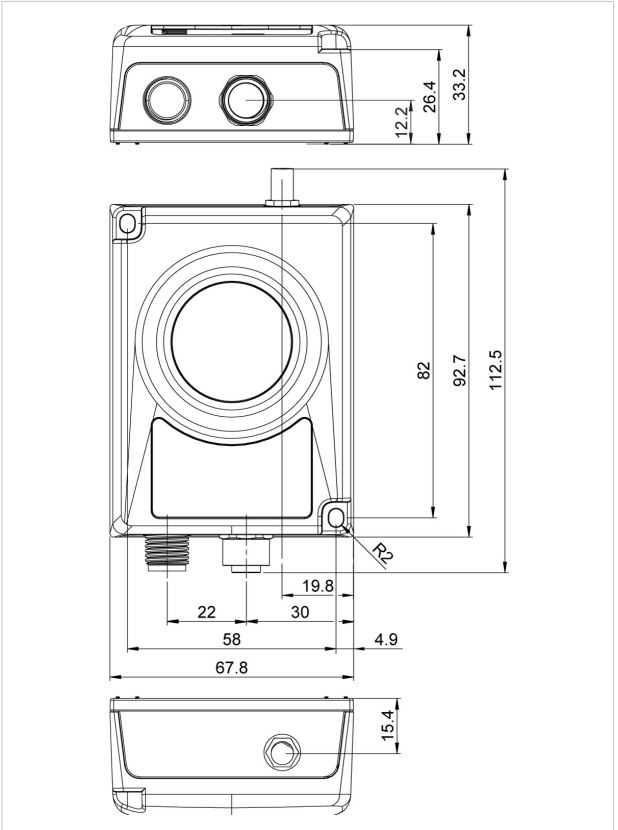
Make sure that you have all the necessary information about the capabilities and restrictions of your local network environment before installation.

For optimal reception, wireless devices require a zone between them clear of objects that could otherwise obstruct or reflect the signal. A minimum distance of 50 cm between the devices should also be observed to avoid interference.

The characteristics of the internal antenna should be considered when choosing the placement and orientation of the unit (unless an external antenna is used).

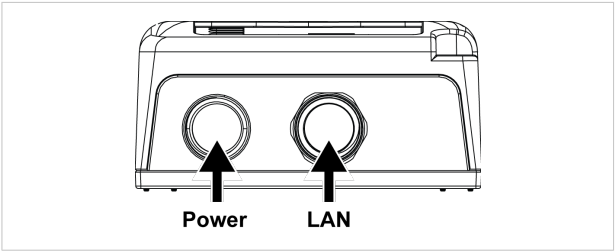
See the **Anybus Wireless Bridge II User Manual** for more information.

## 2.1 Dimensions

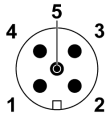



All measurements are in mm.

## 2.2 Connectors



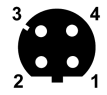

### Power Connector (A-coded male M12)




| Pin | Function |
|---|---|
| 1 | Power + (9–30 V) |
| 2 | Digital Input Ground |
| 3 | Power Ground |
| 4 | Digital Input + (9–30 V) |
| 5 | Functional Earth |

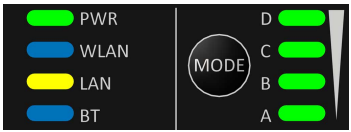
> **!** Signal wiring for the digital input must be carried in the same cable as power and functional earth if wiring length exceeds 3 meters.

### LAN Connector (D-coded female M12)




| Pin | Function | Color coding (T568B) |
|---|---|---|
| 1 | Transmit + | Orange/White |
| 2 | Receive + | Green/White |
| 3 | Transmit - | Orange |
| 4 | Receive - | Green |

## 2.3 LED Indicators




| | | |
|---|---|---|
| **PWR** | Off | No power |
| | Green | Normal operation |
| **WLAN** | Off | WLAN disabled or no power |
| | Blue, blinking | Access Point: No clients, awaiting connections |
| | Blue | Access Point: Connected to at least one client<br>Client: Connected to access point |
| | Blue, flickering | WLAN data activity (when connected) |
| | Purple, blinking | Client: Scanning for access points |
| | Purple | Client: Connecting to a detected access point |
| | Red | Unrecoverable error |
| **LAN** | Off | No Ethernet connection |
| | Yellow | Ethernet link present |
| | Yellow, flickering | Ethernet data activity (when connected) |
| **BT** | Off | Bluetooth disabled or no power |
| | Blue, blinking | NAP: No clients, awaiting connections |
| | Blue | NAP: Connected to at least one PANU client<br>PANU: Connected to NAP |
| | Blue, flickering | Bluetooth data activity (when connected) |
| | Purple | PANU: Trying to connect to NAP |
| | Red | Unrecoverable error |

**RSSI (WLAN Client) / Link Quality (Bluetooth PANU)**

| | | | | |
|---|---|---|---|---|
| | | | | No connection |
| A | | | | RSSI/Link Quality < 25 % |
| A | B | | | RSSI/Link Quality 25–50 % |
| A | B | C | | RSSI/Link Quality 50–75 % |
| A | B | C | D | RSSI/Link Quality > 75 % |

Additional LED indications are used when the unit is in Recovery Mode.
See *Recovery Mode LED Indications, p. 12*.

# 3 Configuration

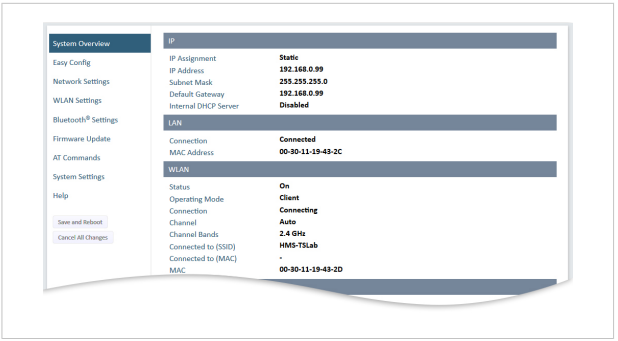
Anybus Wireless Bridge II can be configured via the web interface or using one of the pre-configured **Easy Config** modes.

Advanced configuration can be carried out by issuing AT commands via the web interface or over a Telnet or RAW TCP connection to port 8080.

## 3.1 The Web Interface

The web interface is accessed by pointing your web browser to the IP address of the Wireless Bridge. The default address is **192.168.0.99**.

Most configuration settings are self-explanatory. See also the Anybus Wireless Bridge II User Manual.




> **!** The web interface is designed for the current stable versions of Internet Explorer, Chrome, Firefox and Safari. Other browser versions may not support all functions of the interface.

# 3.2 Easy Config

1. Power on the unit and wait for the **Link Quality** LEDs to light up and go out again, then immediately press and release the **MODE** button.
2. Press **MODE** repeatedly to cycle through the Easy Config modes until the desired mode is indicated by the **A-B-C-D** LEDs.
3. Within 20 seconds of step 2, press and hold **MODE** for 2 seconds. When the button is released the unit will restart in the selected mode.

## Easy Config Modes

| Mode | Role | Description | LED | | | |
|---|---|---|---|---|---|---|
| 2 | — | Reset configuration to factory defaults. | | B | | |
| 3 | — | Reset IP settings to factory defaults. | A | B | | |
| 4 | Client | Wait for automatic configuration. | | | C | |
| 5 | WLAN AP | Configure units in mode 4 as clients. | A | | C | |
| 6 | Bluetooth NAP | Restart as access point and connect clients. | | B | C | |
| 7 | WLAN AP | Configure units in mode 4 as clients. | A | B | C | |
| 8 | Bluetooth NAP | Restart as access point and connect clients. Apply PROFINET optimizations to all units. | | | | D |
| 10 | — | Apply PROFINET optimizations and restart. | | B | | D |

Modes 5 – 8 will scan for units in mode 4. Detected units will be reconfigured as clients, and the scanning unit will restart as an access point. The clients will then restart and connect to the access point.

Modes 7 and 8 will additionally apply PROFINET optimization to all the units. PROFINET messages will then have priority over TCP/IP frames.

### Mode Timeout

- Modes 5 – 8 will time out after 120 seconds. Apply the mode again to repeat the scan.
- Mode 4 will listen for 120 seconds or until receiving a configuration.

> **!** The IP address of a client may be changed by the configuration from the access point. Active browser sessions could therefore be lost.

## 3.3 Factory Restore

Any one of these actions will restore the factory default settings:

- Holding **MODE** pressed for >10 seconds and then releasing it
- Executing **Easy Config Mode 2**
- Clicking on **Factory Restore** on the **System Settings** page
- Issuing the AT command **AT&F** and then restarting the unit

**Default Network Settings**

| | |
|---|---|
| **IP Assignment** | Static |
| **IP Address** | 192.168.0.99 |
| **Subnet Mask** | 255.255.255.0 |
| **Default Gateway** | 192.168.0.99 |

**Default WLAN Settings**

| | |
|---|---|
| **Operating Mode** | Client |
| **Channel Bands** | 2.4 GHz & 5 GHz |
| **Authentication Mode** | WPA/WPA2–PSK |
| **Channel** | Auto |
| **Bridge Mode** | Layer 3 IP forward |

**Default Bluetooth Settings**

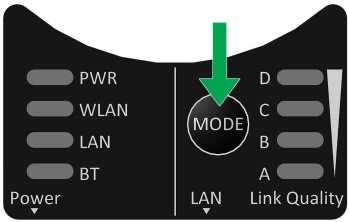
| | |
|---|---|
| **Operating Mode** | PANU (Client) |
| **Local Name** | [generated from MAC address] |
| **Security Mode** | Just works |

**Default System Settings**

| | |
|---|---|
| **Password** | [empty] |

Setting a secure password for the unit is strongly recommended.

## 3.4 MODE Button




The **MODE** button can be used to restart or reset the unit as well as for selecting an Easy Config mode.

- ► Press and hold the button for >10 seconds and then release it to reset to the factory default settings (when the unit is powered on).
- ► Press and hold the button during startup to enter *Recovery Mode*.

### Recovery Mode

If the web interface cannot be accessed, the unit can be reset by starting in Recovery Mode and reinstalling the firmware using Anybus Firmware Manager II, which can be downloaded from www.anybus.com/support.

> **!** Firmware updates should normally be carried out through the web interface. Recovery Mode should only be used if the unit is unresponsive and the web interface cannot be accessed.

### Recovery Mode LED Indications

In Recovery Mode the LEDs will indicate firmware update status:

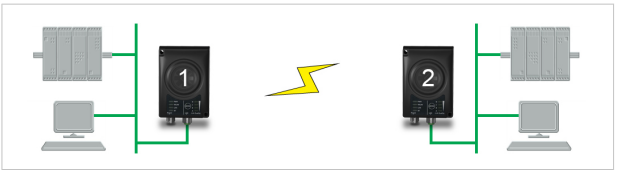
| | | |
|---|---|---|
| **PWR** | Green | Firmware update in progress |
| | Green, blinking | Waiting for valid firmware |
| **WLAN** + **BT** | Alternating red/blue | Firmware update in progress |

# 3.5 Configuration Examples

More examples can be found at www.anybus.com/support.

## 3.5.1 Ethernet Bridge via WLAN or Bluetooth®

### Configuration with Easy Config




This example describes how to connect two Ethernet network segments via WLAN or Bluetooth using Easy Config.

#### Configuration

1. Power on the first unit and wait for the LEDs to light up and go out, then press **MODE** and release it immediately.
2. Press **MODE** repeatedly until only LED **C** is lit (Easy Config Mode 4), then confirm by pressing and holding **MODE** for 2 seconds.

   This unit will now be discoverable and open for automatic configuration.
3. Power on the second unit and wait for the LEDs to light up and go out, then press **MODE** and release it immediately..
4. Press **MODE** repeatedly on the second unit until **A** + **C** are lit (Mode 5) for WLAN, or **B** + **C** (Mode 6) for Bluetooth, then confirm by pressing and holding **MODE** for 2 seconds.

   This unit should now automatically discover and configure unit 1 as a WLAN or Bluetooth client, and configure itself as an access point.

   Unit 1 will automatically be assigned the first free IP address within the same Ethernet subnet as unit 2.

#### Adding More Devices

Up to 6 additional clients can be added by repeating the procedure. Each new client will be assigned the next free IP address within the current subnet.

# 4 Technical Data

## 4.1 Technical Specifications

| Order code | AWB3000 | AWB3010 |
|---|---|---|
| **Wireless antenna** | Internal | External |
| **Maximum range** | 400 m (WLAN and Bluetooth)<br>*Using an external antenna does not extend the range but allows separate placement of antenna and unit (e.g. if unit is placed in an enclosure).* | |
| **Wired Interface type** | Ethernet | |
| **Communication** | See Anybus Wireless Bridge II Datasheet | |
| **Dimensions (LxWxH)** | 93 x 68 x 33.2 mm | |
| **Weight** | 120 g | |
| **Operating temperature** | -40 to +65 °C | |
| **Storage temperature** | -40 to +85 °C | |
| **Humidity** | EN 600068-2-78: Damp heat, +40 °C, 93 % humidity for 4 days | |
| **Pressure** | 850 to 1050 mB | |
| **Housing** | Plastic | |
| **Protection class** | IP65 | |
| **Mounting** | Screw mount or DIN rail using optional clip | |
| **Power connector** | M12 male A-coded | |
| **Ethernet connector** | M12 female D-coded | |
| **Power supply** | 9–30 VDC (-5 % +20 %)<br>Cranking 12 V (ISO 7637-2:2011 pulse 4)<br>Reverse polarity protection | |
| **Power consumption** | 0.7 W (idle), 1.7 W (max) | |
| **Certifications** | See www.anybus.com/support and the compliance information appended to the User Manual. | |

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