Anybus® BY HMS NETWORKS

Anybus® Wireless Bolt™ RJ45 PoE

STARTUP GUIDE

SP2359 1.5 en-US 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 Bolt RJ45 PoE 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 Document Conventions

The following conventions are used to indicate safety information and other important content in this document:

WARNING
Instruction that must be followed to avoid a risk of death or serious injury.

Caution
Instruction that must be followed to avoid a risk of personal injury.

Instruction that must be followed to avoid a risk of reduced functionality and/or damage to the equipment, or to avoid a network security risk.

Additional information which may facilitate installation and/or operation.

1.3 Trademarks

Anybus® is a registered trademark and Wireless Bolt™ is a trademark of HMS Industrial Networks AB. All other trademarks mentioned in this document are the property of their respective holders.

1.4 Intended Use

This equipment is intended to provide wireless communication over WLAN and Bluetooth® to wired networks.

Typical applications for this equipment:

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

Note:

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.

2 Installation

2.1 General Safety Instructions

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

Caution
Minimum temperature rating of the cable to be connected to the field wiring terminals, 90 °C.

Caution
Use copper wire only for field wiring terminals.

This equipment 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 used if a shielded Ethernet cable is used, in order to meet emission requirements.

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

2.2 General Information

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 antenna should also be considered when choosing the placement and orientation of the unit.

See the **Anybus Wireless Bolt RJ45 PoE User Manual** for more information.

2.3 Mechanical Installation

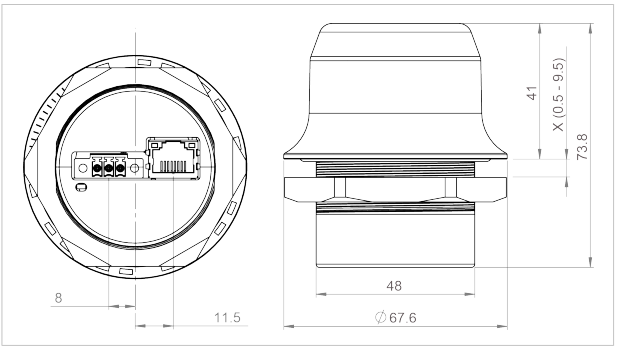
Placement

- The device is intended to be mounted on top of a machine or cabinet through an M50 (50.5 mm) hole using the included sealing ring and nut.
- The top mounting surface, in contact with the sealing, must be flat with a finish equivalent to Ra 3.2 or finer and cleaned and free from oils and greases.
- For optimal reception, wireless devices require a zone between them clear of objects that could otherwise obstruct or reflect the signal. To avoid interference, a minimum distance of 50 cm between Wireless Bolt RJ45 PoE and other devices should be observed.

> **!** Make sure that the sealing ring is correctly placed in the circular groove in the top part of the housing before tightening the nut.

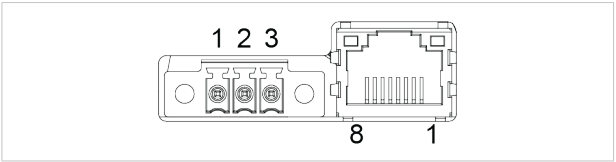
> **!** Always hold the BOTTOM part of the unit when untightening the nut, not the top part (the cap).

Tightening torque: 5 Nm ±10 %



All measurements are in mm.

2.4 Connectors



> **!** Connecting power with reverse polarity or using the wrong type of power supply may damage the equipment. Make sure that the power supply is connected correctly and of the recommended type.

See also *Technical Data, p. 15* regarding power supply requirements.

Power Connector (3-pin terminal block)

Pin	Function	
1	+	19–36 VDC
2	-	
3	Functional Earth (FE)	

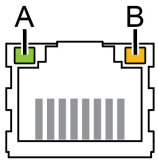
FE must be connected on the power connector if not using PoE.

Ethernet Connector (RJ45 PoE)

Pin	Data	PoE	
1	TD+	A+	Positive power from alt. A PSE
2	TD-	A+	
3	RD+	A-	Negative power from alt. A PSE (with pin 6)
4		B+	Positive power from alt. B PSE
5		B+	
6	RD-	A-	Negative power from alt. A PSE (with pin 3)
7		B-	Negative power from alt. B PSE
8		B-	
Housing	Shield	Functional Earth (FE) via 1 nF capacitor and 1 MΩ bleeder resistor	

Shielded or unshielded Ethernet cables may be used.

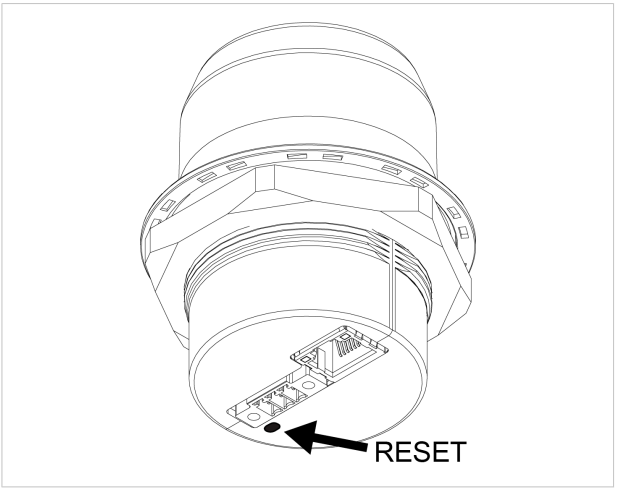
2.5 RJ45 LED Indicators



LED A – LINK/ACTIVITY	Function
Off	No Ethernet link or no power
Yellow	Ethernet link established
Yellow, flashing	Ethernet traffic

LED B – STATUS	Function
Off	No power
Blue	Connected on all configured wireless interfaces
Purple	Trying to connect to WLAN/Bluetooth access point
Blue, slow blink	Awaiting connections
Alternating blue/purple	Connected on one interface and trying to connect or awaiting connections on another
Purple, slow blink	Awaiting connections on one interface and trying to connect on another
Purple, fast blink	Scanning for Bluetooth devices or WLAN networks
Red, slow blink	No configured wireless interface
Red	Recoverable/unrecoverable fault

2.6 RESET Button



The **RESET** button is located on the bottom of the unit.

When the unit is powered on, press and hold **RESET** for >10 seconds and then release it to reset to the factory default settings.

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.

To enter Recovery Mode, press and hold **RESET** during startup.

> **!** 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.

3 Configuration

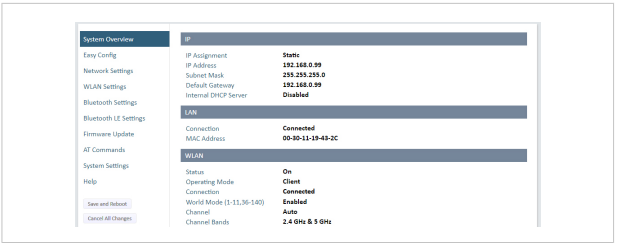
Anybus Wireless Bolt RJ45 PoE is configured via a web interface. Parameters can be set individually or using pre-configured **Easy Config** modes.

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 Web Interface

The web interface is accessed by pointing a web browser to the IP address of the unit. The default address is **192.168.0.99**.

The configuration settings are described in detail in the User Manual.



3.2 Easy Config Modes

By default Wireless Bolt RJ45 PoE starts in Easy Config mode 4, when:

- the Ethernet connection is not used
- connected to power
- factory default settings are used

EC	Role	Description
1	Bluetooth PANU	Configure as Bluetooth client and scan for another client (PANU to PANU).
2	–	Reset configuration to factory defaults.
3	–	Reset IP settings to factory defaults.
4	Client	Wait for automatic configuration. Configure units in mode 4 as clients. When mode 4 is used with mode 1, 6 or 7, Serial Settings TCP Mode Client is activated automatically.
5	WLAN AP	Configure units in mode 4 as clients. Restart as access point and connect clients.
6	Bluetooth NAP	
7	WLAN AP	Configure units in mode 4 as clients. Restart as access point and connect clients. Apply PROFINET optimization to all units.
8	Bluetooth NAP	
9	Bluetooth PANU	Configure as Bluetooth client and scan for another client (PANU to PANU). Apply PROFINET optimization to both units.
10	(any)	Apply PROFINET optimization and restart.
11	(any)	Enable PROFIsafe mode.

The Easy Config modes are also described when selected in the web interface.

3.3 I/O-Data Cycle Time

Based on recommendations from industrial equipment suppliers, such as Rockwell and Siemens, it is recommended to use the following minimum I/O-data cycle times for PROFINET and EtherNet/IP networks:

- Wireless link Point-to-Point with Bluetooth PANU-PANU or Wi-Fi Access Point to Station: 32 ms
- Wireless link with Access Point and up to 4 wireless clients/stations, Bluetooth or Wi-Fi: 64 ms

3.4 Factory Restore

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

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

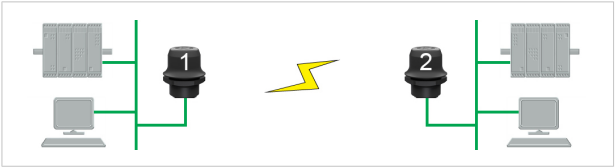
Default Network Settings	
IP Assignment	Static
IP Address	192.168.0.99
Subnet Mask	255.255.255.0
Default Gateway	192.168.0.99
Internal DHCP Server	Disabled
DHCP Interfaces	All

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]
Connectable	No
Discoverable	No
Security Mode	Just works
Bluetooth LE	Operating Mode: Disabled Connectable: No Discoverable: No

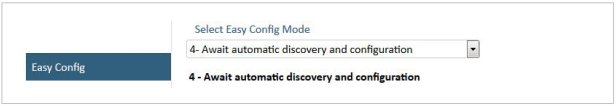
3.5 Configuration Examples

3.5.1 Ethernet Bridge via WLAN or Bluetooth® (Easy Config)

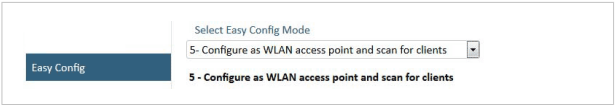


This example describes how to connect two Ethernet network segments via WLAN or Bluetooth using Easy Config.

1. In the web interface of unit 1, activate **Easy Config Mode 4**. This unit will now be discoverable and open for automatic configuration.



2. In the web interface of unit 2, activate **Easy Config Mode 5** for WLAN or **6** for Bluetooth. Unit 2 will now discover and configure unit 1 as a client and configure itself as an access point.



Unit 1 will be assigned the first free IP address in 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 in the current subnet.

4 Technical Data

For complete technical specifications and regulatory compliance information please visit www.anybus.com/support.

4.1 Hardware Specifications

Order code	AWB2030	AWB2031
Color	Black	White top and black base
Wired interface type	Ethernet	
Ethernet connector	RJ45	
Power connector	3-pole screw connector	
Antenna	Internal dual-band 2.4 GHz and 5 GHz antenna	
Maximum range	100 m (WLAN and Bluetooth)	
Operating temperature	Shadow: -40 to +65 °C Direct sunlight: -40 to +45 °C	Shadow: -40 to +65 °C Direct sunlight: -40 to +65 °C
Storage temperature	-40 to +85 °C	
Humidity	EN 600068-2-78: Damp heat, +40°C, 93% humidity for 4 days.	
Vibration	See datasheet	
Dimensions	Height: 75 mm (84 mm with PS connector) Outside height: 41 mm Diameter: 68 mm	
Weight	84 g	
Housing material	Plastic (see datasheet for details)	
Protection class	Top (outside of host): IP66 / IP67 / UL Type 4X Base (inside of host): IP21	
Mounting	M50 screw and nut (50.5 mm hole needed)	
Power supply	19–36 VDC	
Power over Ethernet	44–57 VDC DTE Type1 according to IEEE 802.3af	
Power consumption	0.7 W idle, 1.7 W max.	

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