司騰達股份有限公司
BHP Industry Solution

司騰達股份有限公司

HMS 台灣總代理 – Remote Access 跨國遠端連線與自動化工業的最佳選擇

司騰達公司致力於推廣數位化工廠和 IIoT 工業物聯網的解決方案，並與歐洲最先進的公司 – HMS 集團合作，同時透過引進更多歐美的技術能量，提供客戶關於工業 4.0 的顧問諮詢服務，並將教育與產業連結，協助台灣產業逐步完成從現場設備、生產資訊、通訊 IoT 的垂直整合，並整合 M2M 工業總線與軟體開發，從而實現數位化工廠與自動化機械領域的創新。

司騰達聯絡訊息
臺北客服專線：(02)-2242-1625
台中客服專線：(04)-2451-0611
客服信箱：sales@bhp.com.tw
Line ID：@bhp.tw
www.bhp.com.tw

Anybus® Wireless Bolt™

INSTALLATION GUIDE

SCM-1202-006/SP2139 1.7 ENGLISH

HMS Connecting Devices™

Important User Information

Liability

Every care has been taken in the preparation of this document. Please inform HMS Industrial Networks AB of any inaccuracies or omissions. The data and illustrations found in this document are not binding. We, HMS Industrial Networks AB, reserve the right to modify our products in line with our policy of continuous product development. The information in this document is subject to change without notice and should not be considered as a commitment by HMS Industrial Networks AB. HMS Industrial Networks AB assumes no responsibility for any errors that may appear in this document.

There are many applications of this product. Those responsible for the use of this device must ensure that all the necessary steps have been taken to verify that the applications meet all performance and safety requirements including any applicable laws, regulations, codes, and standards.

HMS Industrial Networks AB will under no circumstances assume liability or responsibility for any problems that may arise as a result from the use of undocumented features, timing, or functional side effects found outside the documented scope of this product. The effects caused by any direct or indirect use of such aspects of the product are undefined, and may include e.g. compatibility issues and stability issues.

The examples and illustrations in this document are included solely for illustrative purposes. Because of the many variables and requirements associated with any particular implementation, HMS Industrial Networks AB cannot assume responsibility for actual use based on these examples and illustrations.

Intellectual Property Rights

HMS Industrial Networks AB has intellectual property rights relating to technology embodied in the product described in this document. These intellectual property rights may include patents and pending patent applications in the USA and other countries.

Trademarks

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

1 Description

This document describes how to install Anybus Wireless Bolt and set up a basic configuration. For additional documentation and technical support, please visit the Anybus support website www.anybus.com/support.

Anybus Wireless Bolt provides wireless communication capability over WLAN and/or Bluetooth® to Ethernet, serial and CAN networks.

Bluetooth and WLAN (2.4 GHz) can be used simultaneously. Ethernet can be used at the same time as either the serial interface or the CAN interface.

Typical applications for Anybus Wireless Bolt 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) cannot be used with iOS devices.
- Bluetooth PAN may not be compatible with some Android devices due to varying implementations of Bluetooth by different manufacturers.
- WLAN 5 GHz cannot be used at the same time as WLAN 2.4 GHz or Bluetooth.

Trademark Information

2 Installation

Anybus Wireless Bolt should be mounted vertically (logo facing upwards) for best performance due to the characteristics of the internal antenna.

For optimal reception, wireless devices should be placed 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.

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

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.

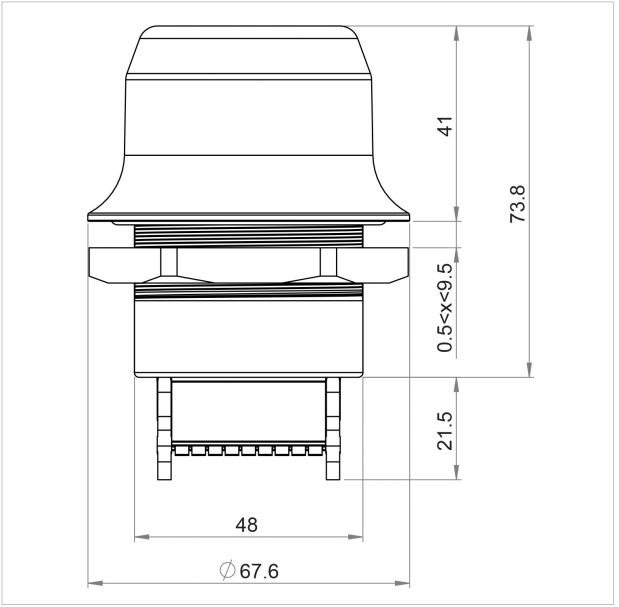
This product contains parts that can be damaged by electrostatic discharge (ESD). Use ESD protective measures to avoid equipment damage.

Mechanical Installation

Anybus Wireless Bolt 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.

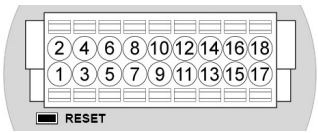
Tightening torque: 5 Nm ±10 %

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



All measurements are in mm.

Connector Pinning



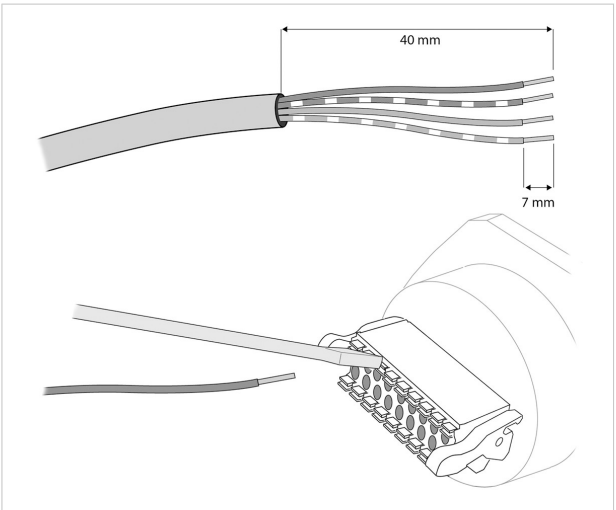
Note the location of the **RESET** button when the connector is attached to the Wireless Bolt. Pin 1 will be the pin closest to the button.

Pin	Name	Description
1	VIN	Power 9–30 VDC
2	GND	Power Ground
3	DI	Digital input (9–30 VDC)
4	DI_GND	Digital input ground
5	ETN_RD+	Ethernet receive + (white/orange)
6	ETN_RD-	Ethernet receive - (orange)
7	ETN_TD-	Ethernet transmit - (green)
8	ETN_TD+	Ethernet transmit + (white/green)
9	RS485_B	RS-485 B Line
10	FE/Shield	Ethernet: Functional Earth Serial: Functional Earth and Shield
11	RS232_TXD	RS-232 Transmit
12	RS485_A/RS232_RXD	RS-485 A Line / RS-232 Receive
13	RS232_RTS	RS-232 Request To Send
14	RS232_CTS	RS-232 Clear To Send
15	ISO_5V	Isolated 5 V for serial interface
16	ISO_GND	Isolated Ground for serial interface
17	CAN_L	CAN Low
18	CAN_H	CAN High

- If using a shielded Ethernet cable the shield must be unconnected.
- RS-232 and RS-485 cannot be used at the same time.
- Use termination for RS-485 and CAN when required.

Cabling

To make an Ethernet connector cable for the Anybus Wireless Bolt:



1. Cut off one of the connectors on a standard Cat5e or Cat6 Ethernet cable.
2. Strip off about 40 mm (1½ inch) of the cable jacket and untwist the orange, orange/white, green and green/white wires. The other wires will not be used.
3. Strip off about 7 mm (¼ inch) of the isolation on each wire.
4. Push the pin spring release next to each socket on the connector and insert the correct wire end according to *Connector Pinning, p. 6*.

Connect the wires from the power supply to the connector in the same way as the Ethernet wiring. Make sure that polarity is not reversed.

3 Configuration

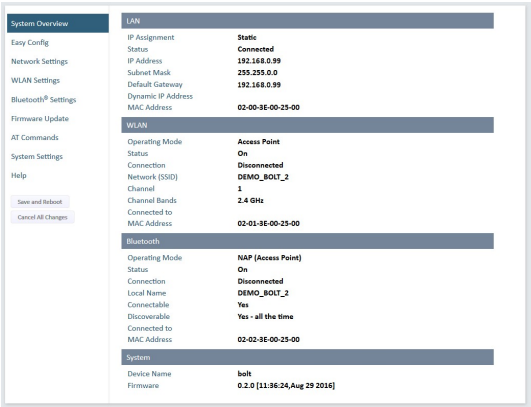
Anybus Wireless Bolt can be configured either by setting individual parameters in the web interface or by using a pre-configured **Easy Config** mode.

Advanced configuration can be carried out by issuing AT (Hayes) commands in the **AT Commands** tab in the web interface, or over Telnet to port 8080. A list of the supported AT commands is available at www.anybus.com/support.

The Web Interface

The web interface is accessed by pointing your web browser to the IP address of the internal web server in Wireless Bolt. The default address is **192.168.0.99**.

Most configuration settings are self-explanatory. For detailed information about the settings, see the Anybus Wireless Bolt User Manual.



The web interface is designed for the latest versions of Internet Explorer, Chrome, Firefox and Safari. Other browsers may not be supported.

Easy Config Modes

Mode	Role	Description
1	—	(reserved)
2	—	Reset the whole configuration to the factory defaults
3	—	Reset the IP settings to the factory defaults
4	Client	Await automatic discovery and configuration by a device in Mode 5 (WLAN Access Point) or 6 (Bluetooth NAP)
5	WLAN AP	Discover and reconfigure devices in Mode 4 as clients
6	Bluetooth NAP	Discover and reconfigure devices in Mode 4 as clients

Modes 4, 5 and 6 can be used in combination to automatically set up a WLAN or Bluetooth network of Wireless Bolt devices.

A device set in Mode 5 or 6 will scan for devices set in Mode 4. Each detected device in Mode 4 will automatically be configured as a client, and the scanning device will be configured as a WLAN or Bluetooth access point. The devices in Mode 4 will then restart and attempt to connect to the access point.

Mode Timeout

The Mode 5 and 6 scans will run for 120 seconds. To scan for additional devices, just activate the mode again.

Mode 4 will listen for 120 seconds or until it has received a valid configuration from a Mode 5 or 6 device.

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

4 Factory Reset

Anybus Wireless Bolt can be reset to the factory default settings using either of the following methods:

- Press and hold the **Reset Button** for >10 seconds and then release it
- Execute **Easy Config Mode 2** through the web interface
- Issue the AT command **AT&F**

Factory Default Settings

Network Settings

IP Assignment	Static
IP Address	192.168.0.99
Subnet Mask	255.255.255.0
Default Gateway	192.168.0.99

WLAN Settings

Operating Mode	Client
Channel Bands	2.4 GHz & 5 GHz
Authentication Mode	Open
Channel	Auto

Bluetooth Settings

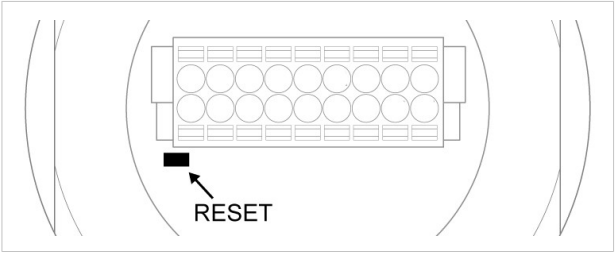
Operating Mode	PANU (Client)
Local Name	[generated from MAC address]
Security Mode	Disabled

System Settings

Password	[empty]

> **!** Setting a secure password for the unit is strongly recommended.

Reset Button



The reset button is located on the bottom of the unit next to the connector.

- 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 may be reset by starting in Recovery Mode and reinstalling the firmware using Anybus Firmware Manager II.

For instructions, please refer to the wizard in Anybus Firmware Manager II.

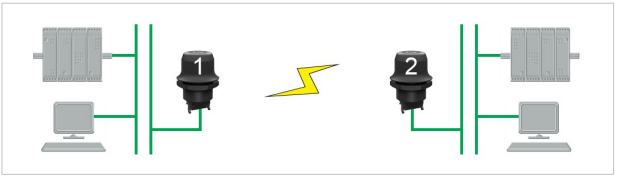
> **!** Firmware updates should normally be carried out through the web interface. Recovery Mode should only be used if the Wireless Bolt is unresponsive and the web interface cannot be accessed.

5 Configuration Examples

For more configuration examples, see the Anybus Wireless Bolt User Manual.

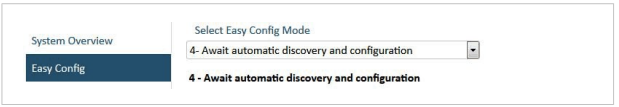
- All the examples start out from the factory default settings.
- Settings not mentioned should be left at their default values.

EXAMPLE 1: Setting up a network bridge with Easy Config

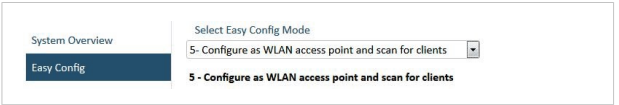


This example describes how to connect two Ethernet network segments over WLAN or Bluetooth using two Wireless Bolts.

1. On Wireless Bolt 1, execute **Easy Config Mode 4**. This unit will now be discoverable and open for automatic configuration.



2. On Wireless Bolt 2, execute either **Easy Config Mode 5** for WLAN, or **6** for Bluetooth. This unit should now automatically discover and configure Wireless Bolt 1 as a WLAN or Bluetooth client.



The Easy Config modes will time out after 120 seconds.

EXAMPLE 2: Accessing a PLC from a handheld device over WLAN

This example describes how to access the web interface of a PLC using a tablet or smartphone over WLAN.

A: The PLC or network has an active DHCP server

1. In **Network Settings**, select **IP Assignment**: **Dynamic (DHCP)** and continue to step 3 below.

B: The PLC has a static IP address, no DHCP server on the network

1. Make sure that the IP addresses of the PLC and the Wireless Bolt are within the same Ethernet subnet.
2. In **Network Settings**, select **IP Assignment**: **Static** and enable **Internal DHCP Server**.
3. In **WLAN Settings**, select **Operating Mode** – **Access Point** and enter a unique SSID (network name) for the unit.

   Select an Authentication Mode and a WLAN channel if required by your network environment, otherwise leave them at the default settings.
4. Click on **Save and Reboot** to restart the Wireless Bolt with the new settings.
5. In the WLAN configuration of the handheld device, connect to the SSID (network name) of the Wireless Bolt.

   You should now be able access the web interface of the PLC by entering its IP address in the web browser on the handheld device.

> **!** Do not enable Internal DHCP Server if there is already a DHCP server on the network, as this may cause IP address conflicts.

6 Technical Data

General Specifications

Wired Interface type	Ethernet	Serial RS-232/485 + Ethernet	CAN + Ethernet
Order code	AWB2000	AWB2010	AWB2020
Range	Up to 100 meters		
Antenna	Built-in		
Operating temp.	-40 to +65 °C		
Weight	81 g		
Housing	Plastic (PBT glass-reinforced/PC-ABS)		
IP class	IP67 for top (outside of host), IP21 for bottom (inside host)		
Dimensions	Height: 70 mm (95 mm incl. connector, 41 mm outside) Diameter: 70 mm		
Mounting	M50 screw and nut (50.5 mm hole required)		
Connector	Included plug connector (2 x 9 pin 3.5 mm Phoenix DFMC 1.5/9-ST-3.5 push-in spring connection)		
Power supply	9–30 VDC (-5% +20%) Cranking 12 V (ISO 7637-2:2011 pulse 4) Polarity reversal protection		
Power consumption	0.7 W (idle) – 1.7 W (max)		
Browser support	Internet Explorer, Firefox, Chrome, Safari (latest stable versions)		
Configuration	Built-in web interface / Easy Config Modes / AT commands		
Vibration	Sinosodial vibration test according to IEC 60068-2-6:2007 and with extra severities; Number of axes: 3 mutually perpendicular (X:Y:Z), Duration: 10 sweep cycles in each axes, Velocity: 1 oct/min, Mode: in operation, Frequency: 5–500 Hz, Displacement ±3.5 mm, Acceleration: 2 G. Shock test according to IEC 60068-2-27:2008 and with extra severities; Wave shape: half sine, Number of shocks: ±3 in each axes, Mode: In operation, Axes ± X,Y,Z, Acceleration: 30 m/s^2 , Duration: 11 ms		
Humidity	EN 600068-2-78: Damp heat, +40 °C, 93 % humidity for 4 days		
Certifications	See Anybus Wireless Bolt Compliance Sheet		

Host Communication

Ethernet interface	10/100BASE-T, auto MDI/MDIX cross-over detection Supported protocols: IP, TCP, UDP, HTTP, LLDP, ARP, DHCP Client/Server, DNS support, PROFINET IO, EtherNet/IP, Modbus-TCP
Serial interface	Isolated RS-232/485 (max. 1 Mbit/s)
CAN interface	Isolated CAN (max. 1 Mbit/s)
Digital input	Max 3 m signal cable length

WLAN Specifications

Wireless standards	WLAN 802.11a/b/g/d/e/i/h
Operation modes	Access Point or Client
2.4 GHz channels	1–11
5 GHz channels	36–48 (U-NII-1), 52–64 (U-NII-2), 100–140 (U-NII-2e)
RF output power	16 dBm
Max number of clients	7 (for access point)
Power consumption	54 mA @ 24 VDC (WLAN interface only)
Net data throughput	Up to 20 Mbit/s
Authentication	WPA/WPA2-PSK, LEAP, PEAP
Encryption	WEP64/128, TKIP, AES/CCMP

Bluetooth Specifications

Core specification	4.0
Wireless profiles	PAN (PANU & NAP)
Operation modes	Access Point or Client
RF output power	10 dBm
Max number of clients	7 (for access point)
Power consumption	36 mA @ 24 VDC (Bluetooth interface only)
Net data troughput	Up to 1 Mbit/s
Security	Authentication & Authorization, Encryption & Data Protection, Privacy & Confidentiality, NIST Compliant, FIPS Approved

Box 4126
300 04 Halmstad, Sweden

info@hms.se
SCM-1202-006/SP2139 1.7.2446 / 2016-11-16 11:07

司騰達股份有限公司

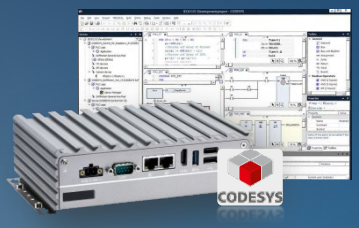
自動化工業與跨國遠端連線的最佳選擇

Ewon Cosy131
VPN 遠端連線

Ewon Flexy205
VPN+IOT 物聯網模組

Anybus X-Gateway

CODESYS SoftPLC



Jmobile Rumtime IPC

工業 4.0 數位工廠與
工業物聯網解決方案

I4-SCADA IPC

SIEMENS PLC
S7-1200

SIEMENS PLC
ET 200SP IO

SIEMENS PLC
S7-1500

SIEMENS HMI

司騰達股份有限公司
台北營業所：23558 新北市中和區中山路 2 段 299 號 5 樓之 1
Tel：(02)-2242-1625　Fax：(02)-2242-1605

台中營業所：40760 台中市西屯區廣福路 186 號
Tel：(04)-2451-0611　Fax：(04)-2451-0612

E-mail：sales@bhp.com.tw
Line ID：@bhp.tw

司騰達股份有限公司
BHP Industry Solution

了解更多產品詳細資訊請上官網查詢
www.bhp.com.tw