The iLocate Tracking Solutions

PBS installation guide

Regulatory Information/disclaimers

Installation and use of this Wireless Radio device must be in strict accordance with the instructions included in the user documentation provided with the product. Any changes or modifications made to this device that are not expressly approved by the manufacturer may void the user's authority to operate the equipment. The Manufacturer is not responsible for any radio or television interference caused by unauthorized modification of this device, of the substitution or attachment. Manufacturer and its authorized resellers or distributors will assume no liability for any damage or violation of government regulations arising from failing to comply with these guidelines.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

Instructions concerning human exposure to radio frequency electromagnetic fields:

To comply with FCC Section 1.307 (b) (1) for human exposure to radio frequency electromagnetic fields, implement the following instruction:

A distance of at least 20cm. between the equipment and all persons should be maintained during the operation of the equipment. The minimum distance will be determined after testing has been completed.

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Introduction

The PBS is a component of the Precyse iLocate™ real time location system.

The PBS allows for 2-way RF communication with the Smart Agent tags, supporting multi-frequency mode for unexpected RF interference protection. The PBS base station is a low cost, low maintenance stand-alone device. This unit communicates with the central iLocate™ server over existing Ethernet or Wi-Fi networks.

Acronyms

Acronym	Definition
PBS	RF Base Station
Beacon/PBC	RF Transmitter that is continuously transmitting its ID
PBS ID	ID number of PBS
SID	system ID – unique to each project
Tag	compact battery powered device, typically usually attached to the monitored asset
Frame zone	straight line visibility zone
RSSI	Received Signal Strength Indicator
User area	All open and close area that is in use of the system and under its control

Standards used throughout this guide

Symbol / font	Definition
⚠️	Warnings and security notes
ⓘ	Additional notes for information

Audience and scope

This user guide describes the process for installing the Precyse Base Station (PBS) as part of the iLocate™ RTLS system.

Theory of operation

The PBS base station is responsible for synchronizing all the other parts of the system and transmitting data to and from the PC connected to it.

The GPS receiver in the PBS is used as an absolute timing and clock source.

Amplifier block: The amplifier box is connected to the PBS via a proprietary control protocol.

Two of the four RF connectors are used as transmit and receive channels to the amplifier. The other two SMA connectors are disabled (Internally, physically disconnected).

The fifth RF port is a GPS antenna port.

Base Station unit (PBS) installation

Verify PBS contents

Each PBS unit consists of the following components:

Base station unit

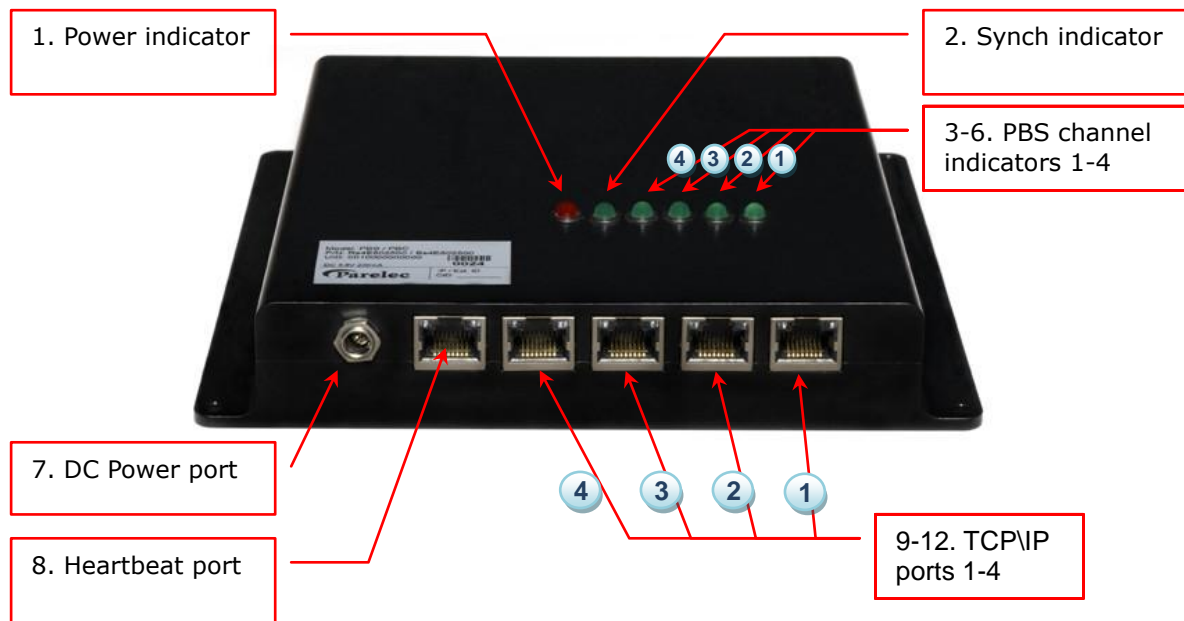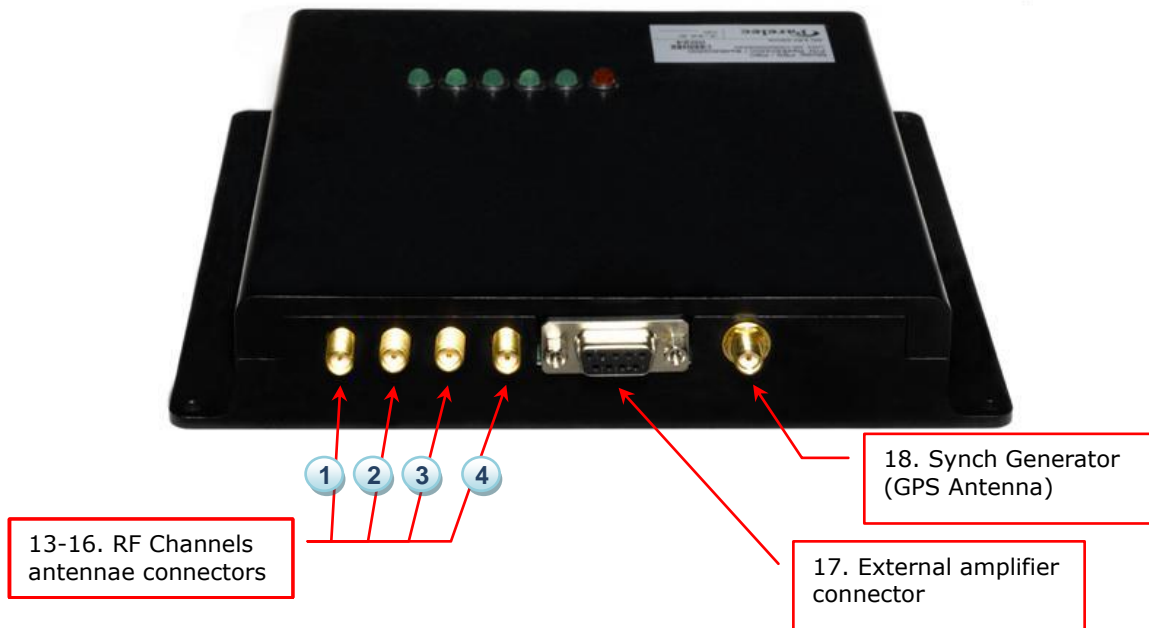Power supply unit

Amplifier unit

PBS connectors and indicators

1. Power indicator

2. Synch indicator

3-6. PBS channel indicators 1-4

7. DC Power port

8. Heartbeat port

9-12. TCP\IP ports 1-4

PBS - front view

18. Synch Generator
(GPS Antenna)

13-16. RF Channels
antennae connectors

17. External amplifier
connector

PBS - rear view

Connector / indicator	Description
1. Power indicator	LED (red) On - Power is connected. Flashing - There is a problem with the power supply. Off – power supply not connected.
2. Synch indicator	Synchronization LED (green)– Flashes once a second when the system is active
3-6. PBS channel indicators #1-4	Green LED (green) – flashes when a signal is sent on the corresponding channel
7. DC Power port	DC power port (12V-2.08A, 25W MAX)
8. Heartbeat port	Not used at this stage
9-12. TCP\IP port 1-4	Network connector for corresponding channel. RJ45 connector.
13,16. RF Channel 1,4 antennae connectors	Physical antenna connector for the corresponding channel.
14, 15	RF transmit, RF receive – Connected to Amplifier unit.
17. External amplifier connector	⚠ A DB9 connector that contains power and control outputs. Warning: Do not connect this port to a computer or any other RS232 terminal equipment.

Connector / indicator	Description
18. GPS Antenna connector	Connect a GPS antenna (Either active or passive)

PBS hardware installation

Pre-installation checklist:

- Determine the specific location for the PBS.

- Ensure available power source (AC).

- Available LAN port to connect to the iLocate ™ server.

- Antennae.

Installation:

1. Connect the PBS to the power supply. Verify that the power indicator LED (#1) turns on.

⚠️ • <u>Warning:</u> The power consumption of the unit is **12V-2.0A,**. In order to ensure proper functioning of the unit, use the power source supplied with the unit or a compatible power unit with the same polarity and voltage.

2. Connect the antenna to the appropriate RF Channel antenna connector. You can use only antennae supplied by Precyse technologies. Other antenna types are not supported. Verify that the appropriate PBS channel indicator LED flashes.

PBS channel indicator #1   RF antenna connector #1
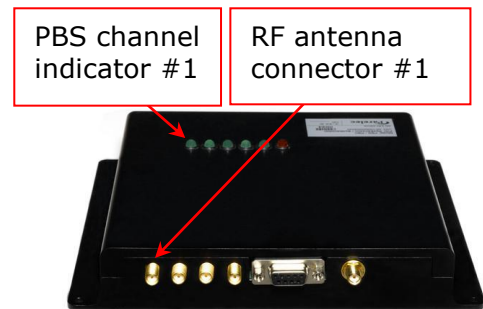
3. Connect the PBS IP port to the server using the appropriate IP port on the PBS unit. The Ethernet LED on the connector will light indicating the connectivity.

TCP/IP port #1
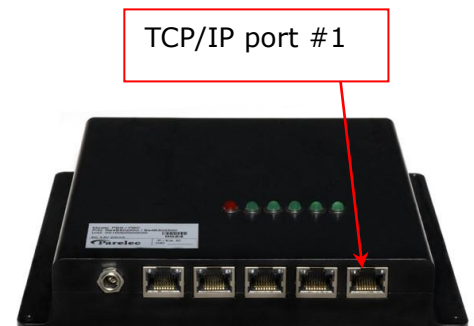
ℹ️ Note: The PBS unit has 4 holes in the base for fixing the unit in place. Use 4 screws and washers to fasten the unit. DO NOT DRILL HOLES IN THE UNIT OR OTHERWISE CHANGE THE PROTECTIVE BOX OF THE PBS.

4. Amplifier unit: If such unit is used, connect it according to the following block diagram. Use only cables and connectors approved by Precyse Technologies.

PBS

RX
(J3)　　TX
(J2)　　　DB9 (J17)

RF Transmit

DB9 Cable

RF receive

TX
(J1)　　RX
(J2)　　DB9 (J4)

Amplifier
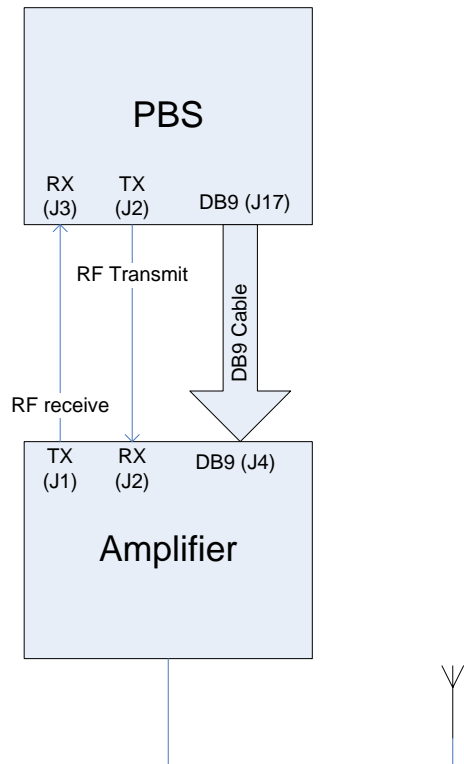
Checking the installation

Visual check after connection

- Verify that the power LED indicator (red) is on when the power is connected.

- Verify that the appropriate PBS RF Channel indicator is on.

- Verify that the Appropriate LAN LED indicator is on

- Check connection of PBS to the network / server (ping) .

Appendix A: Marketing and installation

1. The product intended use and application:

   The BS24103000 (PBS) is used as a radio base station for the iLocate system.

   By transmitting a synchronization signal, and receiving transmissions from other devices on the iLocate network it acts as a bridge between the iLocate hardware and a personal computer.

2. The EUT is installed either indoors or outdoors (inside an appropriate sealed box).

   The installation requirements are proper site planning, infrastructure (AC supply with an AC to DC adapter or DC supply, mechanical mounting, clearance around it), sealed box (Per Precyse Tech's requirements, an IP55 or equivalent boxuninterrupted power supply where required, etc).

3. Marketing:

   The EUT is sold to system integrators only. It is not available for non-professionals.

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