

EchoPoint Signpost Installation Guide

Version 1.0



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U.S. Regulatory Approvals

EchoPoint Signpost SP-600-101 and SP-600-201

Federal Communications Commission (FCC) Notice

The Federal Communications Commission has established technical standards regarding radio frequency energy emitted by computer devices. This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference with radio/TV reception. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.



Changes or modifications to this equipment that are not expressly approved by Savi Technology could void the warranty and the authority to operate this equipment.

Savi Technology is not responsible for radio/TV interference caused by using unauthorized cable or by making unauthorized changes to this equipment.

Product Safety

The EchoPoint Signpost SP-600-101 and SP-600-201 are ETL listed (UL 1950).

International Regulatory Approvals

International Regulatory Approvals

EchoPoint Signpost SP-600-101 and SP-600-201

Declaration of Conformity

Hereby, Savi Technology, Inc.

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declares that the EchoPoint Signpost SP-600-101 and SP-600-201 are in compliance
with the essential requirements and other relevant provisions of Directive 1999/5/EC.



0889



Product Safety

CB Scheme (IEC 60950).

Conventions in this Guide

The following table explains guide conventions and typography usage.

Guide Conventions

Example	Meaning and Use
Note:	Notes call attention to facts or advice that deserve special attention.
	Caution notices call attention to the possibility of damaging the product, the system, or your work (for example, potential loss of data).
	Warning notices call attention to the possibility of injury to people.
	Examples provide a scenario to further explain the preceding direction or procedure.
Terminal Locked	Bold type is used for prompts, field names, and other text as displayed on the screen.
A:\INSTALL	Bold type is also used for text you enter exactly as shown.
1005 DATA	Monospaced type is used for system messages, examples of data files, program code, and other text where column alignment is important.
<i>name.bmp</i> or <i>tag_id</i>	Italic type is used for emphasis of a word or phrase that is new or especially important.
Ctrl + Z	Used for a keyboard control codes or manual keystrokes. This example tells you to hold the Ctrl key while you press the Z key.

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1 Introduction

This guide describes how to install the EchoPoint Signpost, including hardware installation and using the software to configure the Signpost.

Signposts are short-range transmitters which provide their identity information to the EchoPoint 600 series tags (Tags) that are within range. A Tag uses this information to relay positional information about itself to an EchoPoint Reader SR-600-101 (Reader). The Reader then provides this information to a database for use by Savi SmartChain system software where it is used for asset management.

This chapter introduces the Signpost types, and provides references to other chapters having detailed Signpost setup, installation, and configuration information. EchoPoint Signposts are used in conjunction with other Savi equipment, including the Savi Site Servers and Readers. Installation and use of these components is documented in their respective user guides. For information on setting up the EchoPoint Reader SR-600-101, refer to the *EchoPoint Reader SR-600-101 Installation Guide*. For information on setting up a Savi Site Server, refer to the *Site Server Installation Guide*.

EchoPoint Signpost Description

The EchoPoint Signpost is available in two configurations. Model SP-600-201 has an external antenna, and SP-600-101 has an internal antenna. Both configurations operate at a nominal frequency of 132 kHz.

Model SP-600-201 Signpost Description

The EchoPoint Signpost SP-600-201 is a two-part assembly consisting of a controller attached to an antenna. It is powered by AC or DC, with the AC having a range of 85 to 264 Volts at 47 to 440 Hz, while the DC range is 11 to 30 Volts.

Model SP-600-201 Signpost Cables and Hardware

Model SP-600-201 Signpost installation materials include:

- DC, 115 VAC, 220 VAC power cable (one supplied)
- Signpost Host software
- Sensor cables (optional)
- Mounting kit
- Synchronization cables (optional)

Model SP-600-101 Signpost Description

The EchoPoint Signpost SP-600-101 is a one-part assembly consisting of a controller with a built-in antenna. Like the Model SP-600-201 Signpost, the Model SP-600-101 Signpost is powered by AC or DC, with the AC having a range of 85 to 264 Volts at 47 to 440 Hz, while the DC range is 11 to 30 Volts.

Model SP-600-101 Signpost Cables and Hardware

Model SP-600-101 Signpost installation materials include:

- DC, 115 VAC, 220 VAC power cable (one supplied)
- Signpost Host software
- Sensor cables (optional)
- Mounting feet
- Synchronization cables (optional)

Specifications

Specifications

EchoPoint Signpost specifications are documented in Table 1-1.

Table 1-1 Signpost Specifications

<i>Signpost Type</i>	<i>Specification</i>	
Model SP-600-201 Signpost	Power	AC or DC
	AC range	85 to 264 Volts at 47 to 440 Hz, 800/400 ma
	DC range	11 to 30 Volts, 800 ma
	Weight	14.7 pounds (with controller mounted) 2 pounds (controller)
	Dimensions	19.5" x 109.25" x 4.8" 19.5" x 109.25" x 2.5" (without controller) 7.5" x 7.5" x 3" (controller)
Model SP-600-101 Signpost	Power	AC or DC
	AC range	85 to 264 Volts at 47 to 440 Hz, 800/400 ma
	DC range	11 to 30 Volts, 800 ma
	Weight	2.9 pounds
	Dimensions	10.5" x 7" x 3" (includes the protrusion for the connectors without the cables attached)

2 **Hardware Installation**

This chapter covers installing the EchoPoint Signpost Model SP-600-201 and Model SP-600-101 hardware, including the required tools and materials, site preparation, and making the physical installation and power connections.

Required Materials and Equipment

Required Materials and Equipment

The required materials, equipment and tools for installing both EchoPoint Signpost models are listed in Table 2-1.

Table 2-1 Material, Equipment, and Tools Required for Installing Signposts

Signpost	Required material, equipment, and tools
SP-600-201	Model SP-600-201 Signpost Power source: 115 to 220 VAC, or 11 to 30 VDC Mounting hardware RS-232 cable Computer with Signpost Host software installed Note: Signpost Host software is shipped with the Model SP-600-201 Signpost. Optional equipment, including sensor cable and synchronization cables
SP-600-101	Model SP-600-101 Signpost Power source: 115 to 220 VAC, or 11 to 30 VDC Mounting feet RS-232 cable Computer with Signpost Host software installed Note: Signpost Host software is shipped with the Model SP-600-101 Signpost. Optional equipment, including sensor cable and synchronization cables

Preparing the Site

Mounting a Signpost requires no specific site preparation. The criteria for placement and the preparation include the considerations listed in Table 2-2.

Table 2-2 *Site Preparation Considerations*

Consideration	Addressed by ...
Safety	Avoid selecting a Signpost installation location where harm to the equipment or personnel is possible.
Power	Select an installation location where power is accessible.
Space	Allow sufficient space to install the Signpost.
Coverage	Make sure that the installation location is appropriate for capturing data. Model SP-600-201 Signpost coverage is a rectangle with rounded corners that is approximately 12 feet by 10 feet, measured on the floor under the Signpost antenna. Model SP-600-101 Signpost coverage is a circle that is approximately 6 feet in diameter. Note: The exact size and shape of these patterns is dependent on several parameters, such as initial power settings during installation, ambient noise levels, and nearby obstructions. When installing you need to experiment to determine actual performance based on needs.
Placement	Signposts should be placed adjacent to a portal or other choke point, covering an area where the assets must pass or be stored.
Locations not permitted	Signposts must not be used in areas not permitted by government regulation. Savi can help with determining applicable countries and locations.
Overhead support for Model SP-600-201 Signposts	Determine the layout and capacity of the overhead structure which will be supporting the Signpost. Model SP-600-201 Signpost assemblies, including the Signpost and antenna, weigh 14.7 pounds. Securely attach the mounting hardware to structural members such as joists, girders, purlins, headers, and beams. For more information on mounting the Model SP-600-201 Signpost, see “Mounting the Signposts” on page 2-4.

Mounting the Signposts

Mounting the Signposts

This section covers the installation procedures for Model SP-600-201 and Model SP-600-101 Signposts.

Mounting the Model SP-600-201 Signpost

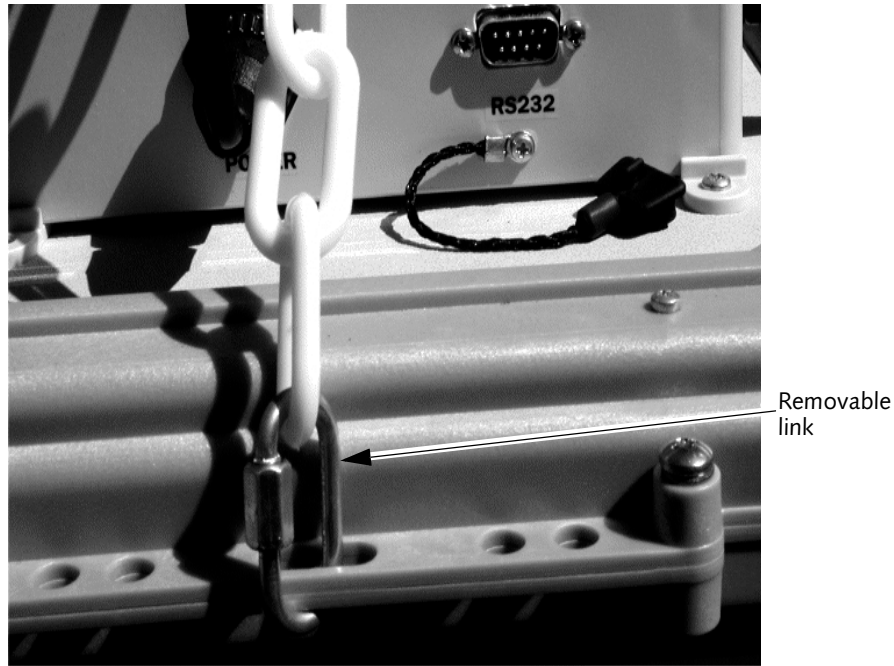
Model SP-600-201 Signposts can be hung adjacent to a portal or other choke point using the supplied installation hanger kit. The actual installation is dependent on the individual circumstances and how power is to be supplied, but a number of tasks need to be performed in all cases.

Mounting the Signposts

» To mount a Model SP-600-201 Signpost

1. Attach a removable 1/8 inch link to each of the four mounting brackets at the four corners of the unit.

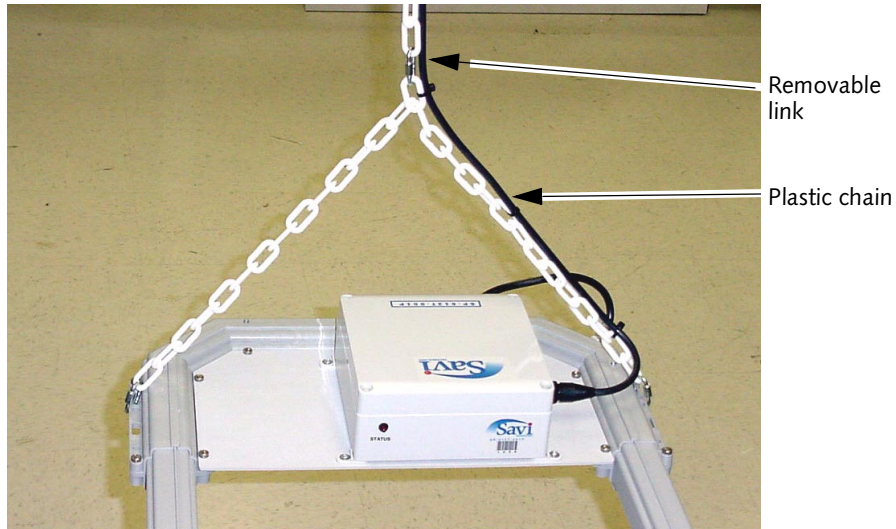
Figure 2-1 Removable Link



2. Using two lengths of plastic chain, attach each at both ends to the four removable links, as shown in Figure 2-1 and Figure 2-2.

Mounting the Signposts

Figure 2-2 Attaching Chain



3. Attach another removable link to the center of the chain, as shown in Figure 2-2 on page 2-6.
4. Attach the top removable link to an appropriate rope, cable, or chain and fasten to a 3/8 inch eye screw or eye bolt (minimum 1-1/2 inch penetration into solid material, or through bolt).
5. Secure the power cord to the chain and route as required.

Mounting the Model SP-600-101 Signpost

Model SP-600-101 Signposts are supplied with mounting feet. The actual installation is dependent on the individual circumstances and how power is to be supplied, but a number of tasks need to be performed in all cases.

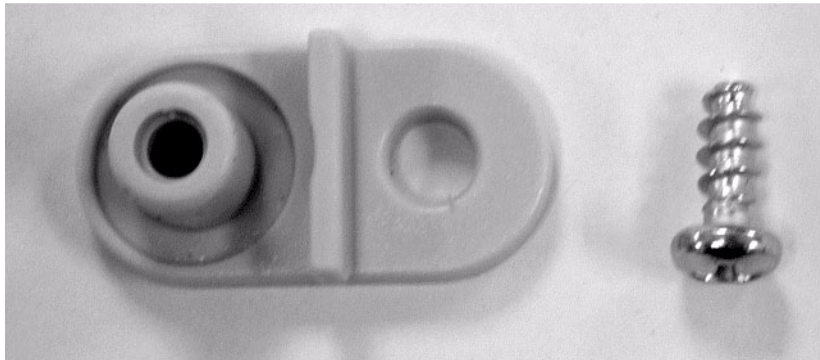
» To mount a Model SP-600-101 Signpost

1. Attach the mounting feet.

Figure 2-3 on page 2-7 shows the mounting feet with the self tapping screws that attach them to the Signpost.

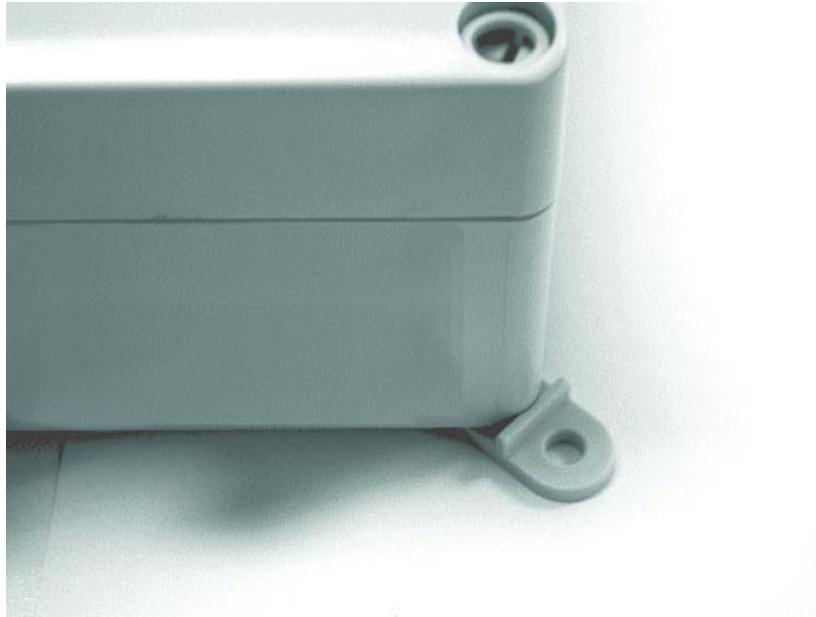
Figure 2-4 on page 2-8 shows a single mounting foot attached to the Signpost. In this case it is mounted at an angle, but the foot can be turned at different angles.

Figure 2-3 Mounting Foot and Attachment Screw



Mounting the Signposts

Figure 2-4 Mounting Foot Attached to Model SP-600-101 Signpost



2. Attach the mounting feet to the mounting surface.

DO NOT attach the mounting feet to drywall only, unless the drywall is backed by solid structural material, in which case screws need to penetrate a minimum of 3/4 inch into solid material.

Cabling the Model SP-600-201 Signpost

The only cabling required for a basic installation is operating power. This needs to be done in accordance with applicable safety regulations. All cables should be routed and protected in a manner which precludes damage to them or harm to personnel; for example, unsecured extension cords left across access-ways or where assets or asset moving equipment can damage them.

This section does not include connecting the Signpost to a computer with a serial cable for Signpost Host software configuration. That activity is covered in Chapter 3, “Software Configuration.”

The connectors and LED shown in Table 2-3 are available on a Model SP-600-201 Signpost.

Table 2-3 Model SP-600-201 Signpost Connectors and LEDs

Connectors and LEDs	Description
Power	The input power is connected here.
RS-232	Used to connect to a computer for setup and diagnostics by installers and technicians.
Antenna	The external loop antenna connects here
Sync In	Used to synchronize 2 to 4 Model SP-600-201 Signposts to cover an area larger than is possible with a single Signpost. This connector can also accept DC volts from another Signpost to avoid running separate power lines when two or more Signposts are synchronized
Sync Out	Used to synchronize 2 to 4 Model SP-600-201 Signposts to cover an area larger than is possible with a single Signpost. This connector can also output DC volts to another Signpost to avoid running separate power lines when two or more Signposts are synchronized
Sensor 1	A closure on these two pins will trigger a predefined Signpost action.
Sensor 2	A closure on these two pins will trigger a predefined Signpost action.
Status	This LED indicates when power is applied and the Signpost mode of operation. On ½ second, off ½ second indicates normal operation On 1 second, off 1 second indicates the Signpost is off but powered On continuously indicates the Signpost is transmitting a CW signal

Mounting the Signposts

» To cable a Model SP-600-201 Signpost:

No cabling is required for the Model SP-600-201 Signpost and its antenna. This connection has already been made, as shown in Figure 2-5.

Figure 2-5 Model SP-600-201 Signpost Antenna Connection

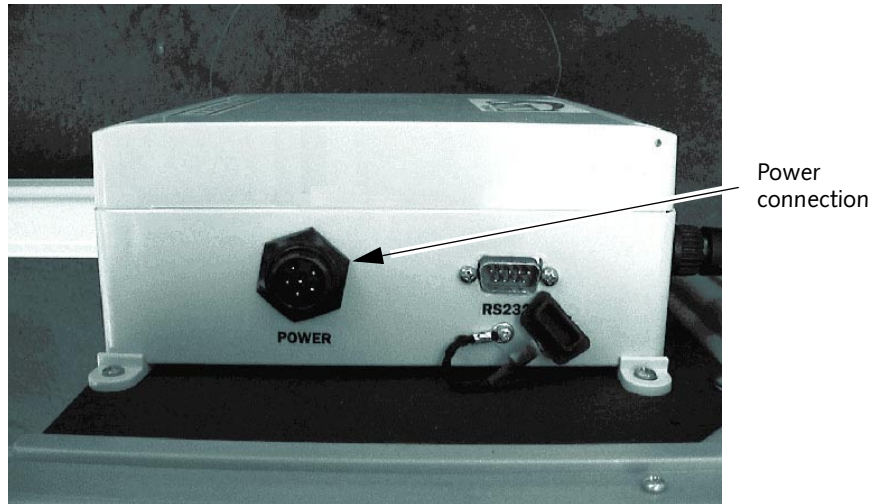


1. Run the appropriate power cable to the Signpost.
2. Connect the power cable to the Signpost Power connector, as shown in Figure 2-6.

Note: *The socket-outlet shall be installed near the equipment and shall be easily accessible.*

Mounting the Signposts

Figure 2-6 Model SP-600-201 Signpost Power Connection



3. Continue with configuration using Signpost Host software.
See “Configuring Signpost Operation Settings” on page 3-3.

Mounting the Signposts

Cabling the Model SP-600-101 Signpost

The connectors and LED shown in Table 2-4 are available on a Model SP-600-101 Signpost.

Table 2-4 Model SP-600-101 Signpost Connectors and LEDs

Connectors and LEDs	Description
Power	The input power is connected here.
RS-232	Used to connect to a computer for setup and diagnostics by installers and technicians.
Sync In	Used to synchronize 2 to 4 Model SP-600-101 Signposts to cover an area larger than is possible with a single Signpost. This connector can also accept DC volts from another Signpost to avoid running separate power lines when two or more Signposts are synchronized
Sync Out	Used to synchronize 2 to 4 Model SP-600-101 Signposts to cover an area larger than is possible with a single Signpost. This connector can also output DC volts to another Signpost to avoid running separate power lines when two or more Signposts are synchronized
Sensor 1	A closure on these two pins will trigger a predefined Signpost action.
Sensor 2	A closure on these two pins will trigger a predefined Signpost action.
Status	This LED indicates when power is applied and the Signpost mode of operation. On ½ second, off ½ second indicates normal operation On 1 second, off 1 second indicates the Signpost is off but powered On continuously indicates the Signpost is transmitting a CW signal

» To cable a Model SP-600-101 Signpost

1. Cable the Model SP-600-101 the same as the Model SP-600-201.

For cabling, the Model SP-600-101 is identical to the cabling for the Model SP-600-201 except that the Model SP-600-101 has an internal antenna.

See “Cabling the Model SP-600-201 Signpost” on page 2-9.

2. Continue with configuration using Signpost Host software.

See “Configuring Signpost Operation Settings” on page 3-3.

Signpost Synchronization

For a transmit group to work, the Sync cable must be connected between the Signposts. These optional cables are available from Savi in variable lengths.

» **To cable a Signpost for synchronization:**

1. Connect the female end of the cable to the Sync In connector of the Signpost.
2. Connect the male end of the cable to the Sync Out connector of another Signpost in the synchronized group.
3. Create group number assignments.

See “Configuring Signpost Operation Settings” on page 3-3.

Signpost Configuration

Signpost Configuration

Configuring Signposts using Signpost Host software is covered in Chapter 3, “Software Configuration,” which documents connecting the computer to the EchoPoint Signposts.

3 Software Configuration

Signpost operation requires that you configure some Signpost parameters using the Signpost Host software application. This chapter provides instructions for connecting Signposts to the computer and configuring Signposts using the software.

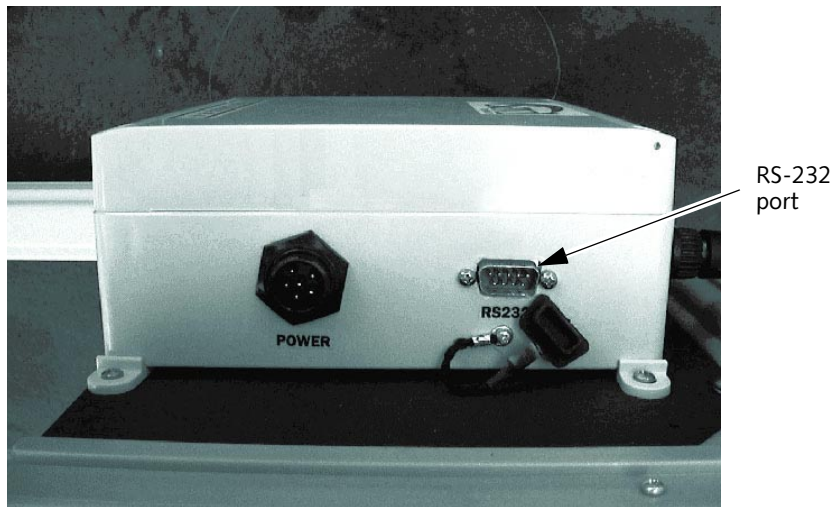
Note: *It is assumed that the Signpost Host software application is installed on the computer being used to configure a Signpost.*

Connecting Signposts to a Computer

Connecting Signposts to a Computer

Signposts are connected to a computer with an RS-232 serial connection. Both Model SP-600-201 and Model SP-600-101 Signposts have an RS-232 port which is temporarily used when the Signpost is installed for configuration with Signpost Host software. Figure 3-1 shows the serial ports for the Model SP-600-201 Signpost. The Model SP-600-101 RS-232 is similar.

Figure 3-1 Model SP-600-201 Signpost RS-232 Port



Configuring Signpost Operation Settings

Either before or after the Signpost is installed, the installer should set and verify the following settings for operation. This activity is performed using a computer having the Signpost Host software application installed.

Before verifying these settings, you need to connect the computer to the Signpost, which is documented in “Connecting Signposts to a Computer” on page 3-2.

» **To verify the operation settings:**

The following Signpost Host application parameters need to be verified.

1. Configure the Signpost ID (1 to 65535)

The Signpost ID should be a unique number in the facility. The Signpost can be identified in the system by associating this number with a description in the Site Server configuration.

2. Transmit group number (0 to 10)

The Transmit group number is used when a number of Signposts are transmitting at the same time or a different time. The factory setting is 0. The Signpost will not synchronize when the group number is 0. When you program a number from 1 to 10, Signposts having the same group number will transmit simultaneously. Otherwise, they transmit at a different time.

3. Beacon Control on/off

The Beacon Control on/off option is used to program the tag whenever changing the beacon mode of the tag is required. When this option is disabled, the tag remains in the same mode. When the option is enabled, the tag beacon mode will be changed according to the command.

Configuring Signpost Operation Settings

4. Power level

Generally, the maximum setting of 1023 is used, but this number can be reduced to reduce power; the higher the number, the higher the power. However, range does not increase linearly with an increase in the power level, and may require a number of trial settings to achieve the appropriate power level.

5. Tx Mode

The Tx mode should be set to normal mode.

6. Status

The version should be verified so that all Signposts are compatible with the system.