

Guardian Pedestrian Signal Installation Manual

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Document Revision History		
Revision	Revised By	Date
A	James Elfering – Added 5.0 Features	1/29/20
B	Travis Goldsby – Added Wave	8/21/2020
C	Travis Goldsby – Updated SPI image, Added Bluetooth info and Post Installation info	11/19/20



Guardian
With Bluetooth® and
Wayfinding Sign



Guardian 400A



Guardian Wave

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2 Introduction

2.1 Purpose of this document

This guide covers the installation of the Guardian Pedestrian System. It does not cover the configuration of the Guardian. For details on configuring the Guardian, please see the User's Manual. The information within this guide is for the Guardian, Guardian 400A, Guardian Wave and any of these iterations with Bluetooth®.

2.2 Additional Information

- For operational information, see the Guardian User's Manual
- Reference the Intersection Worksheet for location specific information.
- See the Guardian Installation Quick Guide for a brief graphical installation guide.
- See the Guardian Base Station Mounting Template for an easy to use hole pattern for mounting Guardian base stations.

2.3 Contact Information

The first line of contact should be the distributor that the system was purchased from. If you are unable to contact the distributor, contact PedSafety directly.

3 Installation

3.1 Standard Components

Guardian 4.0	Guardian 400A
<ul style="list-style-type: none"> • 1ea Guardian Base Station <ul style="list-style-type: none"> ○ 2ea 1/4-20 x 1" FHP • 1ea Terminal Door <ul style="list-style-type: none"> ○ 2ea 8-32 x 3/8" Torx Screws • 1ea Signal Power Interface (SPI) <ul style="list-style-type: none"> ○ 1ea 1/4-20 x 1" FHP • 1ea USB (type B) cable per installation • 1ea 5x7.75" Sign <ul style="list-style-type: none"> ○ 4ea. 8-32 x 3/8" PHP Screws • Or 1ea 9x12" or 9x15" Adapter Plate and Sign <ul style="list-style-type: none"> ○ 4ea. 8-32 x 5/8" FHP Screws ○ 4ea. 8-32 x 1/4" PHP Screws 	<ul style="list-style-type: none"> • 400A Mounting Hardware <ul style="list-style-type: none"> ○ 2ea. 1/4-20 x 1" PHP Screws • 1ea Signal Power Interface (SPI) • 1ea USB (type B) cable per installation
Guardian 5.0/ Guardian Wave	Guardian Bluetooth
<ul style="list-style-type: none"> • 1ea Guardian Base Station <ul style="list-style-type: none"> ○ 2ea 1/4-20 x 1 1/4" Hex Head Cap ○ 2ea Star Lock Washers • 1ea Terminal Door <ul style="list-style-type: none"> ○ 2ea 8-32 x 3/8" Torx Screws • 1ea Signal Power Interface (SPI) • 1ea USB (type B) cable per installation • 1ea 5x7.75" Sign <ul style="list-style-type: none"> ○ 4ea. 8-32 x 3/8" PHP Screws • Or 1ea 9x12" or 9x15" Adapter Plate and Sign <ul style="list-style-type: none"> ○ 4ea. 8-32 x 5/8" FHP Screws ○ 4ea. 8-32 x 1/4" PHP Screws 	<ul style="list-style-type: none"> • With Bluetooth units the following hardware is different. • 1ea Terminal Door <ul style="list-style-type: none"> ○ 2ea 8-32 x 3/8" FH Pinned Torx

3.2 Installation

It is recommended to use an anti-seize compound on all screws going into the pedestrian station. Failure to do so may result in damage to the station if removal is necessary.

3.2.1 Tactile Arrow Orientation

Mount the unit so the tactile arrow is pointing directly to the crossing destination. THE PEDESTRIAN RELIES ON THE INFORMATION TO CROSS SAFELY. Some illustrations do not call out arrow directions and require installation in the field. The tactile arrow is field selectable (left or right) requiring one security screw and a security driver. For older models of the Guardian the tactile arrow requires two security screws.

An Angle Mounting Kit (part number 502-0851) for the Guardian Base Station is available if necessary to ensure a precise fit, especially on decorative or small diameter poles where the station needs to be angled to provide accurate directionality of the arrow.

3.2.2 Signal Power Interface Installation

Do not set the SPI on the bottom of the Pedestrian Signal Head. Failure to attach the SPI vertically on the back surface wall can expose the power supply to water damage and will void the warranty of the SPI.

Warning! All SPI leads become hot when at least one of the wires is connected. Disconnect the power to the Pedestrian Signal Head prior to SPI installation

1. Disconnect the power going to the Pedestrian Signal Head prior to installing the SPI.
2. Open the Pedestrian Signal Head Display and locate a ¼-20 tapped hole on the back wall close to the 120VAC three position barrier strip as shown in Figure 2.

3. Mount the SPI horizontally using a 1/4-20 1" FHP. It is important that the wires coming out of each side of the SPI sag below the SPI to prevent water from running down the wires, into the SPI. Figure 2 shows the drip loop in the 120 VAC lines and its location to the barrier terminal inside the Pedestrian Signal Head.

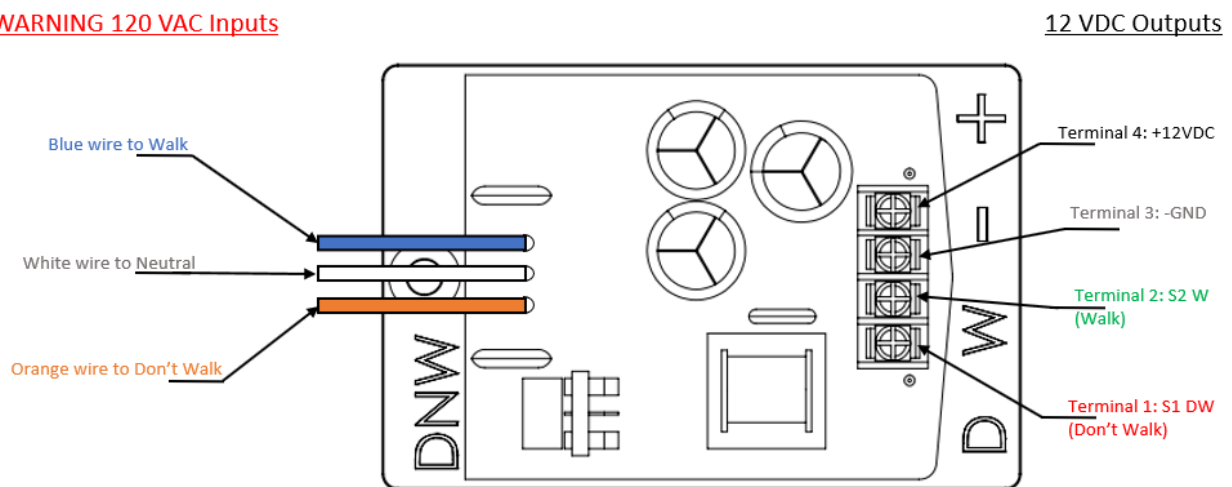


Figure 2. SPI Installed

4. Attach the four wires from the Base Station to the four position terminal block on the SPI following the connections shown in Figure 3.
5. Connect the three 16 AWG wires from the SPI to the three position terminal block for the pedestrian signal display.

6. Restore power to the signal head and verify that the station operates.

WARNING 120 VAC Inputs



Do NOT set the SPI on the bottom of the Pedestrian Signal Head
Terminals of the SPI must be connected to the same terminals on the Base Station

Figure 3. SPI Wiring

3.2.3 Guardian Installation

Drill and Tap Pole

1. Refer to the Guardian Base Station Mounting Template for hole specifications.
2. Mark the point where the PPB will be centered 36" to 42" from the ground.
3. Drill and tap for a 1/4-20 screw 2" above PPB center.
4. Drill and tap for a 1/4-20 screw 8 1/2" above PPB center.
5. Drill a 1" through hole. This hole can be anywhere from 2 1/4" to 5 1/2" below the lower of the 2 mounting holes (from step 3 above).

Mount the Pedestrian Station

1. Route the four-conductor cable from the 1" hole through the pole into the pedestrian signal head for connection to the SPI.
2. Route the four-conductor cable and the field terminal wires through the wire chase at the bottom of the station.
3. Attach the pedestrian station to the pole using the mounting bolts provided (see Standard Components).
4. Connect the four wires to the terminal block connections as shown in Figure 1.
5. If there are pedestrian field terminal wires present at the station connect them to the terminal block in the positions shown in Figure 1.
6. Secure protective terminal door with screws.
7. Attach the adapter plate and/or sign using provided hardware. The adapter plate and mounting hardware differ depending on size.

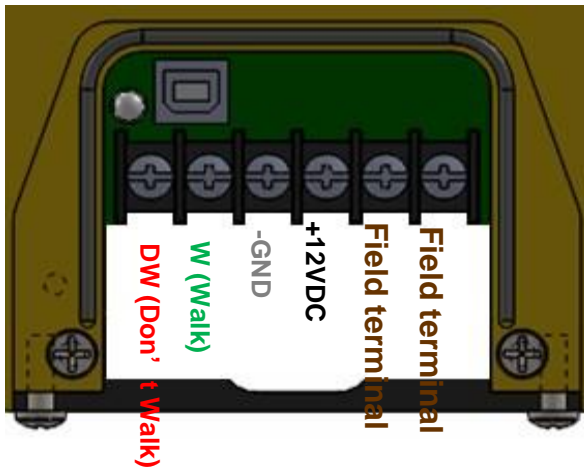


Figure 1

3.2.4 400A Station Installation

1. Route the four conductor cable from the pedestrian signal head through the hole in the station housing.
2. Connect the four conductor cable to the terminal block on the back of the station to the positions shown in Figure 2.
3. If there are pedestrian field wires present at the station, connect them to the positions shown in Figure 2.
4. Insert the pushbutton into the 400 style housing and secure using two 1/4-20 screws.

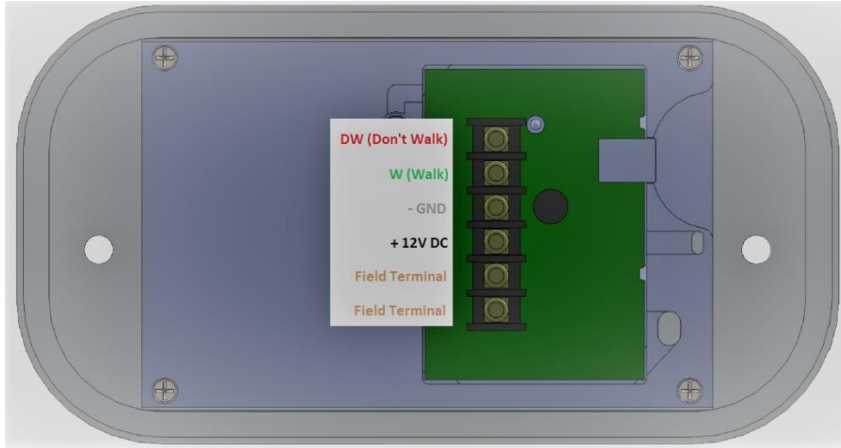


Figure 2

4 Post Installation

4.1 Operational Check

The following steps are for Guardian with or without Bluetooth[®] as well as Guardian Wave with or without Bluetooth and are specified within.

1. Make sure the station is securely attached to the pole with the arrow pointing to the crosswalk.
2. Verify that the SPI is mounted horizontally in the signal head with the wiring sagging below.
3. When first powered up, an audible locator tone will be present at the station. The locator tone should be audible 6-12 feet from the station.
4. Depress the push button and verify that the LED turns on with an acknowledgement message. For Guardian Wave units, follow the same step and wait for the next Don't Walk cycle then wave a hand in front of the sensor and verify that the LED turns on with an acknowledgement message. If pedestrian field wires are connected to the station, verify that pedestrian call is transmitted to the traffic controller.
5. Following a momentary press, verify the Walk message is present and the vibrotactile surface vibrates when the walk sign is on.
6. Repeat again with an extended press. This time the location message should sound and walk message should sound when the walk sign is on. For Guardian Wave units, follow

these same steps by holding your hand in front of the sensor for extended press.

7. After the Walk message, verify that an audible locator tone is present during the clearance (Flashing Don't Walk).
8. Recheck all units for a full cycle to ensure all options and features operate as desired.

4.2 Post Installation Info

After the Operational Check has been completed, Guardian and Guardian Wave settings (including audio messages, volumes, day and night settings, and Guardian Wave sensor settings) can be changed through the PedConnex Utility which can be downloaded free of charge at <https://www.pedsafety.com/downloads/>. If Bluetooth has been purchased the Mobile PedConnex app can be downloaded for free in both the Apple App Store and the Google Play store.

For a complete list of PedSafety Products visit <https://www.pedsafety.com/products/>.

5 Appendix A: Acronyms, Abbreviations & Definitions

Term	Meaning
Adapter Plate (AP)	An aluminum plate that mounts to the base station to display either 9"x12" or 9"x15" crosswalk signs.
Base Station (BS)	Fully integrated APS station that contains the microcontroller, push button, speaker, (and adapter plate if needed).
Extended Press	On APS, holding the pedestrian push button down may activate special features, including audible beaconing and extended pedestrian clearance interval.
Intersection Worksheet	Intersection Map of street names and station locations provided with installation packet.
Signal Power Interface (SPI)	Power Source that interfaces with Pedestrian Signal Head power for Base Station Interface.
Station ID	Identification number of the station for location and custom messaging.