APS Beacon/ BBU User's Manual

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Document Revision History		
Revision	Revised By	Date
A	Zane Sapp	4/12/16
B	Zane Sapp	12/20/16
C	Brad – Add BBU, update for PedConnex	10/30/18
D	Travis – Update images plus add Bluetooth	2/11/21

Beacon/BBU
With Pan Tilt Mount

Beacon/BBU w/ Bluetooth
With Pan Tilt Mount

1   Table of Contents

2 Introduction

2.1 Purpose of this Document

The purpose of this document is to describe the operation of the Guardian APS Beacon.

2.2 Additional Information

- The Beacon has many different functions and comes with various mounting configurations.
- A Signal Power Interface (SPI) is required convert to Walk and Don't Walk signals from the pedestrian signal head to low voltage control signals to operate the Beacon.
- A Signal Power Interface XC (SPI) is required when used in conjunction with a Guardian APS unit.
- See the Beacon Installation instructions for the specifics of each mounting.
- See the Beacon Wiring Quick Guides for a brief graphical installation guide and wiring instructions.
- Refer to the PedConnex Utility manual for specific instructions for programming.

2.3 Contact Information

The first line of contact should be your regional distributor that the system was purchased from. If you are unable to contact the distributor, please contact Campbell Company directly.
Campbell Company Tech Support: 1-208-345-7459 option #2

3   Overview

3.1   Product Overview

The Guardian APS Beacon is the most versatile programmable speaker in the traffic market providing intelligent communication to assist pedestrians with audible indications for safe passage in high traffic areas. The Beacon can function independently, paired with a standard pushbutton, or integrated with our Guardian APS unit for advanced broadcast functionality.

Functionality – BBU (Based Broadcast Unit)

- The BBU provides audible indications each time the Walk Display is active. It is intended for corridors where there is no pedestrian activation.
- The BBU can provide additional audible indications in the Don't Walk and Clearance cycles when configured in the "*Continuous* Beacon" mode.
- Time of Day settings allow the BBU to utilize Quiet Signals Technology, typically during nighttime.

Functionality – Beacon APS

- The Beacon APS used in conjunction with a Guardian APS system provides amplified broadcasting.
- An extended press of the pushbutton enables the Beacon to broadcast an audible indication during the active Walk and Clearance cycle.
- The Beacon is typically mounted near the ped head and is focused to provide sound to the last half of the crossing.
- The beaconing or countdown indications provide a sound path to assist the pedestrian to finish the crossing.
- The Beacon may be used in conjunction with any typical pushbutton to provide audible APS indications. It can be set to activate with either a momentary or extended press utilizing the PedConnex software utility.

Beacon – Preemption

- The Beacon is designed to provide Light Rail, and other Preemption Warnings at the crosswalk.
- In light rail applications, the Beacon can broadcast the status of the platform and pedestrian areas as a train approaches the station area.
- The Beacon can provide audible warnings of vehicle movement near pedestrians in sidewalk crossing entrance / exit areas. Particularly useful in parking garages and tight downtown corridors. The Beacon may be used as a temporary advisory device during construction.
- Each preemption mode requires an input from the controller

PedConnex Utility

- The Beacon comes fully configured, customized for the installation. It is also supported by PedConnex utility, easy to use with straight forward installations and is available for download on the Campbell Company Website.

Installation

- The Beacon and BBU requires the signal power interface (SPI) to be mounted into the Pedestrian Signal Head.
- A Pan Tilt bracket (included with Beacons) allows the unit to be mounted on a traffic pole or extension arm.
- In a BBU configuration, the unit can be installed underneath the pedestrian signal head directing audible information at the initiation point of the cross walk.
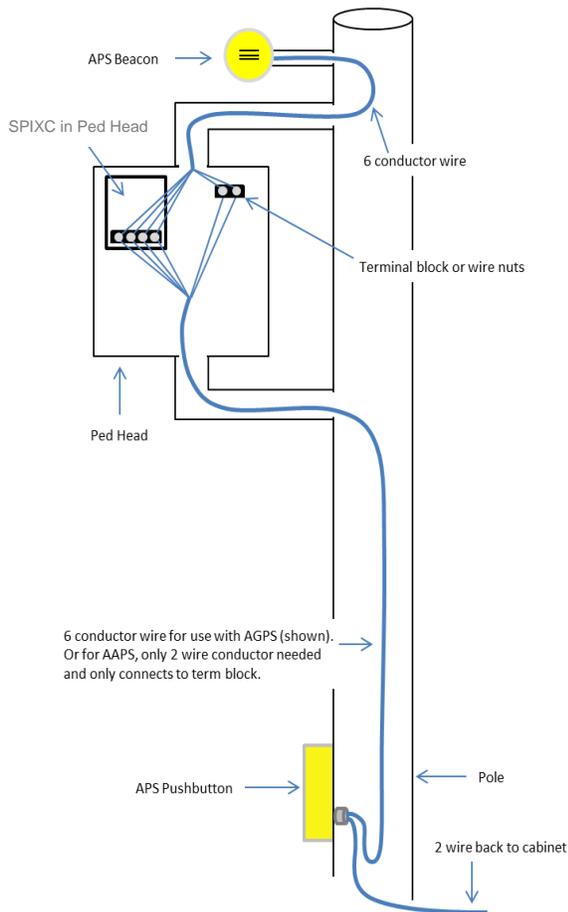

Figure 2. Beacon wiring diagram
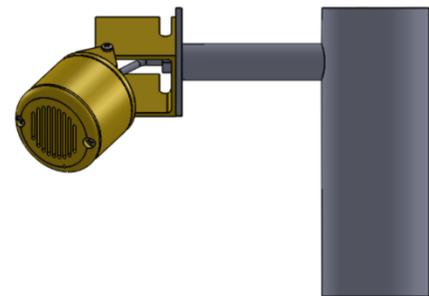
Figure 1. Beacon with Pan Tilt Mount

Figure 3. BBU mounted to Ped Head

3.2   Components

There are two primary components for the Independent Beacon/ BBU configuration:
- Beacon/ BBU
- Pan Tilt Mount (supplied with purchase of Beacon only, not BBU)
- Signal Power Interface

Additional Option
- Bluetooth (allows user to use the mobile version of the PedConnex Utility to change settings)
- Signal Power Interface XC (extra capacity, used when installing a PedSafety APS and a Beacon or BBU at the same intersection)

There are two additional components for the Beacon APS functionality:
- Guardian APS or Mechanical or 4 EVR PPB
- 6 Conductor wire

3.3   Custom Audio Messages

Beacons come fully programmed with audio files from the factory. Several free applications such as Audacity give you the option to create your own custom messages or tones in a simple .wav format that can be easily uploaded via USB port. The Beacon will accept any audio message that is 16-bit signed, 16 kHz mono in WAV format.

Second languages, gender narrative, and special percussive tones can be easily created   and uploaded.

4 System Configuration

The Beacon comes with the user friendly PedConnex utility to configure the station. While the Beacon comes configured from the factory, some installations require modifications to audible messages or functionality to best fit the needs of the crosswalk location. This can be accomplished after factory configuration.

PedConnex can be downloaded and launched on any number of computers that will be used in the field. The PedConnex utility includes a detailed electronic version of the PedConnex Utility Manual which will be referred to in this document. This document will direct you to main areas of interest in the PedConnex User's Manual. Please refer to the PedConnex Utility manual for more detailed information on programming and configuration.
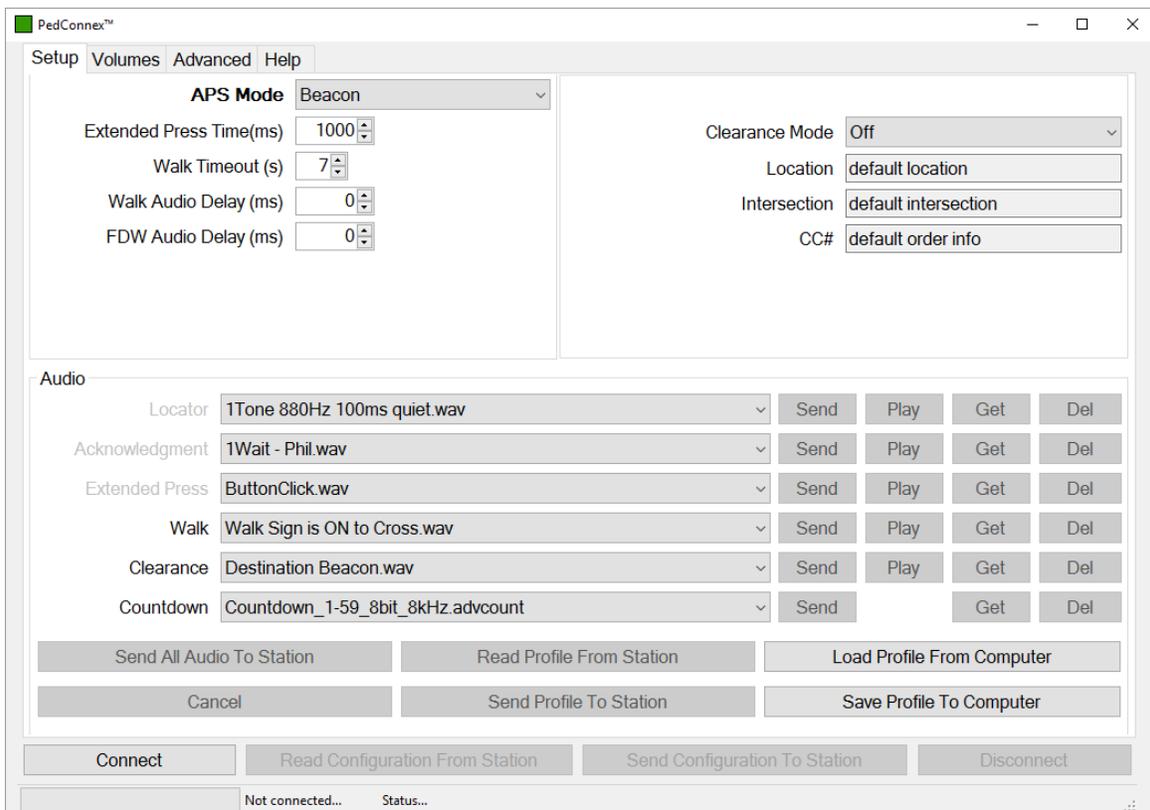
Figure 4. PedConnex Utility set to Beacon Mode

PedConnex also incorporates "roll over" help bubbles that explain the various options and how to set them up.

Obtain PedConnex APS configuration utility by visiting: www.Pedsafety.com/downloads
Then click "Download PedConnex".

4.1   Settings and Operational Mode Features in PedConnex

The primary operational settings are located on the "Setup" page

APS Mode: Set to "Beacon".
Extended Press Time: Time in milliseconds to hold the button to turn on the audible walk and clearance indications. For use with 4EVR buttons set to 100ms, set to 0 to play every cycle.
Walk Timeout: Maximum time in seconds for walk message to play.
Walk Audio Delay: Time to delay Walk indication from the start of the walk phase.
FDW Audio Delay: Time to delay Clearance indication from the start of the clearance phase.
Clearance Mode: Select from; Off, AlwaysON, and CountDown.
Location: City, State.
Intersection: Cross Street for reference.
CC#: Campbell Company Sales Order Number.

Volume and Sound Controls are located on the "Volumes" page.

Volume: Two settings adjust volume for non-locator indications and locator tone independently
- *Non-Locator Volume* – Adjusts the volume of the audible messages or percussive tones or indications
- *Locator* – The Beacon/BBU does not have a Locator tone, so this setting is not applicable

Night Mode: Night Mode changes the volume settings based on the time of day
Automatic Gain Control: Automatic Gain Control (AGC) settings change the rate at which the unit volume output reacts to changes in the ambient noise level

4.2   Audio Files

The Beacon comes fully programmed with audio files from the factory. Campbell Company generates custom messages for the intersection from information on the intersection worksheet submitted at the time of order placement.

1. Walk - plays when Walk sign is on.
2. Clearance - plays clearance message in the flashing don't walk if clearance mode is set to "Always on"
3. Countdown - provides audible countdown of remaining time during flashing don't walk.

In "Continuous Beacon" mode "Off" will ensure only the locator tone is played in the clearance phase.

5   Appendix A: Acronyms, Abbreviations & Definitions

Term	Meaning
Accessible Pedestrian Signal	A device that communicates information about pedestrian signal in a non-visual format such as audible tones, verbal messages, and/or vibrating surfaces (MUTCD)
Audible Beaconing	Use of sound to provide directional orientation and alignment information in the clearance phase.
Audio File	A file format for storing digital audio data on a computer system.
Automatic Gain Control (AGC)	An APS volume control that is automatically responsive to ambient (background) sound.
Clearance Interval Indication	Tones sounding during the pedestrian clearance interval that are differentiated from the WALK interval indicator (tones)
Clearance mode	*Sets what and how audio files are played in Flashing Don't Walk.* • *Off* – No FDW audio. Goes back to locating. • *Always On* – Plays Clearance indication every activated cycle. • *Countdown* – Audible countdown of the clearance phase. Note: Requires one cycle to calibrate Flashing Don't Walk time.
Extended Press	Holding the pedestrian push button down from 1-5 seconds will activate features, including audible Beaconing.
Night Mode	An alternate configuration typically used to control audio volume at night time.
Signal Power Interface (SPI)	Power source that interfaces with Pedestrian Signal Head power for Base Station interface.
SPIXC	SPI for use with Beacon/BBU plus AGPS/Guardian
USB Port	USB connection on Beacon/BBU stations.
.wav file	An audio file format.