PedSafety
PELCO SOLUTIONS

Independent 4-Wire Accessible Pedestrian Signal for RRFBs Specification

Guardian RRFB 5.0 (PN 501-0811R)
Guardian Wave RRFB 5.0 (PN 501-0821R)
Bluetooth Optional Add-on (PN 501-0650)

1. **System Operational Requirements:**
    a. Shall meet the intent and functionality identified and defined in
        i. Manual on Uniform Traffic Control Devices 11th Edition
        ii. Section 4L. RECTANGULAR RAPID FLASHING BEACONS
        iii. Federal Highway Administration 2023
        iv. https://mutcd.fhwa.dot.gov/pdfs/11th_Edition/part4.pdf
    b. Shall meet The United States Access Board's
        i. "Accessibility Guidelines for Pedestrian Facilities in the Public Right-of-Way"
        ii. Chapter R3: Technical Requirements
        iii. Sub section: R307
        iv. Dated: September 7, 2023
        v. https://www.federalregister.gov/documents/2023/08/08/2023-16149/accessibility-guidelines-for-pedestrian-facilities-in-the-public-right-of-way
    c. Shall have non-contact and / or typical actuation.
    d. Shall have non-contact actuation with no exclusivity or proprietary apps.
    e. Shall have confirmation indications at momentary (< 1 second) button activation (Press) via non-latching LED.
    f. Shall provide a programmable verbal information message.
    g. Shall provide a locator tone of duration 0.15 seconds or less with a configurable repetition rate defaulting to 1 second.
    h. All sounds shall automatically adjust to ambient noise levels over a 60 dB range. Shall have a maximum volume of 100 dBA.
    i. Shall support a variety of voice messages, languages, tones, and sounds; downloadable from an indications database, via Bluetooth® or USB interface.
    j. Shall have min and max volume levels independently set for locator and non-locator indications.
    k. Shall provide synchronized outputs of multiple pedestrian stations.
    l. Shall account for day light saving time.
    m. Shall have time of day, day of week calendaring functionality providing different operating characteristics for identified time of day, and day of week.
    n. Shall have utility for collection / download of pedestrian data.

o. Shall not require update to firmware prior to installation.

2. Mechanical Requirements of the Push Button Station:

a. Shall meet The United States Access Board's
   i. "Accessibility Guidelines for Pedestrian Facilities in the Public Right-of-Way"
   ii. Chapter R3: Technical Requirements
   iii. Sub section: R307
   iv. Dated: September 7, 2023
   v. https://www.federalregister.gov/documents/2023/08/08/2023-16149/accessibility-guidelines-for-pedestrian-facilities-in-the-public-right-of-way
b. Shall be constructed of aluminum and rugged amorphous and semicrystalline thermoplastics.
c. All mounting hardware must be stainless steel.
d. Shall have Quiet Signal Technology (QST) forward facing speaker system.
e. Shall have a raised tactile arrow on the push button.
f. Shall have non-contact actuation sensors near push button.
g. Shall have a solid-state switch rated at > 100 X 10^6 operations.
h. Shall have a #8 Barrier Terminal connection on station allowing pedestrian station to connect to existing wiring.
i. Shall have a cover plate for the Barrier Terminal connections bay.
j. Shall provide service access from the front of the station allowing connections to be made when station is mounted.
k. Shall be capable of displaying a 5 X 7 ¾' sign directly affixed to the station.
l. Shall be capable of displaying a 5 X 9", 9 X 12", 9 X 15", and 9 X 18" sign with the use of an adapter plate.
m. Base Station shall conform to all sized poles without requiring removable mounting buttons, while providing arrow directionality.
n. Shall have the ability to be programmed while only connected to USB as a power source.
o. Shall have the ability to program using USB for secure connection on Android smart devices.
p. Shall have a universal mounting, fits all manufacturer's mounting hole dimensions.
q. Shall not require any disassembly of base station for mounting.

3. Non-Contact Actuation (Wave Sensor) for the Push Button:

a. Shall have active Infrared detection.
b. Sensor shall detect in all light conditions: day or night.
c. Sensor shall not place false calls in extreme weather conditions.
d. Sensor shall not change sensitivity in operational temperatures.
e. Sensor shall operate across full NEMA TS2 temperature range of -34 to +74°C
f. Shall detect non-contact actuation at 1-6" distance from sensor.
g. Shall detect non-contact extended actuation without requiring continuous hand motion.
h. Shall be adjustable in distance and sensitivity from 1-3",1-6", 1-9" increments.
i. Shall not require sensor configuration as part of standard installation procedure.

j. Shall detect all skin pigments and hand size.
k. Shall detect all materials and surfaces.
l. Shall be able to turn off non-contact actuation.

4. Environmental Requirements for the Push Button Station:

a. Shall be fully operational between -34°C to +74°C.
b. Shall have a weatherproof speaker.
c. Shall have a NEMA 250 Type 4X rated enclosure.
d. PCBA shall be encapsulated in a UL94 V-0 rated polyurethane.

5. Programming and Configuration:

a. The Accessible Pedestrian Signal will be configured at the factory for true "Plug and Play" operations.
b. Shall have firmware capable of creating reusable templates, flashing software, uploading audio files, and configuring stations.
c. Shall have optional Bluetooth® capability to allow full configuration and file transfer via Bluetooth, iOS and Android.
d. Shall have Bluetooth mobile capable of creating reusable templates, flashing software, uploading audio files, and configuring stations.
e. Shall have the ability to change passwords for each station.
f. Configuration utility shall provide full screen display with integrated hover help menus.
g. The Accessible Pedestrian Signal will be field upgradeable via USB or Bluetooth® connection with free publicly available firmware operating on Windows 8 and newer revisions.
h. The Accessible Pedestrian Signal will allow any audible indication in a .wav and .opus mono format to be uploaded via USB or Bluetooth connection with free publicly available software operating on Windows 8 and newer revisions.

6. Testing Conformance

Test Type	Compliance
Functionality	MUTCD 2009 - 4 E
Temperature and Humidity	NEMA TS2
Transient Suppression	NEMA TS2
Transient Voltage Protection	IEC 61000-4-4, IEC 61000-4-5
Electronic Noise	FCC Title 47, Part 15 Class A & B

Mechanical Shock and Vibration	NEMA TS2
Guardian PBS enclosure	NEMA 250 – Type 4X
Electrical Reliability	NEMA TS2
Bluetooth® Specifications	Bluetooth® SIG Member

7. **Electrical Parameters**

Parameter	**Value**
Average Idle Current – 65 vol with locator	16.1 mA
Battery charge consumption per activation – 100 vol	0.04 mA * Hr
Typical Input Voltage	12 VDC

8. **Warranty:**
    a. APS devices must have a limited 3-year warranty.