

City of Merced



Request for Bids

Accessible Pedestrian Signal Parts

For documents, questions, bid due date, and bid submission visit:

Cityofmerced.org/business-services/bid-opportunities

Overview, Qualifications, Definitions

I. Overview of Requirements

- A. City is seeking bids for **ACCESSIBLE PEDESTRIAN SIGNAL PARTS** per Exhibit A – Specifications.

II. Bidder Qualifications

- A. Bidders must be an authorized dealer for the specified equipment capable of selling, delivering, and servicing the items as specified in Exhibit A.
- B. Bidders must submit all Required Forms with their Bids indicating the manufacturer, model, trim (if applicable), and model year of proposed equipment. Failure to provide these forms will eliminate the bidder from further consideration.

III. Definitions, Acronyms, and Abbreviations

- A. Bid Documents = City documents, forms, exhibits, etc. attached to eBid.
- B. Bidder = the prospective or actual bidder, but not awarded.
- C. City = City of Merced.
- D. Contractor = the awarded bidder.
- E. CR = City Representative.
- F. Bid = Bid submitted by bidders via mail or in person.
- G. RFB = Request for Bids: City-provided electronic documents/postings.

(CONTINUED ON NEXT PAGE)

Exhibit A: Specifications

I. Specifications

A. General

1. **SUBSTITUTIONS** and **ALTERNATES** are **NOT acceptable** unless City has stated otherwise in the Specifications.
2. Do **NOT** include additional optional equipment or packages unless it is required by the manufacturer's standards to conform to our specifications.
3. Bid response:
 - Fill out the Bid Form.
 - Enclose fully completed Bid Form in a sealed envelope.
 - Clearly mark sealed envelope with the bid title and number.
 - Mail, parcel post, or hand-deliver sealed envelope to one of the two addresses displayed in the Bid Form's header.
 - Ensure bid response arrives there before the due date and time.
 - No bids will be accepted via email or any electronic media (paper bids only).

B. Bid Line Items

1. See Attachment 1 for a complete list of specifications.



Attachment 1-APS
Specs Checklist.pdf

2. Submit pricing in Bid Form found on the next page.

(CONTINUED ON NEXT PAGE)

Accessible Pedestrian Signal Parts

MAIL SEALED BIDS TO:
678 W 18th St Merced CA
95340

CITY OF MERCED
PURCHASING DEPARTMENT
purchasing@cityofmerced.org
BID FORM

PARCEL POST OR HAND
DELIVER BIDS TO:
2525 "O" ST MERCED CA
95340

QUOTE HEREON YOUR LOWEST PRICE F.O.B. MERCED (INCLUDING BUT NOT LIMITED TO DISCOUNTS, REBATES, REGISTRATION AND OTHER FEES IN UNIT PRICE) FOR THE FOLLOWING EQUIPMENT, MATERIALS, SUPPLIES OR SERVICES. NO ALLOWANCE FOR FREIGHT, CARTAGE, PACKING, OR POSTAGE UNLESS SPECIFIED ON THIS BID. WHERE BRAND OR MAKE IS SPECIFIED, SIMILAR OR EQUAL WILL NOT BE CONSIDERED.

SEALED BIDS DUE:
Tuesday, September 10, 2024 at 2:00 P.M.

DEPT: Streets Department
REQUISITION NO: 09102024

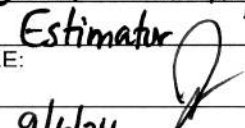
QTY	UOM	DESCRIPTION	UNIT PRICE	EXTENDED PRICE
112	Each	Polara 2 Wire iNS29UN1-G PPB	\$ 470 [≈]	\$ 52,640 [≈]
14	Each	Polara 2 Wire iCCU-C2 Rack Mount Control Unit w/ICB and cables	\$ 2700 [≈]	\$ 37,800 [≈]
		<i>Notice: Submit one original bid and one copy</i>		90,440 [≈]
			SALES TAX (8.25%)	7,461.30
			TOTAL	\$97,901.30

* BID OPENING WILL BE HELD IN THE PURCHASING OFFICE CONFERENCE ROOM AT 2525 "O" STREET, MERCED, CA *

We have stated hereon the prices at which we will furnish and deliver the equipment, materials, supplies or services as specified above.

Delivery ~~and installation~~ will be made in 30 or less days after receipt of order (A.R.O.), except as otherwise indicated.

Note: City reserves the right to reject any and or all bids, split the bid award, or to accept the bid that best serves the public purpose, even though it may not be the lowest.

COMPANY: JAM Services
BY: Jason Momaney
TITLE: Estimator
SIGNATURE: 
DATE: 9/6/24
PHONE: (925) 455-5267
EMAIL: jason@jamservicesinc.com
PAYMENT TERMS: (Net 10, 30, 45)
Net 30

NOTICE:
ALL BIDS MUST BE SIGNED

End of Exhibit A

Exhibit B: Pricing

I. Quantities

- A. The quantities are firm fixed quantities for this bid.
- B. City may purchase additional units at the same bid prices for up to one year at same price based on model availability and the exact same configuration as in Exhibit A-Specifications.

II. Pricing

A. Pricing Terms

- 1. **Unit Price:** includes everything, including but not limited to transportation, delivery, offloading; registering units with DMV; providing exempt status license plates; includes all preparation, documentation, and transfer charges; includes environmental and disposal fees; no other costs will be considered.
- 2. **Discounts:** all applicable discounts must be factored into the unit price.
- 3. **Fixed Unit Prices:** prices are fixed through the delivery period for all units.
- 4. **Government-Mandated Taxes and Fees:** must be included in unit prices.
- 5. **CA Tire fee:** is the per tire fee that the State of California assess, which is subject to change. This amount is included in the Bid as a fixed cost.
- 6. **Sales Tax:** City will add the appropriate sales tax to each order.

B. Disallowed Costs

- 1. **Business Permits, Licenses and Fees:** obtain, at Contractor's sole expense, all permits and licenses required in connection with providing the required units and in Contractor's name.
- 2. **Additional charges:** not allowed, no fuel surcharges, no mileage rates.

C. Bid Results Price Sheet

- 1. The awarded bidder's Bid Form, as accepted by the City, will be incorporated as part of the resulting contract or purchase order.

END OF EXHIBIT B

Bid Terms and Conditions

Specifications are intended to describe the precise type, size and quality of equipment which will best meet the demands of the City. They are not intended to favor any one brand or make unless the brand is explicitly named. Otherwise, the mention herein of any name of equipment or material merely serves to stipulate the quality or general type required.

Machines or equipment must comply with current state and federal regulations.

All materials and auxiliary equipment shall conform to the size, quality, and quantity shown in the specifications. They shall be from new stock, delivered in good condition. No damaged items will be accepted.

City reserves the right to reject any or all bids and to waive informalities and minor irregularities.

The City reserves the right to determine which is the best bid considering price, quality, warranty and delivery within specified time limit, as well as any other criteria set forth in the bid.

Delivery time being of essence in the award of this purchase, all bids must specify delivery date on which the item(s) will be delivered. Supplier shall source the goods and or perform the services, with the schedule and term, as specified herein. Time is of the essence. All items shall be delivered "free on board (F.O.B.) destination" to the location specified herein, full freight pre-paid except for special or expedited orders, which shall be agreed upon prior to shipment.

Successful bidder shall furnish the City's purchasing supervisor with all technical information on items listed in the specifications of the bid.

Price bid shall be the maximum prices paid by the City of Merced. Price quoted shall include taxes. The City is exempt from all Federal Excise Taxes.

Price shall include license, registration, tire, and any other relevant fees. Bidder agrees to register all vehicles with the California Department of Motor Vehicles (DMV) prior to delivery.

All invoices and correspondence shall show the number of the contract or purchase order issued to the bidder awarded.

If Bidder submits a bid for alternate items, Bidder shall fill out additional bid sheets, fully explaining the differences and any perceived advantages of said items. This will be allowed only when similar or equal products are clearly stated as acceptable in the Bid Form.

Bidder's security in the form of a bid bond, certified or cashier's check issued by a responsible bank or banker of the State of California in the amount of 10% of the total net amount of the bid, and payable to the City of Merced must be attached to the bid proposal, **only when required in Exhibit A**. Bidders shall be entitled to return of bid security; however, a successful bidder shall forfeit his bid security upon refusal or failure to execute the contract within ten (10) calendar days after the notice of award of contract, unless the City is responsible for the delay. City Council, on refusal or failure of the successful bidder to execute the contract, may award it to the next lowest responsible bidder, the amount of the lowest bidder's security shall be applied to the contract price differential between the lowest bid and the second lowest bid. Surplus, if any, shall be returned to the lowest bidder.

Conflict of Interest: Bidder certifies that no City officer, employee, or authorized representative has any financial interest in the business of the bidder and that no person associated with the bidder has any interest, direct or indirect, which could conflict with this bid. The bidder is familiar with the provisions of California Government Code section 87100, *et seq.*, and certifies that it does not know of any facts which would violate these laws. Bidder will promptly advise City if a conflict arises.

Agency Name:	CITY OF MERCED
Project:	CP250040 Update Traffic Signal Pedestrian Push Buttons near Schools
Date:	08/27/2024

Specifications for 2 Wire Accessible Pedestrian Signal (APS)

SYSTEM DESCRIPTION

The Audible-Tactile Pedestrian Signal System shall consist of all electronic control equipment, mounting hardware, push buttons and signs, which are designed to provide both a push button with a raised vibrating tactile arrow on the button, along with a variety of audible sounds for different pedestrian signal functions.

A 2 Wire APS system consists of push button stations installed on poles with existing or new pairs of button wires and a Central Control Unit installed in the traffic cabinet. The Central Control Unit powers the push button stations over the 2 wires and uses digital data including pedestrian interval information and pedestrian calls for each phase to communicate with each push button station over the two low voltage button wires.

Substantiating documentation for meeting ISO, NEMA, IEC, and FCC requirements must be supplied from an outside Testing Services Laboratory.

General Description

1. The System shall consist of a Central Control Unit (CCU) and Pedestrian Push Button Stations (PBS), as described below, and be capable of communicating with and programming with devices that support an iOS client application, or an Android client application, or Windows PC with Bluetooth® Low Energy dongle and Windows client application, for programming the system settings.
2. The System shall be manufactured by an ISO 9001:2015 (minimum) registered company.
3. The System shall meet the requirements of Made in America and/or The Buy American Act.

Design Compliance

1. The System shall meet the functionality requirements of MUTCD 11th ed. – 4K and CAMUTCD 2011 – 4E.
2. The System shall meet NEMA TS 2 Section 2.1 Temperature & Humidity requirements, or TS4 equivalent.
3. The System shall meet NEMA TS 2 Section 2.1 Transient Voltage Protection requirements, or TS4 equivalent.
4. The System shall meet NEMA TS 2 Section 2.1 Mechanical Shock and Vibration requirements, or TS4 equivalent.
5. The System shall meet IEC 61000-4-4, IEC 61000-4-5 Transient Suppression requirements.
6. The System shall meet FCC Title 47, Part 15, Class A Electronic Noise requirements.
7. The Push Button Station (PBS) Enclosure shall meet NEMA 250 – Type 4X requirements.
8. The Central Control Unit (CCU) Enclosure shall meet NEMA 250 – Type 1 requirements.

Functional Requirements

1. The System shall support at least 16 PBS's per intersection (on at least 1 channel) controlled by a single base unit located in the traffic control cabinet.
2. The System shall vibrate a tactile arrow button during the WALK interval following a button push and/or every time the walk comes up.
3. The System shall have the field-selectable function known as "LOCATE TONE". This means that during the FLASHING DON'T WALK and DON'T WALK intervals, the system shall provide a locating tone that emanates from the PBS. The system shall provide at least 3 different sounds to choose from.
4. The System shall have the field selectable function known as "Extended Push Activation". This is defined as the audible WALK message shall only be activated and audible during the WALK interval if the button is depressed for a field selectable minimum period of time (from 0.5 to 6 seconds). Also, for the walk and clearance intervals that follow an extended push, the volumes shall have a separately settable minimum and maximum volume level.
5. The System shall have the field selectable function known as "Informational Message". This means that a custom message giving the location of the street to cross and the intersection (or other information) will be vocalized only when the button is depressed for a minimum field selectable time.
6. The System shall provide a "Wait" message that plays once the button is activated, and until the Walk cycle goes into effect. This message must have the field selectable option of OFF, or repeating every 4, 6, 8 or 10 seconds.
7. The System shall have standard "Travel Direction" options that can be selected at the time of installation.
8. The System shall have at least 10 field selectable WALK sound options including a cuckoo, a chirp, an MUTCD rapid tick or custom voice message.
9. The System shall provide at least 7 Ped-clearance sound choices including audible countdown (field selectable). The audible countdown shall represent the time remaining during the pedestrian Clearance interval. Timing is automatically adjusted to the CLEARANCE INTERVAL timing, provided by the Traffic Controller. Due to flasher relay timing variables, audible and PED Head numbers may vary by approximately one second.
10. The System shall provide 2 language capabilities, selectable by user (as a field selectable feature).

11. The PBS's shall have wireless synchronization capabilities, from button to button, (including between a 2 wire PBS and a 3 wire PBS), matched to a phase partner. Sync distance may vary based on the environment. Pedestrian button presses are communicated between phase partners in order to keep the pilot LED in sync, as well as the audible messages during the Walk and Clearance PED intervals. This shall be implemented on corners that do not contain button wires. The wireless synchronization capability shall include sending Standard and Extended Push information to allow a call to be placed from a PBS without button wires (or degraded button wires) via a phase partner PBS that does have button wires to the traffic controller.
12. The System shall provide an Emergency Preemption Message in conjunction with a preemption system (selectable feature).
13. The System LOCATE TONE, WALK, and DON'T WALK audible features shall have independent assignable minimum and maximum volume limits. CLEARANCE volume level shall be controlled by WALK volume setting.
14. All sounds for all PBS's shall be synchronized.
15. The System shall have a non-visible, ambient sensing microphone located in the pedestrian station in an environmentally protected housing.
16. The LOCATE TONE volume shall adjust automatically in response to ambient noise with field selectable adjustment levels from -30dB below to +20dB above ambient in 2.5dB increments.
17. All other sound volumes shall adjust automatically in response to ambient noise with field selectable adjustment levels from -30dB below to +20dB above ambient in 5dB increments.
18. The System shall utilize high quality digital audio technology, with a minimum 16-bit sample at a 48 kHz sample rate.
19. The PBS firmware and voice messages shall be updatable via Bluetooth Low Energy level 5 at a minimum. There shall be no requirement for IC chips or module hardware to be removed or exchanged in order to complete a firmware or audio update.
20. The System shall have the option to mute sounds on all crosswalks except activated crosswalk (selectable feature).
21. The System shall have a real time clock capable of keeping time when there is no system power, for at least 2 years from the date of manufacture.
22. The System shall have the ability to have four separate program configurations with all features available, and any single configuration can be selected through an external input.
23. The System shall provide a user settable calendar function, allowing four separate configuration profiles to be configured to become active at different times of the day on a daily, weekly, or holiday basis.
24. The entire System shall be configurable from any PBS over Bluetooth Low Energy.
25. The entire System shall be configurable from the CCU over Wi-Fi or Ethernet.
26. All field access to selectable options using Bluetooth Low Energy, Wi-Fi or Ethernet devices shall be protected using password security.
27. Each PBS shall be capable of interacting with a pedestrian app on iOS or Android smart phones, via Bluetooth Low Energy.
28. Each PBS shall be capable of interacting with the PedApp® smartphone App to allow pedestrians to remotely actuate ped call into PBS. PedApp can be configured to help provide visually impaired and all pedestrians location/directionality information, as well as place calls, and receive ped interval information via smartphone.
29. Touchless actuation option when ordered/included in PBS, shall be capable of detecting movement within 1-4 inches to actuate/place ped call via the PBS.
30. The touchless actuation option shall be capable of adjusting the distance or range of detection from 1-20 inches.

31. The touchless actuation option shall be capable of adjusting minimum wave detection time (amount of time that a wave must be performed before a call is activated). The setting times shall be in milliseconds and be settable to 0ms, 50ms, 250ms, and 500ms.
32. The touchless actuation option performance shall not be impeded or affected by ice buildup on the push button station.
33. The touchless actuation option – detection system shall be inconspicuous and vandal resistant.

Central Control Unit (CCU) - The CCU is the control unit that provides data for the Push Button Stations. The CCU shall be either a shelf mount (CCU-S) or card rack mount (CCU-C) assembly.

1. The CCU-S shall be installed inside the Traffic Cabinet and powered by the AC supply mains (115 VAC).
2. The Central Control Unit powers the push button stations over the 2 wires and uses digital data including pedestrian interval information and pedestrian calls for each phase to communicate with each push button station over the two low voltage button wires.
3. The CCU-C shall be installed inside a 300 series Traffic Cabinet's Input File, replacing 2 PED isolator boards and receiving power from the rack (24VDC).
4. The CCU-S shall provide internal power to operate up to 16 PBS's.
5. A 24-volt power brick shall power up to 16 PBS's in a CCU-C configuration.
6. The CCU shall control at least 16 PBS's.
7. The CCU shall be logically configurable to assign any PBS to one of 16 traffic/PED phases.
8. The CCU through SDLC shall be able to place PED calls on up to 8 phases.
9. The CCU-S shall receive pedestrian phase Walk, Don't Walk and Clearance inputs from either the traffic cabinet load switches or an SDLC input.
10. The CCU-C shall receive pedestrian phase Walk, Don't Walk and Clearance inputs from a Transport Electrical Equipment Specification (TEES) C4S connector.
11. The CCU shall be able to self-test all PBS's and put a corresponding phase into recall should a PBS assigned to a phase fail the self-test.
12. The CCU-S shall provide optically isolated general-purpose inputs.
13. The CCU-S shall incorporate four separate cable assemblies to access all functions, so any combination of the four cable assemblies can be used to access any combination of functions.
14. The CCU shall have internal storage to log several thousand events with a date-time stamp for each event.
15. The CCU shall have an internal real-time clock capable of being set in the field and propagating the time to each connected PBS.
16. The CCU firmware shall be updatable via either Wi-Fi or Ethernet. There shall be no requirement for IC chips or module hardware to be removed or exchanged in order to complete the firmware update.
17. The CCU shall monitor PED interval conflicts and set affected PBS's to an off/safe mode when a conflict occurs.
18. The CCU-S shall meet NEMA 250 – Type 1 enclosures requirements.
19. The CCU shall have a backlit LCD screen and button interface to allow placing test calls and display status.

Pedestrian Push Button Station (PBS) – The PBS allows the pedestrian to place calls to the Traffic Controller and provides vibro-tactile feedback during the Walk cycle. This equipment is typically mounted on a pole, near the start of the crossing.

1. The PBS shall be mounted to a pole by banding or bolting.
2. The PBS shall be a single fixture that contains a 2" activation area, in which resides an ADA compliant vibro-tactile push button with a raised directional tactile arrow, and a sign mounted above the button.
3. The PBS Speaker shall be 8 Ohms, 6 Watt, and weather-proof.
4. The button shall be cast aluminum, nickel-plated and powder coated black around the arrow, to provide high contrast to arrow color. The PBS arrow shall allow for change in orientation to one of four directions.
5. The PBS button actuation shall use Hall Effect Sensor technology rated to greater than 20 million operations.
6. The PBS button push force shall have three adjustable pressure settings "Light, Medium, and Firm" over a range of approximately .5 LB to 3.5 LBS to activate a button push.
7. The PBS button shall pulse and vibrate at approximately 20 Hz with displacement factor based on pounds of force used to actuate.
8. The PBS shall have a rear facing speaker projecting sound from front and back, providing 360° omnidirectional sound performance.
9. The PBS shall include internal Conflict Monitoring that monitors WALK, and DON'T WALK input signals for conflict conditions; disables system operation and logs errors if conflict occurs.
10. The PBS firmware and voice messages shall be updatable via Bluetooth Low Energy. There shall be no requirement for the hardware to be changed out to update.
11. The system shall operate with the vendor's client application to record and upload cumulative PED count & call data.
12. The PBS shall meet or exceed NEMA 250 type 4X enclosure requirements.
13. The PBS Construction shall be:
 - I. FRAME and BUTTON COVER: Cast Aluminum, Powder Coated.
 - II. HOUSING: Reinforced, UL-listed Thermoplastic.
 - III. MESSAGE SIGN: Aluminum, Powder Coated, Ink Markings, or Reflective Vinyl Sheeting
 - IV. PUSH BUTTON: Aluminum, Nickel Plated, Powder Coated.
14. Electronic circuits (printed circuit board assemblies) shall be in a thermoplastic housing/enclosure having a UL94-V0 flammability rating. The housing/enclosure shall provide NEMA 250 4X protection to all covered components.
15. At time of order customer shall be able to specify sign size, and Message Sign Markings to be either the International Walking Person or the Informational Explanations for the three (3) distinct pedestrian displays (WALK, DON'T WALK, and PED CLEARANCE) that a pedestrian would see on an active pedestrian signal.
16. The PBS shall be a modular design with a separate speaker compartment that can be field-replaced.
17. A 2-Wire PBS shall include a 3-position terminal block to support the capability of operating as a 3-Wire PBS (3-Wire Ped Head Based System) by adding a Control Unit in the pedestrian signal head that converts 115 VAC to 24VDC, and a 3 wire cable that carries power, data, and ground wires from Control Unit to the PBS.
18. The PBS shall have Bluetooth Low Energy communication that allows a pedestrian to use an app to get PED status information, and place a PED call when in close proximity to a button, without having to touch/push the button.

Field Programming via Client Application (Apple iOS v9.0 or higher devices, or Android 5.0 or a PC with Windows 8 or 10)

1. The System shall use Bluetooth Low Energy 5 or higher technology to program firmware and audio voice messages, and to communicate to other buttons or external devices.
2. The System shall be password protected through the programming/configuration interface.
3. The iOS, Android, and PC applications shall be upgradable.
4. The iOS, Android, and PC applications shall notify the user when a newer version of the application is available.
5. The iOS, Android, and PC applications shall notify the user when newer PBS and CCU firmware is available.
6. The iOS, Android, and PC applications shall provide the mechanism to download the latest PBS and CCU firmware.
7. The iOS, Android, and PC applications shall be capable of setting all volumes and features of the APS system specific to the PBS's.
8. The iOS, Android, and PC applications shall be capable of setting/updating configuration options for a single PBS or all PBS's on the intersection for most functions from a single PBS or CCU. (Global updating).
9. The iOS, Android, and PC applications shall be capable of storing, modifying, loading, and emailing PBS configuration settings, audio files and health logs.



iNS2: "iNS" iNavigator 2-Wire Push Button Station

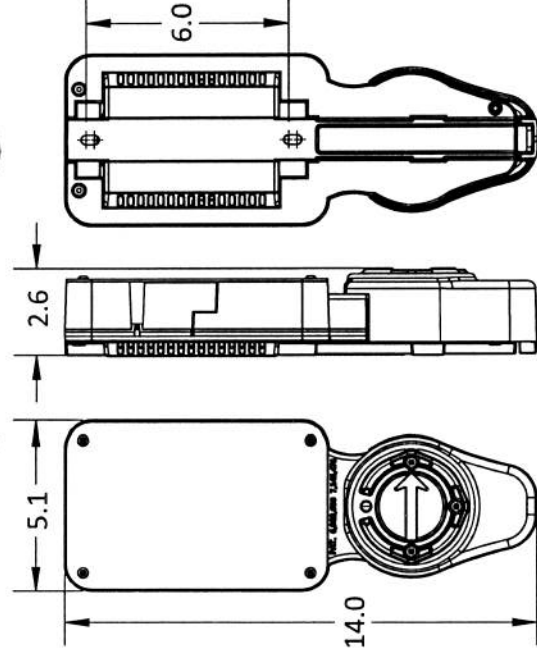
The "iNS" iNavigator 2-Wire Push Button Station (iNS2 PBS) is the pedestrian interface to the iNavigator Accessible Pedestrian System. A system consists of a Control Unit (PN iCCU-S2, iCCU-C2, iCCU-S, or iCCU-C) and a Push Button Station. The iNS2 PBS is an MUTCD compliant PBS and provides valuable information and cues via both a vibrating arrow button and audible sounds, making the intersection accessible for all pedestrians. All sounds emanate from the front and back of the unit. A sunlight-visible red LED latches "ON" along with a tactile feedback "bounce" to confirm the button has been pushed. The vandal-resistant design of the iNS2 PBS includes the body, which houses the ADA compliant push button (shown), a faceplate (5X7 sign shown), and mounting hardware. By interfacing with the Central Control Unit (CCU) that installs in the Traffic Cabinet, the iNS2 PBS can provide the following standard features:

- Operates over a single pair of wires
- All PBS wired in parallel, individually assignable to any phase
- 16 buttons can operate on a single iCCU (dependent on power requirements and wire runs)
- All sounds are synchronized
- 4 Locate Tone selectable options
- 13 Walk Sound selectable options, 3 of them custom options
- 7 Clearance Sound selectable options
- Walk, Clearance, and Don't Walk sounds automatically adjust to ambient
- Separate ambient response settings for Locate Tone (for quiet ambient conditions)
- Most sounds have independent Min/Max settable limits
- Button vibrates during Walk
- Button push confirmed by latching LED, tactile bounce, and audible "wait" sound
- Extended button push can boost volume for next Walk and Clearance
- Direction of travel message with extended button push, capable
- Extended Push Priority: mutes all but selected crosswalk, capable
- Extended Push activation settings: 0-6 second range, 0.5 second increments
- Beaconing and Ping Pong features available
- Select audio messages, change settings, and perform firmware updates wirelessly using iOS (9.0+) or Android (5.0+) devices, or a Windows PC with Polara's Bluetooth Dongle (PN IN-DGL, purchased separately)
- Built in health/event logging feature, up to 1000 events
- False walk detection: four independent checks
- External speaker option at time of order
- External button input for bike lanes, horses, etc.
- Warranty: 3 year limited

An iNS2 PBS can operate as an iNS3 (Ped-Head Based System). It comes with a 3-position terminal block to connect to a Ped-Head Control Unit. See iNS3 Quick Start Guide for more information.

For optimum functionality, Polara recommends a dedicated pair of wires be routed to each PBS. Using IMSA 50-2 Cable is an ideal choice. The ground shield does not need to be connected.

Dimensions are in inches. iNS25BNO-Y unit shown.



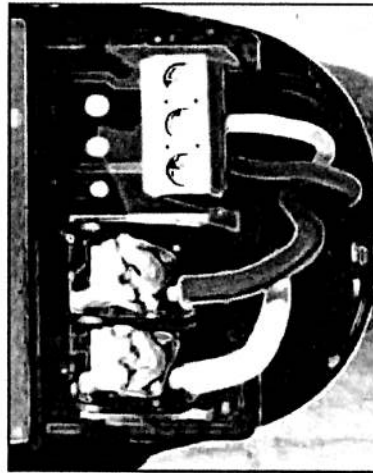
Operating Specifications	
Parameter	Rating
Operating Temp. Range	-34°C to +74°C (-30°F to +165°F)
Storage Temp. Range	-45°C to +85°C (-50°F to +185°F)
Operating Force	3.0 lbs max, option of 3 adjustable programmed forces
Switch Operating Life	Greater than 20 million operations
Max. Volume	100 dB @ 1 meter

Design Compliance	
Functionality Test Type	Compliance
Temperature and Humidity	MUTCD 2009-4E
Transient Voltage Protection	NEMA TS2
Transient Suppression	NEMA TS2
Mechanical Shock and Vibration	NEMA TS2
iNS2 PBS Enclosure	NEMA 250 Type 4X
Electrical Reliability	NEMA TS2

Notes:

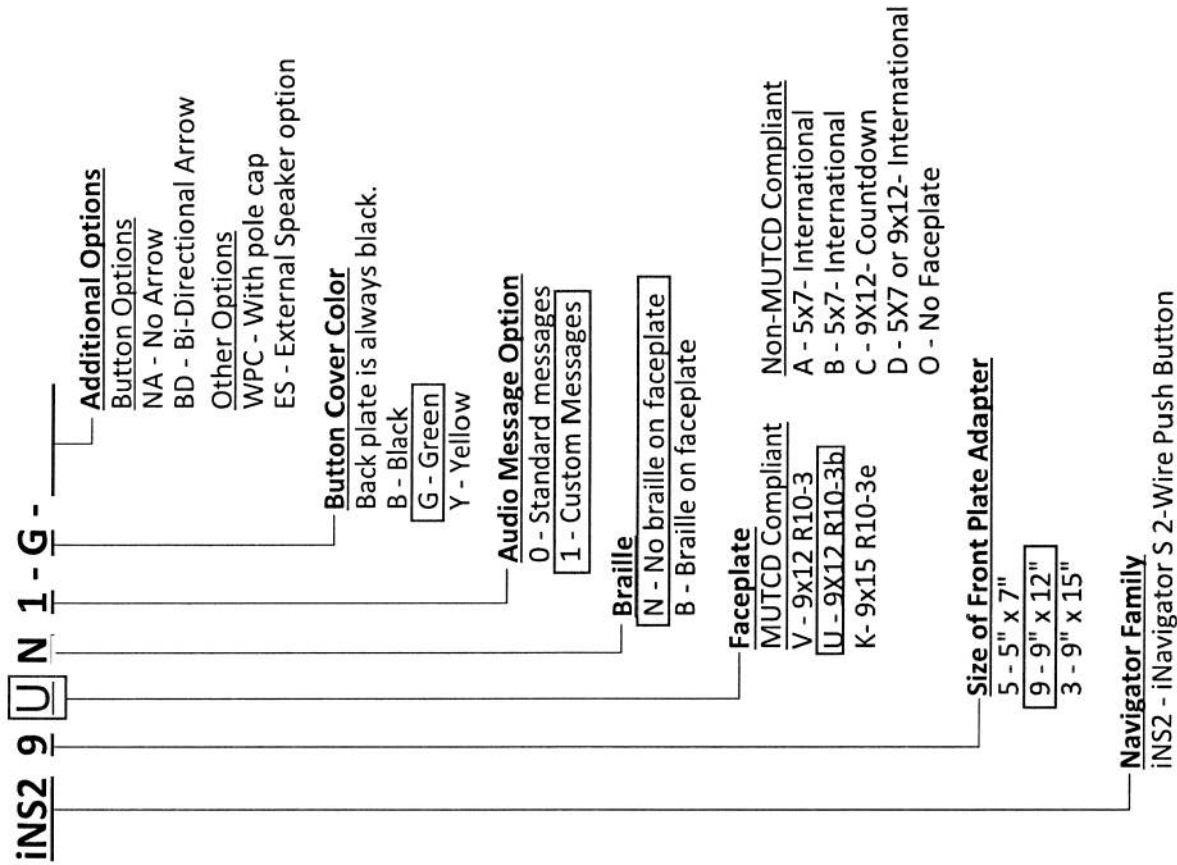
1. Lab tested to applicable sections of referenced standards
2. All specifications are subject to change without notice
3. All specifications are typical unless otherwise specified

Termination View: iNS2 Operating as iNS3 PBS



Ped Call Terminal on left. 3-position terminal block on right (for operating as iNS3)

Dimensions are in inches.



OPTION V- MUTCD R10-3 SIGN - HI RETROREFLECTIVE (9" x 12")

OPTION A - NON-MUTCD Compliant Low-Cost Alternative



800H-86
Option V - MUTCD R10-3 SIGN
9"x12" Right/Left Arrow
Hi-Intensity Retroreflective
Fully complies with MUTCD

Also Available:

800-86

Option A
9"x12" Right/Left Arrow
Powder Coated Aluminum
Not MUTCD Compliant

800-87

Option A
5" x 7 3/4" Right/Left Arrow
Powder Coated Aluminum
Not MUTCD Compliant

800-97

Option A
5" x 7 3/4" NO-Arrow
Powder Coated Aluminum
Not MUTCD Compliant

800G-87

Option A
5" x 7 3/4" Right/Left Arrow
Powder Coated Aluminum
Anti-Graffiti



800H-89
Option V - MUTCD R10-3 SIGN
9"x12" Bi-Directional Arrow
Hi-Intensity Retroreflective
Fully complies with MUTCD

Also Available:

800-88

Option A
5" x 7 3/4" Bi-Directional Arrow
Powder Coated Aluminum
Not MUTCD Compliant

OPTION U- MUTCD R10-3b SIGN - HI RETROREFLECTIVE (9" x 12")

OPTION B - INFORMATIONAL SIGN - NON-MUTCD Compliant Low-Cost Alternative



800H-69
Option U - MUTCD R10-3b SIGN
9"x12" Right/Left Arrow
Hi-Intensity Retroreflective
Fully complies with MUTCD

Also Available:

800-59

Option B
INFORMATIONAL SIGN
5" x 7 3/4" Right/Left Arrow
Powder Coated Aluminum
Not MUTCD Compliant



800-98
Option B
INFORMATIONAL SIGN
5" x 7 3/4" NO-Arrow
Powder Coated Aluminum
Not MUTCD Compliant

Also Available:

800-100

Option B
INFORMATIONAL SIGN
9"x12" NO-Arrow
Powder Coated Aluminum
Not MUTCD Compliant



800H-72
Option U - MUTCD R10-3b SIGN
9"x12" Bi-Directional Arrow
Hi-Intensity Retroreflective
Fully complies with MUTCD

Also Available:

800-72

Option B
INFORMATIONAL SIGN
9"x12" Bi-Directional Arrow
Powder Coated Aluminum
Not MUTCD Compliant

800-63

Option B
INFORMATIONAL SIGN
5" x 7 3/4" Bi-Directional Arrow
Powder Coated Aluminum
Not MUTCD Compliant

OPTION T- MUTCD R10-3e SIGN - HI RETROREFLECTIVE (9" x 15")

OPTION N- CUSTOM FOR NEVADA DOT

OPTION P- iDETECT COUNT DOWN SIGN- WAVE

OPTION C - COUNTDOWN SIGN - NON-MUTCD Compliant Low-Cost Alternative



800H-84
Option T - MUTCD R10-3e SIGN
9"x15" Right/Left Arrow
Hi-Intensity Retroreflective
Fully complies with MUTCD

Also Available:

800-85

Option C - COUNTDOWN SIGN
9"x12" Right/Left Arrow
Powder Coated Aluminum
Not MUTCD Compliant

800G-85

Option N - Custom for Nevada DOT
9" x 12" Right/Left Arrow
Hi-Intensity Retroreflective
Anti-Graffiti Coating
Cannot be used with BRAILLE



800H-110
Option T - MUTCD R10-3e SIGN
9"x15" NO-Arrow
Hi-Intensity Retroreflective
Fully complies with MUTCD

800H-113

Option T - MUTCD R10-3e SIGN
9"x18" NO-Arrow
Hi-Intensity Retroreflective
Fully complies with MUTCD

Also Available:

800-104

Option C - COUNTDOWN SIGN
9"x12" NO-Arrow
Powder Coated Aluminum
Not MUTCD Compliant



800H-99
Option T - MUTCD R10-3e SIGN
9"x15" Bi-Directional Arrow
Hi-Intensity Retroreflective
Fully complies with MUTCD

Also Available:

800-90

Option C - COUNTDOWN SIGN
9"x12" Bi-Directional Arrow
Powder Coated Aluminum
Not MUTCD Compliant

800G-90

Option N - Custom for Nevada DOT
9" x 12" Bi-Directional Arrow
Hi-Intensity Retroreflective
Anti-Graffiti Coating
Cannot be used with BRAILLE



800H-135
Option P - iDETECT COUNTDOWN_WAVE
9"x15" Right/Left Arrow
Hi-Intensity Retroreflective
Fully complies with MUTCD

OPTION D - INTERNATIONAL SIGN



800-67
Option D
INTERNATIONAL SIGN
9"x12" Right/Left Arrow
Not MUTCD Compliant

800-58

Option D
INTERNATIONAL SIGN
5" x 7 3/4" Right/Left Arrow
Powder Coated Aluminum
Not MUTCD Compliant

800-70

Option D
INTERNATIONAL SIGN
9"x12" Bi-Directional Arrow
Not MUTCD Compliant

800-61

Option D
INTERNATIONAL SIGN
5" x 7 3/4" Bi-Directional Arrow
Powder Coated Aluminum
Not MUTCD Compliant



OPTION M Custom Signs for Minnesota DOT



800D-107
Option M - MUTCD R10-3e SIGN
9"x15" Right/Left Arrow
Diamond-Grade Retroreflective
Clear Protective Cover
Fully complies with MUTCD

800D-111

Option M - MUTCD R10-3e SIGN
5" x 7 3/4" Right/Left Arrow
Diamond-Grade Retroreflective
Clear Protective Cover

800D-112

Option M - MUTCD R10-3e SIGN
5" x 7 3/4" NO-Arrow
Diamond-Grade Retroreflective
Clear Protective Cover



800D-108
Option M - MUTCD R10-3e SIGN
9"x15" Bi-Directional Arrow
Diamond-Grade Retroreflective
Clear Protective Cover
Fully complies with MUTCD

800D-114

Option M - MUTCD R10-3e SIGN
5" x 7 3/4" Bi-Directional Arrow
Diamond-Grade Retroreflective
Clear Protective Cover

OPTION O - (LETTER O) DENOTES NO SIGN INSTALLED ON UNIT

OPTION R- MUTCD R10-3 TOUCHLESS SIGN - HI RETROREFLECTIVE (9" x 12")

OPTION E - TOUCHLESS SIGN - NON-MUTCD Compliant Low-Cost Alternative



800H-120
Option R- MUTCD R10-3 SIGN
9"x12" Right/Left Arrow
Hi-Intensity Retroreflective
Fully complies with MUTCD

Also Available:

800-117
Option E
TouchLess Sign
5" x 7 3/4" Right/Left Arrow
Powder Coated Aluminum
Not MUTCD Compliant

800H-124
Option R- MUTCD R10-3 SIGN
9"x15" Right/Left Arrow
Hi-Intensity Retroreflective
Fully complies with MUTCD

800H-132
Option R- MUTCD R10-3 SIGN
9"x18" Right/Left Arrow
Hi-Intensity Retroreflective
Fully complies with MUTCD

800H-121
Option R- MUTCD R10-3 SIGN
9"x12" NO-Arrow
Hi-Intensity Retroreflective
Fully complies with MUTCD

800-118
Option E
TouchLess Sign
5" x 7 3/4" NO-Arrow
Powder Coated Aluminum
Not MUTCD Compliant

800H-125
Option R- MUTCD R10-3 SIGN
9"x15" NO-Arrow
Hi-Intensity Retroreflective
Fully complies with MUTCD

800H-134
Option R- MUTCD R10-3 SIGN
9"x18" NO-Arrow
Hi-Intensity Retroreflective
Fully complies with MUTCD



800H-122
Option R- MUTCD R10-3 SIGN
9"x12" Bi-Directional Arrow
Hi-Intensity Retroreflective
Fully complies with MUTCD

Also Available:

800-119
Option E
TouchLess Sign
5" x 7 3/4" Bi-Directional Arrow
Powder Coated Aluminum
Not MUTCD Compliant

800H-126
Option R- MUTCD R10-3 SIGN
9"x15" Bi-Directional Arrow
Hi-Intensity Retroreflective
Fully complies with MUTCD

OPTION S- TOUCHLESS SIGN - HI RETROREFLECTIVE (9" x 12")

OPTION F- MUTCD R10-3a SIGN - HI RETROREFLECTIVE (9" x 15")



800H-123
Option S
9"x12" Right/Left Arrow
Hi-Intensity Retroreflective



800H-133
Option S
9"x12" Bi-Directional Arrow
Hi-Intensity Retroreflective



800H-127
Option F- MUTCD R10-3a SIGN
9"x15" Right/Left Arrow
Hi-Intensity Retroreflective
Fully complies with MUTCD

OPTION K- MUTCD R10-3e COUNT DOWN CA SIGN - HI RETROREFLECTIVE (9" x 15")

OPTION J - ACCESSIBLE MSG SIGN

OPTION Q - NYC SIGN, PUSH BUTTON AUDIBLE SIGNAL



800H-130
Option K- MUTCD R10-3e
COUNTDOWN CA SIGN
9"x15" Right/Left Arrow
Hi-Intensity Retroreflective
Fully complies with MUTCD



800-115
Option J
5" x 7 3/4" ACCESSIBLE MSG SIGN
Powder Coated Aluminum
Not MUTCD Compliant

Also Available:

800G-115
Option J
5" x 7 3/4" ACCESSIBLE MSG SIGN
Powder Coated Aluminum
Anti-Graffiti Coating



800-137
Option Q
5" x 7 3/4" NYC SIGN
PUSH BUTTON AUDIBLE SIGNAL
Powder Coated Aluminum
Not MUTCD Compliant

OPTION G- MUTCD R10-25 MODEL X FDOT- HI RETROREFLECTIVE (9" x 18")

OPTION H- MUTCD R10-25 MODEL IDX FDOT TOUCHLESS- HI RETROREFLECTIVE

OPTION W- MUTCD R10-25 MODEL X- HI RETROREFLECTIVE (9" x 12")



800H-128
Option G- Custom for Florida DOT
9"x18" NO-Arrow
Hi-Intensity Retroreflective



800H-129
Option H- Custom for Florida DOT
TOUCHLESS SIGN
9"x18" NO-Arrow
Hi-Intensity Retroreflective



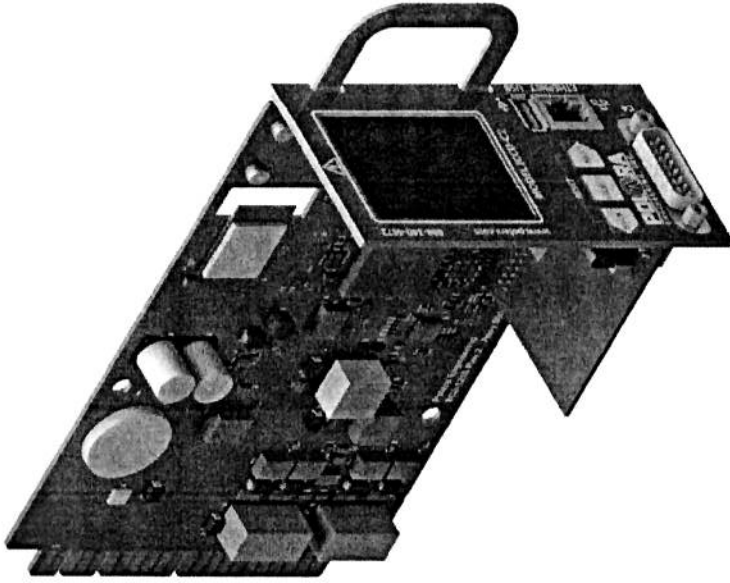
800H-109
Option W- MUTCD R10-25 SIGN
9"x12" NO-Arrow
Hi-Intensity Retroreflective
Fully complies with MUTCD

Also Available:

800H-101
Option W- MUTCD R10-25 SIGN
5" x 7 3/4" Right/Left Arrow
Hi-Intensity Retroreflective



iCCU-C2: iIntelligent Central Control Unit Rack Mount Card



The iCCU-C2 is designed for use in Cal-Trans or 300 Series cabinets and is the intelligent control unit for Polara's iN2/iNS2 accessible push button stations (PBS). The system is provided with a special cable adapter which detects the low voltage pedestrian load switch control signals present on the C4 connector. The special cable adapter (PN 850-382) connects between C4S and C4P and routes to the iCCU-C2 front panel. The iCCU-C2 installs in the input file in place of the typical pair of Type 242 isolators used for pedestrian detection. A separate interconnect board (PN iN2-ICB-C, sold separately) facilitates connection of up to 16 PBSs. Each PBS requires only two wires. All PBSs connect in parallel and do not have a polarity requirement. A required power supply (PN: iN2-150WPS-C, sold separately) connects to the interconnect boards to power the PBSs.

The iCCU-C2 front panel includes a backlit LCD for displaying system status information. Front panel buttons are used during setup, placing test calls, and to enable Wi-Fi. All setup functions can be performed via Ethernet or Wi-Fi using a PC. Setup and configuration is also supported using an iPhone, iPad or Android device via Wi-Fi. In addition, configuration via Bluetooth is supported by pairing with any connected PBS using a PC with an iN-DGL (purchased separately), or iOS/Android mobile device. All of the connection options provide full access to setup and configuration of both the iCCU-C2 and all connected PBSs. Polara provides free apps for Windows PCs (Windows 7+), iOS (9.0+) devices, and Android (5.0+) devices.

Multiple configurations are supported, with the ability to change operational features based on time of day. The system has downloadable internal conflict monitoring and health log data capture that contains extensive status/fault reporting. Remote Monitoring can be done over Ethernet.

Ped Walk/ Don't Walk Inputs:

0-24 VDC (active low)

Ped Call Outputs:

Optically isolated 36 Volts AC/DC peak
300 mA Solid State Fused Contact Closure

Environmental:

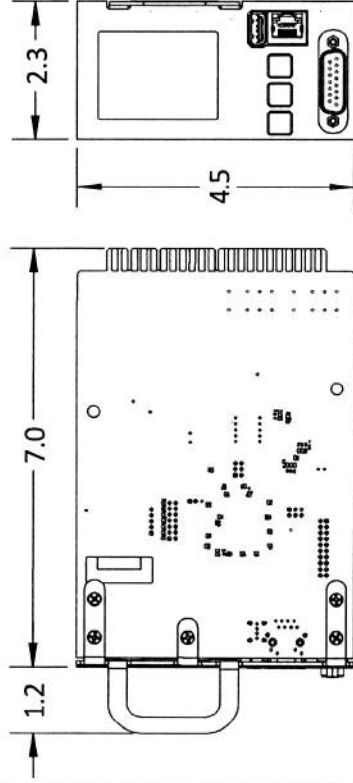
Operating: -34 °C (-30 °F) to +74 °C (+165 °F) - LCD temperature range is limited to -20 °C to +70 °C

Storage: -45 °C (-50 °F) to +85 °C (+185 °F)

Warranty: 3 year limited

Notes:

1. The iCCU-C2 is compatible with Cal-Trans TEEs and 300 series cabinets with a standard C4 connection to the output file.
2. Preempton messaging through the APS system is not available on this unit.



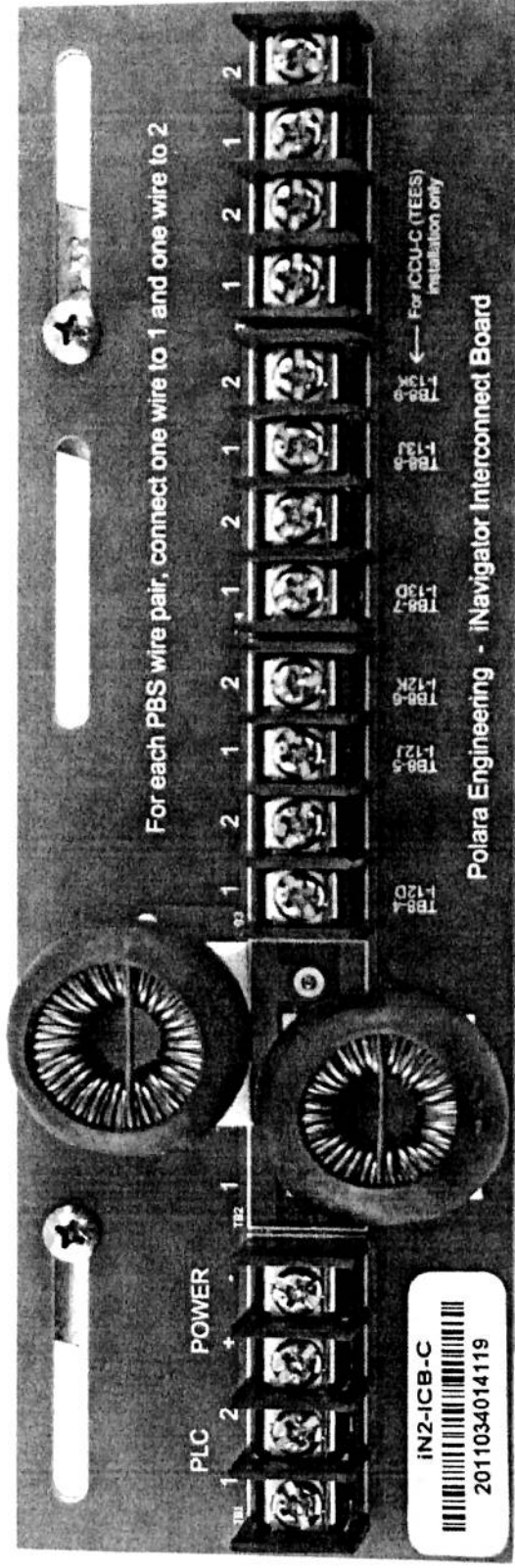
Dimensions are in inches.

iN2-ICB-C: Interconnect Board for iCCU-C & iCCU-C2

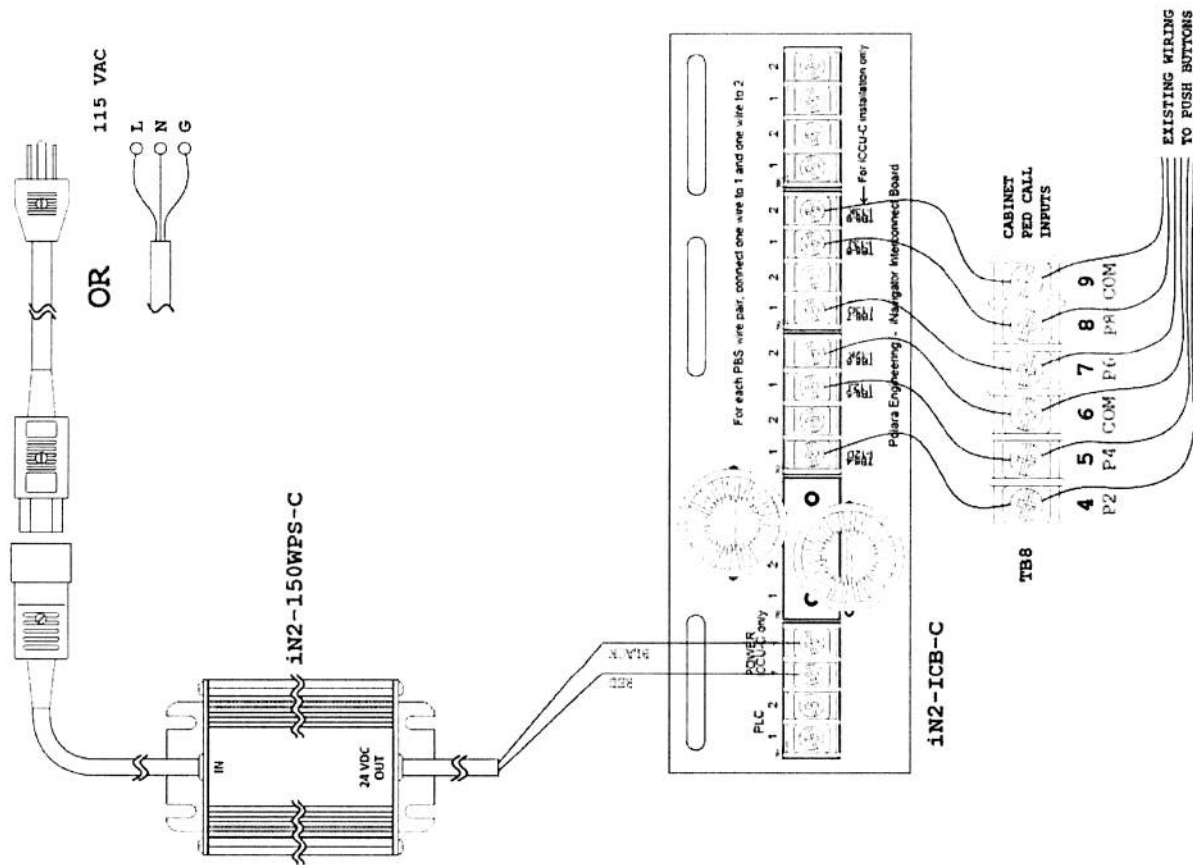
This Interconnect Board and Power Supply (purchased separately, PN iN2-150WPS-C) is required for landing of intersection/field button wires when an iCCU-C/iCCU-C2 Control Unit is used. Allows for connection of up to 16 iN2/iNS2 push button stations. The Power Supply connects to the Interconnect Board and provides the necessary additional power to operate the push button stations.

The part number for ordering the interconnect board is iN2-ICB-C.

The part number for ordering the power supply is iN2-150WPS-C.



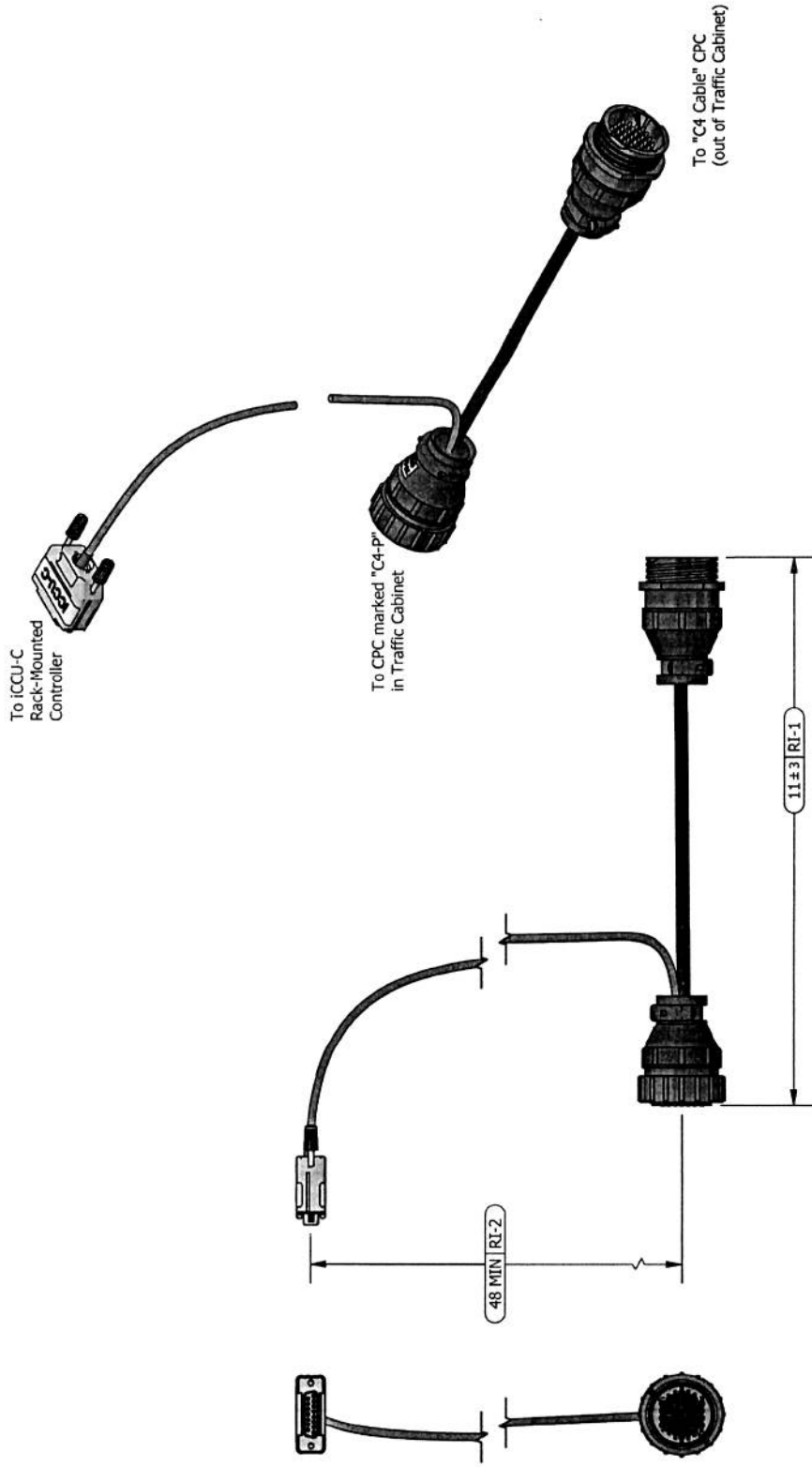
Dimensions are in inches.



Dimensions are in inches.

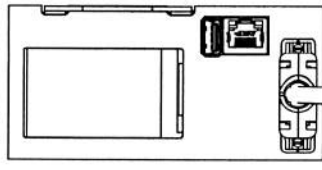
Doc. IN2-ICB-C-CutSheet Rev. A 03/17/17

iN2-C4-CABLE-C: This cable is used to interface the iCCU-C2 to a 300 series traffic cabinet. The C4 cable connects between the existing C4 socket and C4 plug in the cabinet and routes the low voltage load switch outputs to the front of the iCCU-C2.



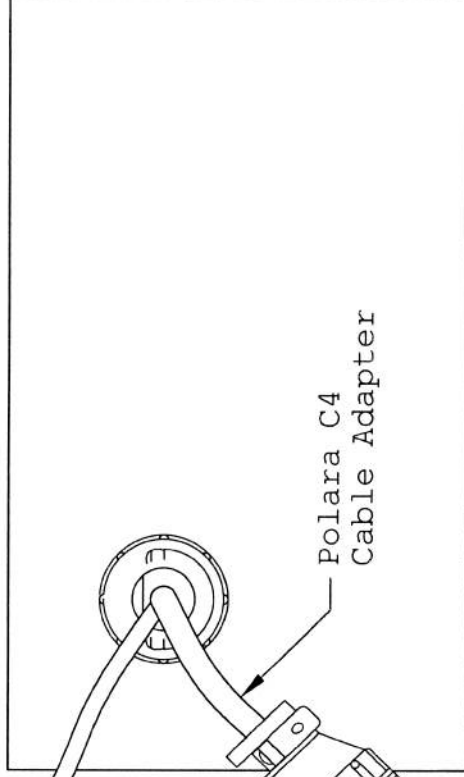
Dimensions are in inches.

iCCU-C



Locate in Cabinet Input File
at I-12/I-13

Cabinet Output File - Rear



Polara C4
Cable Adapter

Cabinet
C4 Cable

Dimensions are in inches.

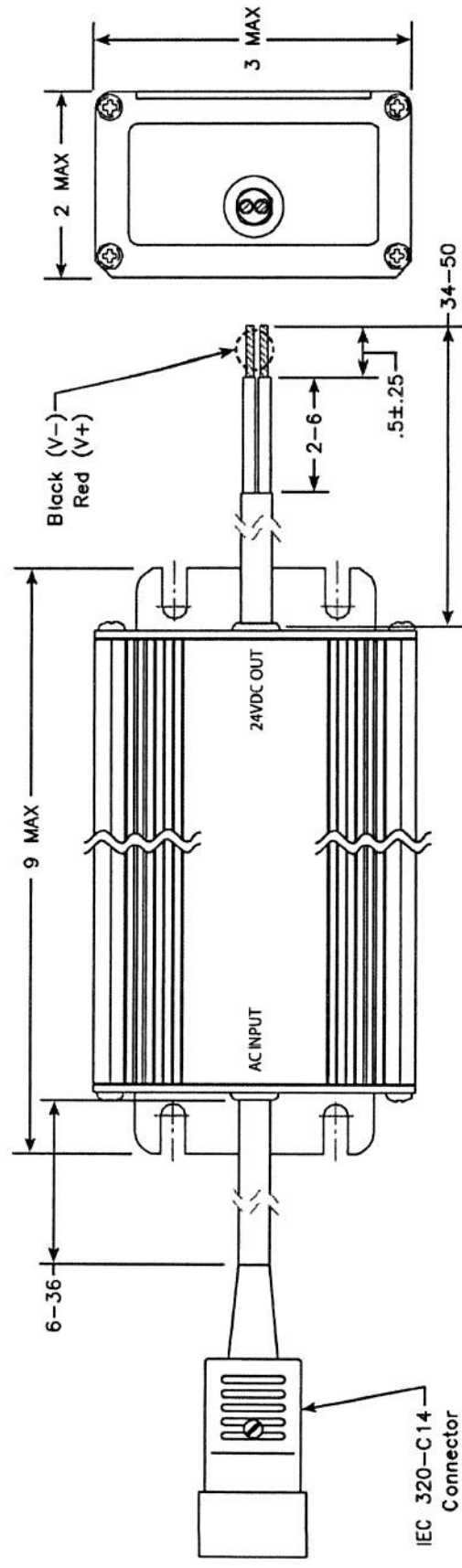
iN2-150WPS-C: This power supply is used in conjunction with the iN2-ICB-C interconnect board to power 2 Wire iNavigators connected to an iCCU-C2.

Mechanical Specifications:

- Supply's enclosure is rated for IP67 or greater protection from ingress of water and dust.
- Overall dimensions of the enclosure, excluding cabling, does not exceed 9" long x 3" wide x 2" tall.

Electrical Specifications:

- Input/Output Isolation meets or exceeds 2500 VDC
- Nominal power supply rating of 150W
- Input supply range of 90 to 130 VAC
- Input Frequency 50/60Hz +/- 2 Hz
- NEMA operating temperature range of -34 C to +74 C
- Supply output is 24 VDC +/- 2 V over operating temperature range
- CE/UL Certified
- Short Circuit/Overcurrent Protection



Dimensions are in inches.

Custom Voice Message/Braille Detail Sheets - for Polara to record & load into ordered Push Buttons

No charge if ordered Online - End User to load into Push Buttons via Bluetooth - go to www.polara.com/audio-library

(Please fill out applicable fields in TYPED format. Only TYPED forms will be accepted.)

Voice on Location (VOL) and Walk Message & Braille

Reset VM/Braille Sheets

Please give phonetic pronunciation for voice messages on difficult street names to ensure they are recorded properly. Note that unless Street, Drive, Avenue, etc. are necessary for intersection identification, it is recommended to omit them.

Qty

VOL: **Wait to Cross** at **Wait**
(Street Being Crossed) (Intersecting Street)

Walk Message: **Walk sign is on to cross**
(Street Being Crossed) (Street Being Crossed)

Arrow Direction (R/L) Street Name Being Crossed in BRAILLE
 - Braille Only - Custom Text Only - Braille & Cust. Text

Qty

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