

## CITY OF OLATHE PRICE AGREEMENT

THIS AGREEMENT is made in Johnson County, Kansas, by and between the City of Olathe, Kansas, hereinafter "City," and Traffic Signal Controls, Inc., hereinafter "Vendor" (each individually a "Party" and collectively, the "Parties"). City needs traffic signal supplies, and contracts with Vendor to supply the goods or services described in **Exhibit A**, as needed and as requested by City.

**1. PRICE AGREEMENT, ORDERS, AND TERM.** City agrees to pay Vendor at the prices listed in **Exhibit A** to supply the goods or services described in **Exhibit A**, as needed and as requested by City. City will have no financial obligation under this Agreement until an order has been placed. Any order placed under this Agreement remains subject to any applicable procurement policies of City, including approval by the appropriate authority based on the dollar amount of the order. Any order placed pursuant to this Agreement is subject to all terms and provisions of this Agreement. This contract will be a three (3)-year contract with the option to renew for up to two (2) additional one (1)-year periods upon the written agreement of both parties. The parties may agree to update the price list in **Exhibit A** to add, drop, or adjust pricing without any other amendment of this Agreement, provided that the updated price list: a) is in writing and references this agreement; b) contains an effective date; and c) is signed by both parties.

**2. ADDITIONAL SERVICES.** Vendor may provide services in addition to those listed **Exhibit A** when authorized in writing by City.

**3. BILLING.** Vendor may bill City monthly for all completed work and reimbursable expenses. Vendor must submit a bill which itemizes the work and reimbursable expenses. City agrees to pay Vendor within thirty (30) days of approval by the Governing Body or other agent of City in accordance with the City's Procurement Policy. The bill must be mailed to the attention of Account Payable, City of Olathe, PO Box 768, Olathe, KS 66051-0768 or emailed to [apolathe@olatheks.org](mailto:apolathe@olatheks.org). The bill must indicate it is for work or expenses under this Agreement (include Agreement date for identification).

**4. PAYMENT.** If City becomes credibly informed that any representations of Vendor provided in its billing are wholly or partially inaccurate, City may withhold payment of sums then or in the future due to Vendor until the inaccuracy and the cause thereof is corrected to City's reasonable satisfaction.

**5. STANDARD OF CARE.** Vendor will exercise the same degree of care, skill, and diligence in the performance of the work as is ordinarily possessed and exercised by a professional under similar circumstances. If Vendor fails to meet the foregoing standard, Vendor will perform at its own cost, and without reimbursement, any work necessary to correct errors and omissions which are caused by Vendor's negligence.

**6. TERMINATION FOR CONVENIENCE.** City may terminate this Agreement for convenience by providing fifteen (15) days' written notice to Vendor. City will compensate Vendor for all work completed and accepted and reimbursable expenses incurred to the date of its receipt of the termination notice. Compensation will not include anticipatory profit or consequential damages, neither of which will be allowed.

**7. TERMINATION FOR LACK OF FUNDS.** If, for whatever reason, adequate funding is not

made available by City to support or justify continuation of the level of work to be provided by Vendor under this Agreement, City may terminate or reduce the amount of work to be provided by Vendor under this Agreement. In such event, City will notify Vendor in writing at least thirty (30) days in advance of such termination or reduction of work for lack of funds.

**8. DISPUTE RESOLUTION.** The Parties agree that disputes regarding the work will first be addressed by negotiations between the Parties. If negotiations fail to resolve the dispute, the Party initiating the claim that is the basis for the dispute may take such steps as it deems necessary to protect its interests. Notwithstanding any such dispute, Vendor will proceed with undisputed work as if no dispute existed, and City will continue to pay for Vendor's completed undisputed work. No dispute will be submitted to arbitration without both Parties' written approval.

**9. SUBCONTRACTING.** Vendor may not subcontract or assign any of the work to be performed under this Agreement without first obtaining the written approval of City. Unless stated in the written approval to an assignment, no assignment will release or discharge Vendor from any obligation under this Agreement. Any person or entity providing subcontracted work under this Agreement must comply with **Section 11 (Insurance)**.

**10. OWNERSHIP OF DOCUMENTS.** All final documents provided to City as part of the work provided under this Agreement, including but not limited to reports, plans, and related documents, will become City's property except that Vendor's copyrighted documents will remain owned by Vendor. Such documents must be clearly marked and identified as copyrighted by Vendor.

**11. INSURANCE.** Vendor and any subcontractor will maintain for the term of this Agreement insurance as provided in **Exhibit B**. Vendor will provide certificates of insurance and renewals thereof on forms acceptable to City and in the manner specified in **Exhibit B**.

**12. INDEMNIFICATION AND HOLD HARMLESS.** For purposes of this Agreement, subject to the Kansas Tort Claims Act, K.S.A. 75-6101 *et seq.*, Vendor agrees to indemnify, defend, and hold harmless City, its officers, appointees, employees, and agents from any and all loss, damage, liability or expense, of any nature whatsoever caused or incurred as a result of the negligence or other actionable fault of Vendor, its affiliates, subsidiaries, employees, agents, assignees, and subcontractors and their respective employees and agents. Vendor is not required hereunder to defend City, its officers, appointees, employees, or agents from assertions that they were negligent, nor to indemnify and hold them harmless from liability based on City's negligence. City does not indemnify Vendor.

**13. LIMITATION OF LIABILITY FOR BREACH OF CONTRACT OR NEGLIGENT PERFORMANCE.** Any attempt to limit liability for breach of contract or negligent performance to the amount of the payment to Vendor by City is void. Any attempt to limit Vendor's liability to City for consequential, exemplary, or punitive damages, or any other measure of damages permitted by law, in any action against Vendor for breach of contract is void.

**14. KANSAS ACT AGAINST DISCRIMINATION.** *Unless* Vendor employs fewer than four (4) employees during the term of this Agreement, or *unless* the total of all agreements (including this Agreement) between Vendor and City during a calendar year are cumulatively less than \$5,000, *then* during the performance of this Agreement, Vendor agrees that:

- a. Vendor will observe the provisions of the Kansas Act Against Discrimination (K.S.A. 44-1001 *et seq.*) and will not discriminate against any person in the performance of work under the present contract because of race, religion, color, sex, disability, national origin, or ancestry;
- b. in all solicitations or advertisements for employees, Vendor will include the phrase, "equal opportunity employer," or a similar phrase to be approved by the Kansas Human Rights Commission ("commission");
- c. if Vendor fails to comply with the way Vendor reports to the commission in accordance with the provisions of K.S.A. 44-1031 and amendments thereto, Vendor will be deemed to have breached the present contract and it may be canceled, terminated, or suspended, in whole or in part, by City without penalty;
- d. if Vendor is found guilty of a violation of the Kansas Act Against Discrimination under a decision or order of the commission which has become final, Vendor will be deemed to have breached the present contract and it may be canceled, terminated, or suspended, in whole or in part, by the contracting agency; and
- e. Vendor will include the provisions of subsections a. through d. in every subcontract or purchase order so that such provisions will be binding upon such subcontractor or vendor.

**15. KANSAS OPEN RECORDS ACT.** Vendor acknowledges that City is subject to the Kansas Open Records Act (K.S.A. 45-215, *et seq.*). City retains the final authority to determine whether it must disclose any document or other record under the Kansas Open Records Act and the manner in which such document or other record should be disclosed.

**16. ENTIRE AGREEMENT.** This Agreement, including all documents and exhibits included by reference herein, constitutes the entire Agreement between the Parties and supersedes all prior agreements, whether oral or written, covering the same subject matter. This Agreement may not be modified or amended except in writing mutually agreed to by both Parties. No form or document provided by Vendor after execution of this Agreement will modify this Agreement, even if signed by both Parties, unless it: 1) identifies the specific section number and section title of this Agreement that is being modified and 2) indicates the specific changes being made to the language contained in this Agreement.

**17. NO THIRD-PARTY BENEFICIARIES.** Nothing contained herein will create a contractual relationship with, or any rights in favor of, any Third Party.

**18. INDEPENDENT CONTRACTOR STATUS.** Vendor is an independent contractor and not an agent or employee of City.

**19. COMPLIANCE WITH LAWS.** Vendor will abide by all applicable federal, state, and local laws, ordinances, and regulations.

**20. FORCE MAJEURE CLAUSE.** Neither Party will be considered in default under this Contract because of any delays in performance of obligations hereunder due to causes beyond the control and without fault or negligence on the part of the delayed Party, including but not restricted to, an act of God or of a public enemy, civil unrest, volcano, earthquake, fire, flood, tornado, epidemic, quarantine restrictions, area-wide strike, freight embargo, unusually severe

weather or delay of subcontractor or supplies due to such cause; provided that the delayed Party must notify the other Party in writing of the cause of delay and its probable extent within ten (10) days from the beginning of such delay. Such notification will not be the basis for a claim for additional compensation. The delayed Party must make all reasonable efforts to remove or eliminate the cause of delay and must, upon cessation of the cause, diligently pursue performance of its obligation under the Agreement.

**21. APPLICABLE LAW, JURISDICTION, VENUE.** Interpretation of this Agreement and disputes arising out of or related to this Agreement will be subject to and governed by the laws of the State of Kansas, excluding Kansas' choice-of-law principles. Jurisdiction and venue for any suit arising out of or related to this Agreement will be in the District Court of Johnson County, Kansas.

**22. SEVERABILITY.** If any provision of this Agreement is determined to be void, invalid, unenforceable, or illegal for whatever reason, such provision(s) will be null and void; provided, however, that the remaining provisions of this Agreement will be unaffected and will continue to be valid and enforceable.

**23. ORDER OF PRECEDENCE.** If there is any conflict between the terms of this Agreement, excluding exhibits, and anything contained in the exhibits referenced herein or attached hereto, the terms and provisions of this Agreement, excluding exhibits, shall control.

***[The remainder of this page is intentionally left blank.]***

The Parties hereto have caused this Agreement to be executed this \_\_\_\_ day of

\_\_\_\_\_ 20\_\_.

**CITY OF OLATHE, KANSAS**


By: \_\_\_\_\_  
Mayor

ATTEST:

\_\_\_\_\_  
City Clerk

(SEAL)

APPROVED AS TO FORM:

  
\_\_\_\_\_  
City Attorney or Deputy/Assistant City Attorney

Traffic Signal Controls, Inc.

By:   
Walter C. Towle, President  
(INSERT NAME & TITLE)  
255 Weaver Park Rd., Suite 100  
Longmont, CO 80501

**Exhibit A**  
**Vendor's Proposal**

#	Item	Description	Unit	Unit Price
#0-1	TraffiCalm RRFB	Controller, TraffiCalm, Sign, 20 watt DC power / w communication, 10 ah battery, w/solar panel	each	\$ 1,413.00
#0-2	TraffiCalm RRFB	Collaborator, TraffiCalm, Sign, 20 watt DC power / w communication, 10 ah battery, w/solar panel	each	\$ 1,343.00
#0-3	TraffiCalm RRFB	Controller, TraffiCalm, Sign, 30 watt DC power / w communication, 10 ah battery, w/solar panel	each	\$ 1,469.00
#0-4	TraffiCalm RRFB	Collaborator, TraffiCalm, Sign, 30 watt DC power / w communication, 10 ah battery, w/solar panel	each	\$ 1,554.00
#0-5	TraffiCalm RRFB	APS Push Button w/9x12 Frame & Sign, Polara iNX, yellow	each	\$ 1,436.00
#0-6	TraffiCalm RRFB	36" LED Flashing Ring with Pedestrian Sign, yellow or flourscent yellow green	each	\$ 707.00
#0-7	TraffiCalm RRFB	Rectangular Rapid Flashing Beacon, amber	each	\$ 559.00
#0-8	McCain	Flex Controller, Rack Mount, C1 Connector, with Omni Software	each	\$ 4,100.00
#0-9	EDI	2018 KCLIP Conflict Monitor	each	\$ 1,121.00
#0-10	Hesco	Surge Protector, AC, 15amp, HE1750 w/base	each	\$ 166.00
#0-11	Clary	Battery System, 72v 41ahr, set of six	each	\$ 1,460.00
#0-12	Clary	Battery Backup Unit, SP1250 LX, w/6 battery, 302C SNMP, no battery drawer	each	\$ 6,475.00
#0-13	McCain	8" Aluminum Riser for 332D, Natural Aluminum Finish	each	\$ 495.00
#0-14	McCain	Double Door Cabinet (332D), Natural Aluminum Finish, LED Lights, No Controller, Aux. Output File, AS Jumper 15 Pin Connection, Hesco HE1750 w/base AC 15amp, (3) Model 242 DC Isolators, (2) Model 204	each	\$ 15,045.00
#0-15	McCain	Single Door Cabinet (332), CDOT Spec. 2018, Natural Aluminum Finish, LED Lights, No Controller, (3) Model 242 DC Isolators, (2) Model 204 Flashers Cube type, (12) Loadswitch I/O LED's, (1) EDI	each	\$ 13,070.00
#0-16	RTC	Time Clock AP22 Quick Connect Time Switch	each	\$ 584.00
#0-17	RTC	DC Guardian Board w/3 way wiring harness only	each	\$ 480.00
#0-18	RTC	AC School Beacon Assy, Incl. cabinet & panel, with Guardian board, NEMA Flasher, 4.5", U-bolt mount 14x16x10", #2 Lock, AP22 Time Switch without harness, Modem with cable, mount, and paddle antenna, S5-1 sign, (2) 1 sect 12" yellow poly with yellow ball, tunnel visor, side of post universal hub plates, (2) sign clamp, u-bolt 4" (4-1/2" ODPipe, set of 2 alum., Anchor bolt set of (4), Pelco dbl nut, dbl	each	\$ 4,380.00

#0-19	RTC	DC School Beacon Assy, Incl. cabinet & panel, with Guardian board NEMA Flasher,4.5", U-bolt mount 14x16x10", #2 Lock, AP22 Time Switch without harness, Modem with cable, mount, and paddle antenna, S5-1 sign, (2) 1 sect 12" yellow poly with yellow ball, tunnel visor, side of post universal hub plates, (2) sign clamp, u-bolt 4" (4-1/2" ODPipe, set of 2 alum., Anchor bolt set of (4), Pelco dbl nut, dbl washer 3/4"-10"x18"x3", Pelco Pole 15' 4" threaded toe 4-1/2" OD,	Each	\$ 5,660.00
#0-20	RTC	AC Cabinet including Panel, NEMA Flasher, #2 Lock, 4.5", Ubolt mount 14x16x10"	each	\$ 1,060.00
#0-21	RTC	AC Cabinet including Panel, w/Guardian, NEMA Flasher, #2 Lock, 4.5", Ubolt mount 14x16x10"	each	\$ 1,515.00
#0-22	RTC	DC One Battery Cabinet including Panel, #2 Lock, Regulator, 4.5", Ubolt Mount 18 x 17 x 14"	each	\$ 1,340.00
#0-23	RTC	DC One Battery Cabinet including Panel, w/Guardian, #2 Lock, Regulator, 4.5", Ubolt Mount 18 x 17 x 14"	each	\$ 1,780.00
#0-24	RTC	DC Single Sided RRFB Assembly (Set), Cabinet w/panel, Polara iNX APS Pushbutton, 100w Solar Panel, Single RRFB w/confirmation light (Ubolt mount), (2) Symbol Signs, Yellow or Flourescent Yellow Green W11-2 or S1-1 36" Signage, 1-Left / 1-Right Oblique Arrow, Yellow or Flourescent Yellow Green W16-7P 30x18, Anchor bolt set of (4), Pelco	Each	\$ 12,682.00
#0-25	RTC	DC Double Sided RRFB Assembly (Set), Cabinet w/panel, Polara iNX APS Pushbutton, 100w Solar Panel, Back to Back RRFB's w/confirmation light (Ubolt mount), (4) Symbol Signs, Yellow or Flourescent Yellow Green W11-2 or S1-1 36" Signage, 2-Left / 2-Right Oblique Arrow, Yellow or Flourescent Yellow Green W16-7P 30x18, Anchor bolt set of (4), Pelco dbl nut, dbl washer 3/4"-10"x18"x3",	Each	\$ 13,940.00



Procurement Division  
PO Box 768  
Olathe, KS 66051-0768

## **INVITATION FOR BID**

### **Traffic Signal Supplies**

Date of Issuance: March 3, 2026      Bid Number: IFB-26-0018

Response Deadline Date: April 3, 2026      Time: 10:00 A.M. (CST)

Questions regarding this invitation should be directed to <https://olatheks.bonfirehub.com/>  
**The deadline for receipt of questions from bidders is close of business on March 30, 2026**

City of Olathe  
Traffic Light Supplies  
IFB-26-0018

#### **INTENT**

The purpose of this Invitation for Bids (IFB) is to establish a contract for the purchase of traffic signal supplies on an as-needed basis for the City of Olathe Traffic Division. These materials are essential to the installation, maintenance, repair, and ongoing operation of the City's traffic signal infrastructure. The resulting contract will help ensure the Traffic Division can respond efficiently to routine maintenance needs, emergency repairs, and system upgrades in support of public safety and traffic mobility throughout the community.

#### **RESPONSE DOCUMENTS**

The following documents must be downloaded, completed, and uploaded to <https://olatheks.bonfirehub.com/> to provide a complete bid response package:

- Affidavit signed and notarized.
- IFB document, all response fields completed.
- Warranty information

#### **INQUIRIES**

Questions regarding this Invitation for Bid must be submitted to <https://olatheks.bonfirehub.com/>. **The deadline for receipt of questions from bidders is March 30, 2026 at 5:00 PM (CT).** No further questions or clarifications will be provided after that date.

**No communication regarding this IFB should be directed to any other City official or employee. All queries will be responded to <https://olatheks.bonfirehub.com/> in the form of written addenda and posted.**

Respondents shall include confirmation of the receipt of any addenda with their bids. Failure to do so could result in your bid being deemed non-responsive.

#### **EVALUATION CRITERIA**

The award will be made to the lowest most responsive and responsible bidder, which will be judged based on price, conformance to specifications, experience providing like work, proposed completion time, past vendor performance, quality of product, payment terms, references, and in the best interest of the City of Olathe, all factors being considered. The City reserves the right to award this bid in whole or in part.

#### **PRICING**

**Bidder proposes to furnish and deliver items ordered from this bid F.O.B. Olathe, Kansas. Pricing shall include all travel, shipping, freight, surcharges, and handling costs.** Bidder signifies that they have read all bid documents and are providing detailed, expressed warranties with this bid. It shall be unacceptable for any bidder to make the statement "see specifications" instead of listing all exceptions and additions in the specifications of this bid documents.

Bidders shall enter unit pricing on <https://olatheks.bonfirehub.com/> where indicated. Failure to provide any requested information may result in rejection of your bid.

#### **STANDARD FEATURES**

All equipment furnished under this contract shall be new, unused, and the manufacturer's current production model. The omission of any standard feature description shall not relieve the bidder from the responsibility of furnishing equipment complete with all standard features of the manufacturer's latest improved model in current production as offered to commercial trade. The equipment shall conform in strength, quality of material, and workmanship to that provided by the best manufacturing and engineering practices of the industry. Machine modifications to meet operational requirements of this specification shall be limited to the manufacturer published standard and optional equipment. USED, SHOPWORN, DEMONSTRATOR, PROTOTYPE, REMANUFACTURED, RECONDITIONED, OR DISCONTINUED MODELS ARE NOT ACCEPTABLE.

#### **DESCRIPTIVE LITERATURE**

Bidder shall submit with your bid the latest printed literature, PDF or equal, and manufacturer's specifications on the equipment you propose to furnish. This literature is for information purposes only. It does not relieve the bidders of the responsibility to respond to the specifications indicated herein.

City of Olathe  
Traffic Light Supplies  
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**DELIVERY**

Delivery shall be made F.O.B Destination to the City's Traffic Division Facility, 309 N. Rogers Rd., Olathe, Kansas 66062. Contact Artie Santisteban at 913-971-5103 to coordinate delivery. **Include freight, handling charges, and surcharges for delivery in your pricing.** The awarded vendor must notify Judy Leighton 913-971-5183 or Artie Santisteban 913-971-5103 at least 24 hours prior to delivery. If shipments must be refused or delayed because a 24-hour notice was not given, the charges to redeliver the items will be the responsibility of the vendor.

If products must be returned to vendor because they do not meet specifications, vendor shall be responsible for picking up and redelivering new product at no additional cost to the City after all corrections are made.

Delivery of equipment after receipt of order in calendar days: Stock to 180 Days

Bidder agrees to delivery requirements as stated herein:  Yes  No

Exceptions None

**DELIVERY CONDITION**

The unit shall be completely serviced and adjusted, and all equipment including standard and supplemental equipment, shall be installed and the units made ready for continuous operation. All parts not specifically mentioned which are necessary for the unit to be complete and ready for operation, or which are normally furnished as standard equipment, shall be furnished by the successful vendor. All parts shall conform in strength, quality and workmanship to the accepted standards of the industry.

**WARRANTY**

The City requires a minimum one-year warranty on all equipment. If the manufacturer's warranty exceeds this warranty, then the manufacturer's warranty shall be in effect. The warranty shall begin on the date the unit is determined to meet specifications and is accepted by the City. A copy of the manufacturer's warranty must be included with your bid submittal. All warranty work shall be done locally. Failure to provide this information may result in the rejection of your bid.

Comply: Yes Exception: None

**EXTENDED WARRANTIES**

Bidders are required to include details and pricing on all available extended warranties with their bid submittal.

Comply: Yes Exception: None

**MANUFACTURER'S CERTIFICATION**

The City reserves the right to request from vendors a separate manufacturer certification of all statements made in the bid. Failure to provide such certification may result in the rejection of your bid or default termination of contract for which vendor must bear full liability.

**CONTRACT TERM**

The term of this contract will be for three (3) years from date of award with the option to renew for additional one (1) year terms. Prices quoted must be firm for an initial (12) month period. If funds are no longer available to support continuation of the contract, the contract shall be cancelled at the discretion of the City.

**CITY ORDINANCE #3.50.140 - LOCAL PREFERENCE STANDARDS**

For supplies, materials, and equipment acquired through bids, where an award is to be made to the lowest responsive and responsible bidder, a bid from a local business may be selected over the lowest responsive and responsible bid only if:

- A. The bid from the local business is responsive and responsible;
- B. The quality, suitability, and usability of the supplies, materials, and/or equipment are equal to that of the lowest responsive bidder; and
- C. The amount of the bid of the local business does not vary more than two percent (2%) and does not exceed Five Thousand Dollars (\$5,000) above the amount of the lowest responsible bid. Such variance shall be calculated based on the total contract price.

The local preference described in this Section shall not apply to bids in which federal funds or other governmental funds are used when the use of such funds prohibits the application of local preference policies.

## INVOICING

All invoices submitted for payment must be itemized to include a detailed breakdown of all items, name of person who placed order, location of work to be performed and work order number and equipment unit number. Invoices must not exceed original estimate unless prior authorization has been given by the department supervisor or their designee. The invoice shall be mailed to the attention of Accounts Payable, PO Box 768, Olathe KS 66051-0768 or emailed to: [apolathe@olatheks.org](mailto:apolathe@olatheks.org)

**INVOICES MUST BE SUBMITTED TO [APOLATHE@OLATHEKS.ORG](mailto:APOLATHE@OLATHEKS.ORG) WITHIN 30 DAYS OF COMPLETED WORK. Failure to submit invoices in a timely manner may result in payments being delayed.**

## PAYMENT TERMS

The City of Olathe will only accept payment terms of Net 30 days.

Will your company accept the City's VISA P-Card for payment without additional cost? Yes Yes No: \_\_\_\_\_

## INDEMNITY

Loss: For purposes of indemnification requirements, the term "Loss" means any and all loss, damage, liability or expense, of any nature whatsoever, whether incurred as a judgment, settlement, penalty, fine or otherwise (including attorney's fees and the cost of defense), in connection with any action, proceeding, demand or claim for injury, including death, to any person or persons or damages to or loss of, or loss of the use of, property of any person, firm, or corporation, including the parties hereto, which arise out of or are connected with the performance of this Agreement.

Indemnification and Hold Harmless: For purposes of this Agreement, Consultant agrees to indemnify, defend, and hold harmless City and its agents from any and all Loss where Loss is caused or incurred as a result of intentional misconduct, recklessness, negligence, or other actionable faults of Consultant or its subcontractors.

Comply: Yes Exception: None

## BID ITEMS

The following items shall be furnished on an as-needed basis for the City of Olathe Traffic Division. All equipment shall be new and meet manufacturer specifications.

1. TrafficCalm Controller, 20W DC, communication, 10 AH battery, solar panel.
2. TrafficCalm Collaborator, 20W DC, communication, 10 AH battery, solar panel.
3. TrafficCalm Controller, 30W DC, communication, 10 AH battery, solar panel.
4. TrafficCalm Collaborator, 30W DC, communication, 10 AH battery, solar panel.
5. Polara iNX APS Push Button with 9" x 12" frame/sign, yellow.
6. 36" LED flashing ring with pedestrian sign, yellow or fluorescent yellow-green.
7. Rectangular Rapid Flashing Beacon (RRFB), amber.
8. Flex Controller, rack mount, C1 connector, Omni software.
9. EDI 2018 KCLIP Conflict Monitor.
10. HE1750 AC Surge Protector, 15 amp, with base.
11. 72V 41 AH Battery System (set of six).
12. SP1250 LX Battery Backup Unit, six batteries, 302C SNMP (no drawer).
13. 8" Aluminum Riser for 332D cabinet, natural finish.
14. 332D Double-Door Cabinet, natural aluminum, LED lights, aux output file, 15-pin jumper, HE1750 (15A), (3) DC isolators, (2) flashers, (12) load switches, EDI 2018KCLIP (Type 170/2070).
15. 332 Single-Door Cabinet, CDOT 2018 spec, natural aluminum, LED lights, (3) DC isolators, (2) flashers, (12) load switches, EDI 2018KCLIP (Type 170/2070).
16. AP22 Quick Connect Time Switch.
17. DC Guardian Board with 3-way harness.
18. AC School Beacon Assembly: cabinet, Guardian board, NEMA flasher, AP22 time switch, modem, S5-1 sign, dual 12" yellow sections, mounting hardware, Pelco 15' pole assembly.
19. DC School Beacon Assembly: cabinet, Guardian board, NEMA flasher, AP22 time switch, modem, S5-1 sign, dual 12" yellow sections, mounting hardware, Pelco 15' pole assembly, 100W solar panel, 104 AH battery.

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20. AC Cabinet with panel, NEMA flasher, #2 lock, U-bolt mount (14" x 16" x 10").
21. AC Cabinet with panel and Guardian board, NEMA flasher, #2 lock, U-bolt mount (14" x 16" x 10").
22. DC One-Battery Cabinet with panel, regulator, #2 lock, U-bolt mount (18" x 17" x 14").
23. DC One-Battery Cabinet with panel and Guardian board, regulator, #2 lock, U-bolt mount (18" x 17" x 14").
24. DC Single-Sided RRFB Assembly (Set): cabinet, Polara iNX APS, 100W solar, single RRFB w/confirmation light, (2) 36" W11-2 or S1-1 signs, (1) left and (1) right W16-7P arrows, Pelco 15' pole assembly, 105 AH battery.
25. DC Double-Sided RRFB Assembly (Set): cabinet, Polara iNX APS, 100W solar, back-to-back RRFBs w/confirmation lights, (4) 36" W11-2 or S1-1 signs, (2) left and (2) right W16-7P arrows, Pelco 15' pole assembly, 105 AH battery.
26. ATC 2070LX Controller with 1C Module and Data Key (software not included).
27. 1C Module with Data Key for 2070 (software not included).
28. ATC 2070LX Controller without 1C Module (software not included).
29. 332D Controller Cabinet Assembly with 16 load switches, 8 transfer relays, 2 flashers, 4 DC isolators, EDI 2018 KCLIP (BBU, controller, and switch not included).

**ATTACHMENTS**

<b>Attachment Letter</b>		<b>Return</b>	<b>Read Only</b>
A	Vendor Response Form	x	
B	City of Olathe Terms and Conditions	x	
C	Sample Contract and Insurance Exceptions	x	
D	Cooperative Purchasing	x	
E	Affidavit	x	



## Traffic Controller and Cabinet Warranty

McCain controllers and cabinets are covered by a (2) two year limited warranty from the date of purchase. McCain warrants its products to be free of defects in workmanship and/or material. McCain will repair or replace any units found to be defective within the first (24) twenty-four months from the date of delivery.

McCain's warranty will cover full replacement of defective products for the first (12) twelve months. After the first (12) twelve months it is up to McCain's discretion whether the material will be replaced or repaired at no cost to the customer.

Before returning any products, the customer must call their McCain Representative or Account Manager @ 760-727-8100. The McCain representative will at that time record the date, description of problem, issue the RMA #, and then make the appropriate arrangements for the return of the product. The purchaser must prepay all freight, insurance and other transportation charges to send the product to McCain for warranty-coverage verification, repair or replacement, and, if found to be defective, McCain will return replacement / repaired product to the purchaser freight paid. McCain retains all replaced parts or products.

This warranty does not cover (1) product advice or assistance that McCain furnishes as a courtesy, (2) removal or reinstallation of products, (3) defects or damage as a result of accident, modification, misuse, improper service or repair, abuse or abnormal use including, without limitation, improper storage and incorrect installation, (4) acts of God or nature, exposure to casualty of elements. In all such cases the warranty is immediately null and void.

In no event shall this warranty run to OEM or component part buyers. All replacement products are warranted only for the remainder of the original warranty of the product replaced. Replacement products will be equivalent in function, but not necessarily identical to the replaced product.

This warranty is exclusive of all other warranties, expressed or implied, and McCain hereby specifically disclaims all other warranty claims of any type; including without limitation, a warranty of merchantability of any unit or its fitness for any particular use or purpose. In no event shall McCain be liable for interruption of business loss, profits or indirect or consequential damages, injury to person or damage to property from any cause whatsoever.

© McCain Inc. Updated 04/22/09. McCain reserves the right to change product warranties without notice.  
For the most up-to-date information, please contact McCain

Phone 760-727-8100

Fax 760-727-8184

[www.mccain-inc.com](http://www.mccain-inc.com)

2365 Oak Ridge Way // Vista, California 92081 // USA



## Limited Warranty

HESCO/RLS warrants its' products to be free from defects in workmanship and materials for a period of five years from the date of delivery to the purchaser buying direct from HESCO/RLS.

This warranty includes, but is not limited to those products manufactured to specification supplied to us by the purchaser. Any defects appearing more than five years from the date of delivery to the purchaser, shall be deemed due to ordinary wear and tear.

HESCO/RLS assumes no risk or liability for the suitability/unsuitability or results of the use of its' products in combination with any electrical or electronic components, circuits, systems, assemblies, or any other material substances, or environments. The purchaser's right under this warranty shall consist solely of requiring HESCO/RLS to repair, or in HESCO/RLS' sole discretion, replace free of charge, FOB factory, any defective items received at its' factory within said year, as determined by HESCO/RLS to be defective.

All products to be returned to HESCO/RLS for evaluation under this warranty, shall first receive a Return Authorization Number from our sales department. All products shipped to HESCO/RLS without written authorization shall be returned at the sender's expense.

Failure to give or in the giving of any advice or recommendations by HESCO/RLS shall not constitute any warranty by, or impose any liability upon HESCO/RLS. The sole and exclusive remedy of the purchaser and the exclusive liability of HESCO/RLS is outlined and stated above and is in statutory as to merchantability, fitness for purpose sold, description, quality, productiveness, or any other matter.

In no event shall HESCO/RLS be liable for consequential or special damages, or for the delay in the performance of this warranty.

## WARRANTY

**General:** All statements, technical information and recommendations contained in Pelco Product Brochures and Bulletins are based on tests Pelco believes to be reliable. However, the accuracy or completeness thereof is not guaranteed and the following is made in lieu of all warranties, expressed or implied:

**Limited Warranty:** Pelco's only obligations shall be to replace such quantity of the product proven to be defective.

Repair or replacement of any product will be made at Pelco's facilities. The extent of repair or replacement is at Pelco's discretion. Transportation to and from Pelco's facilities is the responsibility of the buyer.

Pelco shall not be liable for injury, loss or damage direct or consequential arising out of the use of, or the inability to use the product. Before using, user shall determine the suitability of the product for his intended use, and assumes all risk and liability whatsoever in connection therewith. No statement or recommendation not contained herein shall have any effect unless in an agreement signed by the officers of Pelco Products Inc.

**Warranty Period:** Unless otherwise noted, standard product warranty is 12 months from date of shipment.

Contact Pelco for complete warranty details and exclusions.

# Flashing Signs Warranty Statement

TraffiCalm Systems provides the following warranty for its traffic calming solutions whether sold directly by TraffiCalm or by an authorized TraffiCalm distribution partner.

- TraffiCalm Systems warrants this product, excluding batteries, will be free of defect in materials and workmanship for a period of five years beginning on the day the end user receives the product. Batteries shall be warranted for 1 year.  
Warranty is only valid if the product is ineffective for its intended purpose due to defects in materials or workmanship.
- Warranty is only valid if the product is installed, operated and maintained in accordance with the manufacturer's instructions and recommendations (available upon request).
- TraffiCalm's sole responsibility, and the purchaser's and users' exclusive remedy, shall be that TraffiCalm will either repair or furnish replacements for defective parts.
- Replacement parts will carry the unexpired warranty of the parts they replace. Any repairs conducted on out-of-warranty items will carry a 90 day warranty.
- Claims made under this warranty will be honored only if TraffiCalm is notified of a failure within the warranty period, reasonable information requested by TraffiCalm is provided, and TraffiCalm is permitted to verify the cause of the failure.
- TraffiCalm assumes no liability for any incidental or consequential damages, in any way related to the product regardless of the legal theory on which the claim is based.
- TraffiCalm Flashing Sign Systems are designed, tested, and warranted to operate as a matched component system. The warranty is voided if all system components for controllers, collaborators, and LED rings are not TraffiCalm equipment and third party devices are substituted without prior written approval from TraffiCalm.

This warranty does not cover damage resulting from:

- Accidents, vandalism, impact with a foreign object, or acts of God.
- Product modifications made by someone not authorized by TraffiCalm
- Failure of Customer to follow TraffiCalm's published operating instructions,
- Failure to follow TraffiCalm's published site selection and installation instructions,
- Removal or relocation of the unit,
- Electrical work external to the unit, virus/hacker activity, and external computer errors.

THIS WARRANTY IS MADE IN LIEU OF ALL OTHER WARRANTIES AND CONDITIONS, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES AND CONDITIONS OF MERCHANTABILITY.





## **iNavigator "iNS" System Limited Warranty**

**Polara warrants its products to be free of material and workmanship defects for a period of three (3) years from the date of manufacture. This warranty does not cover cosmetic deterioration, damage from vandalism, normal wear and tear, failure due to over current conditions, or failure due to acts of God.**

**This warranty is null and void in situations where failure occurs due to products not being installed per factory installation instructions, and/or due to modifications or repair attempts made by anyone other than Polara factory personnel.**

**Polara reserves the right to repair a malfunctioning product, or replace it with a new product if it fails during the warranty period.**

**This warranty covers only the repair or replacement of the equipment, not any labor associated with the removal of malfunctioning equipment, or the installation of repaired/replacement equipment.**

**Neither seller nor Polara shall be liable for any injury, loss or damage, direct, incidental or consequential (including, but not limited to, incidental or consequential damages for lost profits, lost sales, injury to person or property, or any other incidental or consequential loss), arising out of the use or the inability to use the product, and the purchaser agrees that no other remedy shall be available to it**

Revised 1-31-2020

# LIMITED PRODUCT WARRANTY



RTC Manufacturing, Inc.  
RTC-TRAFFIC.COM

RTC Manufacturing Inc. (RTC) warrants its products to be free from defects in materials and workmanship for a period of five (5) years from the date of purchase **provided:**

- the product was properly installed, used, operated and maintained; **and**
- the customer has proof of the date of purchase

RTC will, at its option, either repair or replace the defective product.

The customer at its cost shall deliver the defective product to RTC, and RTC will repair or replace the product and return it to the customer at RTC's cost.

RTC will not be responsible for damage caused by electrical surges, brownouts, blackouts, lightning or any other act of God or electrical event.

## **Product Exceptions:**

- Batteries carry the same warranty above, except the term is for a period of two (2) years.
- Cellular Modem equipment carries the same warranty above, except the term is for a period of two (2) years. Extended modem warranties are available for purchase.
- Radar components carry the same warranty above, except the term is for a period of one (1) year. Extended radar warranties are available for purchase.
- Radio Equipment carries the same warranty above, except the term is for a period of one (1) year.

**CLARY CORPORATION**  
**LIMITED WARRANTY**  
**DEPOT REPAIR – SP Series UPS Systems – 9/1/2018**

**1 TIME AND SCOPE OF WARRANTY:**

- 1.1 Clary Corporation, (hereafter referred to as Clary) hereby warrants newly manufactured UPS Systems and batteries shipped under this agreement to be free from defects in material and workmanship for a period of Three (3) Years following the date of delivery. This warranty is applicable only to the initial retail purchaser and is not transferable. This warranty is applicable to systems delivered after April 1, 2018. This warranty is applicable only to SP Series (models SP1250LX, SP2000LX, SP560, SP1250LE and SP1250DLE) sold for use in road-side traffic signal control applications or intelligent traffic systems applications.
- 1.2 Clary Outpost or Garrison batteries shall be considered part of the UPS System when purchased together for installation.
- 1.3 The date of delivery as used herein will be the date on the Bill of Lading. If no Bill of Lading is issued, the date of shipment shall be shown on seller's shipping document.
- 1.4 No provision of this warranty shall cover equipment which has been altered or modified from the original specifications to which same was manufactured or work performed by owner or third-party unless authorized in writing.
- 1.5 This limited warranty applies only to Clary Corporation equipment installed in the United States and Canada.
- 1.6 Accidental damage, misuse or normal wear shall not be construed as a defect. Batteries must be maintained during storage and operation in accordance with the technical manual, including proper temperature storage and charging.
- 1.7 Warranty coverage of batteries does not include failure due to breakage, transitory damage, freezing, abuse, neglect, fire, explosion, flood, case bulging cause by excessive/high temperatures, lack of temperature compensation, damage from electrical equipment, overcharge, undercharge, modifications or alterations to the battery, batteries requiring charging only, improperly sized batteries, use outside of intended applications, batteries not maintained in storage, batteries installed in strings of mismatched sizes/ages, premature failure due to high temperature operation, or any reason not directly related to material or manufacturing defect. Warranty coverage does not include battery disposal.
- 1.8 Where DOT acceptance is required per state contract, the warranty period for the UPS system and battery packs shall begin on the date of the final acceptance by the Department, provided such date does not exceed 180 days from the date of shipment. In absence of written notification of final acceptance, the warranty shall commence of the date of delivery.
- 1.9 This warranty may be extended in part for up to two years at additional cost at the time of original equipment purchase. Extended warranties exclude battery coverage.

**2 LIMITS OF "IN-WARRANTY" SERVICE LIABILITY**

- 2.1 Clary is obligated during the in-warranty period to provide service and/or adjustments to the properly installed equipment for its intended use. Incorrectly installed and/or non-application use voids all stated warranties.
- 2.2 Equipment requiring warranty service must be returned to Clary Corporation, DEPOT REPAIR, 150 E. Huntington Drive, Monrovia, California 91016. Prior to return, a Return Material Authorization (RMA) shall be requested by calling (800)-42-CLARY. All transportation charges shall be prepaid by customer. Claims must include details of the original date of installation, equipment settings, installation location, and mode of failure. The equipment will be returned freight collect by Clary to the customer's location specified in the RMA via Clary's preferred carrier unless otherwise stated in customer's shipping instructions.
- 2.3 During the warranty period, no service charges should be payable by the buyer for service performed other than for service necessitated by accident, misuse, theft, abnormal line or source voltage fluctuations, abnormal conditions of operations, damage by the elements or damage resulting from adjustments, repairs, or modifications made by other than Clary authorized personnel, or the buyer's failure to reasonably maintain the equipment in accordance with industry best practices.

**3 PRODUCT CHANGES**

- 3.1 Clary reserves the right to make changes, additions, and/or improvements in its products without incurring any obligation to inform existing users or install them on its previously sold products.

TO THE EXTENT ALLOWED BY LAW, THE FORGOING WARRANTY IS EXCLUSIVE AND IS GIVEN AND ACCEPTED IN LIEU OF ANY AND ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING WITHOUT LIMITATION THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE REMEDIES OF BUYER SHALL BE LIMITED TO THOSE PROVIDED HEREIN. IN NO EVENT WILL SELLER BE LIABLE FOR COLLATERAL OR CONSEQUENTIAL DAMAGES BEYOND THE EXTENT ALLOWED BY LAW. CLARY SHALL NOT BE LIABLE FOR LOSS OF PROFITS, INJURIES TO PROPERTY OR LOSS OF USE OF PRODUCT OR ANY OTHER ASSOCIATED OR ATTACHED EQUIPMENT. No person is authorized to assume in behalf of Clary any obligation or liability in connection with the sale warranty or service policy of any products manufactured and/or marketed by Clary beyond the warranty description on the face hereof.



## PRODUCT LIMITED WARRANTY AND REPAIR POLICY

Eberle Design Inc. (EDI) warrants all Eberle Design Inc. (EDI) and Reno (RAE) equipment to be free from defects in material or workmanship for a period of two (2) years from date of manufacture. **We no longer use "Run Time" as a warranty metric.** The exceptions are Load Switches, Flashers & Flash Transfer Relays which receive a one (1) year warranty, and prefabricated loops which receive an industry best 10-year warranty. EDI will perform any repair or replacement due to defects in material or workmanship during the warranty period.

Repairs after the warranty period has expired will be available at the following flat rates in US Dollars. Repaired products are warranted for a period of 90 days. Free return shipping after repair is complete (standard UPS ground) in the continental USA is included in the flat rate. Overnight, expedited, special, or international shipping is extra and charged at the actual rate.

1. Traffic Signal Monitors: Contact your local EDI reseller or RAE Distributor (a 2-year warranty may apply).
2. Traffic Loop Detectors: \$50.00.
3. Traffic Auxiliary Equipment (BIUs, SIUs, HDSP, ADU, etc.): \$100.00.
4. Traffic Cabinet & Rack Power Supplies (PS200, PS250, PS206L, PS175, etc.): \$100.00.
5. Railway Control Loop Detectors/Processors: \$525.00.
6. Automatic Vehicle Identification (AVI) Receivers: \$75.00.
7. Parking & Access Control Loop Detectors: **are not repairable.**
8. Automatic Vehicle Identification (AVI) Transmitters (pucks): **are not repairable.**
9. Load Switches, Flashers, & Flash Transfer Relays: **are not repairable.**
10. Prefabricated Loops: **are not repairable.**

***Eberle Design Inc. reserves the right to supply new or replacement products at its discretion and has sole right to determine whether or not any item is covered under our warranty policy.*** This warranty does not cover damage due to lightning, physical abuse, unauthorized attempts at repair, modifications, or mis-application of the unit. Lightning or high voltage damaged units, if repairable, will be returned with no warranty.

REQUIRED: Please contact EDI for an EDI-issued RMA number PRIOR to shipping return product.

**All products returned without an EDI-issued RMA number will be returned, unrepai**

### **Include RMA number and send equipment to:**

**Ship To:**

Eberle Design, Inc.  
 Attention: Repair – RMA #  
 3510 E Atlanta Ave  
 Phoenix, AZ 85040

**To avoid potential delay, please include the following:**

1. Problem or failure description, with relevant test reports
2. Payment information, PO #, credit card, etc
3. Return address where you want the products return-shipped
4. Your contact name, email, phone (if we have questions)
5. If requesting expedited repair/return service (additional fee)

# INTELLIGENT CONTROLLERS/ COLLABORATORS

## FLASHING SIGN SYSTEM

Line Items 0-01 to 0-04



### INTELLIGENT CONTROLLERS AND COLLABORATORS (ALL MODELS)

The base of the Flashing Sign System, the SA300 Basics, Controllers, and Collaborators are the “brains” of the group. Handling everything from configuration to logic control, these devices allow the system to operate as Conflict Intersection Warning, Sequencing Chevrons, High Water Warning, and so much more.

Featuring inputs (and supporting logic) for one activation device and a radar detector, as well as outputs for two alternating Rings, RRFB's, or Beacons (for example), the Flashing Sign Systems' possibilities are limitless.

All TrafficCalm® products are built in the USA. We are the complete engineering and manufacturing chain, meaning that everything going into our products is TrafficCalm®!

### CONFIGURATION AND SETUP

Quick configuration via TC Connect®, a WiFi connection platform developed by TrafficCalm® that requires NO Internet Connection!

With any browser enabled device, the installer can easily log in and select from multiple options and settings including Flash Duration, LED Brightness and Dimming Control

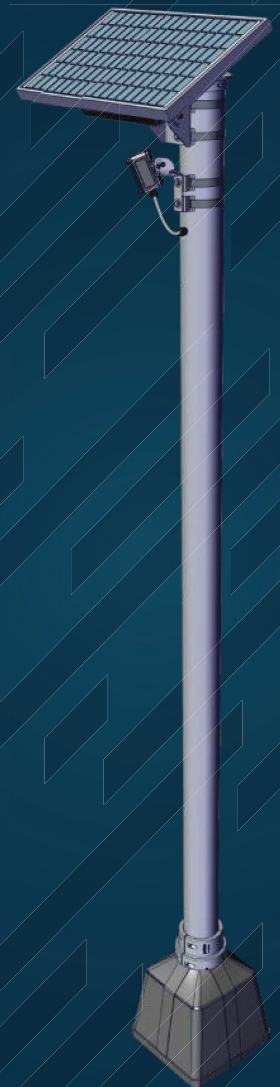
### DURABILITY AND RELIABILITY

Roadside signage, and the like, attract all forms of vandalism. Housed in a potted aluminum enclosure the SA300 System is ready for years of tamper-free service

### BUILT FOR EFFICIENCY

Operating on either an AC supply, or 20W, 30W, 50W, or 60W solar supplies, the SA300 System provides ample power to any TrafficCalm® warning device. Suitable for an extreme range of climates, TrafficCalm® products are built for the road ahead

TRAFFICCALM.COM



RELEASED 2022/01/19

+1 855-738-2722 / sales@trafficalm.com

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# SPECIFICATIONS

- Mounting: Universal bracket accommodates most industry standard round or square posts of suitable load rating
- Designed for retrofit installation to existing infrastructure
- Nema 3R, 3RX, and 4X enclosures (depending on device selected)
- All electronics potted for weatherproofness
- Stainless fasteners used for corrosion resistance

## INPUT/OUTPUT

- Inputs: 1 per controller, accept dry contact closure, optional input devices include Push Button, Environmental sensors, and others.
- Outputs: 2 per controller, 12W max requirement, output devices include Sign Rings, RRFBs, Beacons
- Radar Port: accepts input from TrafficCalm® Radar
- Alternative Sign Flashing: utilizes Radar Port + and -, radar input cannot be used in this scenario
- Light sensor for configurable auto-dimming feature based on

## TRAFFICALM® USER INTER-

- Wi-Fi Connectivity - No Internet Connection required
- Mode Selection: Pedestrian Crossing, Curve Warning, All Flash, Conflict Intersection,, High Water Warning
- Configurable Flash Duration (60 flashers/minute by default)
- Controller can be converted to Collaborator functionality in the field if system upgrade is desired
- Retrievable activation log stored for at least 365 days
- On screen status reporting includes:
  - Controller to Collaborator(s) signal strength
  - Controller and Collaborator(s) flasher output voltages
  - Controller and Collaborator(s) input voltage (battery or AC devices)

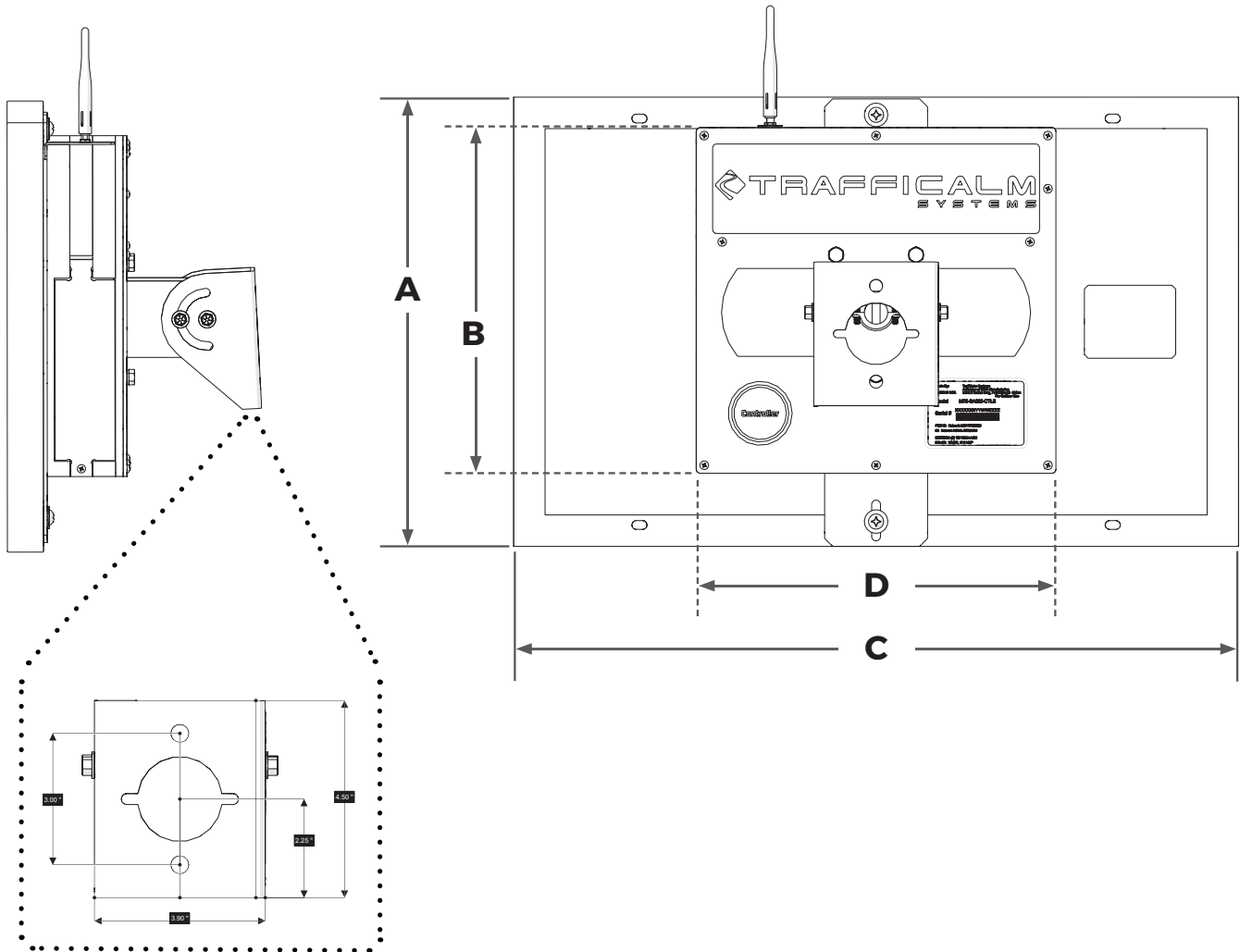
## PERFORMANCE

- Wireless activation within 100 mS
- Wireless range of 1500 ft/457m (2.4GHz radios)
- 340 C to +740 C operating range (varies with battery type used)
- 5 year warranty, excluding batteries
- Lifetime product support

# MODEL DETAILS

	M75-SA300-CTLA* M75-SA300-CLBA* M75-SA300-BSCA	M75-SA300-CTL2* M75-SA300-CLB2* M75-SA300-BSC2*	M75-SA300-CTL3* M75-SA300-CLB3* M75-SA300-BSC3*	M75-SA300-CTLE* M75-SA300-CLBE*	M75-SA300-CTL2 M75-SA300-CLB2 M75-SA300-BSC2	M75-SA300-CTL3 M75-SA300-CLB3 M75-SA300-BSC3
Weight	22.0lbs/10.0kg	25.0 lbs/11.3kg	28.0 lbs/12.7kg	29.0 lbs/13.1kg	36.0 lbs/16.3kg	39.0 lbs/17.7kg
Dims	9.28"W x 10.5"H x 5.21" D (23.6cm,26.7cm,13.2cm)	22.7"W x 14.1"H x 3.9"D (57.7cm,35.8cm,9.9cm)	21.3"W x 20.1"H x 3.9"D (54.1cm, 51.1cm, 9.9cm)	9.28"W x 10.5"H x 5.21" D (23.6cmx26.7cmx13.2cm)	22.7"W x 14.1"H x 6.2"D (57.7cm,35.8cm,15.7cm)	21.3"W x 20.1"H x 6.2"D (54.1cm, 51.1cm, 13.2cm)
AC/Sola	Integrated AC	Integrated Solar	Integrated Solar	Solar Panel Kit sold separately	Integrated Solar	Integrated Solar
Battery	Does not apply	AGM, 12Ah, 12V	AGM, 12Ah, 12V	Extreme Climate AGM, 13Ah, 12V	AGM, 24Ah, 12V	AGM, 24Ah, 12V
Solar Panel	Does not apply	20W/1.16A (incl.)	30W/1.74A (incl.)	30, 50, or 60W kits available	20W/1.74A (incl.)	30W/1.74A (incl.)
AC Input	0.43A/100-277VAC	Does not apply	Does not apply	Does not apply	20W/1.74A (incl.)	Does not apply
Continuous Performance	Unlimited flashes/day	800 30sec activations per day with 2 hours sunlight	800 30sec activations per day with 2 hours sunlight	860 30sec activations per day with 2 hours sunlight	1600 30sec activations per day with 2 hours sunlight	1600 30sec activations per day with 2 hours sunlight

FOR 20W AND 30W 12AH MODELS



	A	B	C	D
M75-SA300-CTL2	14.1 in	10.8in	22.7 in	11.2in
M75-SA300-CLB2	35.8 cm	27.5cm	57.5 cm	28.5cm
M75-SA300-BSC2				
M75-SA300-CTL3	20.1 in	10.8in	21.3 in	11.2in
M75-SA300-CLB3	51.1 cm	27.5cm	54.1 cm	28.5cm
M75-SA300-BSC3				

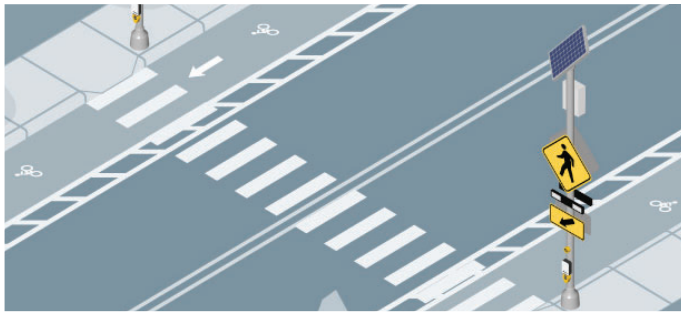
Line Item 0-5

## iNX

### MIDBLOCK CROSSING SOLUTION

Step up accessibility at non-intersection crossings with an MUTCD-compliant, single-unit Audible Information Device (AID).

- Supplies blind and low-vision pedestrians with audible information equivalent to visual signage at unsignalized crosswalks
- Can be used in conjunction with rectangular rapid flashing beacons (RRFBs) and other flashing crosswalk systems
- Self-contained system includes push button, instructional sign, LED light, and speaker
- Easy installation and programming with Polara's Field Service App
- MUTCD and ADA compliant



### ENERGY EFFICIENT & COST-EFFECTIVE

Each iNX is self-contained, with no control boards needed. Low power requirements make the iNX ideal for solar- and battery-powered installations. Combined with secure button-to-button Bluetooth® sync, this can eliminate the need for costly trenching.



▲ Compatible with all major RRFB systems

### DURABLE DESIGN & TECHNOLOGY

With a rugged cast aluminum cover and back plate, wide temperature tolerance, and abuse-resistant low profile, the iNX shrugs off weather and vandalism. With no mechanical switches to fail, the ultra-reliable Hall-effect button has been tested to 20,000,000+ operations.

### SIMPLE WIRELESS PROGRAMMING

The iNX is easily programmed using our industry-leading Field Service App, available for iOS® & Android® - no expensive software or proprietary devices required! The app allows technicians to configure system settings and sounds, as well as access actionable data on button counts, flashing cycles, and more.



**TAKE THE NEXT STEP!**

[sales@polaraent.com](mailto:sales@polaraent.com) | 903.366.0300

## iNX FEATURES

- Instructional 9"x12" retro-reflective sign with tamper-resistant screws.
- ADA-compliant push button with field adjustable directional arrow.
- 10-watt audio amplifier.
- Microphone to automatically adjust sounds to ambient noise level.
- Weather resistant modular speaker, field-replaceable.
- Spanish audio message available.
- Firmware updates, audio, volume, and other configurations set over Bluetooth® with the free Polara Field Service App, (iOS® & Android®).
- Warranty: 3 year limited.

### •FHWA & MUTCD Compliant:

- Meets Audible Information Device requirements.
- One yellow LED that flashes when warning lights are flashing.
- Standard Message: "Warning lights are flashing" (repeats twice).
- Locator Tone.
- No vibrotactile or percussive indications.



## iNX SPECIFICATIONS

### 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

Notes: Designed to comply with applicable sections of referenced standards All specifications are subject to change without notice. All specifications are typical unless otherwise specified.

### Electrical Properties

#### DO NOT APPLY AC VOLTAGE TO THIS SYSTEM!

DC In	10-24 VDC
Button	7-32 VDC
Lights In	7-32 VDC
Idle Current Draw	~15mA @ 12 VDC (Locate Tone With Default Settings)
Peak Current Draw	~500mA with Voice Message at maximum

### Mechanical Properties

#### Physical

Enclosure Type	Plastic sealed housing, powdercoated cast aluminum cover and backplate
Installation	3/4" or smaller banding or 2 tapped 1/4-20 holes on 6" centers; 1/2" or larger hole for wire access

#### Dimensions

Width	9" (with 9x12" sign) / 5.1 (without sign)
Length	18.2" (with 9x12" sign) / 14" (without sign)
Maximum Height	2.6"

### Design Compliance

Functionality Test Type	Compliance
Functionality	MUTCD 2009-4E
Temperature and Humidity	NEMA TS2
Mechanical Shock and Vibration	NEMA TS2
iNX Enclosure	NEMA 250 Type 4X

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# Warning Sign Flashing LED Ring

## FLASHING SIGN SYSTEM

**TRAFFICALM**<sup>®</sup>  
A Pelco Products Company



### WARNING SIGN FLASHING LED RING

Designed to LED enhance any existing or new diamond or square shaped MUTCD road signage. Engineered to provide ease of installation, unmistakable visibility under any conditions, and intuitive driver calming beyond that of just reflective sheeting.

TraffiCalm is unmatched in our dedication to advancing road safety. Our Flashing Sign Systems provide clear and proven modernized traffic signs that remain fully compliant with the Federal Highway Administration's (FHWA) Manual on Uniform Traffic Control Devices (MUTCD).

TraffiCalm<sup>®</sup> Flashing Sign Systems offer scheduled, radar activated, or 24/7 operation, AC or solar power, hassle-free install, retrofit design, and wireless communication features.

## FEATURES

### Highly Visible LED Warning Signs

TraffiCalm fully outlines the shape of the sign, with the most LEDs on the market, for a bright, visible sign in any environmental condition.

### Retrofittable LED Rings

Utilize existing signage and add our LED sign rings for a more cost-effective solution.

### Ruggedized Electronics

All electronics, radios, and LEDs are fully epoxy-potted and environmentally sealed. The entire pole with the sign, controller, solar panels, and batteries can be fully submerged and still operate.

### Ease of Installation

The ease of installation allows for quick setup on any existing sign post.

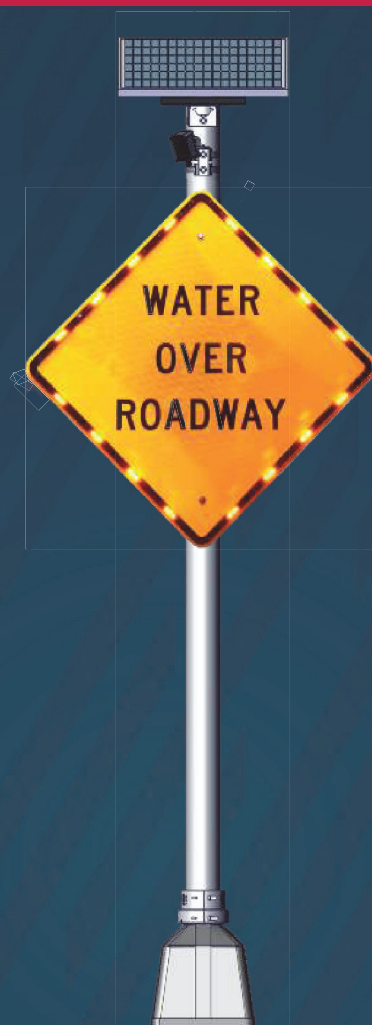
### 100% MUTCD Compliant

The MUTCD allows LEDs to enhance standard highway warning and regulatory signs and to outline either the sign itself or the words and symbols on the sign. MUTCD specifications indicate that; "If used, the LEDs shall be the same color as the sign legend, border, or background. If flashed, all LED units on an installation shall flash simultaneously at a rate of more than 50 and less than 60 times per minute." TraffiCalm<sup>®</sup> Systems are fully compliant.

### Made in the USA

TraffiCalm<sup>®</sup> Flashing Sign Systems are manufactured in the USA in an ISO 9001:2015 certified facility, meeting and exceeding industry and state testing requirements. TraffiCalm<sup>®</sup> signs are unmatched in durability, brightness, accuracy, and ease of installation and use. Build America/Buy America Compliant.

TRAFFICALM.COM



## SPECIFICATIONS

### ILLUMINATION

LEDs configured around perimeter of sign within the border (fully MUTCD compliant design)

LED Pitch: .35" (.89 cm) on centers; within the cluster

Cluster Pitch: 6" (15.2 cm) on center

Amber LEDs with 15° Viewing Angle

### COMPATIBILITY

Integrates with all TrafficCalm® Controllers and Collaborators and can be speed activated (radar), push button activated, sensor activated, and scheduled via time clock or run 24/7

### CONSTRUCTION

14 gauge 5052 aluminum construction

Individually lensed LEDs recessed behind faceplate

### ENVIRONMENTAL

NEMA 4x Enclosure

Potted electronics (hermetically sealed)

-40° C to + 60° C operating range (-40° F to +140° F)

### WARRANTY and SERVICE

5 year limited warranty

Unlimited tech support from US based factory technicians

## DETAILS

### PHYSICAL DESCRIPTIONS

Available Sizes: 24" (61 cm), 30" (76.2 cm), 36" (91.4 cm) or 48" (121.9 cm)

Retrofits to any existing Warning Sign manufactured to MUTCD requirements of corresponding size

Mounting: All LED hardware mounted around the perimeter of the sign, within the border. Mounted either with adhesive backing or included self-tapping screws. Rivets may be utilized to improve tamper resistance

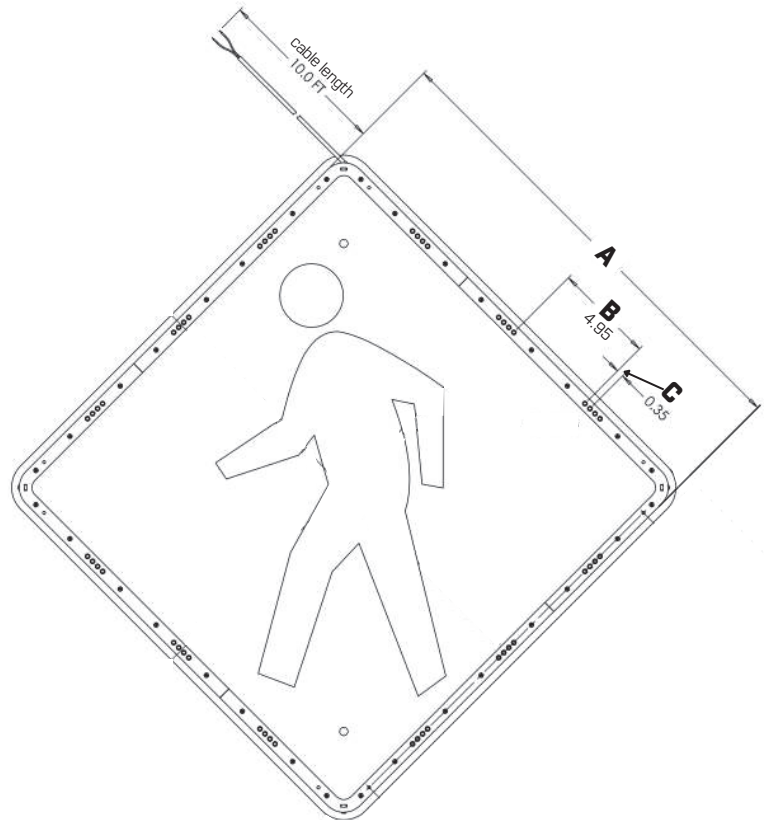
MUTCD compliant LED placement and usage

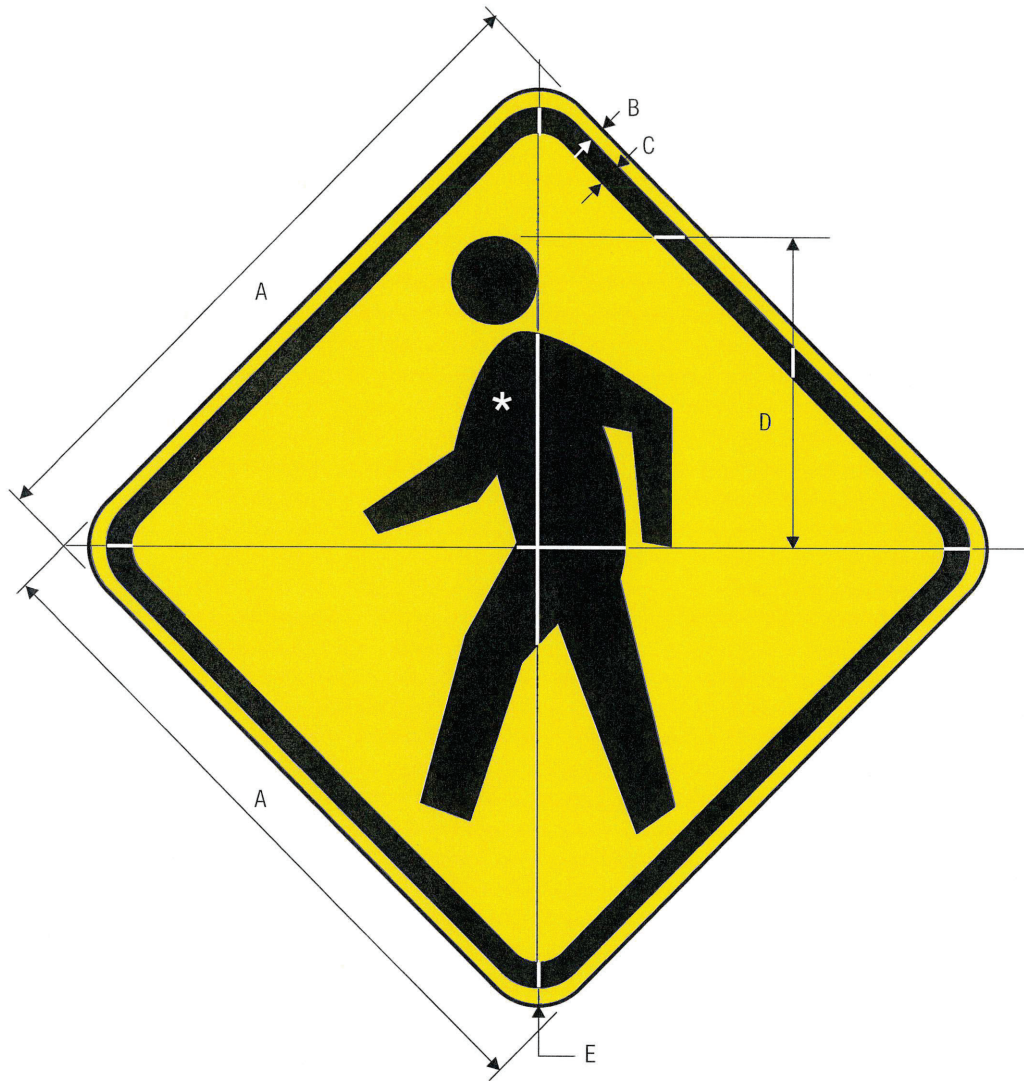
10 ft (3 m) single cable extension to reach Controller or Collaborator

Ring can be factory installed to a new static sign

This item can ship as a kit that can be mounted to a new or existing sign OR a complete system with sign

MUTCD Sign Size	Part Number	Ring Length (A)	LED Group Offset (B)	LED Pitch in Group (C)	LED Count	Light Output	Power (Amps)
24"	M75-R2424-BA47	23.3"/7.6cm	4.95"/15cm	.35"/.89cm	48	936000	.288
30"	M75-R3030-BA47	29.0"/73.7cm	4.95"/15cm	.35"/.89cm	64	1248000	.384
36"	M75-R3636-BA47	34.8"/88.4cm	4.95"/15cm	.35"/.89cm	80	1560000	.480
48"	M75-R4848-BA47	46.5"/188.1cm	4.95"/15cm	.35"/.89cm	112	21840000	.672





W11-2  
PEDESTRIAN TRAFFIC

\*See page 6-10 for symbol design.

	A	B	C	D	E
	18	.375	.625	8	1.5
	24	.375	.625	11	1.5
<b>C</b>	30	.5	.75	13.5	1.875
	36	.625	.875	16	2.25
	48	.75	1.25	22	3

COLORS: SYMBOL — Fluorescent Yellow Green  
 BACKGROUND — YELLOW (RETROREFLECTIVE)

# Rectangular Rapid Flashing Beacons (RRFB)

## FLASHING SIGN SYSTEM



### RECTANGULAR RAPID FLASHING BEACONS (RRFB)

TraffiCalm® is working with our customers to reduce the number of crashes at mid-block crossings. By using unprecedented LED Flashing Signs and RRFBs, agencies across the world are seeing justifiable gains in pedestrian Safety. In fact, the United States Federal Highway Administration (FHWA) has designated RRFBs as a proven safety counter measure and state pedestrian crashes are reduced up to 47% and yielding rates for motorists increased up to 98% when RRFBs are utilized.

## FEATURES

### Highly Visible

TraffiCalm® RRFBs utilize 80 LEDs per light bar, 40 LEDs per side, far more than any competitive system, providing the brightest most visible beacons on the market. This can be critical with the sun behind or in front of the motorist or in foggy conditions. Auto dimming reduces the brightness at night.

### Ruggedized Electronics

All electronics, radios, and LEDs are fully potted and environmentally sealed. The entire pole with the RRFBs, controller or collaborator, solar panels and batteries can be fully submerged and still operate. Please scan this QR code to watch our short, entertaining video on how hard we have tested our RRFBs.



### 100% MUTCD Compliant

The FHWA has granted interim approval of RRFBs and they are expected to be fully approved with the release of the new version of the Manual on Uniform Traffic Control Devices (MUTCD). RRFBs have a special rapid flash pattern that is dictated by the interim approval and TraffiCalm® RRFBs have been third-party tested to prove conformance.

### Made in the USA

TraffiCalm® Flashing Sign Systems are manufactured in the USA in an ISO 9001:2015 certified facility, meeting and exceeding industry and state testing requirements. TraffiCalm® signs are unmatched in durability, brightness, accuracy, ease of installation, and use. Build America/Buy America Compliant.

TRAFFICALM.COM



## SPECIFICATIONS

### COMPATIBILITY

RRFBs are compatible with all TrafficCalm<sup>®</sup> Intelligent Controllers and Collaborators

TrafficCalm<sup>®</sup> Push-2-Cross Systems and RRFBs are pedestrian or sensor activated and are compatible with all major manufactures' piezo push buttons and APS Audible/Talking mid block push buttons. Touchless push button options are also available

### ILLUMINATION

MUTCD and FHWA Compliant

80 Amber LEDs for Redundancy and Uniform Light Distribution

Side-mounted LEDs for pedestrian visual confirmation

Exceeds SAE J595 Class 1 Intensity

Auto Dimming

Meets SAE J578 for chromaticity

Crosswalk Illuminators are available as an option on all Push-2-Cross Systems

## DETAILS

### RRFB PHYSICAL CONSTRUCTION

Each of the 80 LEDs have built-in 15 degree UV resistant lens

Mounting brackets accommodate back-to-back mounting

Horizontal aiming adjustment

Dimensions: 24"W x 4.18"H x .85"D (60.96cm x 10.63cm x 2.16cm)

Potted and Environmentally Sealed Electronics (NEMA 4X rated)

Rugged powder-coated aluminum face plate available in black or yellow

High-Density Poly Ethylene casing for potted electronics

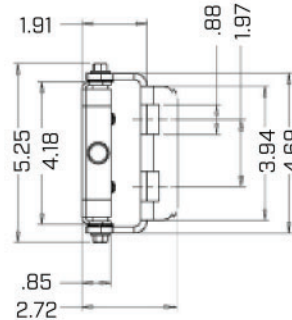
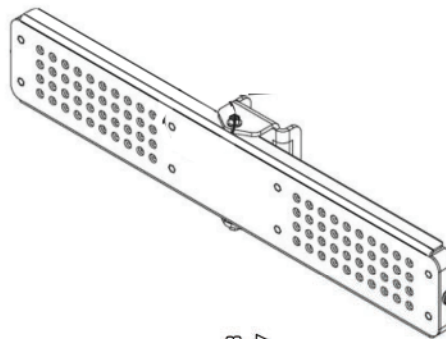
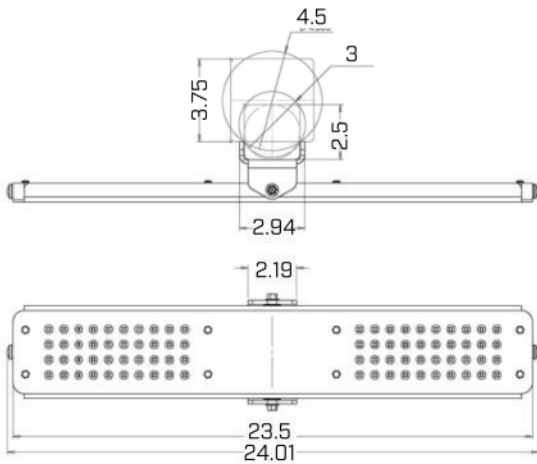
### WARRANTY and SERVICE

5 year limited warranty

Unlimited technical support from US based factory technicians

## DIMENSIONS

shown in inches



Part Number	Color and Type of Housing	Color of LED	Length of cable from RRFB to controller
M75-SA328-0000	Black Aluminum Housing	Amber	15 ft/4.57 m
M75-SA328-0004	Yellow Aluminum Housing	Amber	15 ft/4.57 m
M75-SA328-7500	Black Aluminum Housing	Amber	75 ft/22.86 m
M75-SA328-R000	Black Aluminum Housing	Red*	15 ft/4.57 m

\*For Wrong Way Systems

# 332 Controller Cabinet

332A: Panel Termination  
332B: Panduit Ducts

Line item 0-15

Natural Aluminum Exterior  
White Interior

## Cabinets

Controllers

Signals

Signs

Software

Specialty

## Overview

McCain's 332 Controller Cabinet is an industry standard 170/2070 style cabinet. Meeting all Federal Highway Administration (FHWA) and Caltrans Transportation Electrical Equipment Specifications (TEES) and Caltrans Traffic Signal Control Equipment Specifications (TSCES) specifications, the quality materials used and its rugged construction make it an excellent traffic controller cabinet when dependable and low-maintenance installation is required. Its 19-inch Electronics Industry Alliance (EIA) rack and modular design allow for the easy interchange of standard assemblies and components.

## Benefits

- Rugged and dependable industry standard cabinet
- Standard assemblies assure interchangeability between manufacturers
- Full size doors (front and back) provide easy access to the cabinet's large interior
- Three-point latching system with industry standard locks for maximum security
- Available anti-graffiti coating reduces the effects of vandalism

## Product Description

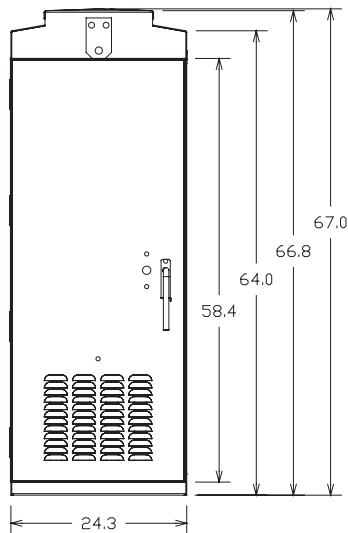
The McCain 332 Controller Cabinet is designed to house the 170 or 2070 controllers. This robust cabinet is constructed from marine-grade aluminum and is accessed via a front and back door making it durable and easily maintained. The cabinet comes equipped with industry standard features such as a 19-inch EIA rack, two 14-position input files, and a 12-position output file.

The standard cabinet offers an eight-phase, four-pedestrian operation with two right turn overlaps. Its 36 detector channel capability can be utilized with two-channel or four-channel detector modules.

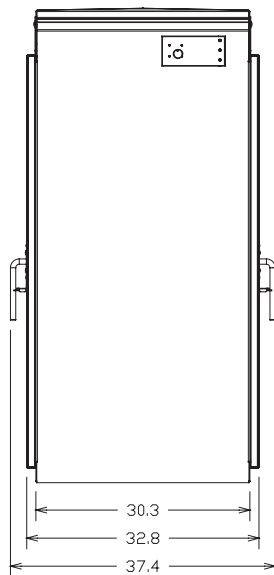
The cabinet is secured via a three-point latching system and protected with a padlock providing secure installations and easy access for maintenance.

# 332 Controller Cabinet

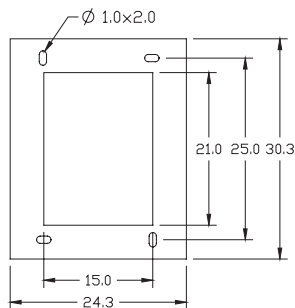
Front



Side



Base



Dimensions rounded to the nearest 0.1"

## Standard Features

- 8-phase, 4-pedestrian operation (2 right turn overlaps available)
- 36 detector channel capability (3 per left turn, 6 per through movement)
- 2-channel or 4-channel industry standard detection modules
- Input panel with termination blocks (332A) or Panduit ducts (332B)
- Railroad preemption inputs (2)
- Emergency vehicle preemption inputs (4)
- Programmable "Yellow/Red" or "All Red" flashes through the use of flash plugs
- DC isolation inputs for pedestrian push buttons and special functions
- 210 Signal Monitor slot

## Assemblies

- 14-position input files (2)
- 12-position output file
- Model PDA-2 combined power supply and Power Distribution Assembly or Model PDA-1 Power Distribution Assembly and separate 24 VDC power supply
- Flash transfer relay sockets (4)
- Dual-circuit flasher sockets (2)
- Input panel
- Service panel
- Police panel with signal "On/Off" and "Auto/Flash" switches

## General Specifications

- Dimensions: 67" H x 24" W x 30" D (rounded to the nearest inch)
- Material: 5052-H32 aluminum, 0.125" thick
- Finishes: **Natural**, powder coat (standard, anti-graffiti, and custom colors), anodized
- Access: Front door (1), back door (1), both full size
- Latching System: 3-point, choice of **Corbin** or Best locks
- Handles: 3/4" round, stainless steel, with padlock feature
- Door Stops: 90° (±10°), each door, top  
90° and 180° (±10°), each door, bottom
- Rack Assembly: Removable 19" EIA rack
- Ventilation: Thermostatically controlled 100 CFM fan  
Louvered air intake in door, pleated filter
- Mounting: **Base mounted**
- Shipping Weight: 300 lbs without plug-ins or controller(s)

## Options

- 3/4" x 16" anchor bolts for mounting (4)
- Fluorescent light(s)
- Sunshields
- Drawer assembly(s)
- Underwriters Laboratories Listing (cabinet housing)

To learn more about McCain's Integrated Traffic Solutions, please contact [info@mccain-inc.com](mailto:info@mccain-inc.com) or call (760) 727-8100

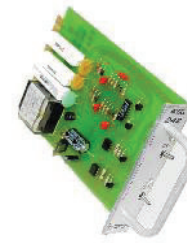


2365 OAK RIDGE WAY // VISTA, CALIFORNIA 92081 // USA // WWW.MCCAIN-INC.COM

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# DATA SHEET :DCI-82-242



## Model 242 DC Isolator:

### **Description:**

The PDC Model DCI-82 dual channel DC isolator is designed specifically to meet the California Department of Transportation , Model 242 specifications. Each channel of the DC isolator shall present a true signal (ground closure) at the output of its optical coupling device when a contact closure causes an input voltage of less than 8 VDC, for longer than 5 milliseconds. A transition from a true to a false signal at the output shall occur when the respective contact closure causes an input voltage of greater than 12 VDC.

All electronics are provided on a single sided P.C. board with an aluminum front panel. The P.C. board is provided with a solder mask, silk screen identifying all component locations and is conformally coated to resist adverse environmental conditions.

### **Installation:**

The DC Isolator intermates with the model 332 cabinet input file. Connector pinouts are as shown in Fig. 1. The connector mates with a Cinch #250-22-30-xxx or equivalent.

Pin	Function	Pin	Function
A	DC ground	N	AC+
B	+24 VDC	P	NA
C	NA	R	NA
D	Input #1	S	NA
E	Input #1 common	T	NA
F	Output #1 (C)	U	NA
H	Output #1 (E)	V	NA
J	Input #2	W	Output #2 (C)
K	Input #2 common	X	Output #2 (E)
L	Chassis ground	Y	NA
M	AC-	Z	NA

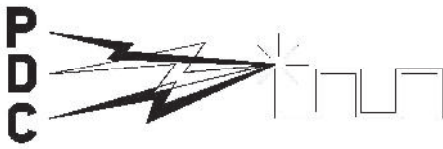
FIG 1.

### **General Characteristics:**

Model DCI-82-242  
 Input:  
 True State.....<8 VDC,>5 msec.  
 False State.....>12 VDC  
 Output:  
 Voltage.....30 VDC max.(open collector)  
 Current.....50 mamp sink(true state)  
 Power:  
 Voltage.....115 VAC  
 Current.....20 mamp AC max.  
 Isolation:  
 Voltage.....2500 VAC  
 Resistance.....1000 megohm.  
 Transient suppression:  
 Energy.....50 Joules

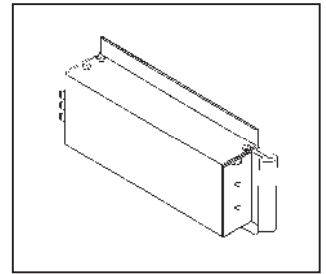
### **Mechanical Characteristics:**

Length ..... 7.00 IN.  
 Width..... 1.12 IN.  
 Height..... 4.50 IN  
 Weight..... 0.70 LBS.



# DATA SHEET:

## SSF-87 / 170 TYPE 204



### Solid State Flasher With Replaceable Modules:

#### General Description:

The PDC model SSF-87 is a dual pack, modular, solid state flasher designed specifically to meet NEMA specifications as well as New York "Model 204" specifications. Each flasher contains two individually replaceable modules that are enclosed in a dust resistant, metal enclosure, providing mechanical protection, and excellent heatsinking for the modules. The modules are easily accessible with the use of a crew driver.

#### Installation:

The flasher intermates with the model 332 cabinet as well as with any NEMA loadbay. It is easily installed or removed by grasping the extruded handle. Connector pinouts are shown in FIG 1. The connector mates with a Beau S-5406-LAB or equivalent.

### General Characteristics:

- Load**  
 Voltage.....120 VAC  
 Current (max).....25.0 Amps  
 (Tungsten filament load)
- Off State**  
 dv/dt.....100V per microsecond  
 Line to load resistance...15k Ohms min.  
 Leakage current.....less than 20 mA
- Surge Current**  
 One cycle.....175 Amps RMS min.  
 One second..... 40 Amps RMS min..
- Life**  
 Operations.....30 million min.

- Flash Rate**  
 50-60 cycles (flashes) per minute.

- Mechanical**  
 Length..... 8.40 inches  
 Width..... 1.70 inches  
 Height..... 4.185 inches  
 Weight..... 1.50 Lbs.

- Operating Temperature** -35 to +74 degrees C  
**Adjustments:** The model SSF-87 flasher has no adjustment controls.  
**Guaranteed :** The flasher is fully guaranteed against all failures due to manufacturing defects for two years.

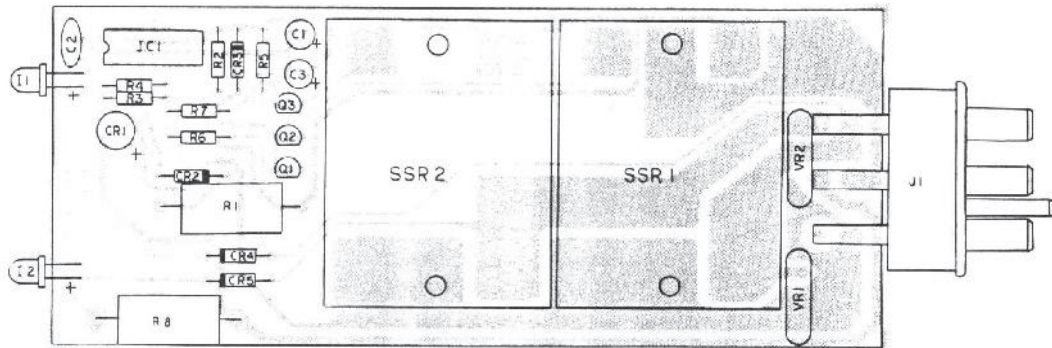
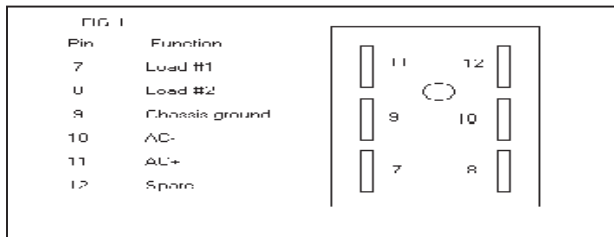


FIG. 2



## DATA SHEET SSS-87IO

### Solid State Loadswitch:

#### Description:

The PDC SSS-87I/O Loadswitch series is a tri-pack, modular, solid state relay designed specifically to meet NEMA specifications, as well as California and New York "Model 200" specifications. Each loadswitch contains 3 individually replaceable modules that are enclosed in a dust resistant, metal enclosure providing mechanical protection and excellent heat sinking for the modules. The modules are easily accessible with the use of a screwdriver. Each loadswitch also features a L.E.D. indicator on each output circuit.

#### Installation:

The switchpac inter mates with any standard NEMA loadbay or with the model 332 cabinet output file as well as with any NEMA loadbay. It is easily installed or removed by grasping the handle. Connector P1 pin outs are shown in FIG 1. The connector mates with a PDC BCS-12 or equal.

PIN	FUNCTION
1	+115VAC, 60 Hz
2	Chassis Ground
3	A Output (Red, Don't Walk)
4	Not Assigned
5	B Output (Yellow)
6	A Input (Red, Don't Walk)
7	C Output (Green, Walk)
8	B Input (Yellow)
9	+24 VDC
10	C Input (Green, Walk)
11	AC-
12	Not Assigned

P1  
(P1 as viewed from the outside of the product looking directly at the connector)

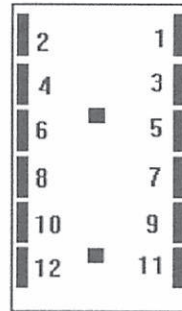


FIG 1.

#### General Characteristics:

Model	SSS-87I/O Series
Uses Module #	SSR-87
Meets Specs for	Nema, Caltrans, NY (model 200)
Load	voltage.....120 VAC
	current (max)..... 15.0 Amps (Tungsten Filament Load)
Control Signal	voltage.....+24VDC
	current ..... 20.0 MA (max)
Switching	1st alternation after.....±10 Degrees of line voltage at the zero signal is applied. crossover point.
	Succeeding alterations.....±5 Degrees of line voltage at the zero crossover point.
	Off State
Isolation	line to load resistance.....15 K Ohms Min
	leakage current.....less than 20 MA
Surge Current	voltage.....2500 VDC Min
	resistance.....10 Meg Ohms Min
Life	one cycle.....175 Amps RMS Min
	one second.....40 Amps RMS Min
Mechanical	operations.....30 million Min
	length.....8.40 inches
	width.....1.74 inches
	height.....4.185 inches
	weight.....1.135 LBS

**Guarantee:** The SSS-87I/O series is fully guaranteed against all failures due to manufacturing defects for two years.

# 2018KCL

## Type 170/2070 18 Channel Signal Monitor



The EDI 2018KCL Signal Monitor is designed to upgrade the capabilities of the basic 210 / 2010 monitor used in Type 170 / 179 Output Files. The unit is fully compatible with the requirements of the 170, 179, and 2070 Controller Units. The 2018KCL utilizes enhanced monitoring functions to increase cabinet fault coverage, providing additional assurance that equipment malfunctions will be detected and diagnosed properly.

A removable Datakey™ memory device contains all the monitor set-up information and **completely eliminates the need for a diode Program Card, soldered jumpers and DIP switches.**

**Model 2018KCLip: 18 channel with Ethernet Port**

**Model 2018KCL: 18 channel with EIA-232 Port**

### OPERATIONAL FEATURES

#### Enhanced 210 Monitoring Functions:

The 2018KCL meets all requirements of the Caltrans "TSCE Specifications 1/89" and Caltrans TEES, March 2009. Basic fault coverage includes Conflict, 24Vdc, and CU Watchdog monitoring. Red Monitoring senses the absence of signals on a channel, and requires the output file to be wired for Red signals. Dual Indication Monitoring detects simultaneous active signals on a channel. Clearance Monitoring ensures sequencing of signals with a proper minimum yellow clearance interval for *both vehicle and pedestrian channels*. AC Line Monitoring detects and responds to low AC Line voltages as well as interruptions with a minimum flash interval.

#### Datakey Configuration Memory:

Complete 2018KCL programming is provided by an interchangeable Datakey™ nonvolatile memory device. This rugged key stores all 2018KCL configuration parameters and *completely eliminates monitor programming using jumpers, diodes, or DIP switches*. Ethernet network parameters are also included (firmware version xx56 or greater).

#### Setup Wizard:

Use the MonitorKey® Setup Wizard to *automatically and accurately* configure the Enhanced settings of the 2018KCL by answering a short series of questions regarding intersection geometry and operation.

#### Event Logging:

The 2018KCL monitor maintains a 100 record nonvolatile event log which contains records of fault events showing the complete intersection status as well as AC Line events, configuration changes, monitor resets, cabinet temperature and true RMS voltages. A real time clock time-stamps each log event with time and date.

#### RYG Full Intersection Display:

The Full Intersection display uses Red, Yellow, and Green LEDs to show active colors of all channel inputs simultaneously for real-time intersection status.

#### EDI RMS-Engine:

A DSP coprocessor converts ac input measurements to True RMS voltages, virtually eliminating false sensing due to changes in frequency, phase, or sine wave distortion.

#### LEDguard®:

This EDI innovative signal thresholding technique is used to increase the level of monitoring protection when using LED based signal heads.

#### Recurrent Pulse Detection:

The Recurrent Pulse (RP) Detection function supplements the Conflict, Dual Indication, and Red Fail algorithm. RP Detection works in conjunction with the RMS-Engine to detect faults that are pulsing or intermittent in nature.

#### Flashing Yellow Arrow PPLT:

Three operational modes are built-in for support of the MUTCD Flashing Yellow Arrow PPLT operation depending on the number of load switches in the cabinet.

#### Communications to Controller Unit or PC:

An EIA-232 serial port or optional Ethernet port (2018KCLip) provides access to status and event logs by a local or TMC computer running EDI ECom Windows based software.

#### Signal Sequence History Display:

Five Signal Sequence History logs stored in nonvolatile memory each graphically display 30 seconds of signal status prior to each fault event. The resulting display eases diagnosing of intermittent and transient faults by viewing the exact signal states that the monitor sensed.

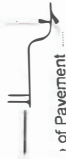
Datakey is a trademark of Datakey Electronics Inc. MonitorKey and LEDguard are trademarks of Eberle Design Inc.

**EBERLE DESIGN INC.**

3510 East Atlanta Avenue  
Phoenix, AZ 85040 USA  
www.EDItraffic.com

Tel (480) 968-6407  
Fax (602) 437-1996





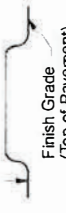
4-7 w/OM-1



R2-1



R6-1 LT  
R6-1 RT



(2) OM-1

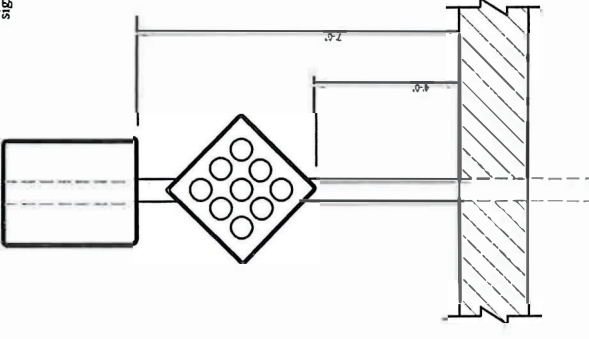


OM-1



(NOT TO SCALE)

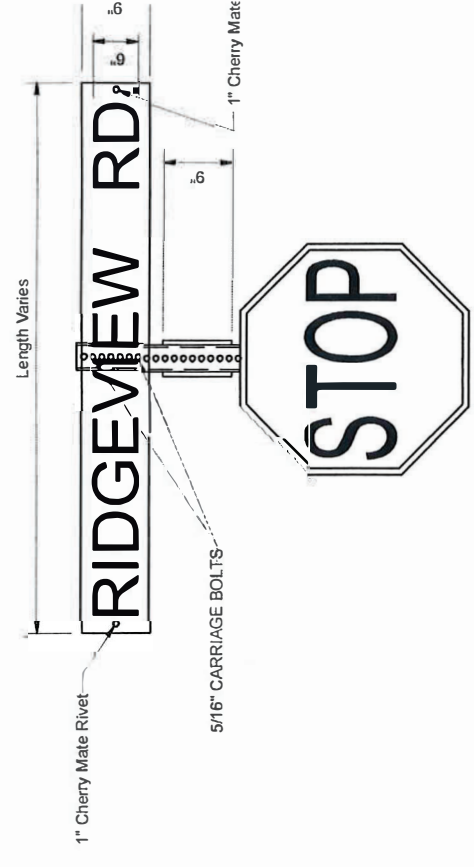
• 4'-0" height when used in conjunction with adjacent signs.



(NOT TO SCALE)

**GENERAL INSTALLATION NOTES:**

1. IN ALL INSTALLATIONS THE FIRST HOLE ABOVE THE FINISHED GRADE LEVEL IN ALL THREE UNITS MUST BE IN LINE FOR INSERTION OF THE CORNER BOLT.
2. ALL CORNER BOLTS AND NUTS FOR FASTENING THE SIGNS AND SIGN POST ASSEMBLY SHALL COMPLY WITH SECTION 16146 AND ALL WASHERS SHALL COMPLY WITH SECTION 16140 OF THE STANDARD SPECIFICATION FOR STATE ROAD AND BRIDGE CONSTRUCTION (1980 EDITION) AND SHALL BE SUBSIDIARY ITEMS.
  - 1/2" MIN. WHEN SET IN CONCRETE.
  - SEE SIGN MOUNTING DETAILS.
3. All signs shall be made on .080 aluminum.
4. Street signs shall be made with 6" White Highway Gothic C Letters with proper spacing on a green backing.
5. All signs shall be made with 3M High Intensity Sheeting; all inks or films used shall carry same warranty as sheeting.



**GENERAL INSTALLATION NOTES CONTINUED:**

6. Street signs will be mounted to top of Stop Signs or Yield Signs.
7. Street signs shall be printed on one side only and mounted on each side of post.
8. All street name signs shall be mounted with Cherry Mate Rivets.
9. All other signs shall be mounted with 5/16" Carriage Bolts.
10. All existing signs, except street signs, within the project limits shall be removed prior to construction and delivered to:
  - City of Olathe Traffic Operations Center
  - 301 N. Rogers Rd.
  - Olathe, KS.



Line item 0-12

# SP 1250LX

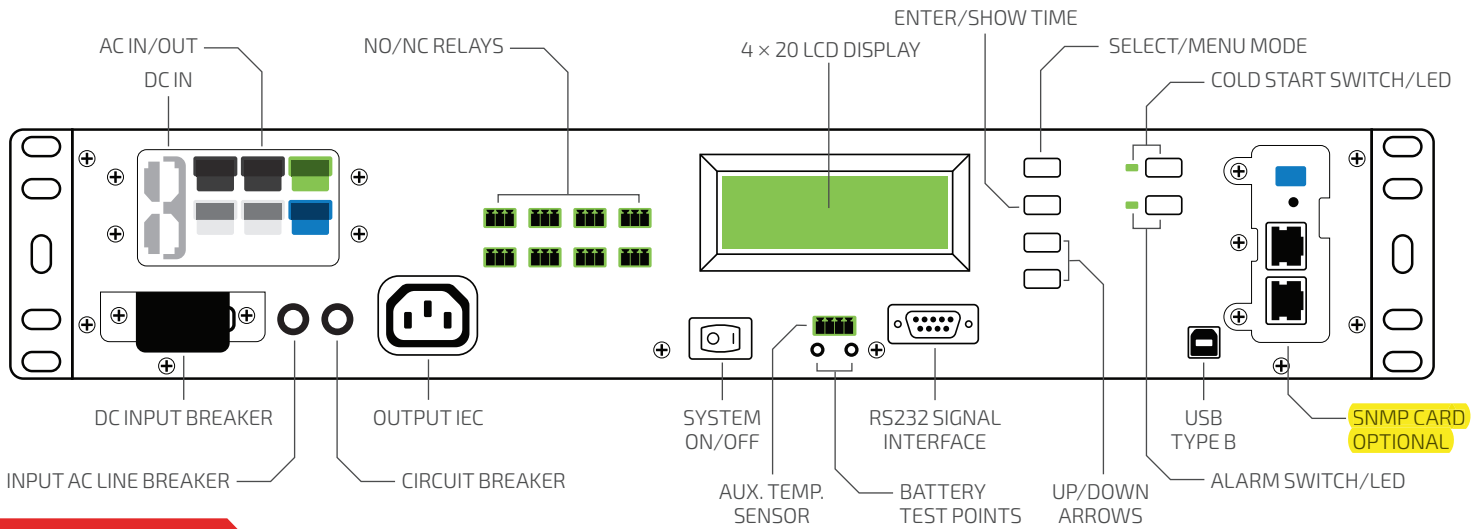
Online UPS with integrated PIM and programmable display



## Overview

The SP 1250LX features an integrated Power Interface Module and programmable display. The LX Series are advanced UPS that provide clean, regulated dual conversion power for controllers and other sensitive equipment inside the traffic cabinet. Rated for 1250 VA/875 W, with operational temperature of -40°C to +74°C (-40°F to 165°F), the SP 1250LX has been independently tested and certified to comply with NEMA temperature standards as well as

NEMA standards for shock and vibration. Compatible with most existing traffic cabinets, the SP 1250LX can be rack or shelf mounted and can be configured with either front or rear power connectors. The SP 1250LX provides full operation in intersections with all LEDs. Advanced communication features allow monitoring, configuration and control of the system over RS232, modem or network connections. Available with battery bus voltages of 48 V or 72 V.



## Features

- Space saving design: 2U vertical rack space
- Operates in extreme environments from -40°C to +74°C (-40°F to +165°F)
- USB connectivity with monitoring center or other equipment
- On-line, conditioned, regenerated power for cabinet equipment protection
- Power quality analytical data recorded and exportable to Excel in CSV format
- Power factor corrected for reliable and safe power





# Specifications

## Electrical Input

Voltage	75 VAC to 155 VAC (before going to batteries)
Frequency	45 Hz to 65 Hz

## Electrical Output

Voltage	120 VAC ±3%
Frequency	50 Hz or 60 Hz
Current	10.4 A
Rating	1250 VA / 875 W
Crest Factor Ratio	<ul style="list-style-type: none"> <li>· 50% load up to 4.8:1</li> <li>· 75% load up to 3.2:1</li> <li>· 100% load up to 2.4:1</li> </ul>
THD	4.00% maximum
Dynamic Response	±4% for 100% step load change 0.5 ms recovery time
Overload	<ul style="list-style-type: none"> <li>· 110% for 10 sec</li> <li>· 200% for 50 ms</li> </ul>
UPS Protection	<ul style="list-style-type: none"> <li>· Input and output short circuit</li> <li>· Input and output overload</li> <li>· Excessive battery discharge</li> </ul>

## Environmental

Temperature	-40°C to +74°C (-40°F to +165°F)
Humidity	0% to 95% non-condensing
Altitude	Sea level to 10,000 ft

## Mechanical

Input	Hardwired to bypass box
Outputs	Hardwired to bypass box, with single 15 Amp receptacle
Dimensions (H x W x D)	3.5" x 19.0" x 10.0" (2U)
Weight	13 lb
Cooling	<ul style="list-style-type: none"> <li>· Low velocity</li> <li>· Forced air</li> </ul>

## Design

Standard Features	<ul style="list-style-type: none"> <li>· Power factor corrected input</li> <li>· Fully regenerative</li> <li>· True on-line continuous power</li> <li>· Low distortion sine wave output</li> <li>· Designed for non-linear loads</li> <li>· Extended brownout protection</li> <li>· EIA/RS232 data interface</li> </ul>
Certifications	<ul style="list-style-type: none"> <li>· IEEE 587/ANSI C62.4</li> <li>· IEC 555 @ 120 VA</li> <li>· NEMA</li> </ul>
Typical Recharge Time (to 85% capacity @ 100% load)	48-72 hrs (more time required with extended battery option)

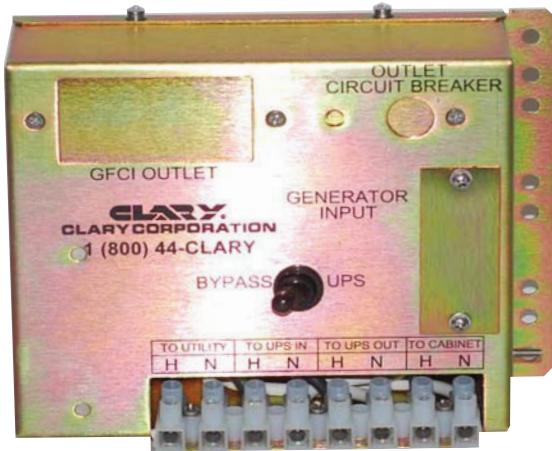
## Control and Indicators

Switches / Control Panel	<ul style="list-style-type: none"> <li>· System power</li> <li>· Cold start</li> <li>· Test</li> <li>· Alarm silence</li> <li>· Four line LCD display panel</li> </ul>
Alarms	<ul style="list-style-type: none"> <li>· Utility interrupt</li> <li>· Inverter failure</li> <li>· Overload</li> <li>· Low battery</li> <li>· Self test</li> </ul>
Intelligent Computer Interfaces	<ul style="list-style-type: none"> <li>· Serial interface for EIA 232</li> <li>· 1 each DB9-F (RS232 and signal interface pins) and 1 each USB</li> <li>· Full interactive remote computer monitoring and control of most features including load control (requires optional monitoring software)</li> <li>· NTCIP and TCP/IP ready</li> </ul>
Contact Closures	<ul style="list-style-type: none"> <li>· "D" connector</li> <li>· Open collector</li> </ul> (see user manual for additional interface information)

## Options

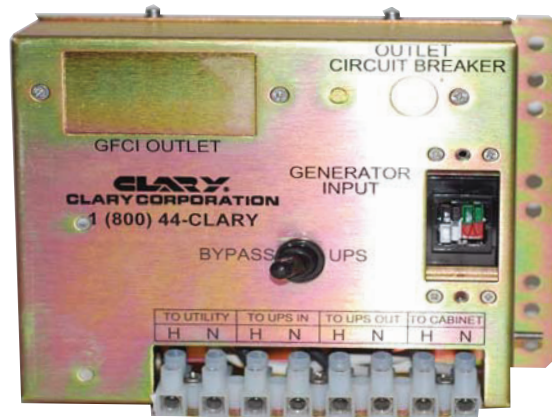
SNMP Interface	Allows full control and monitoring interface over network connection. Compatible with HP Openview™, IBM Netview™, CA Unicenter TNG™, and other major software offerings.
Battery Bus Voltage	48 V or 72 V

# By-Pass Switches for SP-PD Series, SP1250LX and SP2000LX Models



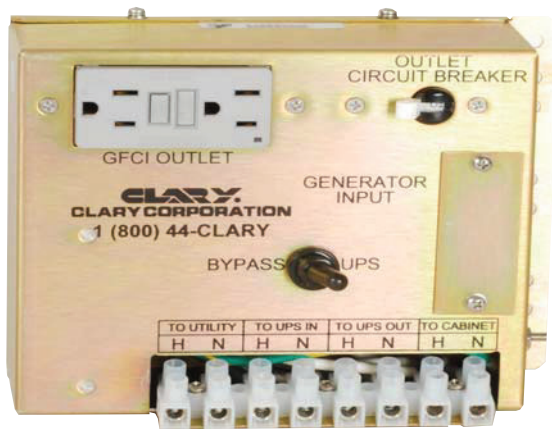
## SPD-302

The SPD-302 By-pass Switch provides the basic by-pass function for the SP-PD Series and the SP1250LX or SP2000LX products. When in By-pass, utility power is applied directly to the cabinet by-passing the UPS. When in UPS, utility power is applied directly to the UPS which then powers the cabinet.



## SPD-302A

The SPD-302A By-pass Switch provides the basic by-pass function for the SP-PD Series and the SP1250LX or SP2000LX products. Additionally, a generator plug and cable are provided to connect external generator AC power systems to the by-pass switch so that generator power can be provided to the Traffic Cabinet. By-pass and UPS modes still function as above.



## SPD-302B

The SPD-302B By-pass Switch provides the basic by-pass function for the SP-PD Series and the SP1250LX or SP2000LX products. Additionally adding a single GFI duplex plug with 15A circuit breaker for protected AC utility output. This GFI output does not load the UPS system.

## SPD-302C

The SPD-302C By-pass Switch provides the basic by-pass function for the SP-PD Series and the SP1250LX or SP2000LX products. Additionally adding the generator plug, cable and the GFI duplex plug and circuit breaker.

**Generator plug & cable** is included in the SPD-302A and SPD-302C model numbers. Cable is not included in the SPD-302 and SPD-302B model numbers.



# UPS MANAGEMENT HARDWARE

## SNMP Adapter

# SNMP/HTTP Adapter

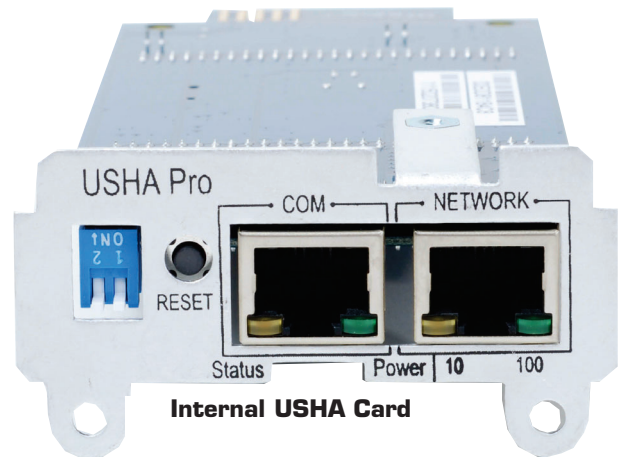
CT-09A1, DT-09A1, SP-09A2, SP-09G, SPD-09A2  
or SPO-09A2 (Internal) **SP09A3**  
CT-09H, DT-09H or SP-09H (External)

### Features:

**SMART UPS SNMP HTTP ADAPTER**  
**SNMP over UDP/IP HTTP over TCP/IP**  
**ARP, RARP, TFTP and ICMP**

The optional SNMP/HTTP card functions as an SNMP agent and includes an embedded HTTP server (web server). This means that one industry standard management tool can be used to monitor and control all your UPS systems from one central location, and power management can now be integrated into your existing network or building management strategy. Alarms ('traps') can be configured to ensure automatic notification of events such as low battery, power outage or overload. MIBs are included with the product for integration into your system management software.

Control and management functions are also available through any standard web browser (e.g. Internet Explorer, Netscape or Opera). Simply point your browser to the network address assigned to the card, and the embedded web server returns web pages providing access to monitor or control all system parameters. The easy-to-use browser interface with online help means that minimum training is required to enable staff to effectively manage the UPS and protected devices. A sophisticated Java applet provides full system monitoring in real time, along with comprehensive event and history logs.



Internal USHA Card

### FEATURES:

- ✓ Configurable from serial port or web browser
- ✓ Management from SNMP manager or web browser
- ✓ Supports standard UPS MIB
- ✓ Firmware upgrades by TFTP via serial port
- ✓ Full-featured GUI runs in web browser
- ✓ Accessible from any workstation on the network using SNMP/HTTP, regardless of OS via standard browser
- ✓ UPS Shutdown warning broadcast capability
- ✓ Realtime monitoring of all functions
- ✓ Full history logs
- ✓ Scheduling functions
- ✓ Supports: Linux, Novell, SCO Unix 5.x, SCO Unixware 7.x, Solaris (x86) and Windows 2000, Me, XP, HP-UX, IBM-AIX, FreeBSD and other Linux derived Operating Systems
- ✓ Supports Environmental Monitoring Device (EMD) that provides temperature and humidity sensing. Additional detection or sensing of motion, smoke, security devices, water sensor or vibration sensors is also supported.
- ✓ Certifications: CE, FCC Class B

**Where Power is a way of life**

Specifications subject to change without notice

UPS MANAGEMENT HARDWARE

**ELARY**  
The Continuous Power Company™

industrial  
commercial

# SNMP Specifications

Power Input DC	8V USHA internal 15V USHA external, DC power Module
Power Consumption	3 watts
Operating Environment	Humidity: 10 to 80% Non-condensing Temperature: 0°C to 40°C
Regulatory Approval	FCC Class B, CE Class B
Warranty	2 Years



External USHA Pro II front/back views

# SNMP Functional Information

<b>Network Interface</b>	One RJ-45 connector for 10Mb BASE-T Ethernet connection.
<b>HTTP/HTTPS</b>	Supports HTTP Protocol. Remotely monitor or manage UPS through Windows Internet Explorer or Netscape browsers.
<b>SNMP</b>	Supports SNMP Protocol. Centralized monitoring and management of the UPS can be accomplished by a Network Management System such as HP Openview.
<b>Java Applet</b>	Provides "Real Time" UPS status and data graphical format. Can be activated through selected browser for Real-time UPS status monitoring with graphical data.
<b>TELNET</b>	Provides alternative method for configuration of the UPS including automatic log-out function for additional security.
<b>E-mail Notification</b>	E-mail can be sent to the administrator or to pre-defined designated users based on mail configuration parameters.
<b>Mobile Phone</b>	With WAP support, administrator can either browse the UPS information or receive the UPS event short message (SMS) notification on users Cellular Phone.
<b>PDA</b>	Users can also browse UPS status and receive event status.
<b>Language</b>	Supports both English and simplified traditional Chinese.
<b>Firmware Upgrades</b>	Under the Windows environment, utilizing proprietary utility software, users can upgrade SNMP adapters internal firmware.
<b>UPS Status Information</b>	<p><b>SNMP:</b> Notify multiple hosts and pre-define the recipients for any warning messages.</p> <p><b>Java applet:</b> Notify the administrator when their is a power event via pop-up dialog box at specified user terminals.</p> <p><b>Shutdown Daemon:</b> Notifies of power event to those servers or workstations (maximum of 72 stations) of the power event and starts the shutdown procedure to those systems that have the appropriate shutdown software installed.</p>
<b>Intelligent Shutdown Services</b>	<p><b>Schedule:</b> Ups can be shutdown on a pre-defined weekly schedule.</p> <p><b>Special day Schedule:</b> UPS can be shutdown on a pre-defined date and time.</p> <p><b>Manual:</b> Ups can be set to "Sleep" Mode or to "Turn off" the UPS.</p> <p><b>Unattended:</b> When there is a utility power event, warnings/shutdown messages can be immediately sent to pre-defined users.</p>

Specifications subject to change without notice.



# Outpost™ Batteries

Designed for deep cycle, extreme temperature applications



## Overview

The Outpost™ batteries are designed for deep cycle, extreme temperature applications. They have been field tested and used for years in the traffic and ITS market as well as the US military. Operational from -40°C to +74°C (-40°F to +165°F). Available in 41, 51 & 105 Ampere-Hour (AH) ratings. Outpost batteries are sealed lead acid batteries built using an advanced absorbed glass mat (AGM) construction with microporous spun glass separators. The result is a highly

reliable, non-spillable, maintenance-free battery usable in the most demanding applications. The casing is a copolymer polypropylene technology originally developed for military jet fighter applications where wide temperature range performance is demanded. Positive plates—special lead calcium. Includes models: OP72C-41, OP96C-41, OP72D-51, OP96D-51, OPB-1241, OPB-1251, OPB-12105.

### Configurations

Model	Voltage (nominal)	AH Capacity (20 hr rate)	System Voltage	Estimated Runtime (hrs) at 25°C (77°F) Full Charge							Weight per Battery lb (kg)	Overall Dimensions			
				300 W	500 W	700 W	875 W	1000 W	1200 W	1400 W		Length in (mm)	Width in (mm)	Height in (mm)	
OP48C (4 batteries)			48 VDC	4.3	2.5	1.5	1.1								
<b>OP72C (6 Batteries)</b>	<b>12 VDC</b>	<b>41 Ah</b>	<b>72 VDC</b>	<b>6.4</b>	<b>3.5</b>	<b>2.4</b>	<b>1.7</b>				<b>29 (13.2)</b>	<b>7.71 (195.9)</b>	<b>4.96 (126)</b>	<b>8.05 (204.4)</b>	
OP96C (8 batteries)			96 VDC	8.8	5.2	3.5	2.8	2.5	1.9	1.6					
OP48D (4 batteries)			48 VDC	5	3.2	1.9	1.4								
OP72D (6 batteries)	12 VDC	51 Ah	72 VDC	8.3	4.4	3	2.2				35 (15.9)	8.81 (224)	5.25 (133)	8.82 (224)	
OP96D (8 batteries)			96 VDC	11	6.5	4.4	3.5	3.2	2.4	2					
OP48E (4 batteries)			48 VDC	12	7.3	4.6	3.5								
OP72E (6 batteries)	12 VDC	105 Ah	72 VDC	20.2	10.4	7.2	5.9				64 (29)	12.86 (326.8)	6.58 (167.2)	8.79 (223.1)	
OP96E (8 batteries)			96 VDC	26	17	10.8	8.5	7.6	5.9	5.4					



# PEDESTRIAN CROSSING SYSTEMS

Solar or AC-Powered Flasher Assembly

Line item 0-24 Single Sided  
Line item 0-25 - Double Sided

*RTC manufactures a full line of solar and AC-powered pedestrian crossing systems. These systems can be activated by a variety of push button options or the time of day using RTC's AP22 time switch.*

*Choose from traditional 12" beacons, single or back-to-back RRFBs, or single or back-to-back EdgeLight™ signs to customize your system.*

*RTC is your proven supplier of solar and AC technology and traffic control systems.*



**Fully Customizable:**

Mix and match flashing options, activation methods, pole size, color, and additional features to build the Pedestrian Crossing System that's best for you.



*Advancing Traffic Safety Since 1987*



# PEDESTRIAN CROSSING SYSTEMS

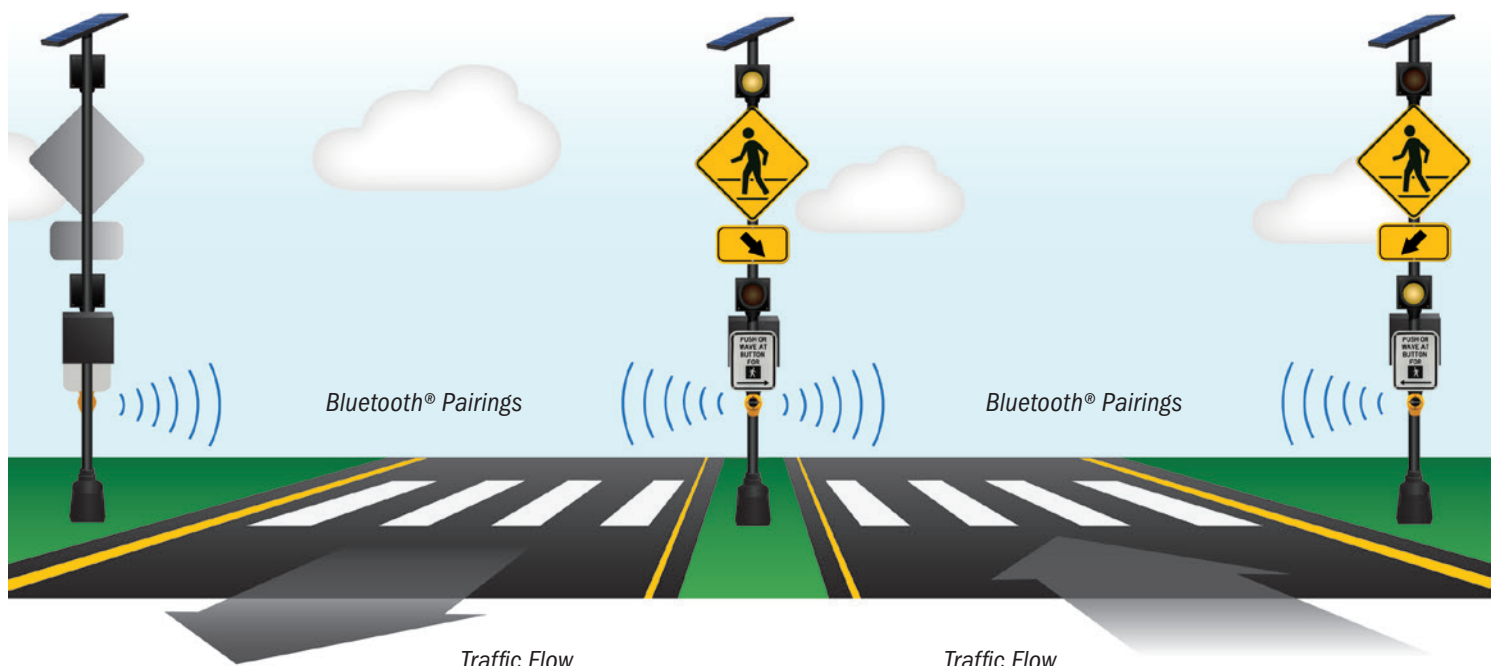
## Solar or AC-Powered Flasher Assembly

### FEATURES

- Solar and battery sizing engineered to fit your installation site.
- Flashing options: traditional 12" beacons, single or back-to-back RRFBs, or single or back-to-back high-visibility EdgeLight™ signs.
- Standard push button is the Polara™ **iNS APS** with iDetect - an audible, touchless, “push or wave” button that detects movement within 1-4". Other APS and push-button activations available upon request. All buttons are vandal resistant.
- Optional AP22 time-switch control for time of day operation.
- Optional centralized communication using M2M and RTC Connect™ software.
- Bluetooth® communication between beacons.
- Standard spun aluminum 4.5" pole and breakaway base with collar.
- Multiple advance-warning beacons can be added and activated by one push of a button.
- Color options to meet agency specifications.
- Pedestrian signs available in yellow or fluorescent yellow-green in standard or EdgeLight™ options.
- An unlimited number of flashers can exist in a pedestrian crossing system; push buttons are paired together via Bluetooth® to create a connected system, so that when one button is pressed, all flashers in the system are activated.
- Bluetooth® identification and pairing prevents the possibility of outside bluetooth interference.
- Compatible with Worry-Free Flasher System / Guardian™ Monitoring, RTC Connect™, AP22 and M2M.
- Guardian™ devices monitor battery voltage, solar voltage, load status, time switch power, door switches, and LEDs.
- Optional Flood Light with photoresistor to activate high-visibility LED during night time operation.
- Optional video passive detection activation

### COMMUNICATION FLOW

- When the pedestrian crosswalk button is pressed at any flasher, the push button transmits a signal to the other buttons that have been paired and identified as being part of the same system.
- All of the beacons will flash until the end of the pre-set relay timing cycle that is set up within the cabinet.
- The pairing and identification of push buttons can be done in the field or office using the Polara(TM) Field Service App, available on all mobile device app stores.
- The time-delay relay is also field-configurable using dip switches on the panel.



## GEL0100

### Technical Specifications

Nominal Voltage	12V
Nominal Capacity	96.0Ah (20 Hr Rate to 1.80V/cell) 104.0Ah (100 Hr Rate to 1.80V/cell)
Chemistry	Lead Acid - Gel

### Physical Specifications

Length	330 mm	12.99 in
Width	173 mm	6.81 in
Height	212 mm	8.35 in
Height w/Terminal	218 mm	8.58 in
Weight (+/- 5%)	30.8 Kg	67.9 lbs
Terminal Type	Insert	
Case Material	ABS	

### Charging Specifications

Charge Voltage	Battery	Per Cell
Float	13.5V~13.8V	2.25V~2.30V
Cycle	14.4V~15.0V	2.40V~2.50V
Max. Charge Current	24.0A	
Charge Temperature Range	32°F (0°C) to 104°F (40°C)	

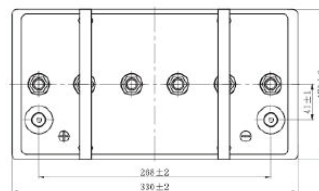
### Capacity Specifications

5 Second Discharge Current	1000A
Self Discharge (to 80% capacity)	1 Month 92%
	3 Months 90%
	6 Months 80%
Internal Resistance	5.9 mΩ(25°C)
Discharge Temperature Range	-4°F (-20°C) to 131°F (55°C)



### FEATURES:

- Pure gel delivers high current on demand for long service life
- 2x the cycle life of standard AGM
- Ideal for standby or frequent cyclic discharge use
- Flexibility of mounting orientation
- Maintenance-free



## DATE CODE – Interstate products

The date code format described below is used in most of our private-labeled packs and SLA batteries. The 5-character code (SSMDY) is sometimes abbreviated to a 4-character code (SSMY).

### First and Second characters are the SUPPLIER CODE

### Third character is MONTH:

A	January
B	February
C	March
D	April
E	May
F	June
G	July
H	August
I	September
J	October
K	November
L	December



### Fourth character is DAY of the month (used in 5-character date code only):

1	1 <sup>st</sup>	H	17 <sup>th</sup>
2	2 <sup>nd</sup>	I	18 <sup>th</sup>
3	3 <sup>rd</sup>	J	19 <sup>th</sup>
4	4 <sup>th</sup>	K	20 <sup>th</sup>
5	5 <sup>th</sup>	L	21 <sup>st</sup>
6	6 <sup>th</sup>	M	22 <sup>nd</sup>
7	7 <sup>th</sup>	N	23 <sup>rd</sup>
8	8 <sup>th</sup>	O	24 <sup>th</sup>
9	9 <sup>th</sup>	P	25 <sup>th</sup>
A	10 <sup>th</sup>	Q	26 <sup>th</sup>
B	11 <sup>th</sup>	R	27 <sup>th</sup>
C	12 <sup>th</sup>	S	28 <sup>th</sup>
D	13 <sup>th</sup>	T	29 <sup>th</sup>
E	14 <sup>th</sup>	U	30 <sup>th</sup>
F	15 <sup>th</sup>	V	31 <sup>st</sup>
G	16 <sup>th</sup>		

#### EXAMPLES:

E4JPC  
 E4 = SUPPLIER  
 J = OCTOBER  
 P = 25<sup>TH</sup> DAY  
 C = 2012

E4JC  
 E4 = SUPPLIER  
 J = OCTOBER  
 C = 2012

E4JP12  
 EF = SUPPLIER  
 J = OCTOBER  
 P = 25<sup>TH</sup> DAY  
 12 = 2012

### Last character is YEAR (\*See example for 6-character code):

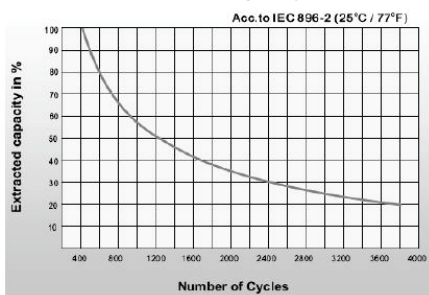
9	2009	I	2018
A	2010	J	2019
B	2011	K	2020
C	2012	L	2021
D	2013	M	2022
E	2014	N	2023
F	2015	O	2024
G	2016	P	2025
H	2017	Q	2026

\*for 6 character codes  
 the last two digits  
 represent the year  
 (11=2011, 12=2012,  
 13= 2013...)

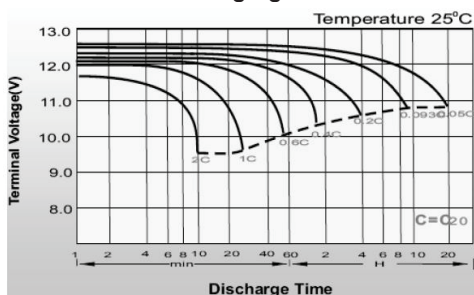


# Pure Gel Deep Cycle

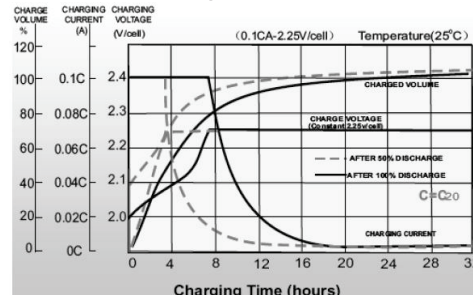
Depth of Discharge Cycle Life



Discharging Current VS  
Discharging Time



Float Charge Characteristics



### Constant Current Discharge Characteristics: A (25°C)

F.V/Time	20 min.	30 min.	45 min.	1 hr.	2 hr.	3 hr.	5 hr.	10 hr.	20 hr.
1.85V/cell	84.6	66.4	50.7	42.4	26.9	20.5	14.7	8.47	4.61
1.80V/cell	96.9	74.2	55.9	46.8	29.1	22.0	15.4	8.85	4.80
1.75V/cell	108.9	81.6	60.4	50.1	30.9	23.2	16.0	9.00	4.90
1.70V/cell	117.3	87.4	64.1	53.0	32.7	24.2	16.5	9.23	4.96
1.67V/cell	122.1	90.8	66.4	55.0	33.6	24.9	16.8	9.34	5.01
1.60V/cell	132.3	97.2	71.3	58.4	34.9	25.9	17.4	9.53	5.08

### Constant Power Discharge Characteristics: W (25°C)

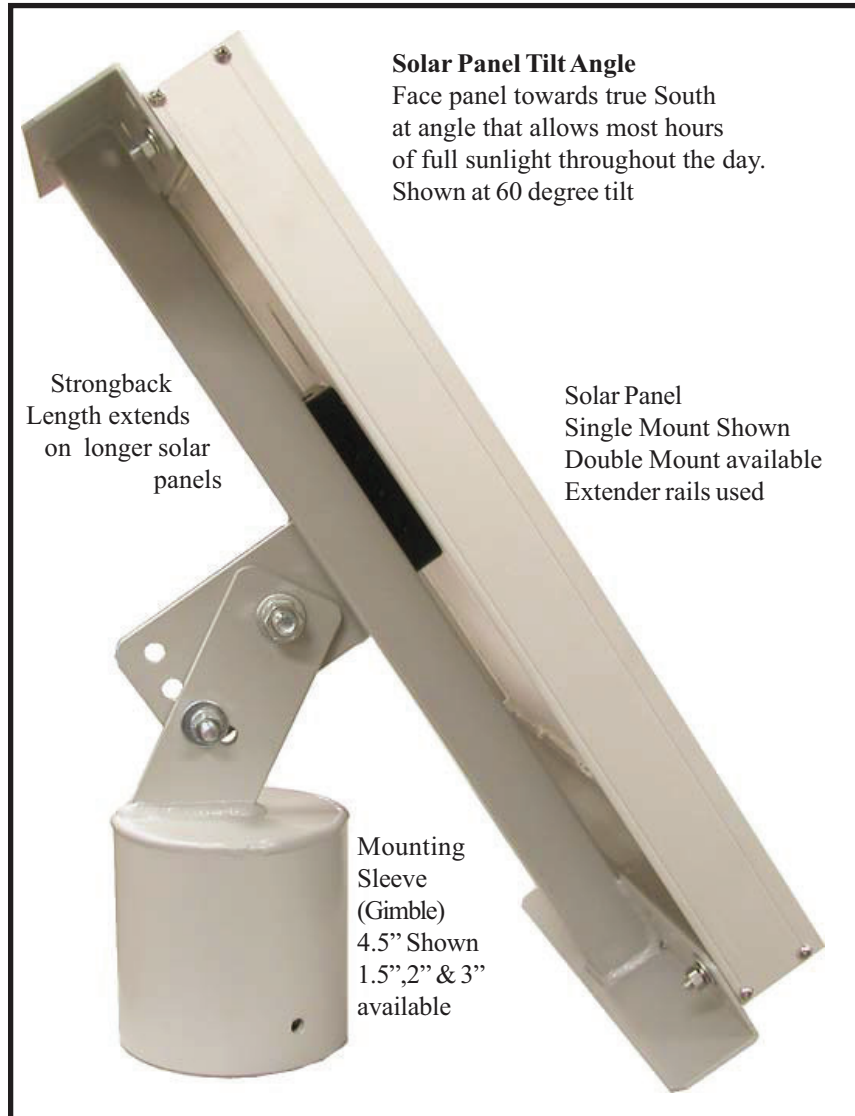
F.V/Time	20 min.	30 min.	45 min.	1 hr.	2 hr.	3 hr.	5 hr.	10 hr.	20 hr.
1.85V/cell	161.9	128.0	98.2	82.6	52.6	40.2	28.9	16.9	9.20
1.80V/cell	183.0	141.6	107.5	90.7	56.6	42.9	30.3	17.6	9.57
1.75V/cell	203.4	154.4	115.4	96.5	59.8	45.2	31.4	17.9	9.75
1.70V/cell	216.8	163.9	121.7	101.6	63.1	46.9	32.3	18.3	9.86
1.67V/cell	223.1	168.5	125.1	104.8	64.4	48.2	32.8	18.5	9.95
1.60V/cell	239.1	178.7	133.4	110.7	66.7	49.9	33.8	18.9	10.1

## Charging

**Float Service:** Holding the battery across a constant voltage source of 13.5-13.8 volts allows it to seek its own current level and maintain itself in a fully charged state. Please note that this type of battery should be charged within 6 months of storage, otherwise sulfation could cause a permanent loss of capacity.

## RTC Manufacturing, Inc. Top of Pole Solar Mounts

Available in 20, 30, 40, 50, 65, 85, 110 and 140 Watt Panel size and Double Mount Powder Coat or BarRust™ finish for harsh environments



# RTC

RTC Manufacturing, Inc.  
1016 Enterprise Place  
Arlington, TX 76001  
[www.rtc-traffic.com](http://www.rtc-traffic.com)  
(817)860-1217



# RECTANGULAR RAPID FLASH BEACON

High-Visibility Alternative to Traditional Circular Beacon

*Our RRFB provides high visibility to motorists approaching pedestrian crosswalks. The rectangular rapid flash beacon meets all current specifications of the Manual on Uniform Traffic Control Devices (MUTCD) requirements, including automatic dimming to reduce brilliance and the approved flash pattern (WW+S). The RRFB features a high-visibility pedestrian confirmation light, a black or yellow powder-coated aluminum enclosure, and has multiple time switch and communication options.*



*Available for Solar  
or AC power installations.*



*Pedestrian Safety Since 1987*



# RECTANGULAR RAPID FLASH BEACON

High-Visibility Alternative to Traditional Circular Beacon



## 503661A / 503661D (C) (CC) SPECIFIC FEATURES

- Great for RRFB swap outs and upgrades
  - Use with new or existing pedestrian crossing system cabinets
- Built-in dimming and flash pattern
  - Solid output

## 503662D (C) (CC) SPECIFIC FEATURES

- Great for flexibility and customization
  - Programmable dimming levels and flash patterns
- DFC controlled (sold separately)
  - Steady output

## COMMON FEATURES

- Meets all current MUTCD requirements and FHWA requirements
- Available for 120VAC or **12VDC** power Input
- Provides high visibility to motorists
- 3"H x 7"W or larger Super-LED lens, low current - high output
- 1.5"W X 3"H confirmation LED lens (0, 1, or 2 optional)
- Pedestrian confirmation light can be mounted on left or right side of enclosure
- 4"H x 23"W x 1.5"D enclosure size
- Black or yellow powder-coated aluminum enclosure
- MUTCD approved flash pattern (WW+S)
- Power-saving dimming capabilities standard
- Directional lenses meet Dark Sky Initiative
- Compatible with the AP22 time switch
- Dimming controlled from inside RRFB enclosure

## COMPLIANCE

- Meets photometry standard for the IA-21 and J595 Class 1 Certification

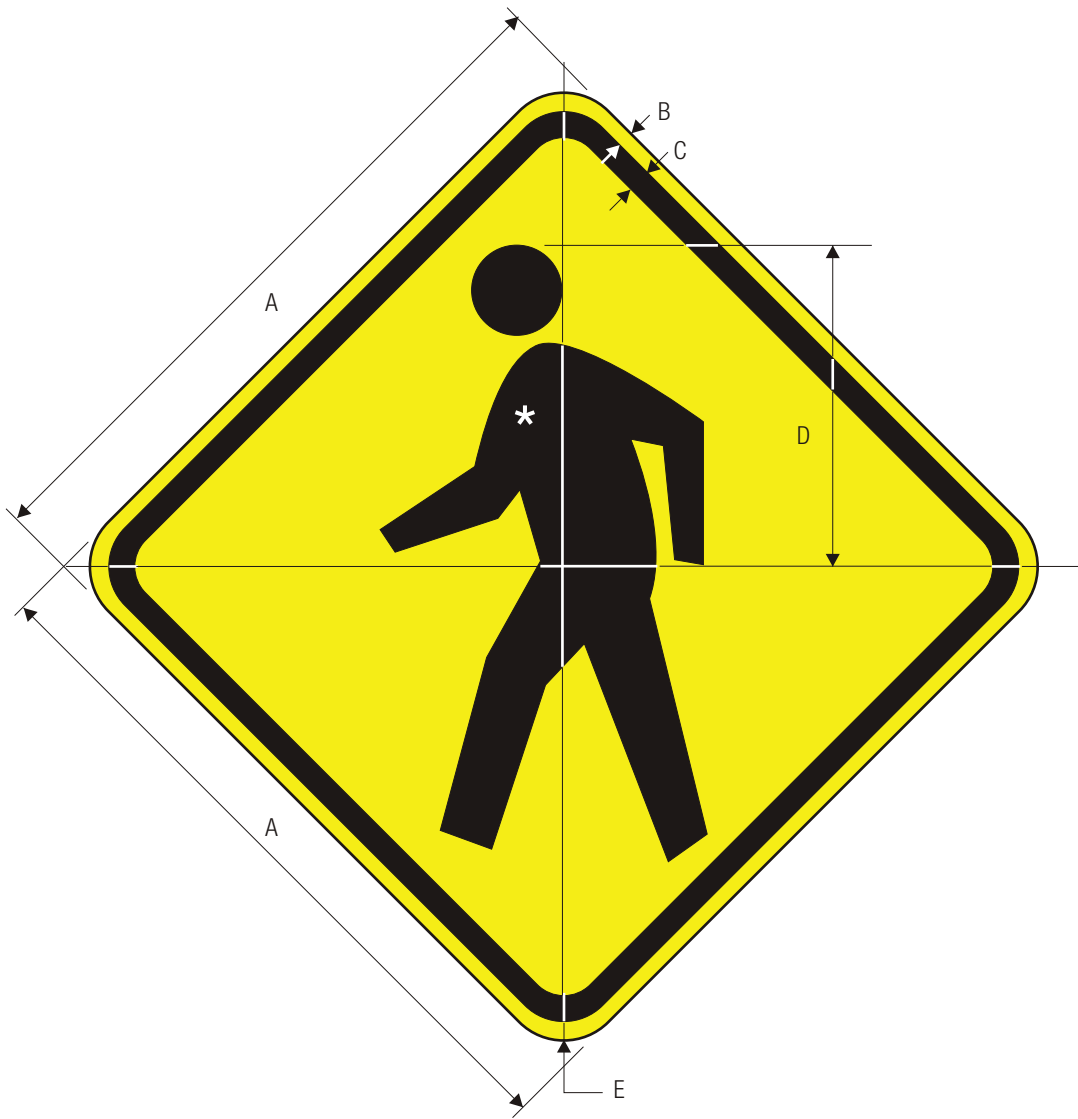
## COMMUNICATION OPTIONS

- M2M
- 2-Way radio (mobile and central system)
- Ethernet (IP) direct to time switch
- Ethernet (IP) to 2-way radio

## ORDERING OPTIONS

- **Single or back-to-back RRFBs**
- A/C or **D/C power**
- **Black** or yellow housing
- Zero, **one**, or two confirmation lights
- **Mounting Options:** single or back-to-back mounting for 4.5" u-bolt, horizontal banding for mast arms or vertical banding for large poles





**W11-2**

PEDESTRIAN TRAFFIC

\*See page 6-10 for symbol design.

	A	B	C	D	E
	18	.375	.625	8	1.5
	24	.375	.625	11	1.5
<b>C</b>	30	.5	.75	13.5	1.875
	36	.625	.875	16	2.25
	48	.75	1.25	22	3

COLORS: SYMBOL BACKGROUND — **Fluorescent Yellow Green**

30 x 18"



**W16-7PL**

**Downward Diagonal Left Arrow (plaque)**



**W16-7PR**

**Downward Diagonal Right Arrow (plaque)**

Sign images from the Manual of Traffic Signs <<http://www.traffic signs.us/>>  
These sign images copyright Richard C. Moeur. All rights reserved.

# Sign Clamp Assemblies

Pelco manufactures a variety of sign brackets in both rigid and free-swinging mounts, flat and internally illuminated signs.



## Double Sign Clamp Assy, Alum w/ 5/16" Sign Mounting Hardware

SH-0203 -  Pole Size -  Coating

1.5=1.5" (1-7/8" OD) PNC=Process No Color  
 2=2" (2-3/8" OD) P\_\_=Paint  
 2.5=2.5" (2-7.8" OD)



## U-Bolt Sign Clamp Assy, Alum w/ 5/16" Sign Mounting Hardware

SH-0206 -  Pole Size -  Coating

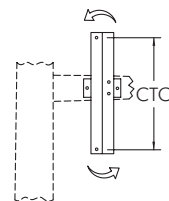
1.5=1.5" (1-7/8" OD) PNC=Process No Color  
 2=2" (2-3/8" OD) P\_\_=Paint  
 2.5=2.5" (2-7.8" OD)  
 4=4.5" (4-1/2" OD)



## Adjustable Sign Mount Assy, Mast Arm, Alum

SH-0112 -  Zee Bar CTC -  Coating

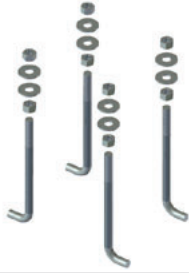
24=24" PNC=Process No Color  
 30=30" P\_\_=Paint  
 36=36"  
 42=42"  
 Blank=None



Note: 1. All assemblies are supplied standard with stainless fasteners.  
 2. See Reference Section for available paint colors.

# Anchor Bolt Sets

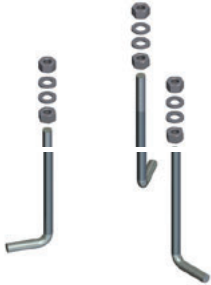
Pelco's galvanized anchor bolt sets are available in a variety of sizes.



## Anchor Bolt Set of 4 w/ Hardware 1/2"-13NC x 7-1/2", Galv

AP-1046-GLV

Note: Includes 4 Bolts, 8 Washers, and 8 Nuts.



## Anchor Bolt Set of 3 w/Hardware 3/4"-10NC x 18", Galv

PB-5305-GLV

Note: Includes 3 Bolts, 6 Washers and 6 Nuts.



## Anchor Bolt Set of 4 w/ Hardware 3/4"-10NC x 18", Galv

PB-5306-GLV

Note: Includes 4 each: Bolts, Washers and Nuts.

**PB-5518-GLV**

Note: Includes 4 Bolts, 8 Washers and 8 Nuts.



## Anchor Bolt Set of 4 w/ Plate Washers 3/4"-10NC x 18", Galv

PB-5371-GLV

Includes 4 Bolts, 4 Plate Washers, 4 Washers, and 4 Nuts.



## Anchor Bolt Set of 4 w/ Hardware 1"-8NC x 36", Galv

AP-1007-  -GLV

Template

- 1=12" Bolt Circle
- 2=12.75" Bolt Circle
- 3=11" Bolt Circle

Includes 4 Bolts, 4 Lock Washers, 8 Washers, and 8 Nuts.

Note: 1. All assemblies are supplied standard with galvanized fasteners.



# Square Pedestal Bases Aluminum

Pelco offers aluminum, steel, and plastic bases in various sizes as well as poles in aluminum and steel. Pelco's cast aluminum square base is FHWA certified and meets or exceeds AASHTO break-away requirements. Plastic replacement doors offer an economical way to deter vandalism.



## Square Base Assembly, Alum w/ Alum Door

<b>PB-5334</b>	-	Door [ ]	-	Set Screws in Collar [ ]	-	Grounding Lug [ ]	-	Coating [ ]
		NL=No Logo Blank=Pelco Logo		1S=1 Hex Bolt 3S=3 Set Screws Blank=None		GL=Grounding Lug Blank=None		PNC=Process No Color P__=Paint

## Square Base Assembly, Alum w/ Plastic Door



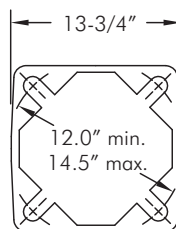
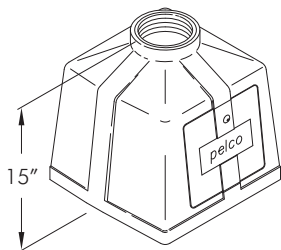
<b>PB-5335</b>	-	Door [ ]	-	Set Screws in Collar [ ]	-	Grounding Lug [ ]	-	PNC
		NL=No Logo Blank=Pelco Logo		1S=1 Hex Bolt 3S=3 Set Screws Blank=None		GL=Grounding Lug Blank=None		

## Square Base Assembly, Alum Heat Treated w/ Alum Door

<b>PB-5336</b>	-	Door [ ]	-	Set Screws in Collar [ ]	-	Grounding Lug [ ]	-	Coating [ ]
		NL=No Logo Blank=Pelco Logo		1S=1 Hex Bolt 3S=3 Set Screws Blank=None		GL=Grounding Lug Blank=None		PNC=Process No Color P__=Paint

## Square Base Assembly, Alum Heat Treated w/ Plastic Door

<b>PB-5337</b>	-	Door [ ]	-	Set Screws in Collar [ ]	-	Grounding Lug [ ]	-	PNC
		NL=No Logo Blank=Pelco Logo		1S=1 Hex Bolt 3S=3 Set Screws Blank=None		GL=Grounding Lug Blank=None		



- Note: 1. AASHTO Certified Square Aluminum Base: All Aluminum square bases above are available with AASHTO Certifications and FHWA approval. Please specify by adding the Certification Part No. C-1001 in addition to the base part number.  
2. All assemblies are supplied standard with stainless fasteners.  
3. See Reference Section for available paint colors.

## Pole & Base Accessories

Pole and base collar assemblies, for both square and octagonal bases, are available in highwind areas to add strength and help prevent loosening of connection.



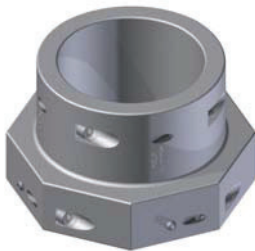
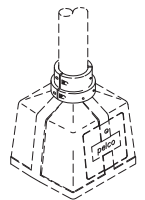
### Pole & Base Collar Assembly, Alum Square Base

**PB-5325** -

Coating

PNC=Process No Color

P\_\_=Paint



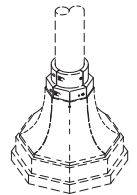
### Pole & Base Collar Assembly, Alum Octagonal Base

PB-5326 -

Coating

PNC=Process No Color

P\_\_=Paint



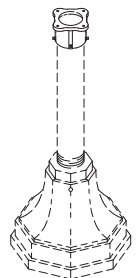
### Pedestal Adapter, 4" (4-1/2" OD Pole), Alum 6-1/2" Bolt Circle

SE-3104 -

Coating

PNC=Process No Color

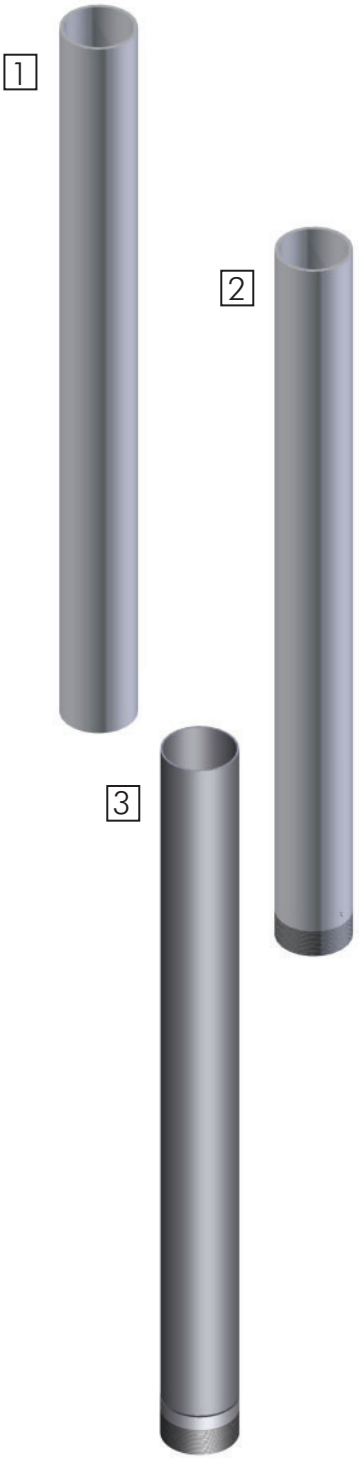
P\_\_=Paint



Note: 1. All assemblies are supplied standard with stainless steel fasteners.  
2. Specify options when ordering.  
3. See Reference Section for available paint colors.

# Pedestal Poles

Pelco offers aluminum, steel, and plastic bases in various sizes as well as poles in aluminum and steel. Pelco's cast aluminum square base is FHWA certified and meets or exceeds AASHTO break-away requirements. Plastic replacement doors offer an economical way to deter vandalism.



1. **Pedestal Pole, 4" Sch 40, Spun Alum No Threads**

PB-5101 -  Length -  Coating  
 PNC=Process No Color  
 P\_\_=Paint

2. **Pedestal Pole, 4"- 8 NPT Sch 40, Spun Alum w/ Pelican ID**

PB-5100 -  Length -  Coating  
 PNC=Process No Color  
 P\_\_=Paint

**Pedestal Pole, 4"- 8 NPT Sch 80, Spun Alum**

PB-5102 -  Length -  Coating  
 PNC=Process No Color  
 P\_\_=Paint

**Pedestal Pole, 4"- 8 NPT Sch 40, Steel**

PB-5201 -  Length -  Coating  
 P\_\_=Paint

**Pedestal Pole, 4"- 8 NPT Sch 40, Galv Steel**

PB-5200 -  Length -  Coating - GLV -   
 Blank=Galvanized Only  
 P\_\_=Paint over Galvanized

3. **Pedestal Pole, Welded, 4"- 8 NPT w/ 2-3/4" Nipple Length, Steel**

PB-5218 -  Length -  Coating  
 GLV=Galvanized  
 P\_\_=Paint

**Pedestal Pole, Welded, 4"- 8 NPT w/ 5-1/2" Nipple Length, Steel**

PB-5219 -  Length -  Coating  
 GLV=Galvanized  
 P\_\_=Paint

Note: 1. Standard poles are typically sold in 1 foot increments. For other lengths contact sales.  
 2. See Reference Section for available paint colors.

# Pole Caps

Pelco offers pole and arm caps in various sizes. Caps for 4-1/2" OD posts are available in both aluminum and ABS plastic.



## Pole Cap, Acorn Type, Alum, 3" OD Pole

PB-5403 -  Coating  
PNC=Process No Color  
P\_\_=Paint



## Pole Cap, Acorn Type, Alum, 3-1/2" OD Pole

PB-5407 -  Coating  
PNC=Process No Color  
P\_\_=Paint

## Pole Cap, Acorn Type, Alum, 4-1/2" OD Pole

PB-5401 -  Coating  
PNC=Process No Color  
P\_\_=Paint



## Pole Cap, Dome Type, Alum, 4-1/2" OD Pole

**PB-5402** -  Coating  
**PNC=Process No Color**  
**P\_\_=Paint**

Note: 1. All assemblies are supplied standard with stainless fasteners.  
2. See Reference Section for available paint colors.

# NEMA TRAFFIC CABINETS

Line item 0-18

*RTC offers TS1 and TS2 traffic cabinets with quality in both design and function — versatile cabinets created for ease of service and conformity throughout the cabinet line.*



*Door features 39 circulation vents for passive heat management.*

*The outer aluminum shell is engineered to protect protect internal traffic control components and may be designed to accomodate any equipment configuration that may be required by a governing agency.*

*Serving the Traffic Industry Since 1987*



RTC-Traffic.com | contact our team at [Info@RTC-Traffic.com](mailto:Info@RTC-Traffic.com) for more information | TOLL-FREE 800.782.8721 FAX 817.274.3610

RTC Manufacturing, Inc., 1016 Enterprise Place, Arlington, Texas 76001 | ©2014 RTC Manufacturing, Inc. All Rights Reserved.

# NEMA TRAFFIC CABINETS



*Sturdy .125" 5052-H32 aluminum cabinet  
with three-point Number 2 APL lock standard.*

## FEATURES

- .125" 5052-H32 aluminum non-flex construction
- Three-point Number 2 APL lock system with a padlock hasp
- C-Channel at 6" centers on the left and right side
- 8 to 16-position, drop-down aluminum back panel
- Two-shelf design with one under-shelf schematic drawer
- Lifting eyes for ease of placement
- Door utilizes stainless-steel, piano hinge construction
- 2" closed-foam gasket with gasket framed door
- Available one, or two, 100CFM thermostat-controlled fans to remove heat through screen-vented roof eve
- Large door opening features 39 circulation vents for heat management
- Standard fluorescent or optional environmentally friendly, bright-white LED lighting
- Three-switch police door opening
- Completely customizable to meet your specific needs
- 4-6 weeks normal delivery time

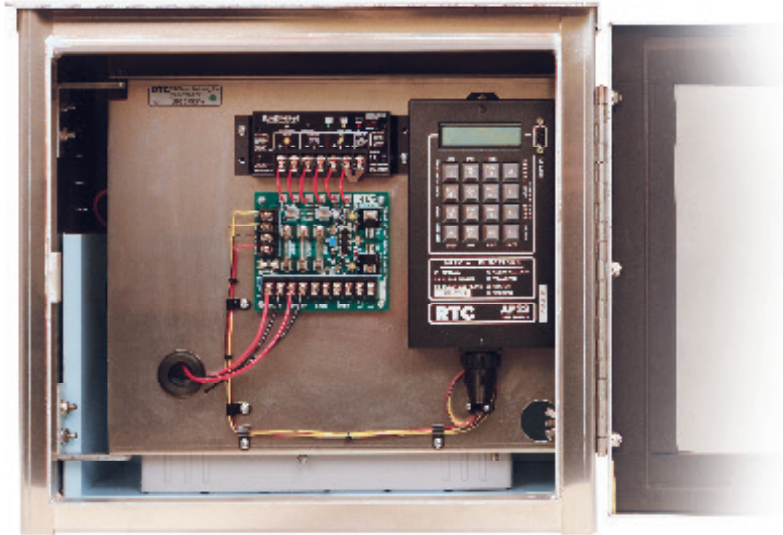
## SPECIFICATIONS

- P44 Cabinet 44"W x 54"H x 27"D,  
door opening: 41.75"W x 42H"
- 18" x 40.5" center-to-center cabinet mounting openings
- C-Channel 43.25"L x 1.25"W with .625" front opening

# BATTERY SYSTEM CABINETS

Line item 0-19

*RTC Manufacturing constructs flasher system cabinets to house battery-powered control panels in a wide range of configurations to meet your specifications. Sleek design and excellent features — exactly what you should expect from the industry leaders at RTC.*



## SINGLE BATTERY CABINET

.125" 5052 aluminum cabinet constructed to house a single 108 amp battery with a front mounted control panel. The sturdy construction allows for pole mounting.

## APPLICATIONS

- School zone flasher systems
- Pedestrian crossing systems
- Fire station warning systems
- 24-hour flasher systems\*
- Oil/gas systems
- Supplemental traffic applications
- Installations requiring small cabinet space

## FEATURES

- Locking system with Number 2 APL lock
- Rain flap extending over door opening
- Door opening with a 1.5" door gasket
- Double-thick reinforced bracket mounting area
- 4 screened vents for cross-ventilation
- 4.5" u-bolt, large pole and band-type brackets
- Special Order Options:
  - various control panels depending on application
  - Number 1 APL lock
  - wide range of size configurations

\*A 24-hour flasher system application cabinet does not include the time switch and time switch harness shown in picture above

## SPECIFICATIONS

- 16.25"H x 18"W x 12.5"D
- .125" 5052 aluminum-sheet construction
- Number 2 APL lock
- Piano-door hinge with stainless attachment bolts
- Necked-down door opening creates a clean appearance
- .5" foam in battery area
- Top edge flattened to match rubber gasket for greater water resistance
- Silicon sealant top and bottom inside edges per TXDOT specifications
- Large enough for a Group 31, 70 lb. 108-amp battery

*Helping Kids Get To School Since 1987*



RTC-Traffic.com | contact our team at [Info@RTC-Traffic.com](mailto:Info@RTC-Traffic.com) for more information | TOLL-FREE 800.782.8721 FAX 817.274.3610

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# DC GUARDIAN™ SERIES

Intelligent Flasher Systems

*The Guardian Series product line monitors and alerts users of existing and potential problems with batteries, solar panels, time switches, and power supplies located in flasher systems or other electronic devices. Alerts are sent via text or e-mail to an unlimited number of recipients and are configured to send around-the-clock or only during user-defined business hours.*

**RTC Guardian Series models feature these monitoring capabilities:**

**SOLAR VOLTAGE:** Solar voltage levels are continuously monitored and updated daily in RTC Connect™. The data is displayed graphically in 15-minute intervals, illustrating anomalies in the solar charging cycle and providing valuable information about the solar power and surrounding sun/shade.

**LOAD STATUS:** Continuously monitors load terminals and issues an alert to RTC Connect™ if the load voltage to the system is disconnected by the solar regulator.

**LEDS/DC LAMPS:** Continuously monitors LED/lamp terminals and sends an alert if an LED or DC lamp burns out or is vandalized.

**BATTERY:** Battery voltage levels are continuously monitored and updated daily in RTC Connect™. The data is displayed graphically in 15-minute intervals, illustrating the relationship between the solar and battery voltages. An alert is issued to RTC Connect™ if the monitored battery voltage falls below a user set level. An alert is also issued in the case of battery theft.

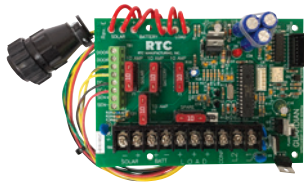
**TIME SWITCH:** Continuously monitors the operation of the clock and issues an alert if the time switch loses power.

**DOOR:** Continuously monitors the status of the cabinet door and issues an alert indicating when the door is opened. Door switch is required.



*School Zone Safety Since 1987*

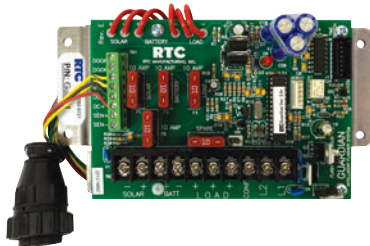
The Guardian™ Series is represented by three products: the **Guard**, **Guard1** and **Guard2** — each consists of a Guardian™ circuit board and a Guardian™ M2M harness, which connects the Guardian™ circuit board to the time switch and cell modem (sold separately).



Guard

### GUARD FEATURES *(Guardian™ board only)*

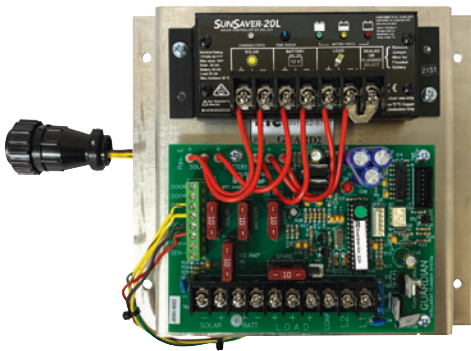
- Designed for existing RTC customers that have an RTC flasher control board and a six-position solar regulator. The GUARD hole pattern matches the existing RTC flasher control board hole pattern for an easy replacement.
- GUARD includes ONLY the Guardian™ circuit board and M2M harness.
- Dimensions: Width: 5.625" | Height: 4" | Depth: 1.5"



Guard1

### GUARD1 FEATURES *(Guardian™ board and mounting bracket)*

- Designed for customers who do not have an existing flasher control board, but do have a six-position solar regulator.
- The bracket holds the Guardian™ circuit board and has holes for mounting to a flat surface inside an appropriately sized cabinet.
- Mounting bracket constructed using .125" natural finish aluminum.
- Dimensions: Width: 7.25" | Height: 4" | Depth: 2.0625"



Guard2

### GUARD2 FEATURES *(Guardian™ board, solar regulator, and mounting bracket)*

- Designed for customers who do not have an existing flasher control board or a six-position solar regulator.
- The large bracket holds the Guardian™ circuit board and the solar regulator and has holes for mounting to a flat surface inside an appropriately sized cabinet.
- Mounting bracket constructed using .125" natural finish aluminum.
- Dimensions: Width: 8.125" | Height: 7.375" | Depth: 2.75"

Each product in the Guardian™ Series is designed to work in conjunction with RTC Connect™, RTC time switches, and RTC M2Ms.



# AP22 TIME SWITCH

Industry-Standard, Time-Tested School Zone Appliance

*RTC's commitment to manufacturing high-quality, long-lasting products has made the AP22 the industry standard for school zone time switches. The reputable AP22 has the capacity to store the programming for the biggest cities with multiple districts and school schedules. The AP22 is a low maintenance, user-friendly time switch that you can trust to help make your community safe and efficient.*



*Upload and download programming via Cellular, 2-Way Radio, Ethernet, or Laptop.*



*Helping Kids Get To School Since 1987*



# AP22 TIME SWITCH

Industry-Standard, Time-Tested School Zone Appliance



Upload and download programming via Cellular, 2-Way Radio, Ethernet, or Laptop.

## AP22 SPECIFICATIONS

	DESCRIPTION
DISPLAY	Two-line, 16 characters per line Liquid Crystal Display (LCD)
KEYBOARD	Sixteen-key, positive action push button
BACK-UP POWER	Non-volatile memory
OUTPUT	Two SPDT relays rated at 15 amps 12VDC or 115 VAC resistive load
POWER	Less than 0.25 Watt at rest, 0.6 watt with relay ON, 12VDC
TIME BASE	AC Power = 60Hz power line DC Power = Temperature-compensated crystal with accuracy of .35 seconds/day
SIZE	10.375"H x 4.75"W x 2"D
TEMPERATURE RANGE	-22° to +165° Fahrenheit

## AP22 FEATURES

- Two-line, sixteen-character, Liquid Crystal Display (LCD)
- Daylight Saving Time adjustments
- Program memory stored for years - no batteries to replace
- The user-friendly display auto-prompts the operator through the programming process
- Ten day plans, sixteen program steps per plan accommodate standard school day, school holidays, early dismissal days, summer school days, etc.
- Standard week plan programming uses any day plan to accommodate the most complicated school schedules
- Thirty-six annual programs use exception-day programming to assign any day plan to any calendar day(s)
- Two independent 15-amp relay outputs
- Program transfers from unit to unit with accessory cable or via RTC Connect™ software
- Works on 120VAC and 12VDC power sources

## AP22 ORDERING INFORMATION

PART NUMBER	DESCRIPTION
503644	Two-output time switch with CPC connector and 48" wiring harness
504558	Program transfer cable
500517	AC power cable with connector

## COMPLIANCE

- The AP22 meets FCC and NEMA TS1/TS2 requirements



# M2M CELLULAR COMMUNICATIONS MODEM

Communicates With School Zone Flashers Using Cellular Technology

*RTC's M2M is a compact cell modem that enables quick, reliable two-way communication between RTC field equipment and RTC Connect™ software. The simple, plug-and-play equipment eliminates the need for additional infrastructure and greatly reduces the amount of trips to to the field for check-ins and troubleshooting. The M2M allows for equipment programming and settings changes to be made remotely and for Guardian™ alerts and product data to be sent and received by RTC Connect™ as quickly as possible.*

*A cabinet equipped with M2M gives you "boots on the ground," allowing you to make changes to your AP22 Time Switch and notice potential problems in your cabinet without ever leaving the office.*



*Helping Kids Get To School Since 1987*



# M2M CELLULAR COMMUNICATIONS MODEM

Communicates With School Zone Flashers Using Cellular Technology



## M2M FEATURES

- Simple, plug-and-play operation
- Powered directly by RTC time switches with no external power supply needed
- Make program changes anytime
- Modems are fully certified and carrier approved
- Two-year warranty
- Time Switch time is synchronized daily with cell tower time
- Can be mounted directly to time switch
- Antenna typically mounts inside the flasher cabinet; an external antenna is available if required; other antenna optional, as needed
- LED indicator for power and cellular network connection
- Extended warranties up to five years available

## M2M SPECIFICATIONS

DESCRIPTION	
DIMENSIONS	2.45"H x 3.17"W x 1.16"D
WEIGHT	.65 LB
TIME SYNC	Daily via Cell System GPS
CHASSIS TYPE	Aluminum
OPERATING TEMPERATURE	-40° to +85° Celsius
HUMIDITY	Relative Humidity 15% to 93% non-condensing
SMS	Short Message Service Supported
PERFORMANCE	HSPA+
FREQUENCY BAND	Hepta-band 850/900/AWS 1700/19002100 MHz

## M2M CERTIFICATIONS

### REGULATORY COMPLIANCE

- FCC Class B (US), IC (Canada)

### SAFETY

- UL 60950-1 (US), cUL 60950-1 (Canada)

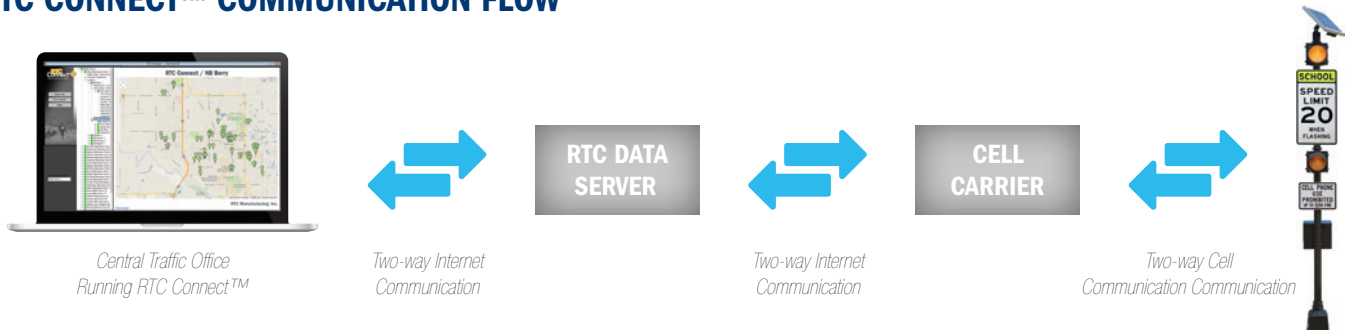
### QUALITY

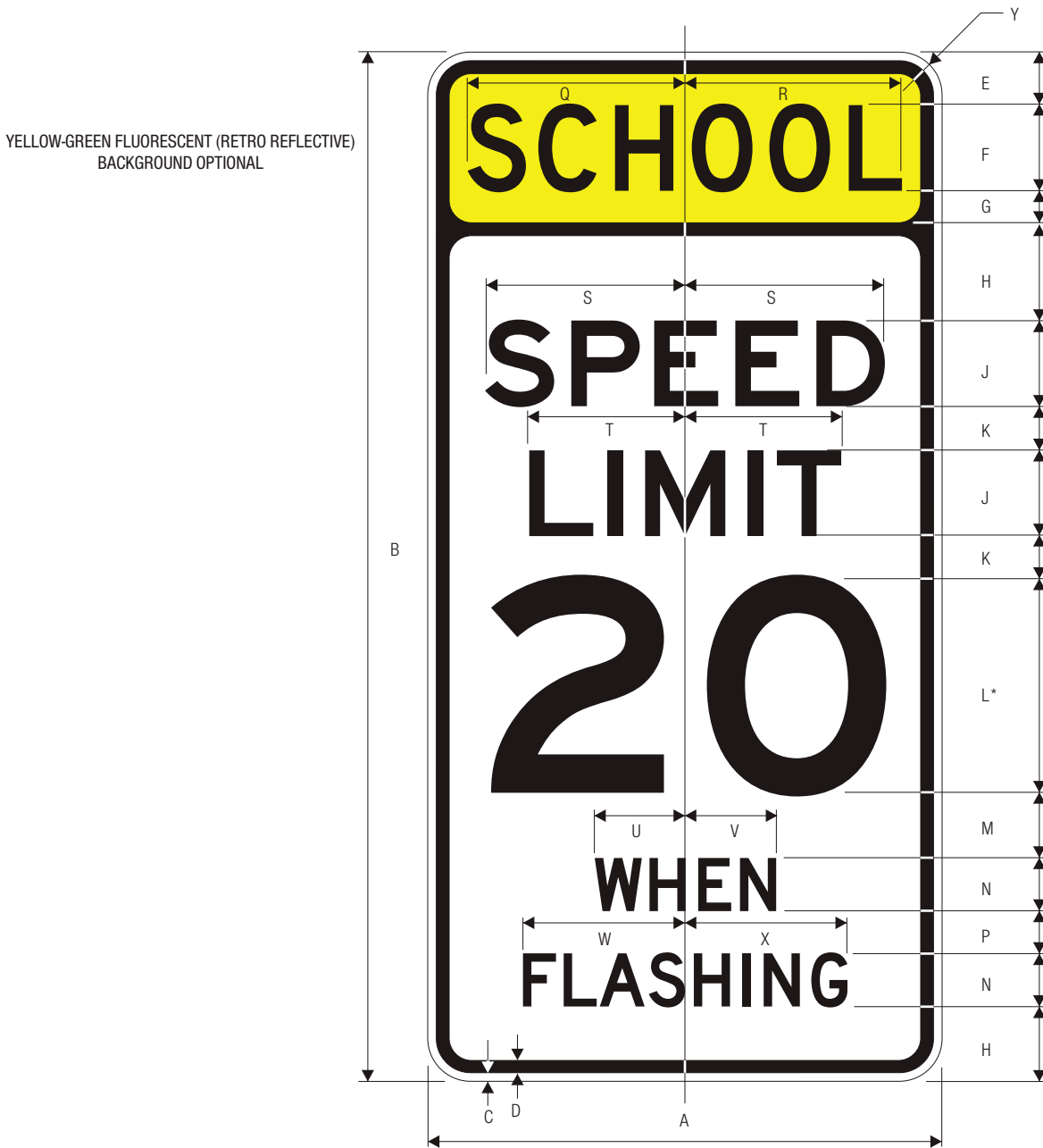
- MIL-STD-810: high-temp, low-temp, cold dwell, random vibration and sine vibration
- SAE J1455: random vibration and sine vibration

## M2M SERVICE PLANS

- Choose from one, three, five, or ten-year service agreement

## RTC CONNECT™ COMMUNICATION FLOW





YELLOW-GREEN FLUORESCENT (RETRO REFLECTIVE)  
BACKGROUND OPTIONAL

\*Optically space numerals about centerline

S5-1 SCHOOL SPEED LIMIT (WHEN FLASHING) (ENGLISH)

	A	B	C	D	E	F	G	H	J	K	L	M
<b>C</b>	24	48	.375	.625	2.5	4 D	1.5	4	4 E	2	10 E	3
	36	72	.625	.875	3.75	6 D	2.25	6	6 E	4	14 E	4
	48	96	.75	1.25	5	8 D	3	8	8 E	6	16 E	6

	N	P	Q	R	S	T	U	V	W	X	Y
	2.5 D	2	10	10.25	9.563	7.438	5.188	5.125	9.188	9.625	1.5
	4 D	2	15	15.375	14.375	11	6.938	6.813	12.25	12.875	2.25
	5 D	4	20	20.5	19.125	14.625	10.375	10.25	18.5	19.188	3

TOP PANEL

BOTTOM PANEL

COLORS: LEGEND — BLACK  
BACKGROUND — YELLOW (RETROREFLECTIVE)

COLORS: LEGEND — BLACK  
BACKGROUND — WHITE (RETROREFLECTIVE)

# Sign Clamp Assemblies

Pelco manufactures a variety of sign brackets in both rigid and free-swinging mounts, flat and internally illuminated signs.



## Double Sign Clamp Assy, Alum w/ 5/16" Sign Mounting Hardware

SH-0203 -  Pole Size -  Coating

1.5=1.5" (1-7/8" OD) PNC=Process No Color  
 2=2" (2-3/8" OD) P\_\_=Paint  
 2.5=2.5" (2-7.8" OD)



## U-Bolt Sign Clamp Assy, Alum w/ 5/16" Sign Mounting Hardware

SH-0206 -  Pole Size -  Coating

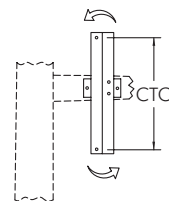
1.5=1.5" (1-7/8" OD) PNC=Process No Color  
 2=2" (2-3/8" OD) P\_\_=Paint  
 2.5=2.5" (2-7.8" OD)  
 4=4.5" (4-1/2" OD)



## Adjustable Sign Mount Assy, Mast Arm, Alum

SH-0112 -  Zee Bar CTC -  Coating

24=24" PNC=Process No Color  
 30=30" P\_\_=Paint  
 36=36"  
 42=42"  
 Blank=None



Note: 1. All assemblies are supplied standard with stainless fasteners.  
 2. See Reference Section for available paint colors.

# TRAFFIC SIGNAL HOUSING

8" Diameter

12" Diameter

Aluminum

Polycarbonate

CABINETS

CONTROLLERS

DETECTION

PARKING

SIGNALS

SIGNS

SOFTWARE

SPECIALTY



1-section shown in Federal yellow



3-section shown in Federal yellow

## Overview

McCain's Traffic Signal Housings, available in eight and twelve inch varieties, provide a durable and low-maintenance housing for standard LED modules as well as McCain incandescent optical assemblies. Manufactured from polycarbonate or aluminum, the housings are compliant with multiple agency standards including the Institute of Transportation Engineers (ITE), Caltrans, and most state Departments of Transportation (DOTs). An industry leader in signal manufacturing and supply, McCain offers an extensive range of materials, configurations, and accessories, including backplates, visors, and signal assemblies, to meet your traffic signal requirements.

## Benefits

- Modular design promotes flexible configuration options: one to five sections, vertical, horizontal, HAWK (3-section cluster), and doghouse (5-section cluster)
- Fabricated from aluminum or polycarbonate with or without 10% fiberglass reinforcement
- 8" or 12" diameter
- Weathertight doors
- Custom hardware and terminal block locations available

## Product Description

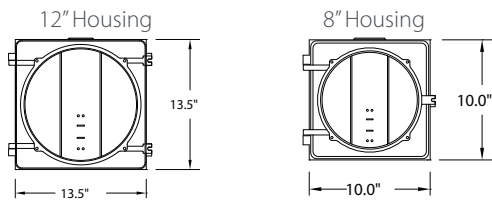
The McCain Traffic Signal Housings are modular in design, allowing a multitude of signal housing configurations for standard LEDs as well as McCain incandescent optical assemblies.

Available in polycarbonate and aluminum, each section is injection molded or cast in one piece. Reinforcement ribs and serrated ports, both top and bottom, provide strength and positive locking with other sections and mounting hardware. Positive latching of doors is achieved with stainless steel eyebolts and wing nut assemblies, and the doors feature four metal threaded inserts for visor attachment. A positive seal is assured with an E.P.D.M. rubber gasket creating a moisture-free and dust-tight atmosphere.

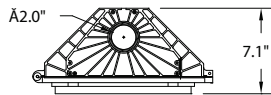
Traffic Signal Housings are compatible with McCain backplates and visors, available in both aluminum and ABS. The top and bottom ports allow installation into many framework mounting assemblies.

# Traffic Signal Housing

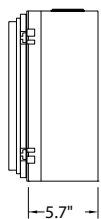
Front



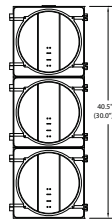
Top



Side

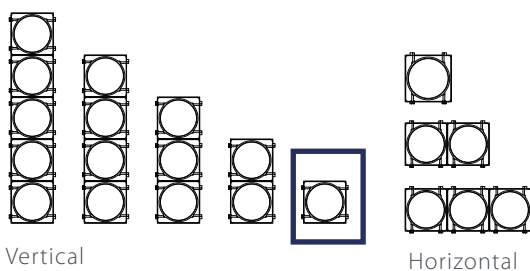


3-section



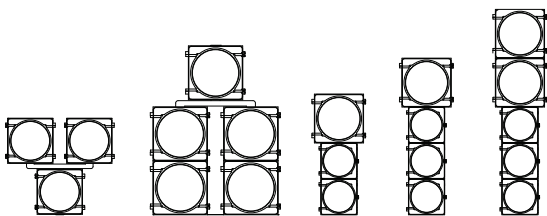
Dimensions are approximate and may vary.  
3-section 12" housing shown (3-section 8" housing height dimensions listed in parentheses)  
8" and 12" housing depths are approximately the same  
8" and 12" minor differences may not be shown

## Typical Configurations



Vertical

Horizontal



HAWK

Doghouse

Mixed Use

## Standard Features

- Modular sections, one-piece, injection molded or cast
- 72-tooth serrated boss and reinforcing ribs, top and bottom
- Brass threaded inserts for visor attachment (4)
- Housings have a cast boss for mounting a 5 or 6-position terminal block; one side of terminal block with fast-on terminals, the other side with screw terminals
- The words red, amber, and green are cast next to each boss to identify light source lead wires
- 5 or 6-position terminal block installed in center section (1) (alternate mounting is available)
- Stainless steel door roll pins and eye bolt/wing nut assemblies
- Integral lugs on the housing and doors with stainless steel roll pins provide effective door hinges
- Weathertight E.P.D.M. rubber door gasket
- Aluminum and polycarbonate, and 8" and 12" housings can be mixed in one signal head

## General Specifications

Dimensions:	8": 10" H x 10" W x 7" D
(1-section)	12": 13.5" H x 13.5" W x 7" D
Material:	Polycarbonate: Ultraviolet and heat stabilized, flame retardant, permanently colored, 10% fiberglass reinforcement
	Aluminum: Type 360, reduced corrosion, increased powder coat adhesion
Finish(es):	Polycarbonate: Colored resins integral to housing Aluminum: Powder coated
Color(s):	Federal yellow, signal green, black, or custom colors
Mounting:	2.0" hole top and bottom fits 1.5" NPT fittings
Environmental:	Operating temperature: -37° C to +74° C Humidity: 0 to 95% (non-condensing)
Shipping Weight:	Polycarbonate: 8" - 2.1 lbs      12" - 4.2 lbs (empty, 1-section) Aluminum: 8" - 4.0 lbs      12" - 7.8 lbs

## Options

- Fiberglass-free polycarbonate
- Location, quantity, and type of terminal blocks
- Door mounting hardware: Push pin (removable) or roll pin (permanent)
- Visors
- Backplates
- Mounting: Various framework, orientation, and configurations
- Light Source: LED or incandescent
- High-performance (highly directional) signal version

# SIGNAL VISORS

Aluminum  
Polycarbonate

Cap  
Full Circle  
Scoop  
Tunnel  
45° Angle



CABINETS  
CONTROLLERS  
DETECTION  
PARKING  
SIGNALS  
SIGNS  
SOFTWARE  
SPECIALTY

## Overview

McCain's Signal Visors increase signal visibility in sunlight while still allowing an unobstructed view for multiple lanes of approaching drivers, cyclists, and pedestrians. McCain produces a range of standard and angled visors including tunnel, full circle, scoop, and cap that offer a variety of signal viewing angles. Whether you are looking for aluminum or polycarbonate, federal yellow, signal green, black, or custom colors, McCain has the visors to meet your needs.

## Benefits

- Increases signal visibility in sunlight
- Available in a variety of materials, sizes, styles, and angles to meet your specific requirements
- Twist-on tabs facilitate ease of installation
- One-piece construction (except Scoop Visor)

## Product Description

McCain's Signal Visors, molded polycarbonate or stamped and formed aluminum, are available in eight inch and 11 inch signal configurations. Integrally formed, twist-on mounting tabs make installation and maintenance a snap, and a standard three degree downward tilt facilitates signal visibility.

Specialty visors include the 45° Angle Visor and the Scoop Visor. The 45° Angle Visor comes in two standard lengths, 18" and 27" and in right and left versions. It is designed to narrow visibility for locations such as an angled intersection.

The Scoop Visor is designed to resist snow build-up on signal lenses in colder climates. A louvered vent on top and an open bottom contribute to the increased vertical movement of air across the face of the signal lens thereby increasing resistance to the deposit of snow.

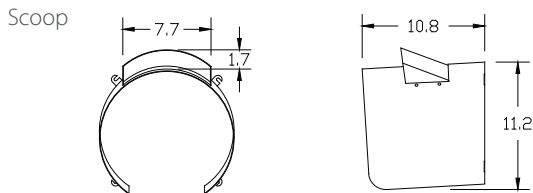
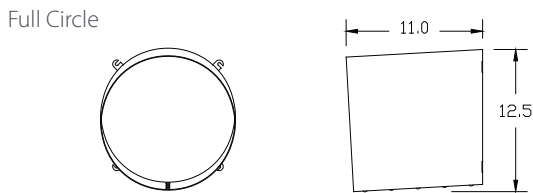
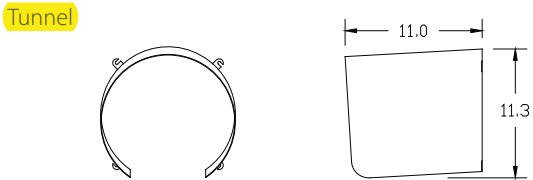
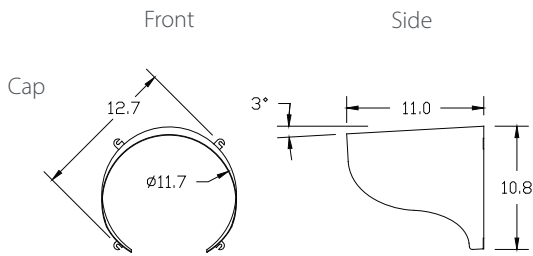
# Signal Visors

## Standard Features

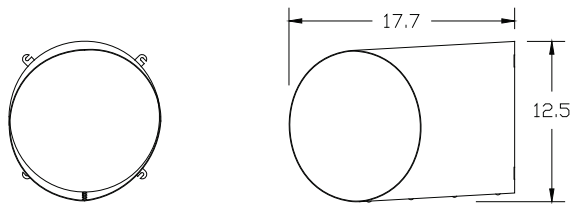
- One-piece construction (except Scoop)
- Twist-on mounting tabs
- 3° downward tilt

## General Specifications

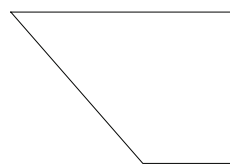
Dimensions:		Diameter	Depth
Standard Visors:	8"	8"	8"
	11"	11"	11"
	11"	18"	18"
45° Angle Visors:	8"	8"	18"
	11"	18"	18"
	11"	27"	27"
Degree of Tilt:	3° (down)		
Material:	Aluminum: Type 3003, very good corrosion resistance, 0.050" thick Polycarbonate (standard visors only): Ultraviolet and heat stabilized, flame retardant, permanently colored, 0.10" nominal thickness		
Finish(es):	Aluminum: Powder coated Polycarbonate (standard visors only): Colored resins integral to visor		
Color(s):	Exterior: Federal yellow, signal green, black, or custom Interior: Flat black		
Mounting:	Twist-on tabs		
Shipping Weight:	1 - 4 lbs., varies based on material, size, and style		



45° (18" right angle version)



Top



Dimensions rounded to the nearest 0.1"  
All visors shown are 11" signal versions  
Dimensions shown in Cap front view and degree of tilt shown in side view are typical of all 11" visors (except 45°)

## Options

- Other lengths available
- Degree of tilt

# Long Life LED Traffic Signal Modules



## Description

LEOTEK Frontier Long Life LED signal modules are designed to deliver industry-leading durability with a **full 15-year warranty**. As the first traffic signal product of its kind, Frontier Long Life features a specially engineered power supply and light engine optimized for extended field operation and reduced maintenance. Fully compliant with the **ITE VTCSH LED Circular Signal Supplement dated June 27, 2005**, it offers consistent optical performance, high energy efficiency, and long-term value for DOTs seeking reliable, low-maintenance signal solutions.

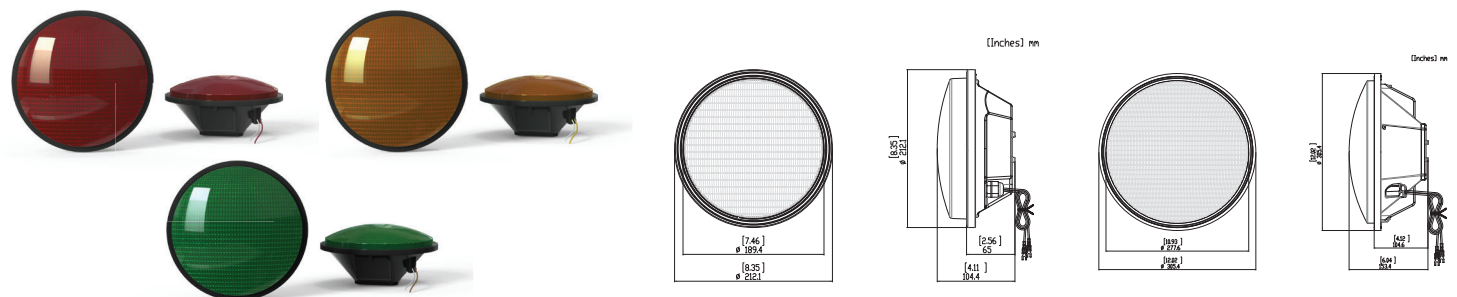
## Electrical Specifications

- Operating Voltage  
80 V AC–135 V AC  
(120 V AC nominal)
- Operating Temp Range  
-40 °C to +74 °C
- Turn-on / Turn-off Time  
< 75 msec
- Power Factor  
> 0.9
- Total Harmonic Distortion  
< 20%
- Failed State Impedance  
> 250K ohm within 300ms

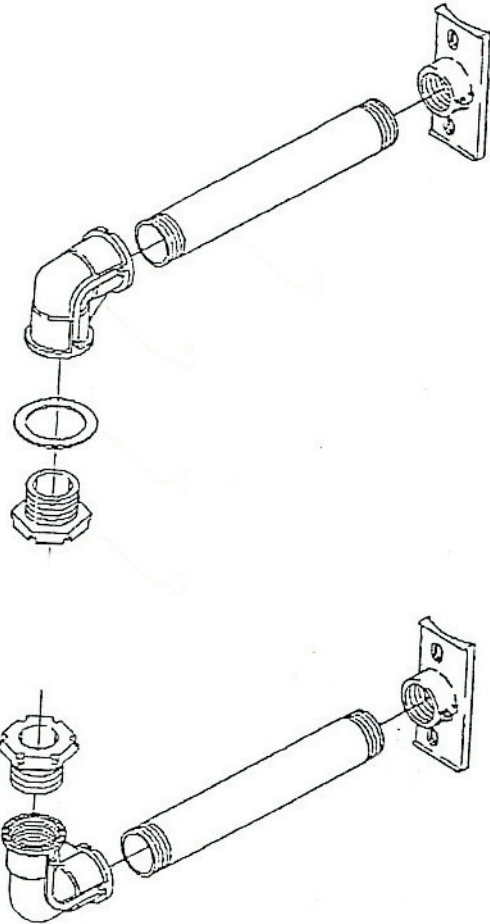
## Features & Benefits

- **15 year full performance warranty**
- Enhanced thermal management
- Robust LED technology
- Meets / exceeds ITE uniformity specifications (better than 10-to-1)
- Expanded view radiation pattern suitable for span wire and steep grade applications
- Transient suppression exceeds ITE and NEMA specifications
- Meets / exceeds ITE moisture intrusion specifications
- Meets / exceeds ITE failed state impedance specifications
- Hard coated lenses for abrasion resistance
- Intertek-ETL certified
- Long life power supply is conformally coated for robust operation
- All modules meet the ITE VTCSH-LED Circular Signal Supplement over the full temperature range of -40 °C to +74 °C
- CSA C22.2 No. 250.0-21
- CSA C22.2 No. 250.13-22
- UL 1598:2021

Model Number and Color		Color	Typical Wattage @ 25°C	Voltage	Dominant Wavelength (nm)	Maintained Intensity (cd) Min.	Standard
Tinted Lens	Clear Lens						
<b>8 inch Ball</b>							
433-1110-003XL15	433-1170-003XL15	Red	6.1W	80-135Vac	626	165	ITE 2005
433-3130-901XL15	433-3170-901XL15	Yellow	6.5W	80-135Vac	589	410	ITE 2005
433-2120-001XL15	433-2170-001XL15	Green	6.2W	80-135Vac	500	215	ITE 2005
<b>12 inch Ball</b>							
433-1210-003XL15	433-1270-003XL15	Red	7W	80-135Vac	626	365	ITE 2005
<b>433-3230-901XL15</b>	433-3270-901XL15	<b>Yellow</b>	<b>9W</b>	<b>80-135Vac</b>	<b>589</b>	<b>910</b>	<b>ITE 2005</b>
433-2220-001XL15	433-2270-001XL15	Green	7W	80-135Vac	500	475	ITE 2005



# Side of Pole Mount Yellow with Universal Hub Plates

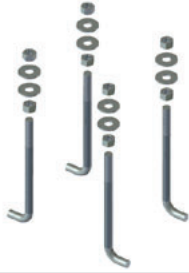


 **TRAFFIC  
SIGNAL  
CONTROLS, INC.**

255 Weaver Park Rd  
Suite 100  
Longmont, CO 80501

# Anchor Bolt Sets

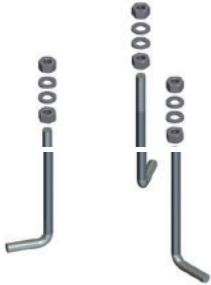
Pelco's galvanized anchor bolt sets are available in a variety of sizes.



## Anchor Bolt Set of 4 w/ Hardware 1/2"-13NC x 7-1/2", Galv

AP-1046-GLV

Note: Includes 4 Bolts, 8 Washers, and 8 Nuts.



## Anchor Bolt Set of 3 w/Hardware 3/4"-10NC x 18", Galv

PB-5305-GLV

Note: Includes 3 Bolts, 6 Washers and 6 Nuts.



## Anchor Bolt Set of 4 w/ Hardware 3/4"-10NC x 18", Galv

PB-5306-GLV

Note: Includes 4 each: Bolts, Washers and Nuts.

**PB-5518-GLV**

Note: Includes 4 Bolts, 8 Washers and 8 Nuts.



## Anchor Bolt Set of 4 w/ Plate Washers 3/4"-10NC x 18", Galv

PB-5371-GLV

Includes 4 Bolts, 4 Plate Washers, 4 Washers, and 4 Nuts.



## Anchor Bolt Set of 4 w/ Hardware 1"-8NC x 36", Galv

AP-1007-  -GLV

Template

- 1=12" Bolt Circle
- 2=12.75" Bolt Circle
- 3=11" Bolt Circle

Includes 4 Bolts, 4 Lock Washers, 8 Washers, and 8 Nuts.

Note: 1. All assemblies are supplied standard with galvanized fasteners.



# Square Pedestal Bases Aluminum

Pelco offers aluminum, steel, and plastic bases in various sizes as well as poles in aluminum and steel. Pelco's cast aluminum square base is FHWA certified and meets or exceeds AASHTO break-away requirements. Plastic replacement doors offer an economical way to deter vandalism.



## Square Base Assembly, Alum w/ Alum Door

<b>PB-5334</b>	-	Door [ ]	-	Set Screws in Collar [ ]	-	Grounding Lug [ ]	-	Coating [ ]
		NL=No Logo Blank=Pelco Logo		1S=1 Hex Bolt 3S=3 Set Screws Blank=None		GL=Grounding Lug Blank=None		PNC=Process No Color P__=Paint

## Square Base Assembly, Alum w/ Plastic Door

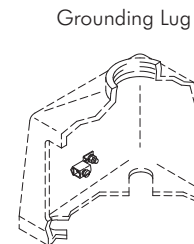
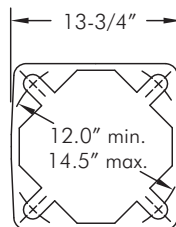
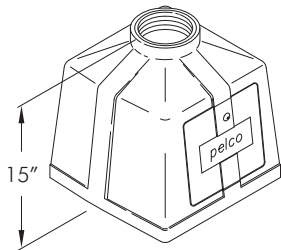
<b>PB-5335</b>	-	Door [ ]	-	Set Screws in Collar [ ]	-	Grounding Lug [ ]	-	PNC
		NL=No Logo Blank=Pelco Logo		1S=1 Hex Bolt 3S=3 Set Screws Blank=None		GL=Grounding Lug Blank=None		

## Square Base Assembly, Alum Heat Treated w/ Alum Door

<b>PB-5336</b>	-	Door [ ]	-	Set Screws in Collar [ ]	-	Grounding Lug [ ]	-	Coating [ ]
		NL=No Logo Blank=Pelco Logo		1S=1 Hex Bolt 3S=3 Set Screws Blank=None		GL=Grounding Lug Blank=None		PNC=Process No Color P__=Paint

## Square Base Assembly, Alum Heat Treated w/ Plastic Door

<b>PB-5337</b>	-	Door [ ]	-	Set Screws in Collar [ ]	-	Grounding Lug [ ]	-	PNC
		NL=No Logo Blank=Pelco Logo		1S=1 Hex Bolt 3S=3 Set Screws Blank=None		GL=Grounding Lug Blank=None		



- Note: 1. AASHTO Certified Square Aluminum Base: All Aluminum square bases above are available with AASHTO Certifications and FHWA approval. Please specify by adding the Certification Part No. C-1001 in addition to the base part number.  
2. All assemblies are supplied standard with stainless fasteners.  
3. See Reference Section for available paint colors.

## Pole & Base Accessories

Pole and base collar assemblies, for both square and octagonal bases, are available in highwind areas to add strength and help prevent loosening of connection.



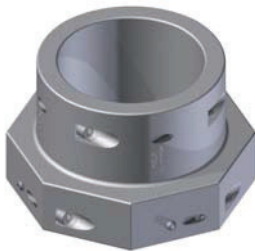
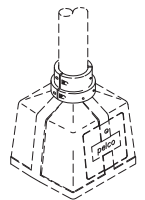
### Pole & Base Collar Assembly, Alum Square Base

**PB-5325** -

Coating

PNC=Process No Color

P\_\_=Paint



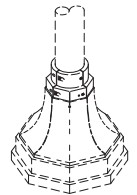
### Pole & Base Collar Assembly, Alum Octagonal Base

PB-5326 -

Coating

PNC=Process No Color

P\_\_=Paint



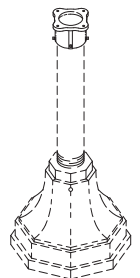
### Pedestal Adapter, 4" (4-1/2" OD Pole), Alum 6-1/2" Bolt Circle

SE-3104 -

Coating

PNC=Process No Color

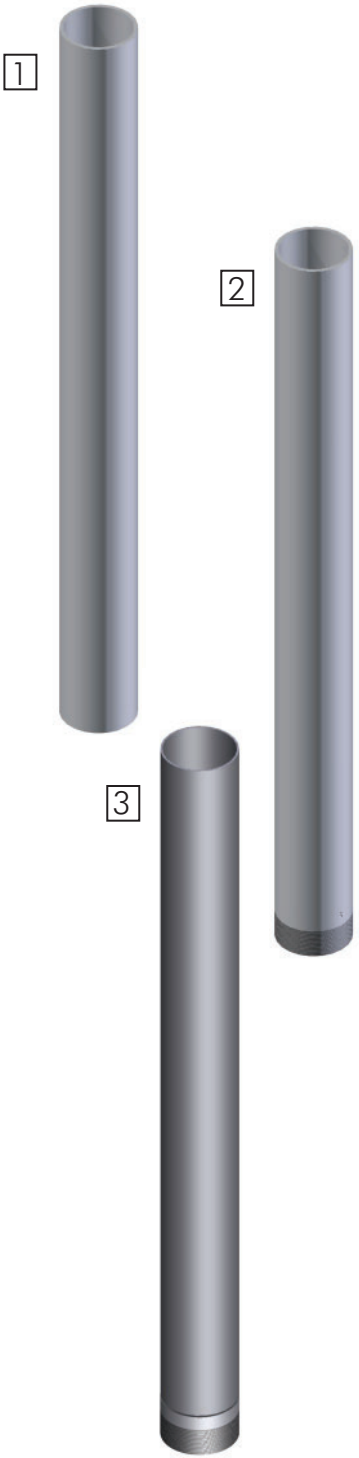
P\_\_=Paint



Note: 1. All assemblies are supplied standard with stainless steel fasteners.  
2. Specify options when ordering.  
3. See Reference Section for available paint colors.

# Pedestal Poles

Pelco offers aluminum, steel, and plastic bases in various sizes as well as poles in aluminum and steel. Pelco's cast aluminum square base is FHWA certified and meets or exceeds AASHTO break-away requirements. Plastic replacement doors offer an economical way to deter vandalism.



1. **Pedestal Pole, 4" Sch 40, Spun Alum No Threads**

PB-5101 -  Length -  Coating  
 PNC=Process No Color  
 P\_\_=Paint

2. **Pedestal Pole, 4"- 8 NPT Sch 40, Spun Alum w/ Pelican ID**

PB-5100 -  Length - **15 ft** -  Coating  
 PNC=Process No Color  
 P\_\_=Paint

**Pedestal Pole, 4"- 8 NPT Sch 80, Spun Alum**

PB-5102 -  Length -  Coating  
 PNC=Process No Color  
 P\_\_=Paint

**Pedestal Pole, 4"- 8 NPT Sch 40, Steel**

PB-5201 -  Length -  Coating  
 P\_\_=Paint

**Pedestal Pole, 4"- 8 NPT Sch 40, Galv Steel**

PB-5200 -  Length -  Coating - GLV -   
 Blank=Galvanized Only  
 P\_\_=Paint over Galvanized

3. **Pedestal Pole, Welded, 4"- 8 NPT w/ 2-3/4" Nipple Length, Steel**

PB-5218 -  Length -  Coating  
 GLV=Galvanized  
 P\_\_=Paint

**Pedestal Pole, Welded, 4"- 8 NPT w/ 5-1/2" Nipple Length, Steel**

PB-5219 -  Length -  Coating  
 GLV=Galvanized  
 P\_\_=Paint

Note: 1. Standard poles are typically sold in 1 foot increments. For other lengths contact sales.  
 2. See Reference Section for available paint colors.

# Pole Caps

Pelco offers pole and arm caps in various sizes. Caps for 4-1/2" OD posts are available in both aluminum and ABS plastic.



## Pole Cap, Acorn Type, Alum, 3" OD Pole

PB-5403 -  Coating  
PNC=Process No Color  
P\_\_=Paint



## Pole Cap, Acorn Type, Alum, 3-1/2" OD Pole

PB-5407 -  Coating  
PNC=Process No Color  
P\_\_=Paint

## Pole Cap, Acorn Type, Alum, 4-1/2" OD Pole

PB-5401 -  Coating  
PNC=Process No Color  
P\_\_=Paint



## Pole Cap, Dome Type, Alum, 4-1/2" OD Pole

**PB-5402** -  Coating  
**PNC=Process No Color**  
**P\_\_=Paint**

Note: 1. All assemblies are supplied standard with stainless fasteners.  
2. See Reference Section for available paint colors.



# AP22 TIME SWITCH

Industry-Standard, Time-Tested School Zone Appliance

Line item 0-16



*RTC's commitment to manufacturing high-quality, long-lasting products has made the AP22 the industry standard for school zone time switches. The reputable AP22 has the capacity to store the programming for the*



*biggest cities with multiple districts and school schedules. The AP22 is a low maintenance, user-friendly time switch that you can trust to help make your community safe and efficient.*

*Upload and download programming via Cellular, 2-Way Radio, Ethernet, or Laptop.*



*Helping Kids Get To School Since 1987*



# AP22 TIME SWITCH

Industry-Standard, Time-Tested School Zone Appliance



*Upload and download programming via Cellular, 2-Way Radio, Ethernet, or Laptop.*

## AP22 SPECIFICATIONS

	DESCRIPTION
DISPLAY	Two-line, 16 characters per line Liquid Crystal Display (LCD)
KEYBOARD	Sixteen-key, positive action push button
BACK-UP POWER	Non-volatile memory
OUTPUT	Two SPDT relays rated at 15 amps 12VDC or 115 VAC resistive load
POWER	Less than 0.25 Watt at rest, 0.6 watt with relay ON, 12VDC
TIME BASE	AC Power = 60Hz power line DC Power = Temperature-compensated crystal with accuracy of .35 seconds/day
SIZE	10.375"H x 4.75"W x 2"D
TEMPERATURE RANGE	-22° to +165° Fahrenheit

## AP22 FEATURES

- Two-line, sixteen-character, Liquid Crystal Display (LCD)
- Daylight Saving Time adjustments
- Program memory stored for years - no batteries to replace
- The user-friendly display auto-prompts the operator through the programming process
- Ten day plans, sixteen program steps per plan accommodate standard school day, school holidays, early dismissal days, summer school days, etc.
- Standard week plan programming uses any day plan to accommodate the most complicated school schedules
- Thirty-six annual programs use exception-day programming to assign any day plan to any calendar day(s)
- Two independent 15-amp relay outputs
- Program transfers from unit to unit with accessory cable or via RTC Connect™ software
- Works on 120VAC and 12VDC power sources

## AP22 ORDERING INFORMATION

PART NUMBER	DESCRIPTION
503644	Two-output time switch with CPC connector and 48" wiring harness
504558	Program transfer cable
500517	AC power cable with connector

## COMPLIANCE

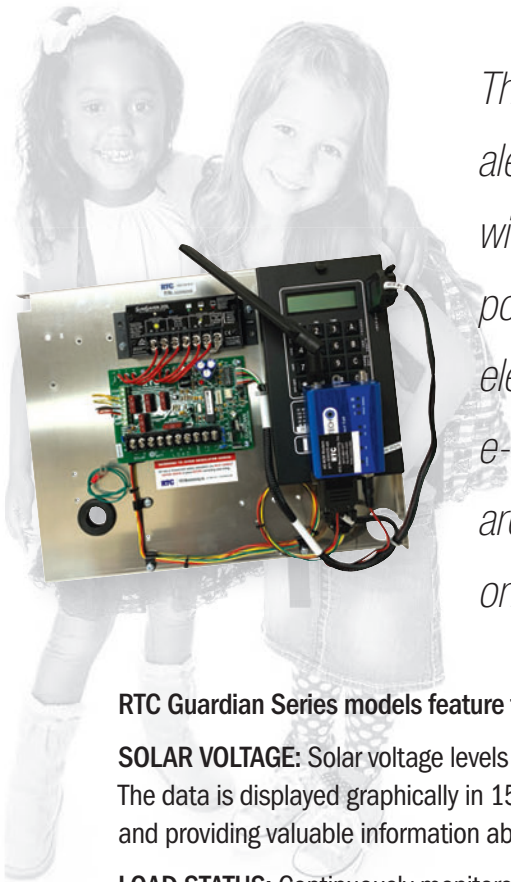
- The AP22 meets FCC and NEMA TS1/TS2 requirements



# DC GUARDIAN™ SERIES

## Intelligent Flasher Systems

Line item 0-17



*The Guardian Series product line monitors and alerts users of existing and potential problems with batteries, solar panels, time switches, and power supplies located in flasher systems or other electronic devices. Alerts are sent via text or e-mail to an unlimited number of recipients and are configured to send around-the-clock or only during user-defined business hours.*

**RTC Guardian Series models feature these monitoring capabilities:**

**SOLAR VOLTAGE:** Solar voltage levels are continuously monitored and updated daily in RTC Connect™. The data is displayed graphically in 15-minute intervals, illustrating anomalies in the solar charging cycle and providing valuable information about the solar power and surrounding sun/shade.

**LOAD STATUS:** Continuously monitors load terminals and issues an alert to RTC Connect™ if the load voltage to the system is disconnected by the solar regulator.

**LEDS/DC LAMPS:** Continuously monitors LED/lamp terminals and sends an alert if an LED or DC lamp burns out or is vandalized.

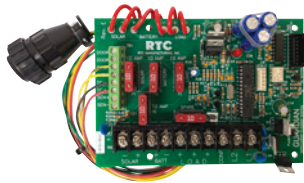
**BATTERY:** Battery voltage levels are continuously monitored and updated daily in RTC Connect™. The data is displayed graphically in 15-minute intervals, illustrating the relationship between the solar and battery voltages. An alert is issued to RTC Connect™ if the monitored battery voltage falls below a user set level. An alert is also issued in the case of battery theft.

**TIME SWITCH:** Continuously monitors the operation of the clock and issues an alert if the time switch loses power.

**DOOR:** Continuously monitors the status of the cabinet door and issues an alert indicating when the door is opened. Door switch is required.



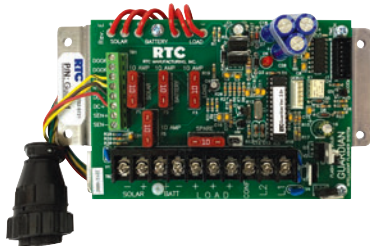
The Guardian™ Series is represented by three products: the **Guard**, **Guard1** and **Guard2** — each consists of a Guardian™ circuit board and a Guardian™ M2M harness, which connects the Guardian™ circuit board to the time switch and cell modem (sold separately).



Guard

### GUARD FEATURES *(Guardian™ board only)*

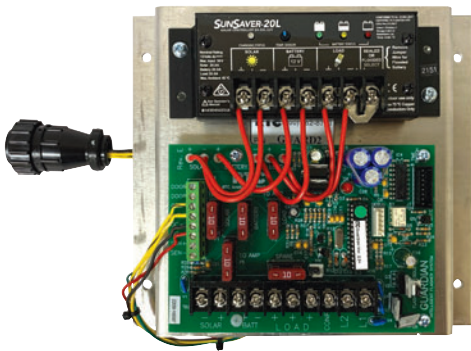
- Designed for existing RTC customers that have an RTC flasher control board and a six-position solar regulator. The GUARD hole pattern matches the existing RTC flasher control board hole pattern for an easy replacement.
- GUARD includes ONLY the Guardian™ circuit board and M2M harness.
- Dimensions: Width: 5.625" | Height: 4" | Depth: 1.5"



Guard1

### GUARD1 FEATURES *(Guardian™ board and mounting bracket)*

- Designed for customers who do not have an existing flasher control board, but do have a six-position solar regulator.
- The bracket holds the Guardian™ circuit board and has holes for mounting to a flat surface inside an appropriately sized cabinet.
- Mounting bracket constructed using .125" natural finish aluminum.
- Dimensions: Width: 7.25" | Height: 4" | Depth: 2.0625"



Guard2

### GUARD2 FEATURES *(Guardian™ board, solar regulator, and mounting bracket)*

- Designed for customers who do not have an existing flasher control board or a six-position solar regulator.
- The large bracket holds the Guardian™ circuit board and the solar regulator and has holes for mounting to a flat surface inside an appropriately sized cabinet.
- Mounting bracket constructed using .125" natural finish aluminum.
- Dimensions: Width: 8.125" | Height: 7.375" | Depth: 2.75"

Each product in the Guardian™ Series is designed to work in conjunction with RTC Connect™, RTC time switches, and RTC M2Ms.

# NEMA TRAFFIC CABINETS

Line item 0-20  
Line Item 0-21 with Line item 0-17

*RTC offers TS1 and TS2 traffic cabinets with quality in both design and function — versatile cabinets created for ease of service and conformity throughout the cabinet line.*



*Door features 39 circulation vents for passive heat management.*

*The outer aluminum shell is engineered to protect protect internal traffic control components and may be designed to accomodate any equipment configuration that may be required by a governing agency.*

*Serving the Traffic Industry Since 1987*



**RTC**

RTC Manufacturing, Inc.

RTC-Traffic.com | contact our team at [Info@RTC-Traffic.com](mailto:Info@RTC-Traffic.com) for more information | TOLL-FREE 800.782.8721 FAX 817.274.3610

RTC Manufacturing, Inc., 1016 Enterprise Place, Arlington, Texas 76001 | ©2014 RTC Manufacturing, Inc. All Rights Reserved.

# NEMA TRAFFIC CABINETS



*Sturdy .125" 5052-H32 aluminum cabinet  
with three-point Number 2 APL lock standard.*

## FEATURES

- .125" 5052-H32 aluminum non-flex construction
- Three-point Number 2 APL lock system with a padlock hasp
- C-Channel at 6" centers on the left and right side
- 8 to 16-position, drop-down aluminum back panel
- Two-shelf design with one under-shelf schematic drawer
- Lifting eyes for ease of placement
- Door utilizes stainless-steel, piano hinge construction
- 2" closed-foam gasket with gasket framed door
- Available one, or two, 100CFM thermostat-controlled fans to remove heat through screen-vented roof eve
- Large door opening features 39 circulation vents for heat management
- Standard fluorescent or optional environmentally friendly, bright-white LED lighting
- Three-switch police door opening
- Completely customizable to meet your specific needs
- 4-6 weeks normal delivery time

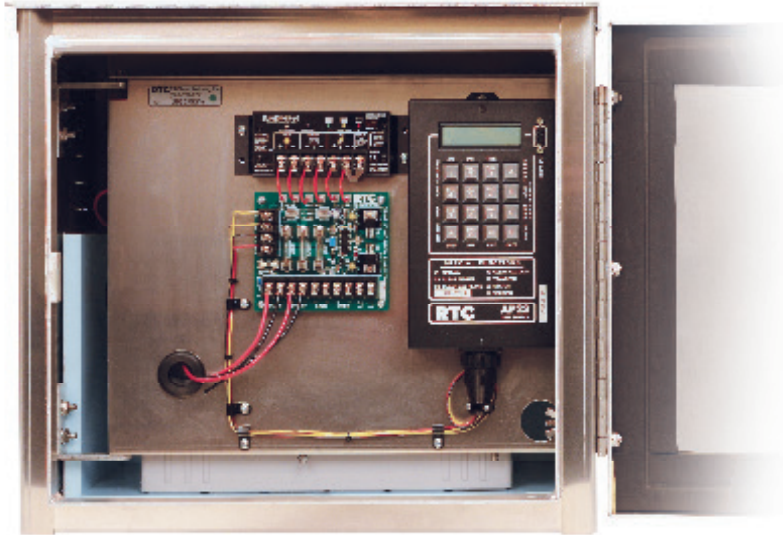
## SPECIFICATIONS

- P44 Cabinet 44"W x 54"H x 27"D,  
door opening: 41.75"W x 42H"
- 18" x 40.5" center-to-center cabinet mounting openings
- C-Channel 43.25"L x 1.25"W with .625" front opening

# BATTERY SYSTEM CABINETS

Line item 0-22  
Line Item 0-23 with Line item 0-17

*RTC Manufacturing constructs flasher system cabinets to house battery-powered control panels in a wide range of configurations to meet your specifications. Sleek design and excellent features — exactly what you should expect from the industry leaders at RTC.*



## SINGLE BATTERY CABINET

.125" 5052 aluminum cabinet constructed to house a single 108 amp battery with a front mounted control panel. The sturdy construction allows for pole mounting.

## APPLICATIONS

- School zone flasher systems
- Pedestrian crossing systems
- Fire station warning systems
- 24-hour flasher systems\*
- Oil/gas systems
- Supplemental traffic applications
- Installations requiring small cabinet space

## FEATURES

- Locking system with Number 2 APL lock
- Rain flap extending over door opening
- Door opening with a 1.5" door gasket
- Double-thick reinforced bracket mounting area
- 4 screened vents for cross-ventilation
- 4.5" u-bolt, large pole and band-type brackets
- Special Order Options:
  - various control panels depending on application
  - Number 1 APL lock
  - wide range of size configurations

\*A 24-hour flasher system application cabinet does not include the time switch and time switch harness shown in picture above

## SPECIFICATIONS

- 16.25"H x 18"W x 12.5"D
- .125" 5052 aluminum-sheet construction
- Number 2 APL lock
- Piano-door hinge with stainless attachment bolts
- Necked-down door opening creates a clean appearance
- .5" foam in battery area
- Top edge flattened to match rubber gasket for greater water resistance
- Silicon sealant top and bottom inside edges per TXDOT specifications
- Large enough for a Group 31, 70 lb. 108-amp battery

*Helping Kids Get To School Since 1987*



**RTC**

**RTC Manufacturing, Inc.**

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SWARCO

# McCain ATC FLeX<sup>®</sup> CONTROLLER



The McCain ATC FLeX Controller is part of SWARCO McCain, Inc.'s widely-adopted ATC eX Controller Series. Built in full compliance with the ATC 6.25 standard, the McCain ATC FLeX Controller is perfectly designed for any ATC, Caltrans, and NEMA cabinet. The rugged and powerful controller is available in shelf and rack mount versions, and it includes a host of features offering flexibility to agencies as their needs evolve.



## KEY BENEFITS

- Displays multiple status screens at the same time
- Provides local remote access for technical support
- Compatible with ATC, CALTRANS and NEMA cabinets
- Creates extra space in traffic cabinet and allows for a small cabinet footprint
- Supports application software from multiple vendors

## PRODUCT DESCRIPTION

The McCain ATC FLeX Controller is equipped with an oversized, 16-line screen that features auto-contrast, making the screen legible in all conditions. Split-screen options allow users to view the operational status of the intersection and make timing adjustments simultaneously.

The controller's front panel design makes it easy to connect, program, and update the unit in any environment. Quick data transfers, firmware upgrades, and log retrievals can be completed via USB port directly from the front panel. Optional integrated wireless connectivity allows users to access local software through a web interface<sup>1</sup>.

The McCain ATC FLeX Controller has a robust Linux operating system that provides a flexible, open-architecture that can support software from multiple vendors. For applications including intersection control, ramp metering, arterial master, or reversible lane control, check out SWARCO McCain's Omni eX<sup>®</sup> Intersection Control Software<sup>2</sup>.

# McCain ATC FLeX CONTROLLER

## STANDARD FEATURES

### Operating System

- Linux

### Microprocessors

- Freescale PowerQUICC II Pro microprocessor

### Memory

- 1GB Main Memory
- 128 MB NAND Flash
- 16 MB NOR Flash
- 2 MB SRAM

## APPLICABLE STANDARDS

- NEMA TS 2-2003 v2.06
- ATC 6.25

## OPTIONS

- Custom D connectors
  - ATC FLeX NEMA TS 2 Type 2 configurations<sup>3</sup>
- International Input Voltage: 190 VAC to 253 VAC, 50 Hz (±3 Hz)

## INTERFACES

### Communication Interfaces

- SDLC ports (2)
- Serial (ASYNCR) on front panel (3)
- ENET 1: 100 Base-T Ethernet switch, 1 uplink, and 1 additional port
- ENET 2: 100 Base-T Ethernet port dedicated for local communications
- Wi-Fi enabled (optional); uses ENET 2

### Front Panel Interfaces

- Display: 16 lines x 40 characters
- Keyboard: 7 x 4 keypad (28 key)
- Datakey
- USB ports (2)
- SD Card Slot

### Cabinet Interfaces

- ATC cabinets
- **Caltrans cabinets**
- ITS cabinets
- NEMA cabinets

## SOFTWARE

Compatible with McCain Omni eX<sup>®</sup> Intersection Control Software<sup>2</sup> as well as third party software.

## GENERAL SPECIFICATIONS

### SPECIFICATIONS

Compatibility	ATC Cabinet	Caltrans	NEMA TS 2 Type 1	NEMA TS 2 TYPE 2
Dimensions <sup>4</sup> :	12.5"W x 5.25"H x 7"D	19"W x 5.25"H x 7"D	12.5"W x 7.75"H x 7"D	12.5"W x 8.75"H x 7"D
Form Factor:	Shelf mount configuration and EIA rack mount compatible			
Power:	89 VAC to 135 VAC, 60 Hz (±3 Hz)			
Environment:	Operating Temperature: -34°C to +74°C   Humidity: 0 to 95% (non-condensing)			
Weight <sup>5</sup> :	7.1 lbs	8.1 lbs	7.45 lbs	8.25 lbs

### VIEW



<sup>1</sup>For users with Wi-Fi option, proper network, and software.

<sup>2</sup>See separate data sheet for details.

<sup>3</sup>For CALTRANS, SIEMENS EPAC, Traxonex 390. More options available.

<sup>4</sup>Dimensions rounded to the nearest .01"

<sup>5</sup>Approximate

# SWARCO McCain OMNI eX<sup>®</sup>

## INTERSECTION CONTROL SOFTWARE



McCain Omni eX Intersection Control Software is a modern, standards-compliant program for ATC traffic controllers. Capable of operating Model 2070 and NEMA-based ATC platforms and interfacing with any style cabinet. McCain Omni eX Intersection Control Software provides a single solution for any infrastructure.

This solution easily integrates with SWARCO McCain, Inc.'s central software, McCain Transparency<sup>®</sup> Traffic Management System (TMS), or any other NTCIP-compliant central systems.



### KEY BENEFITS

- Supports a fully adaptive environment out of the box using the Critical Intersection Control (CIC) objects
- Assign inputs and outputs (I/O) to accommodate any type of standard or custom cabinet
- Program user database via the front-panel LCD and keypad UI, NTCIP via serial or Ethernet ports, transfer to USB drives, or webserver
- Ensure accuracy and consistency with built-in data validation
- Capture high-resolution data, including measures of effectiveness (MOE) and detector data logging, that can be stored locally via USB or to a central management system
- Update traffic controllers securely and intelligently with the Omni Intelligent Installer

### PRODUCT DESCRIPTION

McCain Omni eX Intersection Control Software is a progressive software that includes exciting new features and benefits that increase security, efficiency, and ease of use, while saving technicians time. The addition of the exclusive McCain Omni eX Intelligent Installer allows traffic controllers to be updated securely and intelligently, by automatically searching for and performing necessary updates to the software package.

McCain Omni eX Intersection Control Software dramatically improves the security, quality, performance, and reliability of updated Management Information Bases (MIBs) with the implementation of source-code, source-control, and source build server for continuous integration testing.

Fully compliant with Purdue High Resolution Data Enumerations<sup>1</sup> and NTCIP, McCain Omni eX Intersection Control Software promotes interoperability and interchangeability between manufactures, providing users with a choice and protects their investments.

# McCain OMNI eX<sup>®</sup> INTERSECTION CONTROL SOFTWARE

## STANDARD FEATURES

### Phases

- 16 volume/density vehicle phases
- 16 pedestrian phases
- 4 rings with flexible phase assignments and sequences
- 32-channel supported
- Automatic barrier calculation based on compatible phases
- Exclusive pedestrian-phase operation
- Alternate timing for special vehicles, bicycles or pedestrians
- Advance and delayed walk operation
- Texas diamond operation
- 4 unique sets of phase timing and options selectable by pattern

### Overlaps

- 16 vehicle overlaps
- 16 pedestrian overlaps
- Negative (excluded) vehicle and pedestrian phases
- Delayed start of green
- Flashing yellow or red arrow overlaps
- Detector call phases and locking
- 4 unique sets of overlap configurations selectable by pattern

### Logs

- Extensive event log for management and diagnostic purposes
- Cycle-based measures of effectiveness (MOE) 1000 events
- Detector volume, occupancy and speed (VOS) 1000 events
- Dual-detector speed traps 1000 events

### Event Logging

- Controller log: Operation, Detector, Communication, Access, Command, Preempt, Transit Priority
- 300 events in each section

### NTCIP Logs

- Global Reporting conformance group for user defined event logging
- High-resolution logging

### Detection

- 128 local detectors
- 32 system detectors
- Single or speed trap calculations Volume/occupancy configurable per detector
- Delay and extend timing
- Alternate passage, minimum green and pedestrian timing detection
- Detector fail diagnostics monitoring configurable by time-of-day, by detector
- Support video detection using NEMA SDLC or ATC SDLC

### Preemption

- Fully NTCIP 1202 compliant (mandatory and optional objects)
- NTCIP MIB and block objects for vendor-specific parameters
- 8 preemption sequences
- Configure sequences for railroad or emergency vehicle operation
- Define priority and linking
- Configure overlap enable/disable during all preempt intervals
- Flashing and limited service options
- User-assignable status options (active or dwell)
- Supports NTCIP preempt control state for remote preemption

### Transit Priority

- Estimated time of arrival - Intelligent phase time adjustment
- 16 priority strategies in 4 sets, selectable by pattern
- Options to support any type of vehicle detection
- Supports NTCIP object for remote TSP
- Configurable headway and preempt lockout timers
- Queue jumping
- Supports user-configurable special logic and advanced operations

### Communications

- Supports all industry standard communications
- Web browser support includes security support
- Connected vehicle SPaT interface
- Fully NTCIP compliant communications
- Data validation during download process
- Supports HTTPS:// protocol
- Time synchronization via WWV, GPS, NMEA or NTP
- Peer-to-Peer sharing of I/O between intersections

### Coordination

- 250 free or coordinated patterns
- Selectable permissive modes
- Fixed or floating force off selection
- Reference cycle to beginning or end of green
- Mode selection done by split table
- Change virtually all operational parameters by pattern
- 16 phase sequence selection by pattern
- Texas Diamond supports 4 and 3-phase and separate modes
- Hierarchical control phase reservice operation

### Cabinet Inputs and Outputs

- Supports all cabinet types
- Individually assignable input and output functions (I/O mapping)
- Internal multi-input Boolean logic gates with delay, extend and latch, and flashing output features
- Alarm inputs (16)
- Special functions (16)
- External pattern selection
- Pulsing preempt and transit priority input discrimination

<sup>1</sup>March 2019

[www.swarco.com/mccain](http://www.swarco.com/mccain)

SWARCO reserves the right to make changes at any time in order to supply the best product possible.  
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# 2018KCL

## Type 170/2070 18 Channel Signal Monitor



The EDI 2018KCL Signal Monitor is designed to upgrade the capabilities of the basic 210 / 2010 monitor used in Type 170 / 179 Output Files. The unit is fully compatible with the requirements of the 170, 179, and 2070 Controller Units. The 2018KCL utilizes enhanced monitoring functions to increase cabinet fault coverage, providing additional assurance that equipment malfunctions will be detected and diagnosed properly.

A removable Datakey™ memory device contains all the monitor set-up information and **completely eliminates the need for a diode Program Card, soldered jumpers and DIP switches.**

**Model 2018KCLip: 18 channel with Ethernet Port**

**Model 2018KCL: 18 channel with EIA-232 Port**

### OPERATIONAL FEATURES

#### Enhanced 210 Monitoring Functions:

The 2018KCL meets all requirements of the Caltrans "TSCE Specifications 1/89" and Caltrans TEES, March 2009. Basic fault coverage includes Conflict, 24Vdc, and CU Watchdog monitoring. Red Monitoring senses the absence of signals on a channel, and requires the output file to be wired for Red signals. Dual Indication Monitoring detects simultaneous active signals on a channel. Clearance Monitoring ensures sequencing of signals with a proper minimum yellow clearance interval for *both vehicle and pedestrian channels*. AC Line Monitoring detects and responds to low AC Line voltages as well as interruptions with a minimum flash interval.

#### Datakey Configuration Memory:

Complete 2018KCL programming is provided by an interchangeable Datakey™ nonvolatile memory device. This rugged key stores all 2018KCL configuration parameters and *completely eliminates monitor programming using jumpers, diodes, or DIP switches*. Ethernet network parameters are also included (firmware version xx56 or greater).

#### Setup Wizard:

Use the MonitorKey® Setup Wizard to *automatically and accurately* configure the Enhanced settings of the 2018KCL by answering a short series of questions regarding intersection geometry and operation.

#### Event Logging:

The 2018KCL monitor maintains a 100 record nonvolatile event log which contains records of fault events showing the complete intersection status as well as AC Line events, configuration changes, monitor resets, cabinet temperature and true RMS voltages. A real time clock time-stamps each log event with time and date.

#### RYG Full Intersection Display:

The Full Intersection display uses Red, Yellow, and Green LEDs to show active colors of all channel inputs simultaneously for real-time intersection status.

#### EDI RMS-Engine:

A DSP coprocessor converts ac input measurements to True RMS voltages, virtually eliminating false sensing due to changes in frequency, phase, or sine wave distortion.

#### LEDguard®:

This EDI innovative signal thresholding technique is used to increase the level of monitoring protection when using LED based signal heads.

#### Recurrent Pulse Detection:

The Recurrent Pulse (RP) Detection function supplements the Conflict, Dual Indication, and Red Fail algorithm. RP Detection works in conjunction with the RMS-Engine to detect faults that are pulsing or intermittent in nature.

#### Flashing Yellow Arrow PPLT:

Three operational modes are built-in for support of the MUTCD Flashing Yellow Arrow PPLT operation depending on the number of load switches in the cabinet.

#### Communications to Controller Unit or PC:

An EIA-232 serial port or optional Ethernet port (2018KCLip) provides access to status and event logs by a local or TMC computer running EDI ECom Windows based software.

#### Signal Sequence History Display:

Five Signal Sequence History logs stored in nonvolatile memory each graphically display 30 seconds of signal status prior to each fault event. The resulting display eases diagnosing of intermittent and transient faults by viewing the exact signal states that the monitor sensed.

Datakey is a trademark of Datakey Electronics Inc. MonitorKey and LEDguard are trademarks of Eberle Design Inc.

### EBERLE DESIGN INC.

3510 East Atlanta Avenue  
Phoenix, AZ 85040 USA  
www.EDItraffic.com

Tel (480) 968-6407  
Fax (602) 437-1996



## TRAFFIC CONTROL / AC SERVICE

# HE1750



### DESCRIPTION

The HE1750 has been specifically designed for use on both type 170 and on NEMA controllers. Because of the high quality of this protector, it may be used as a standalone device without the use of an external line filter. If an external line filter is required, it is recommended that a HESCO/RLS line filter be used.

The HE1750 (like the popular HE1800) is a multi-stage, high energy suppressor that incorporates a sophisticated, inline EMI/RFI filter. The inline filter has been designed to effectively reject random noise and spikes from 10KHz to 25MHz. The primary and secondary clamp stages are separated by an inductive network; yet work together to give clamp voltages of under 395 volts at 20KA (8 x 20us).

The HE1750 also incorporates the use of warning/failure indicators in addition to remote sensing for monitoring by a central computer. If random data base memory loss or any other transient interference is effecting the safe operation of one or more of your intersections, the HE1750 surge protector will quickly and effectively eliminate the problem.

### SPECIFICATIONS

<b>Peak Surge Current</b>	
8 x 20us.....	48KA
<b>Max Clamp Voltage.....</b>	395VAC
<b>Response Time.....</b>	<5nS
<b>Continuous Service Current.....</b>	15 Amps Max
<b>Operating Temperature.....</b>	-40 to 85c
<b>Dimensions (in.).....</b>	4.6W x 3.1L x 1.9H
<b>Mounting.....</b>	Aluminum Base Plate

**HESCO/RLS**  
220 Springview Commerce Drive  
Unit 190  
DeBary, FL 32713  
386.668.2793 Fax

For more information and product support call us at...

1-800-547-4868

### FEATURES

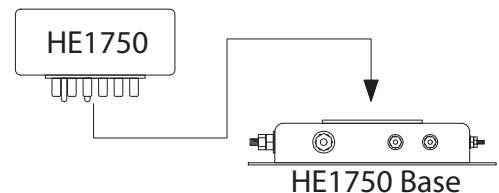
- Modular Design
- Multi-Stage Surge Arrestor
- Effectively Protects Against Lightning and Other Power Surges
- Dry Relay Contact Remote Sensing Circuit
- Immediately Self-Restores After Each Surge
- LED Warning / Failure Indicators

### PIN ASSIGNMENTS

Line In.....	1,2
Neutral In.....	11,12
Ground.....	3,4,9,10
Line Out.....	5
Neutral Out.....	7
Relay NC.....	8
Relay Com.....	6

### MIL-STD-220A INSERTION LOSS DATA

Frequency	Insertion Loss (dB)
60Hz.....	0
10Khz.....	35
50Khz.....	71
100Khz.....	72
500Khz.....	75
2MHz.....	67
5MHz.....	57
10MHz.....	52
20MHz.....	38



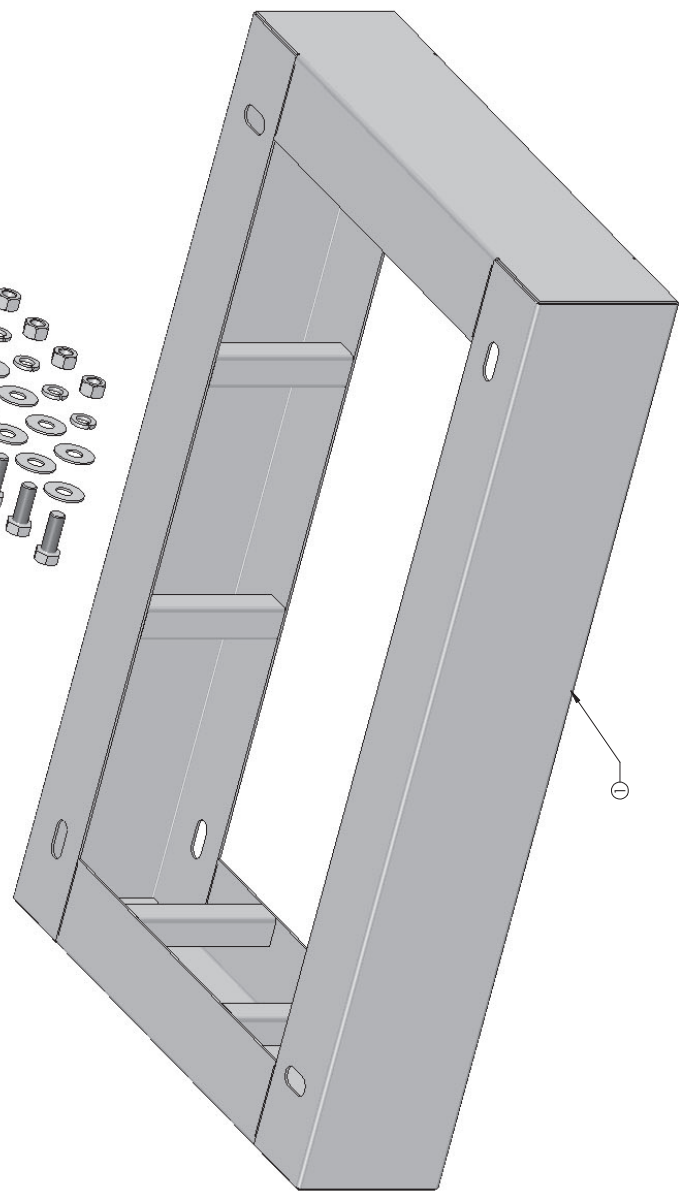
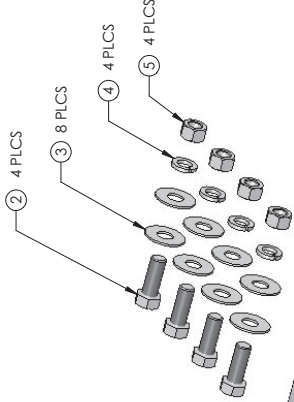
**CAUTION: Disconnect Power Prior to Installing or Removing Unit**

ITEM	QTY.	PART NUMBER	DESCRIPTION
1	1	M64778	<b>WELDMENT RISER, 332D, 8"</b>
2	4	M11818	BOLT, 3/4-10 X 2.0, HH, SS
3	8	M11729	WASHER, 3/4", FLAT, SS
4	4	M11731	WASHER, 3/4" SPLIT LOCK
5	4	M11790	NUT, 3/4-10, HEX SS

Line Item 0-13

REV.	ECN	DATE	ZONE	DESCRIPTION	DET
A	EC-080106	4/09/2008		INITIAL PRODUCTION RELEASE	ARC

REVISIONS



- NOTES:
1. BAG 3/4" HARDWARE.
  2. THIS IS A CAD GENERATED DRAWING. FOR PART DATA, REFER TO SOLIDWORKS MODEL.
  3. FINISH TO BE DETERMINED BY BOM AS FOLLOWS:  
M64779C = POWDER COATED  
M64779P = PAINT  
M64779A = ANODIZED  
M64779N = NATURAL

SolidWorks file: M64779 RISER ASSY, 332D, 8 INCH, SLDRAW

**PROPRIETARY AND CONFIDENTIAL**  
THE DOCUMENT CONTAINS INFORMATION PROPRIETARY WITH MCCAIN TRAFFIC SUPPLY AND MAY NOT BE REPRODUCED OR DISCLOSED TO OTHERS WITHOUT THE WRITTEN CONSENT OF MCCAIN TRAFFIC SUPPLY.

M64779x

USED ON:	DESIGN:	DATE:	SCALE:
NEXT ASSY:	APPROVED:	30/09/08	1:1
	MATERIAL:		
	SEE BOM		
	FINISH:		
	SEE NOTE 3		
	WEIGHT:	34.831	
	SCALE:	1:1	

2365 OAK RIDGE WAY  
VISTA, CA 92081

TITLE:	RISER ASSY, 332D, 8"	SIZE:	B
PART NUMBER:	M64779x	REV	A
SHEET 1 OF 1			

SWARCO

# McCain 332D CONTROLLER CABINET



Natural Aluminum Exterior  
White Interior

The McCain 332D Controller Cabinet is a double wide 332 type cabinet designed to meet the growing demands of modern traffic control by providing extra space in a second full 19" Electronics Industry Alliance (EIA) rack for additional equipment such as Uninterrupted Power Supply (UPS), Closed Circuit Television (CCTV), and ITS applications. Two sets of double doors on the cabinet make it a natural choice when a standard 170/2070 type cabinet is required but extra space is needed to accommodate additional assemblies, components, and other equipments.



## KEY BENEFITS

- Comply with 170/2070 assemblies and components
- Assure interchangeability between manufacturers by using standard assemblies
- Accommodate UPS, CCTV, and ITS applications
- Provide easy access to the cabinet's large interior through the double doors

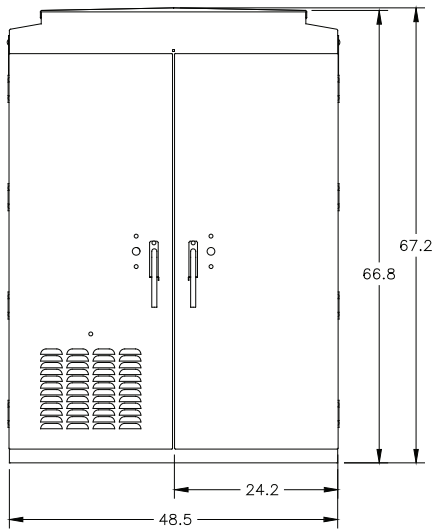
## PRODUCT DESCRIPTION

The robust McCain 332D Cabinet offers secure installations as well as easy access for maintenance. Constructed from marine-grade aluminum, the cabinet can be accessed via two front doors and two back doors and is secured by a 3-point latching systems on all doors, with your choice of locks. Additionally, the McCain 332D Cabinet has the capability for accepting padlocks.

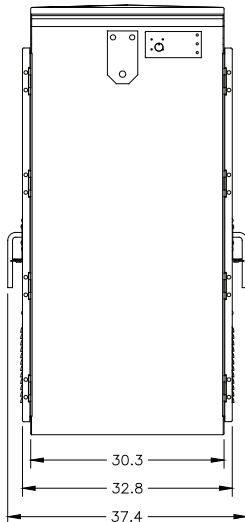
The McCain 332D Cabinet comes equipped with industry standard features such as two 19-inch EIA racks, two 14-position input files, and a 12-position output file. Each McCain 332D Cabinet offers an eight-phase, four-pedestrian operation with two right turn overlaps and its 36 detector channel capability can be utilized with two-channel or four-channel detector modules.

# McCain 332D CONTROLLER CABINET

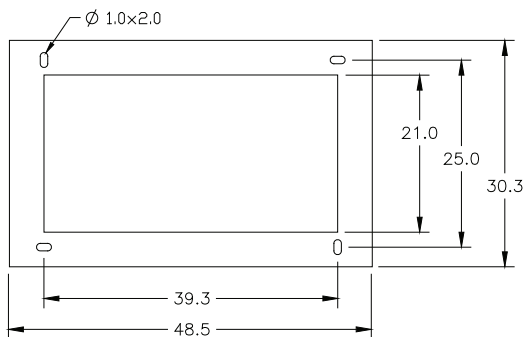
FRONT



SIDE



BOTTOM



## STANDARD FEATURES

- 8-phase, 4-pedestrian operation (2 right turn overlaps)
- 36 detector channel capability (3 per turn, 6 per through movement)
- 2-channel or 4-channel industry standard detection modules
- Railroad preemption inputs (2)
- Emergency vehicle preemption inputs (4)
- DC isolation inputs for pedestrian pushbuttons and special functions
- Programmable “Yellow/Red” or “All Red” flashes through the use of flash plugs
- 210 Signal Monitor slot
- Fluorescent cabinet lights with door switches

## ASSEMBLIES AND COMPONENTS

- 14-position input files (2)
- 12-position output file
- Model PDA-2 combined power supply and Power Distribution Assembly
- Flash transfer relay sockets (4)
- Dual-circuit flasher positions (2)
- Input panel
- Service panel
- Police panel with signal “On/Off” and “Auto/Flash” switches

## GENERAL SPECIFICATIONS

Dimensions <sup>1</sup> :	49"W x 67"H x 30"D
Material:	5052-H32 aluminum, 0.125" thick
Finishes <sup>2</sup> :	Natural, anodized, powder coated
Doors:	Front doors (2), back doors (2), all full size
Latching System:	3-point, choice of Corbin or Best locks
Handles:	3/4" round, stainless steel with padlock hasp
Door Stops:	90° (±10°), each door, top 90° and 180° (±10°), each door, bottom
Rack Assembly:	Removable 19" EIA racks (2)
Ventilation:	Thermostatically controlled 100 CFM fans (4), louvered air intake in doors, pleated filters
Mounting:	Base mounted
Shipping Weight <sup>3</sup> :	435 lbs

## OPTIONS

- 3/4" x 16" anchor bolts for mounting (4)
- Sun shields
- Drawer assembly(s)

<sup>1</sup>Dimensions rounded to the nearest inch

<sup>2</sup>Powder coated options include standard, anti-graffiti, and custom colors

<sup>3</sup>Without plug-ins or controller(s)

# Auxiliary Output File

Cabinets

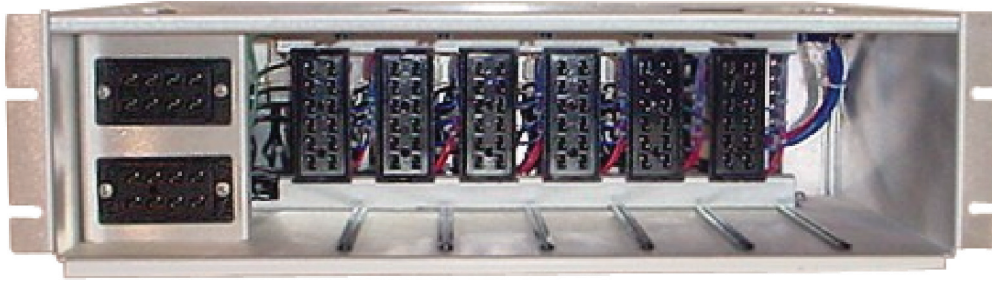
Controllers

Signals

Signs

Software

Specialty



## Description

The Model 420 auxiliary output file is capable of containing six Model 200 switch packs and two flash transfer relays. The red and yellow output circuits of switch packs No. 1, 2, 4, and 5 are made available at a Molex receptacle/plug connection for flash select ability. It is mounted on the cabinet 19" EIA rails. It meets Caltrans requirements.

## Part Number

M11551

## TRAFFIC CONTROL / AC SERVICE

# HE1750



### DESCRIPTION

The HE1750 has been specifically designed for use on both type 170 and on NEMA controllers. Because of the high quality of this protector, it may be used as a standalone device without the use of an external line filter. If an external line filter is required, it is recommended that a HESCO/RLS line filter be used.

The HE1750 (like the popular HE1800) is a multi-stage, high energy suppressor that incorporates a sophisticated, inline EMI/RFI filter. The inline filter has been designed to effectively reject random noise and spikes from 10KHz to 25MHz. The primary and secondary clamp stages are separated by an inductive network; yet work together to give clamp voltages of under 395 volts at 20KA (8 x 20us).

The HE1750 also incorporates the use of warning/failure indicators in addition to remote sensing for monitoring by a central computer. If random data base memory loss or any other transient interference is effecting the safe operation of one or more of your intersections, the HE1750 surge protector will quickly and effectively eliminate the problem.

### SPECIFICATIONS

<b>Peak Surge Current</b>	
8 x 20us.....	48KA
<b>Max Clamp Voltage.....</b>	395VAC
<b>Response Time.....</b>	<5nS
<b>Continuous Service Current.....</b>	15 Amps Max
<b>Operating Temperature.....</b>	-40 to 85c
<b>Dimensions (in.).....</b>	4.6W x 3.1L x 1.9H
<b>Mounting.....</b>	Aluminum Base Plate

### FEATURES

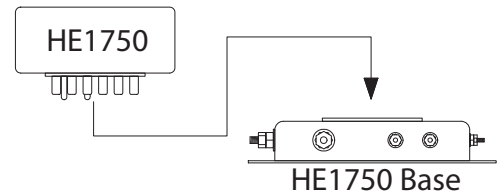
- Modular Design
- Multi-Stage Surge Arrestor
- Effectively Protects Against Lightning and Other Power Surges
- Dry Relay Contact Remote Sensing Circuit
- Immediately Self-Restores After Each Surge
- LED Warning / Failure Indicators

### PIN ASSIGNMENTS

Line In.....	1,2
Neutral In.....	11,12
Ground.....	3,4,9,10
Line Out.....	5
Neutral Out.....	7
Relay NC.....	8
Relay Com.....	6

### MIL-STD-220A INSERTION LOSS DATA

Frequency	Insertion Loss (dB)
60Hz.....	0
10Khz.....	35
50Khz.....	71
100Khz.....	72
500Khz.....	75
2MHz.....	67
5MHz.....	57
10MHz.....	52
20MHz.....	38



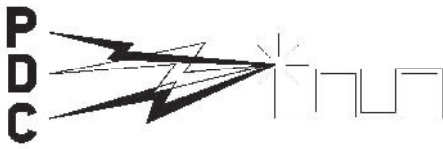
**CAUTION: Disconnect Power Prior to Installing or Removing Unit**

**HESCO/RLS**  
220 Springview Commerce Drive  
Unit 190  
DeBary, FL 32713  
386.668.2793 Fax

For more information and product support call us at...

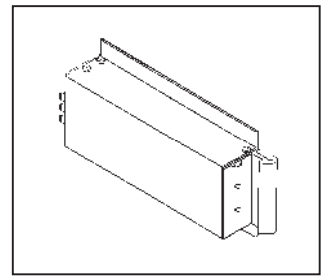
1-800-547-4868

[www.hescorls.com](http://www.hescorls.com)



# DATA SHEET:

## SSF-87 / 170 TYPE 204



### Solid State Flasher With Replaceable Modules:

#### General Description:

The PDC model SSF-87 is a dual pack, modular, solid state flasher designed specifically to meet NEMA specifications as well as New York "Model 204" specifications. Each flasher contains two individually replaceable modules that are enclosed in a dust resistant, metal enclosure, providing mechanical protection, and excellent heatsinking for the modules. The modules are easily accessible with the use of a crew driver.

#### Installation:

The flasher intermates with the model 332 cabinet as well as with any NEMA loadbay. It is easily installed or removed by grasping the extruded handle. Connector pinouts are shown in FIG 1. The connector mates with a Beau S-5406-LAB or equivalent.

### General Characteristics:

- Load  
 Voltage.....120 VAC  
 Current (max).....25.0 Amps  
 (Tungsten filament load)
- Off State  
 dv/dt.....100V per microsecond  
 Line to load resistance...15k Ohms min.  
 Leakage current.....less than 20 mA
- Surge Current  
 One cycle.....175 Amps RMS min.  
 One second..... 40 Amps RMS min..
- Life  
 Operations.....30 million min.

- Flash Rate  
 50-60 cycles (flashes) per minute.

- Mechanical  
 Length..... 8.40 inches  
 Width..... 1.70 inches  
 Height..... 4.185 inches  
 Weight..... 1.50 Lbs.

- Operating Temperature -35 to +74 degrees C  
 Adjustments: The model SSF-87 flasher has no adjustment controls.  
 Guaranteed : The flasher is fully guaranteed against all failures due to manufacturing defects for two years.

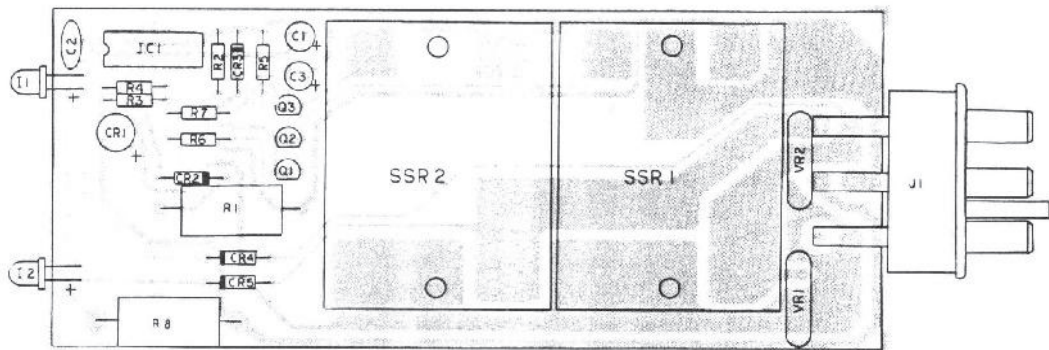
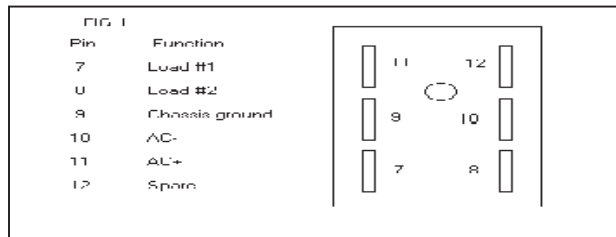
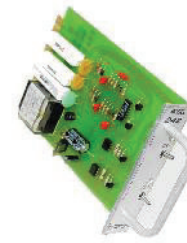


FIG. 2



# DATA SHEET :DCI-82-242



## Model 242 DC Isolator:

### **Description:**

The PDC Model DCI-82 dual channel DC isolator is designed specifically to meet the California Department of Transportation , Model 242 specifications. Each channel of the DC isolator shall present a true signal (ground closure) at the output of its optical coupling device when a contact closure causes an input voltage of less than 8 VDC, for longer than 5 milliseconds. A transition from a true to a false signal at the output shall occur when the respective contact closure causes an input voltage of greater than 12 VDC.

All electronics are provided on a single sided P.C. board with an aluminum front panel. The P.C. board is provided with a solder mask, silk screen identifying all component locations and is conformally coated to resist adverse environmental conditions.

### **Installation:**

The DC Isolator intermates with the model 332 cabinet input file. Connector pinouts are as shown in Fig. 1. The connector mates with a Cinch #250-22-30-xxx or equivalent.

Pin	Function	Pin	Function
A	DC ground	N	AC+
B	+24 VDC	P	NA
C	NA	R	NA
D	Input #1	S	NA
E	Input #1 common	T	NA
F	Output #1 (C)	U	NA
H	Output #1 (E)	V	NA
J	Input #2	W	Output #2 (C)
K	Input #2 common	X	Output #2 (E)
L	Chassis ground	Y	NA
M	AC-	Z	NA

FIG 1.

### **General Characteristics:**

Model DCI-82-242  
 Input:  
 True State.....<8 VDC,>5 msec.  
 False State.....>12 VDC  
 Output:  
 Voltage.....30 VDC max.(open collector)  
 Current.....50 mamp sink(true state)  
 Power:  
 Voltage.....115 VAC  
 Current.....20 mamp AC max.  
 Isolation:  
 Voltage.....2500 VAC  
 Resistance.....1000 megohm.  
 Transient suppression:  
 Energy.....50 Joules

### **Mechanical Characteristics:**

Length ..... 7.00 IN.  
 Width..... 1.12 IN.  
 Height..... 4.50 IN  
 Weight..... 0.70 LBS.



## DATA SHEET SSS-871O

### Solid State Loadswitch:

#### Description:

The PDC SSS-871/O Loadswitch series is a tri-pack, modular, solid state relay designed specifically to meet NEMA specifications, as well as California and New York "Model 200" specifications. Each loadswitch contains 3 individually replaceable modules that are enclosed in a dust resistant, metal enclosure providing mechanical protection and excellent heat sinking for the modules. The modules are easily accessible with the use of a screwdriver. Each loadswitch also features a L.E.D. indicator on each output circuit.

#### Installation:

The switchpac inter mates with any standard NEMA loadbay or with the model 332 cabinet output file as well as with any NEMA loadbay. It is easily installed or removed by grasping the handle. Connector P1 pin outs are shown in FIG 1. The connector mates with a PDC BCS-12 or equal.

PIN	FUNCTION
1	+115VAC, 60 Hz
2	Chassis Ground
3	A Output (Red, Don't Walk)
4	Not Assigned
5	B Output (Yellow)
6	A Input (Red, Don't Walk)
7	C Output (Green, Walk)
8	B Input (Yellow)
9	+24 VDC
10	C Input (Green, Walk)
11	AC-
12	Not Assigned

P1  
(P1 as viewed from the outside of the product looking directly at the connector)

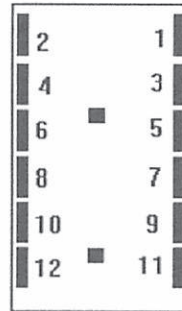


FIG 1.

#### General Characteristics:

Model	SSS-871/O Series
Uses Module #	SSR-87
Meets Specs for	Nema, Caltrans, NY (model 200)
Load	voltage.....120 VAC
	current (max)..... 15.0 Amps (Tungsten Filament Load)
Control Signal	voltage.....+24VDC
	current ..... 20.0 MA (max)
Switching	1st alternation after.....±10 Degrees of line voltage at the zero signal is applied. crossover point.
	Succeeding alterations.....±5 Degrees of line voltage at the zero crossover point.
	Off State
Isolation	line to load resistance.....15 K Ohms Min
	leakage current.....less than 20 MA
Surge Current	voltage.....2500 VDC Min
	resistance.....10 Meg Ohms Min
Life	one cycle.....175 Amps RMS Min
	one second.....40 Amps RMS Min
Mechanical	operations.....30 million Min
	length.....8.40 inches
	width.....1.74 inches
	height.....4.185 inches
	weight.....1.135 LBS

**Guarantee:** The SSS-871/O series is fully guaranteed against all failures due to manufacturing defects for two years.

# 2018KCL

## Type 170/2070 18 Channel Signal Monitor



The EDI 2018KCL Signal Monitor is designed to upgrade the capabilities of the basic 210 / 2010 monitor used in Type 170 / 179 Output Files. The unit is fully compatible with the requirements of the 170, 179, and 2070 Controller Units. The 2018KCL utilizes enhanced monitoring functions to increase cabinet fault coverage, providing additional assurance that equipment malfunctions will be detected and diagnosed properly.

A removable Datakey™ memory device contains all the monitor set-up information and **completely eliminates the need for a diode Program Card, soldered jumpers and DIP switches.**

**Model 2018KCLip: 18 channel with Ethernet Port**

**Model 2018KCL: 18 channel with EIA-232 Port**

### OPERATIONAL FEATURES

#### Enhanced 210 Monitoring Functions:

The 2018KCL meets all requirements of the Caltrans "TSCE Specifications 1/89" and Caltrans TEES, March 2009. Basic fault coverage includes Conflict, 24Vdc, and CU Watchdog monitoring. Red Monitoring senses the absence of signals on a channel, and requires the output file to be wired for Red signals. Dual Indication Monitoring detects simultaneous active signals on a channel. Clearance Monitoring ensures sequencing of signals with a proper minimum yellow clearance interval for *both vehicle and pedestrian channels*. AC Line Monitoring detects and responds to low AC Line voltages as well as interruptions with a minimum flash interval.

#### Datakey Configuration Memory:

Complete 2018KCL programming is provided by an interchangeable Datakey™ nonvolatile memory device. This rugged key stores all 2018KCL configuration parameters and *completely eliminates monitor programming using jumpers, diodes, or DIP switches*. Ethernet network parameters are also included (firmware version xx56 or greater).

#### Setup Wizard:

Use the MonitorKey® Setup Wizard to *automatically and accurately* configure the Enhanced settings of the 2018KCL by answering a short series of questions regarding intersection geometry and operation.

#### Event Logging:

The 2018KCL monitor maintains a 100 record nonvolatile event log which contains records of fault events showing the complete intersection status as well as AC Line events, configuration changes, monitor resets, cabinet temperature and true RMS voltages. A real time clock time-stamps each log event with time and date.

#### RYG Full Intersection Display:

The Full Intersection display uses Red, Yellow, and Green LEDs to show active colors of all channel inputs simultaneously for real-time intersection status.

#### EDI RMS-Engine:

A DSP coprocessor converts ac input measurements to True RMS voltages, virtually eliminating false sensing due to changes in frequency, phase, or sine wave distortion.

#### LEDguard®:

This EDI innovative signal thresholding technique is used to increase the level of monitoring protection when using LED based signal heads.

#### Recurrent Pulse Detection:

The Recurrent Pulse (RP) Detection function supplements the Conflict, Dual Indication, and Red Fail algorithm. RP Detection works in conjunction with the RMS-Engine to detect faults that are pulsing or intermittent in nature.

#### Flashing Yellow Arrow PPLT:

Three operational modes are built-in for support of the MUTCD Flashing Yellow Arrow PPLT operation depending on the number of load switches in the cabinet.

#### Communications to Controller Unit or PC:

An EIA-232 serial port or optional Ethernet port (2018KCLip) provides access to status and event logs by a local or TMC computer running EDI ECom Windows based software.

#### Signal Sequence History Display:

Five Signal Sequence History logs stored in nonvolatile memory each graphically display 30 seconds of signal status prior to each fault event. The resulting display eases diagnosing of intermittent and transient faults by viewing the exact signal states that the monitor sensed.

Datakey is a trademark of Datakey Electronics Inc. MonitorKey and LEDguard are trademarks of Eberle Design Inc.

**EBERLE DESIGN INC.**

3510 East Atlanta Avenue  
Phoenix, AZ 85040 USA  
www.EDItraffic.com

Tel (480) 968-6407  
Fax (602) 437-1996



City of Olathe  
Traffic Light Supplies  
IFB-26-0018


Attachment D- Cooperative Purchasing

**COOPERATIVE PURCHASING BY OTHER INSTITUTIONS UNDER THIS CONTRACT**

If the City of Olathe awarded you the proposed Contract, you hereby agree to sell, under the prices and terms of this Contract, to any Municipal, County, Public Utility, Hospital, or Educational Institution having membership in an affiliated chapter of the National Institute of Governmental Purchasing (NIGP) and located within the Greater Kansas City Metropolitan Trade Area? (All deliveries are to be F.O.B. Destination and there shall be no obligations on the part of any member of such chapter to utilize this Contract).

Yes  No  Minimum order if, applicable \$ \_\_\_\_\_

Vendor Name: Traffic Signal Controls, Inc.

Signature:  Date: April 3, 2026

**Exhibit B**  
**CITY OF OLATHE INSURANCE REQUIREMENTS**

These requirements apply to the vendor or contractor ("Vendor") entering into an Agreement with the City of Olathe ("City").

**A. Insurance.** Secure and maintain for the term of the Agreement insurance of such types and in at least such amounts as set forth below from a Kansas authorized insurance company which carries a Best's Policyholder rating of "A-" or better and carries at least a Class "VII" financial rating or better, unless otherwise agreed to by City:

1. Commercial General Liability: City must be listed by ISO endorsement or its equivalent as an additional insured on a primary and noncontributory basis on any commercial general liability policy of insurance. The insurance must apply separately to each insured against whom claim is made or suit is brought, subject to the limits of liability.

**Limits:** Per Occurrence, including Personal & Advertising Injury and Products/Completed Operations: \$1,000,000; General Aggregate: \$2,000,000.

2. Business Auto Insurance: City must be listed by ISO endorsement or its equivalent as an additional insured on a primary and noncontributory basis on any automobile policy of insurance. Insurance must apply separately to each insured against whom claim is made or suit is brought, subject to liability limits.

**Limits:** All Owned Autos; Hired Autos; and Non-Owned Autos: Per occurrence, combined single limit: \$500,000.

Notwithstanding the foregoing, if Vendor does not own any automobiles, then Vendor must maintain Hired and Non-Owned Auto insurance.

3. Worker's Compensation and Employer's Liability: Workers compensation insurance must protect Vendor against all claims under applicable state Worker's Compensation laws at the statutory limits, and employer's liability with the following limits.

**Limits:** \$500,000 Each Accident/\$500,000 Policy Limit/\$500,000 Each Employee

4. Professional Liability (if applicable): **Unless excused by the Agreement with the City**, Vendor must maintain for the term of this Agreement and for a period of three (3) years after the termination of this Agreement, Professional Liability Insurance.

**Limits:** Each Claim: \$1,000,000; General Aggregate: \$1,000,000.

5. Cyber Insurance (if applicable): **IF** accessing the City's network or City's data, **THEN** maintain the following coverages throughout for the term of this

Agreement and for a period of three (3) years after the termination of this Agreement: Cyber Incident/Breach Response and Remediation Expenses, Digital Data Recovery, Privacy and Network Security Liability, and Notification Expense.

**Limits:** Per claim, each insuring agreement: \$1,000,000; Aggregate: \$1,000,000.

**B. Exposure Limits.** Above are minimum acceptable coverage limits and do not imply or place a liability limit nor imply that the City has assessed the risk that may be applicable to Vendor. Vendor must assess its own risks and if it deems appropriate and/or prudent maintain higher limits and/or broader coverage. The Vendor's insurance must be primary, and any insurance or self-insurance maintained by the City will not contribute to, or substitute for, the coverage maintained by Vendor.

**C. Costs.** Insurance costs must be at Vendor's expense and accounted for in Vendor's bid or proposal. Any deductibles or self-insurance in the above-described coverages will be the responsibility and at the sole risk of the Vendor.

**D. Verification of Coverage**

1. Must provide certificate of insurance on ISO form or equivalent including all requirements listed herein. City uses the myCOI platform for submission and review of certificates of insurance and related documentation. Vendor must provide any information needed to register on the platform and submit certificates of insurance and related documentation through the platform.
2. Any self-insurance must be approved in advance by the City and specified on the certificate of insurance. Additionally, when self-insured, the name, address, and telephone number of the claim's office must be noted on the certificate or attached in a separate document.
3. When any of the insurance coverages are required to remain in force after final payment, additional certificates with appropriate endorsements evidencing continuation of such coverage must be submitted along with the application for final payment.
4. For cyber insurance, the certificate of insurance confirming the required protection must confirm the required coverages in the "Additional Comments" section or provide a copy of the declarations page confirming the details of the cyber insurance policy.

**E. Cancellation.** No required coverage may be suspended, voided, or canceled, except after Vendor has provided thirty (30) days' advance written notice to the City.

**F. Subcontractor's Insurance:** If a part of this Agreement is to be sublet, Vendor must either cover all subcontractors under its insurance policies; **OR** require each subcontractor not so covered to meet the standards stated herein.