



# Invitation To Bid

Louisville/Jefferson Co Metro Government

ORIGINAL

<b>Bid Number:</b>	<b>1887</b>
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<b>Revision:</b>	0
<b>Date:</b>	28-AUG-09

Sealed bids will be received until 3:00 PM and publicly opened and all bid prices read aloud at that hour on date specified and under following conditions:

Bids received after 3:00 PM on Reply By Date will not be opened.

Bids must be signed by individuals or firms making bid. Samples to be submitted if requested. The right is reserved to select the lowest and best bid, also to reject any or all bids or any part thereof.

On proposals amounting to \$2000.00 or over, successful bidder may be required to execute and give performance bond for full amount of same by a Surety Company authorized to do business in the Commonwealth of Kentucky before order is issued.

All items quoted are considered F.O.B. Delivered, unless otherwise stated.

**Mark envelope with Bid Number, Reply By Date and Address to:**

Office for Management & Budget - Division of Purchasing 611 West Jefferson Street Mezzanine Level Louisville, KY 40202	
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**Reply By: 08-SEP-09**

#	Description
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- |   |  |
|---|--|
| 1 | A Price contract to provide a portion of Louisville Metro Government's need for LED Countdown Pedestrian Signal Modules and Pedestrian Signal Housings w/LED Modules for a period of twelve (12) months, as per the attached specifications. |
|---|--|

DELIVERY TIME: 30-45 days ARO  
(# of days A.R.O.)

We guarantee all the above named goods to be first-class and equal in every particular to above specification. Delivery to be made immediately on advice of acceptance unless otherwise specified.

**UNSIGNED BIDS WILL NOT BE CONSIDERED**

FIRM NAME: Path Master, Inc.

OFFICIAL'S SIGNATURE: *Randall W. ...* President

ADDRESS: 1960 Midway Dr.  
Twinsburg, OH 44087

PHONE: 330-425-4994

DATE: September 3, 2009



# Invitation To Bid

Bid#: 1887

Louisville/Jefferson Co Metro Government

## Standard Text

Please submit all factory literature and supporting documentation with each submitted copy of your Bid/RFP.

Any Kentucky Public Procurement Agency will have the option of making purchases using this bid / contract by issuing a separate Purchase Order.

If you have any questions concerning the Purchasing Requirements of this solicitation please call Senora Ford at (502) 574-5767.

### RENEWAL OPTION:

Metro Government reserves the right to renew & extend contracts for a period of one (1) year and from year to year thereafter, upon the same terms and conditions, if such renewal or extension is agreed to by the contractor. Total contract period cannot exceed five (5) years. Written notice of Metro Government's intention to renew/extend will be sent prior to the expiration date.

Metro Government reserves the right to issue a separate bid for this product / service when it is in it's best interest.

Any Kentucky Public Procurement Agency will have the option of making purchases or establishing a Price Contract under the terms and conditions of this bid.

Contractor shall notify Louisville-Jefferson County Metro Purchasing of any change in their status within 30 days of the change.

The prices on the resulting contract shall be the maximum that will be charged for the covered products and/or services. Any requested increase of these prices shall be requested in writing to the Metro Division of Purchasing. The Division of Purchasing will either accept or decline the request. Increases shall not be effective until approval is received in writing.

Metro Government will accept no price increases for the first year of the annual price contract. All price increase requests after the first year must be submitted in writing to the Purchasing Division, 611 West Jefferson Street, Mezzanine Level, Louisville, KY 40202. Upon notification by the vendor of documented market increases, Purchasing may either accept the price change or cancel the contract.

Any inquiries on this Bid/RFP after the opening date shall be addressed in writing to:

Director of Purchasing  
Office for Management & Budget - Division of Purchasing  
611 West Jefferson Street - Mezzanine Level  
Louisville, KY 40202



# Invitation To Bid

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Bid#: 1887

Louisville/Jefferson Co Metro Government

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The Successful Bidder will be required to furnish insurance coverage as stated in the specifications.

If you do not plan to sub-contract any of this work, you must complete and sign Form GFE-1 to indicate work will be self-performed.

SUBMIT BIDS WITH A COMPLETE UNBOUND ORIGINAL (please mark original) AND ONE COPY. The copy should be a complete copy of your original bid. Failure to submit ALL forms and information required in specifications may be reason for disqualification.

If the successful vendor agrees to extend the pricing for a twelve month period the Purchasing Department may purchase additional items from this bid by issuing a separate purchase order. The pricing and specifications for the new purchase shall be the same as those in the original bid and original purchase order.

**STANDARD TEXT**

Please indicate your Louisville/Jefferson County Metro Government Revenue Commission Number [REDACTED] and your Federal Tax Identification Number [REDACTED]. If you are a Metro Government vendor or you are doing business in Metro Louisville, you should already be registered with the Revenue Commission and have all of your required taxes paid. If you become the successful vendor, you must be properly registered with the Revenue Commission and have all of your required taxes paid prior to the award of this contract. For further information please call Lisa Finegan of the Revenue Commission at (502) 574-4860.

Ordinance #214, Series 2005, concerning the requirement for an Affirmative Action Plan for contractors and vendors doing business with Louisville/Jefferson County Metro Government, shall apply to this Notice for Bids. Any questions concerning the ordinance should be directed to the Human Relations Commission at (502) 574-3631.

All parties hereto acknowledge any agreement is subject to Metro Government Ordinances, relating to the requirement of an affirmative action plan or other equal employment criteria for contractors and vendors to do business with the Metro Government. Failure to comply with the terms of said ordinances will be cause for suspension, termination or cancellation of any agreement.

All prices quoted are to be F.O.B. Delivered to Destination.

BID PRICES ARE TO BE FIRM FOR A MINIMUM OF Ninty (90) DAYS FROM BID/RFP OPENING DATE

Please include your FAX number 330-425-9338.

Time discounts or cash discounts shall not be considered in award evaluation. Delivery time may be an evaluation factor in award of the Invitation for Bid/Price Inquiry/Proposal.

Metro Government is not responsible for any cost incurred by bidders/proposers in the preparation of bids/proposals.

(1) It shall be a breach of ethical standards for any employee with procurement authority to participate directly in any proceeding or application; request for ruling or other determination; claim or controversy; or other particular matter pertaining to any contract, or subcontract, and any solicitation or proposal therefore, in which to his knowledge:

- a. He, or any member of his immediate family has a financial interest therein; or
- b. A business or organization in which he or any member of his immediate family has a financial interest as an officer, director, trustee, partner, or employee, is a party; or
- c. Any other person, business or organization with whom he or any member of his immediate family is negotiating or has an arrangement concerning prospective employment is a party. Direct or indirect participation shall include but not be limited to involvement through decision, approval, disapproval, recommendation, preparation, of any purchase request, influencing the content of any specification or purchase standard, rendering of advice, investigation, auditing, or in any other advisory capacity.

(2) It shall be a breach of ethical standards for any person to offer, give, or agree to give any employee or former employee, to solicit, demand, accept, or agree to accept from another person, a gratuity or an offer of employment, in connection with any decision, approval, disapproval, recommendation, preparation of any part of a purchase request, influencing the content of any specification or purchase standard, rendering of advice, investigation, auditing, or in any other advisory capacity in any proceeding or application, request for ruling or other determination, claim or controversy, or other particular matter, pertaining to any contract or subcontract and any solicitation or proposal therefore.

(3) It is a breach of ethical standards for any payment, gratuity, or offer of employment to be made by or on behalf of a subcontractor under a contract to the prime contractor or higher tier

subcontractor or any person associated therewith, as an inducement for the award of a subcontract or order.

(4) The prohibition against conflicts of interest and gratuities and kickbacks shall be conspicuously set forth in every local public agency written contract and solicitation therefore.

(5) It shall be a breach of ethical standards for any public employee or former employee knowingly to use confidential information for his actual or anticipated personal gain, or the actual or anticipated personal gain of any other person.

The mentioned manufacturer's names and model numbers are used only to indicate type and quality of merchandise needed and are in no way intended to limit bidding

Assignment of Contract: The bidder shall not assign or subcontract any portion of the contract without the express written consent of the Louisville/Jefferson County Metro Government. Any purported assignment or subcontract in violation hereof shall be void. It is expressly acknowledged that the Metro Government shall never be required or obligated to consent to any request for assignment or subcontract; and further that such refusal to consent can be for any or no reason, fully within the sole discretion of the Metro Government.

Payment Terms will be Net 30. Metro Government does not pay late fees or finance charges.

Submitted bids shall be for a firm, fixed price.

If the successful vendor agrees to extend the pricing for a twelve (12) month period additional items may be purchased from this bid by issuing a separate purchase order. The bid specifications must be met.

Inquiries on this Bid/RFP after the opening date shall be directed in writing to:

Director of Purchasing  
611 West Jefferson Street - Mezzanine Level  
Louisville, KY 40202

**Louisville/Jefferson Co Metro Government CONDITIONS**

1. Unless otherwise stated in the specifications, no bidder will be permitted to withdraw their bid until sixty calendar days after the opening date of this proposal.
2. Where this invitation covers two or more items for which unit prices are quoted, the Metro Government reserves the right to accept or reject any portion of the bid and to award purchase orders to the Metro Government's best advantage.
3. Prices quoted are to be exclusive of the State and Federal Excise Tax from which the Metro Government are exempt.
4. Explanation: Should a prospective bidder find discrepancy in or omissions from the specifications, or be in doubt as to their meanings, he/she shall at once notify the Metro Purchasing Director who shall send written instructions to all prospective bidders. The Metro Government will not be responsible for any oral instructions.
5. All commodities furnished are subject to inspection at the point of delivery by a representative of the Metro Government. All rejected supplies will be returned at vendor's expense.
6. By signature on the face of this bid the bidder expressly states that no fee/attorney's fee, commission, allowance, gratuity, reward, gift, promise or compensation of any kind has been made or paid or will be made or paid in connections with this transaction or any matters arising out of or pertaining to same.
7. The Bidder is requested to show both unit prices and lot prices. In the event of any error the unit price Bid shall prevail.
8. The Metro Purchasing Director reserves the right to waive any formality and/or technicality in any Bid if such waiver is to the Metro Government's advantage.
9. Bids shall be submitted on the forms provided and must be signed by the bidder or an authorized representative. Any corrections to entries made on bid forms should be initiated by the person signing the bid.
10. Bids must be submitted as directed in the Invitation for Bids.
11. Bids shall be submitted prior to the time fixed in the Invitation for Bids.
12. If more than one bid is offered on the same item by one party, or by any person or persons representing a party, all such bids shall be rejected.
13. The owner reserves the right to reject any and all bids.
14. The bidder to whom award is made may enter into a written contract with the Metro Government within the time specified in the Invitation. All insurance requirements including performance and payment bonds shall be furnished the time of signing the formal agreement.
15. The contractor agrees that in the performance of this agreement with the Metro Government, he/she will not discriminate against any workers because of race, creed, color, religion, national origin, handicap or sex and will comply with all applicable Federal, State or local laws and regulation prohibiting such discrimination. The aforesaid provision shall include, but not be limited to the following: Employment and upgrading, demolition or transfer, recruitment and recruitment advertising, lay-off or termination, rates of pay or other forms of compensation, selection for training including apprenticeship. The contractor agrees to post

thereafter in conspicuous places, available for employees and all applicants for employment, notices setting forth the provisions of the above non-discrimination clause. The contractor further agrees to insert the foregoing provision in all sub-contracts hereunder.

16. PATENT INFRINGEMENT - The supplier/contractor must indemnify the Metro Purchasing Department against all damages and expenses resulting from patent infringement.

**PLEASE READ CAREFULLY**

This Invitation for Bids contains a signature page at the end of the document. By signing the signature page, the Bidder agrees to be bound by the following terms and conditions:

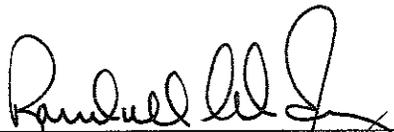
Bidder agrees that this document shall become the final contract and shall be legally bound by the bid document including all terms, conditions and specifications contained in the Invitation for Bids.

Bidder acknowledges that the individual signing the bid document for the Bidder has the authority to contractually and legally bind Bidder to the bid document and all terms, conditions and specifications contained therein.

Once this Invitation for Bids document has been signed and received by the Purchasing Department of the Metro Government, Bidder will not be allowed to change, alter, amend or withdraw their bid except with the express permission of the Director of Purchasing or in accordance to law.

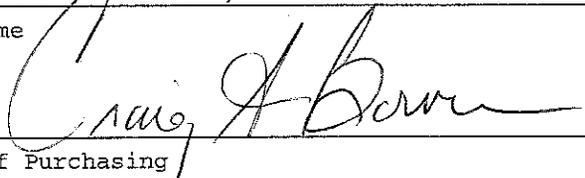
In accordance with Condition #2 attached to the Invitation, if the award is divided among or between vendors, written notification will be given to each vendor of the specific items covered on their respective contracts.

**SIGNATURE PAGE**

 , President

Contractor (Please sign here and type in company name on line immediately below. Please leave all other lines blank)

Path Master, Inc.  
Company Name

  
Director of Purchasing

Contract Term:  
Effective: December 15, 2009  
Expires: December 14, 2010

Items Covered:  
All:  \* Primary \*

See Attached: \_\_\_\_\_

The Invitation for Bid and response will become part of the contract

**LIVING WAGE PREFERENCE**

Ordinance 91, Series 2003 establishes a preference for businesses, which provide their employees a minimum wage equal to or exceeding the minimum wage set forth in Section I of the ordinance as of July 1, 2003. That amount is currently **\$9.00/hour for all full time employees.**

If supplies or services are to be purchased by competitive sealed bidding, or by competitive negotiation, and the supplies or services are available from a minimum wage business, the bid price or cost quoted by each minimum wage business shall be reduced by 5% for the purpose of determining the lowest bid price; however nothing in the ordinance prohibits the awarding of contracts by Metro Government on the basis of evaluated bid price.

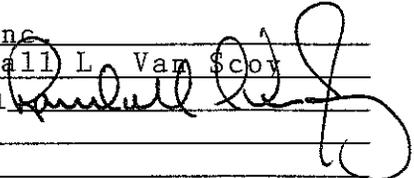
In order to qualify for the 5% preference under Section II of the ordinance, if a contract is for services, and a bidder or offeror uses subcontractors to perform all or part of the work required under the contract, the bidder or offeror shall not subcontract more than 20% of the work to non-minimum wage businesses unless such services are not available from minimum wage businesses.

**If a business holds itself out as a minimum wage business by indicating so below, and is subsequently awarded a contract, then it is later discovered that such information was falsely provided, such business will be liable to the Metro Government equal to 30% of the amount of the contract awarded.**

If a minimum wage business is awarded a contract under this ordinance, then such business shall post a sign of the applicable minimum wage rate set forth in this ordinance in a conspicuous place and manner so as to inform employees and the public alike that such business pays its employees wages at least commensurate with the applicable minimum wage rate established by this ordinance.

If you meet the requirements of this ordinance and wish to claim certification as a minimum wage business for this bid please sign in the space below.

I certify that my business meets the requirements of Ordinance 91, Series 2003 and wish to be certified as a minimum wage business for this bid. (This page shall be included with bid submission)

Company Name Path Master, Inc  
Authorized Official(Print) Randall L Van Scoy  
Signature of Authorized Official   
Title President  
Date September 3, 2009

## LOCAL VENDOR PREFERENCE APPLICATION

To qualify for local vendor preference a business must:

- Have been established in the Louisville Metropolitan Statistical Area, as defined by the United States Census Bureau (MSA) for twelve (12) months and have an up to date local tax identification number on the date of the bid opening.
- Have its headquarters located in the Louisville MSA, or have a branch office currently located in the Louisville MSA for at least seven (7) years prior to the bid date.
- The city or county which the business is located in must have a reciprocal ordinance which recognizes businesses located in the Louisville MSA as a local business for the purpose of a procurement preference. A copy of the reciprocal ordinance shall be included with your bid.
- Utilizes local businesses to furnish at least 75% of the services under a contract unless such services are not available locally.
- Submit this completed form with your submitted bid. Incomplete applications or applications submitted after the bid opening will not be considered.

If you meet the above criteria and wish to apply for Local Vendor Preference on this bid please fill out the information at the bottom of this page. Incomplete applications will not be considered. The preference you will receive is 5% of your bid total or 5 points added to your evaluated bid total.

If a vendor is deemed a local vendor for the purposes of this preference on the basis of false information the vendor will be subjected to a fine equal to 25% of the contract price.

Any vendor who is denied local business status may petition the Director of Purchasing within 5 days of the denial. The petition shall outline the reasons why the local vendor status should be awarded. The Director of Purchasing will set a hearing for the petition. The decision of the Director will be final.

Any vendor may challenge in writing within three (3) business days following the day of in which a contract is awarded for a project the grant of a local vendor preference to another vendor. The challenge shall outline why the local vendor preference should not have been awarded. A hearing will be set by the Director of Purchasing who will hear the challenge and render a decision. The decision of the Director will be final.

You may request a complete copy of this Ordinance from the Louisville-Jefferson County Metro Purchasing Department.

.....  
Company: \_\_\_\_\_ N / A \_\_\_\_\_

Address: Street \_\_\_\_\_

City \_\_\_\_\_ County \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Revenue Commission Number: \_\_\_\_\_

Official: \_\_\_\_\_

Signature: \_\_\_\_\_ Date: \_\_\_\_\_



**HUMAN RELATIONS COMMISSION**  
**Carolyn Miller-Cooper, Director**

### **GOOD FAITH EFFORT (“GFE”) REQUIREMENTS**

Participation by certified female owned, certified handicapped owned, or certified minority owned business entities or utilization by contractors of certified female, certified handicapped, or certified minority owned business as subcontractors, if the contract requires or warrants the use of subcontractors, is strongly encouraged and will be a consideration in determining the award of a contract.

All contractors are to utilize their best good faith efforts to utilize subcontractors, certified female owned, certified handicapped owned, and certified minority owned businesses if the procurement situation requires or warrants the use of subcontractors. Good faith efforts by contractors shall be made to reach the goals established by Metro Code of Ordinances § 37.67.

Under Metro Code of Ordinances §37.67, Louisville Metro Government has adopted the following minimum utilization goals for its annual procurement expenditures with certified minority owned, female owned and handicapped owned business enterprises (“MFHBEs”):

- 15% for certified minority owned businesses;
- 5% for certified female owned businesses; and
- 0.5% for certified handicapped owned businesses.

Failure to meet such goals will not result in disqualification from participation in the particular procurement process. Contractors, however, will be expected to provide written explanations (See attached GFE Forms) to the Executive Director of the Human Relations Commission of efforts they have made to utilize as subcontractors from certified minority, female and handicapped owned businesses.

Good faith efforts of a potential bidder include, but are not limited to the following:

- Attendance at pre-bid meetings, if any, scheduled to inform MFHBEs of prime and subcontracting opportunities;
- Advertisement in general circulation media, trade association publications, and minority and female business enterprise media to provide notice of subcontracting opportunities;
- Communication with the Human Relations Commission Office seeking assistance and identifying available qualified MFHBEs;
- Efforts made to select portions of work for MFHBE subcontracting in areas with established availability or MFHBE subcontractors;
- Providing a minimum of ten days written notice to known qualified MFHBEs that their interest in prime and subcontracting opportunities or furnishing supplies is solicited;
- Efforts to negotiate with qualified MFHBEs for specific sub-bids, including reasons for rejection of any such sub-bids offered.
- Efforts made to assist qualified MFHBEs meet bonding, insurance, or other governmental contracting requirements.

These requirements are contractual obligations and will be included in the construction contract. Failure to comply may result in a finding of breach of contract, possible disqualification of the Bidder to bid on future contracts, or a claim for damages.

**SUBCONTRACTOR AND SELF-PERFORM WORK LIST (FORM GFE-1)**  
**FORM GFE-1 DUE DAY AFTER BID OPENING BY 4:00PM - FROM ALL BIDDERS - TO LOUISVILLE METRO HUMAN RELATIONS COMMISSION** (Failure to timely submit Form GFE-1 will result in bid rejection)

- Bidders shall list ALL Subcontractors/Suppliers to be used on this contract regardless of the dollar amount on Form GFE-1. If this bid includes bid alternates for additional work, Bidders shall list ALL Subcontractors/Suppliers who will be used if Louisville Metro elects to contract the additional work.
- Bidders are required to make good faith efforts to subcontract with MFHBES for every division of work available in this bid opportunity ("Divisions of Work") unless the work will be self-performed by the Bidder.
- Bidders shall list any GFE Divisions of Work they intend to self-perform and separately list any GFE Divisions of Work where the identity of the subcontractor who will perform the work is undetermined at bid time.
- Examples of Divisions of Work to be listed on Form GFE-1 include, but are not limited to: clearing/earthwork, site concrete, asphalt paving, framing, painting, flooring plumbing, electrical, and HVAC. The number of subcontracting opportunities or Divisions of Work for GFE purposes may be greater and/or different than the divisions of work that might be outlined in the technical specifications.
- Best good faith efforts require that Bidders make contact with each MFHBE at least ten (10) calendar days before bid opening and that MFHBES be provided the same information as other subcontractors/suppliers.
- Bidders shall contact MFHBES by letter, fax or email ("Written Communication") to advise them of potential subcontracting opportunities.
- Bidders should follow up the Written Communication with telephone calls to each MFHBE contacted to determine if a bid will be submitted or if further information is required. A MFHBE need not be contacted if that MFHBE responds to the Written Communication with a statement that the MFHBE will not bid on this project or if a MFHBE has already submitted a sub-bid.

**MFHBE SUBCONTRACTOR GFE LOG (FORM GFE-2)**  
**FORM GFE-2 WITH ATTACHED WRITTEN COMMUNICATIONS DUE DAY AFTER BID OPENING BY 4:00PM - FROM ALL BIDDERS - TO LOUISVILLE METRO HUMAN RELATIONS COMMISSION** (Failure to timely submit Form GFE-2 will result in bid rejection and failure to timely submit the attached Written Communications may result in bid rejection, at the Metro Government's discretion)

- Each Bidder shall submit with the Form GFE-2 one copy of each Written Communication sent to a MFHBE Subcontractor/Supplier to solicit bids for this project.
- **Optional Good Faith Efforts**  
Bidders should consider public advertisements, attendance at pre-bid meetings, and technical and/or financial assistance to MFHBES as part of their good faith efforts activities. Such activities should be listed on GFE-2 with written documentation of such activities attached.

**SUBCONTRACTOR PAYMENT CERTIFICATION (FORM GFE-3)**  
**FORM GFE-3 DUE EACH MONTH OF THE CONTRACT PERIOD**

- The reporting of subcontractor payments for all Louisville Metro Government contracts will be accomplished by using the Form GFE-3, which must be submitted monthly to the Louisville Metro Human Relations Commission.
- The Form GFE-3 requires the listing of invoice numbers sent to the responsible Metro departments for payment. The amounts listed on the form should equal the total amount billed to Louisville Metro Government for the applicable month.

All forms are available on the Louisville Metro Human Relations Commission website:  
<http://www.louisvilleky.gov/HumanRelations>

Louisville Metro Human Relations Commission • 410 W. Chestnut Street, Suite 300A • Louisville, KY 40202  
502-574-3631 phone • 502-574-3190 fax • 502- 574-4332 TDD









Louisville Jefferson County  
Metro Government

DEPARTMENT OF PUBLIC WORKS & ASSETS

BID #1887

**LED COUNTDOWN PEDESTRIAN SIGNAL MODULES AND PEDESTRIAN SIGNAL  
HOUSINGS W/LED MODULES**

## **TABLE OF CONTENTS**

### **REQUEST FOR COMPETITIVE SEALED BIDS**

- I. Invitation and Instructions to Bidders**
- II. General Provisions**
- III. Insurance and Hold Harmless Agreement**
- IV. General Specifications**
- V. Evaluation Criteria**

## SECTION I

### INVITATION AND INSTRUCTION TO BIDDERS

- 1.0 Invitation: Louisville/Jefferson County Metro Government ("Metro Government") is now accepting bids for **LED Countdown Pedestrian Signal Modules and Pedestrian Signal Housings w/ LED Modules**. The process of accepting bids and choosing the successful bidder shall be by Competitive Sealed Bidding. Sealed bids will be received at the office of Louisville Metro Government Office for Management & Budget – Division of Purchasing until 3:00 PM September 8, 2009, 611 West Jefferson Street, Mezzanine Level, Louisville Kentucky, 40202. Prices for any bid item shall not be contingent upon the purchase of any other bid item included within this bid.

Bids received after the **3PM deadline on September 8, 2009** will be unopened.

Bidder Questions and Inquiries: Bidders having questions and inquiries on the specifications of this Competitive Sealed Bids shall be directed to:

**Pat Johnson**                      **Phone: (502) 574-3930 -or-**  
**Dan O'Dea**                        **Phone: (502) 574-3777**

**Louisville Metro Public Works & Assets**  
**601 W. Jefferson St., Rm #10**  
**Louisville, KY 40202**

Any information provided is not official unless reduced to writing by the Metro Purchasing Department. Any unauthorized contact with any other city official or employee in connection with this CSB is prohibited and shall be cause for disqualification of the Bidder. No questions or inquiries will be allowed beyond the pre-bid conference date as stated in the cover letter (if one is scheduled).

Careful attention must be paid to all requested items contained in this Competitive Sealed Bid (CSB). Bidders are invited to submit bids in accordance with the requirements of this CSB. Please read the entire package before bidding. Bidders shall make the necessary entry in all blanks provided for the responses. The submitted bid shall be firm for an acceptance period of ninety (90) days from the date of the bid opening.

Submitted bid shall be for a firm, fixed price.

The entire set of documents constitutes the CSB. The Bidder must respond in total and in the same numerical order in which the CSB was issued. Bidder's notes and comments may be rendered on an attachment, provided the same format of this CSB text is followed. All notes and comments shall be made in ink or be typewritten. Mistakes may be crossed out and corrections typed or written in ink adjacent thereto and must be initialed in ink by the person signing the bid. All bids shall be returned in a sealed envelope with CSB number and opening date stated on the outside of the envelope.

By submitting a Bid, the bidder acknowledges and agrees to be bound by the terms and conditions of the solicitation. This Competitive Sealed Bid document including all terms, conditions and specifications contained herein shall become the contract if Metro Government awards the Bid to the bidder hereunder. The bidder agrees that a resulting contract is the complete and exclusive statement of the agreement between the parties, which supersedes all prior agreements, oral or written, and all other communications between the parties relating to the subject matter of this solicitation. It is further agreed between the parties, that any change of the

contractual agreement must be formalized by issuance of a written modification from the Purchasing Department. The only terms and conditions acceptable to Metro Government are as outlined in this CSB. Bids containing additional and/or inconsistent terms and conditions will be considered non-responsive and shall be rejected. Purchase or sales agreements, supplied by the bidder, making an offer in reply to this solicitation will not be accepted.

In the event a conflict exists between sections of this CSB, such conflict shall be brought to the attention of the Purchasing Department in writing for resolution.

Unless contractually provided, Metro Government agencies utilizing these contracts will not be required to enter into nor sign further agreements, leases, company orders or other documents to complete or initiate the terms of a delivery order resulting from these contracts. Any such documents so obtained will not be binding on the Metro Government or its agents and shall be cause for termination of the contract by the Metro Government.

As allowed by the Metro Government Finance Manual, Purchasing Policies, Section III, A, 3, multiple contracts may be issued and those contracts, if any, shall be ranked. A secondary or lower ranking contract may be used if the primary contractor is unable to perform. However, the primary contractor shall be given the first opportunity to provide the services required. Contracts shall be utilized in the order stated in the award.

- 1.1 Bid Opening: Sealed bids will be accepted in accordance with the instructions detailed in section 1.0. The bid opening is open to the public. The Bidder shall file all documents necessary to support its bid and include them with its bid. Bidders shall be responsible for the actual delivery of bids during business hours to the address indicated in the cover letter. It shall not be sufficient to show that the bid was mailed in time to be received before scheduled closing time for receipt of bids.

## SECTION II.

### GENERAL PROVISIONS

- 2.1 Each Bidder shall comply with all Federal, State & Local regulations concerning this type of service or good.

The Bidder agrees to comply with all statutes, rules, and regulations governing safe and healthful working conditions, including the Occupational Health and Safety Act of 1970, *29 U.S.C. 650 et.seq.*, as amended, and KRS Chapter 338. The Bidder also agrees to notify the Metro Government in writing immediately upon detection of any unsafe and/or unhealthful working conditions at the job site. Bidder agrees to indemnify, defend and hold the Metro Government harmless from all penalties, fines or other expenses arising out of the alleged violation of said laws.

- 2.2 Failure to submit ALL forms and information required in this CSB may be grounds for disqualification.

- 2.3 Addenda: All addenda, if any, shall be considered in making the bid, and such addenda shall be made a part of this CSB. Before submitting a bid, it is incumbent upon each Bidder to be informed as to whether any addenda have been issued, and the failure to cover in the bid any such addenda may result in disqualification of that bid.

- 2.4 Bid Reservations: Metro Government reserves the right to reject any or all bids, to award in whole or part, and to waive minor immaterial defects in bids. Metro Government may consider any alternative bid that meets its basic needs.

- 2.5 Liability: Metro Government is not responsible for any cost incurred by a Bidder in the preparation of bids.

- 2.6 Changes/Alterations: Bidder may change or withdraw a bid at any time prior to bid opening; however, no oral modifications will be allowed. Only telegrams, letters, or other formal written requests for modifications or corrections of a previously submitted bid which is addressed in the same manner as the bid, and received by Metro Government prior to the scheduled closing time for receipt of bids, will be accepted. The bid, when opened, will then be corrected in accordance with such written request(s), provided that the written request is contained in a sealed envelope which is plainly marked "modifications of bid".

- 2.7 Clarification of Submittal: Metro Government reserves the right to obtain clarification of any point in a bid or to obtain additional information from a Bidder.

- 2.8 Bribery Clause: By his/her signature on the bid, Bidder certifies that no employee of his/hers, any affiliate or Subcontractor, has bribed or attempted to bribe an officer or employee of the Metro Government.

- 2.9 Additional Information: While not necessary, the Bidder may include any product brochures, software documentation, sample reports, or other documentation that may assist Metro Government in better understanding and evaluating the Bidder's bid. Additional documentation shall not serve as a substitute for other documentation which is required by this CSB to be submitted with the bid.

- 2.15 Ambiguity, Conflict or other Errors in CSB: If a Bidder discovers any ambiguity, conflict, discrepancy, omission or other error in the CSB, they shall immediately notify Metro Government of such error in writing and request modification or clarification of the document.

- 2.16 Agreement to Bid Terms: In submitting this bid, the Bidder agrees that Bidder has carefully examined the specifications and all provisions relating to the work to be done attached hereto and

made part of this bid. By acceptance of a Contract under this Competitive Sealed Bid, Bidder states that it understands the meaning, intent and requirements of the Competitive Sealed Bids and agrees to the same. The successful Bidder shall warrant that it is familiar with and understands all provisions herein and shall warrant that it can comply with them. No additional compensation to Bidder shall be authorized for services or expenses reasonably covered under these provisions that the Bidder omits from its Bid.

2.17 Cancellation: If the services to be performed hereunder by the Bidder are not performed in an acceptable manner to the Metro Government, the Metro Government may cancel this contract for cause by providing written notice to the Bidder, giving at least thirty (30) days notice of the proposed cancellation and the reasons for same. During that time period, the Bidder may seek to bring the performance of services hereunder to a level that is acceptable to the Metro Government, and the Metro Government may rescind the cancellation if such action is in Metro Government's best interest.

#### A. Termination for Cause

- (1) Metro Government may terminate a contract because of the contractor's failure to perform its contractual duties.
- (2) If a contractor is determined to be in default, Metro Government shall notify the contractor of the determination in writing, and may include a specified date by which the contractor shall cure the identified deficiencies. Metro Government may proceed with termination if the contractor fails to cure the deficiencies within the specified time.
- (3) A default in performance by a contractor for which a contract may be terminated shall include, but shall not necessarily be limited to:
  - (a) Failure to perform the contract according to its terms, conditions and specifications;
  - (b) Failure to make delivery within the time specified or according to a delivery schedule fixed by the contract;
  - (c) Late payment or nonpayment of bills for labor, materials, supplies, or equipment furnished in connection with a contract for construction services as evidenced by mechanics' liens filed pursuant to the provisions of KRS Chapter 376, or letters of indebtedness received from creditors by the purchasing agency;
  - (d) Failure to diligently advance the work under a contract for construction services;
  - (e) The filing of a bankruptcy petition by or against the contractor; or
  - (f) Actions that endanger the health, safety or welfare of Metro Government or its citizens.

#### B. At Will Termination

Notwithstanding the above provisions, the Metro Government may terminate this contract at will in accordance with the law upon providing thirty (30) days written notice of that intent. Payment for services or goods received prior to termination shall be made by the Metro Government provided those goods or services were provided in a manner acceptable to the Metro Government. Payment for those goods and services shall not be unreasonably withheld.

2.18 Assignment of Contract: The Bidder shall not assign or subcontract any portion of the Contract without the express written consent of Metro Government. Any purported assignment or subcontract in violation hereof shall be void. It is expressly acknowledged that Metro Government shall never be required or obligated to consent to any request for assignment or subcontract; and further that such refusal to consent can be for any or no reason, fully within the sole discretion of Metro Government.

2.19 No Waiver: No failure or delay by Metro Government in exercising any right, remedy, power or privilege hereunder, nor any single or partial exercise thereof, nor the exercise of any other right, remedy, power or privilege shall operate as a waiver hereof or thereof. No failure or delay by Metro Government in exercising any right, remedy, power or privilege under or in respect of this Contract shall affect the rights, remedies, powers or privileges of Metro Government hereunder or shall operate as a waiver thereof.

2.20 Authority to do Business: The Bidder must be a duly organized and authorized to do business under the laws of Kentucky. Bidder must be in good standing and have full legal capacity to provide the services specified under this Contract. The Bidder must have all necessary right and lawful authority to enter into this Contract for the full term hereof and that proper corporate or other action has been duly taken authorizing the Bidder to enter into this Contract. The Bidder will provide Metro Government with a copy of a corporate resolution authorizing this action and a letter from an attorney confirming that the Bidder is authorized to do business in the State of Kentucky if requested. All bids must be signed by a duly authorized officer, agent or employee of the Bidder.

2.21 Governing Law: This Contract shall be governed by and construed in accordance with the laws of the State of Kentucky. In the event of any proceedings regarding this Agreement, the Parties agree that the venue shall be the state courts of Kentucky or the U.S. District Court for the Western District of Kentucky, Louisville Division. All parties expressly consent to personal jurisdiction and venue in such Court for the limited and sole purpose of proceedings relating to this Agreement or any rights or obligations arising thereunder. Service of process may be accomplished by following the procedures prescribed by law.

2.22 Ability to Meet Obligations: Bidder affirmatively states that there are no actions, suits or proceedings of any kind pending against Bidder or, to the knowledge of the Bidder, threatened against Bidder before or by any court, governmental body or agency or other tribunal or authority which would, if adversely determined, have a materially adverse effect on the authority or ability of Bidder to perform its obligations under this Contract, or which question the legality, validity or enforceability hereof or thereof.

### **VIOLATIONS OF AND COMPLIANCE WITH KENTUCKY LAWS**

The contractor shall reveal any final determination of a violation by the contractor or subcontractor with the previous five (5) year period pursuant to KRS Chapters 136, 139, 141, 337, 338, 341, and 342 that apply to the contractor or subcontractor. The contractor shall be in continuous compliance with the provisions of KRS Chapters 136, 139, 141, 337, 338, 341 and 342 the apply to the contractor or subcontractor for the duration of the contract.

COMPETITIVE SEALED BID  
SUBMITTED BY:

By signing below you are agreeing to all Louisville Metro Government Terms  
& Conditions that are a part of this Request for Bid.

**Include this page in your response to this bid.**

Firm: Path Master, Inc.  
By: Randall L. Van Scoy  
Title: President  
E-Mail Address: randall.vanscoy@pathmasterinc.com  
Address: 1960 Midway Dr.  
Twinsburg, OH 44087  
Telephone: 330-425-4994  
Fax: 330-425-9338  
Date: September 3, 2009

Metro Louisville Revenue  
Commission Number:

Federal ID Number :



**Please include a copy of your W-9 with your submitted bid.  
This must be submitted prior to the award of a contract.**

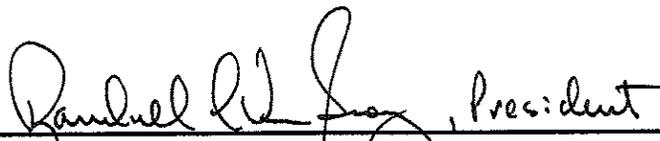
I acknowledge receipt of the following Addendum:

Addendum #1: \_\_\_\_\_

Addendum #2: \_\_\_\_\_

Addendum #3: \_\_\_\_\_

Any Additional Addendum (write in numbers): \_\_\_\_\_

Handwritten signature of Randall L. Van Scoy, President, written in black ink over a horizontal line.

Vendor Signature (all items above have been read and completed).

## SECTION III.

### **HOLD HARMLESS AND INDEMNIFICATION CLAUSE, AND INSURANCE REQUIREMENTS FOR CONTRACT TO SUPPLY PRODUCTS**

#### **I. HOLD HARMLESS AND INDEMNIFICATION CLAUSE**

The Supplier shall indemnify, hold harmless, and defend the Louisville/Jefferson County Metro Government, its elected and appointed officials, employees, agents and successors in interest from all claims, damages, losses and expenses including attorneys' fees, arising out of or resulting, directly or indirectly, from the Supplier's (or Supplier's subcontractors, if any) performance or breach of the contract provided that such claim, damage, loss, or expense is: (1) attributable to personal injury, bodily injury, sickness, death, or to injury to or destruction of property, including the loss of use resulting therefrom, or breach of contract, and (2) not caused by the negligent act or omission or willful misconduct of the Louisville/Jefferson County Metro Government or its elected and appointed officials and employees acting within the scope of their employment. This Hold Harmless and Indemnification Clause shall in no way be limited by any financial responsibility or insurance requirements and shall survive the termination of this Contract.

#### **II. INSURANCE REQUIREMENTS**

Prior to commencing work, Supplier shall obtain at its own cost and expense the following types of insurance through insurance companies licensed in the State of Kentucky. Insurance written by non-admitted carriers will also be considered acceptable, in accordance with Kentucky Insurance Law (KRS 304.10-040.). **The Supplier must submit a Certificate of Insurance evidencing coverage required below with their bid, prior to being awarded a contract by the Louisville/Jefferson County Metro Government's Department of Purchasing, (who may request review by Louisville/Jefferson County Metro Government's Risk Management Division**

Without limiting Supplier's indemnification requirements, it is agreed that Supplier shall maintain in force at all times during the performance of this agreement the following policy of insurance covering its product and operations.

The insurance to be procured and maintained and **minimum** Limits of Liability shall be as follows, unless different limits are specified by addendum to the contract:

1. **COMMERCIAL GENERAL LIABILITY**, via the **Occurrence Form**, with a **\$1,000,000** Combined Single Limit for any one Occurrence and **\$2,000,000** aggregate for Bodily Injury, Personal Injury and Property Damage, including:
  - a. Premises - Operations Coverage
  - b. Products and Completed Operations Coverage
  - c. Contractual Liability

#### **III. ACCEPTABILITY OF INSURERS**

Insurance is to be placed with Insurance Companies with an A. M. Best Rating of no less than "B+ VI", unless proper financial information relating to the Company is submitted to

and approved by the Louisville/Jefferson County Metro Government's Risk Management Division.

#### IV. MISCELLANEOUS

A. The Supplier shall procure and maintain insurance policies as described herein and for which the Louisville/Jefferson County Metro Government Department of Purchasing shall be furnished Certificates of Insurance upon the execution of the Contract. The Certificates shall include provisions stating that the policies may not be cancelled without the Louisville/Jefferson County Metro Government having been provided at least (30) thirty days written notice.

B. Certificates of Insurance as required above shall be furnished, with your bid to the

Louisville/Jefferson County Metro Government  
Office of Management and Budget  
Purchasing Division  
611 West Jefferson Street  
Louisville, Kentucky 40202

C. The supplier agrees that it will not materially alter any of the insurance policies currently in force and relied on under this agreement. Further, the supplier will not reduce any coverage amount below the limits required in this agreement.

D. Approval of the insurance by the Louisville/Jefferson County Metro Government shall not in any way relieve or decrease the liability of the Supplier hereunder. It is expressly understood that the Louisville/Jefferson County Metro Government does not in any way represent that the specified Limits of Liability or coverage or policy forms are sufficient or adequate to protect the interest or liabilities of the Supplier.

**SECTION IV.**

**GENERAL SPECIFICATIONS**

**FOR LED COUNTDOWN PEDESTRIAN SIGNAL MODULES AND  
PEDESTRIAN SIGNAL HOUSINGS W/ LED COUNTDOWN MODULES**

Louisville Metro is soliciting bids from qualified vendors to furnish pricing for LED Countdown Pedestrian Signal Modules and Pedestrian Signal Housings w/ LED Countdown Modules. All material and assemblies shall be subject to review by Louisville Metro Traffic Operations staff.

Louisville Metro may order any quantity of the specified bid items from zero (0) to (50) or (51) to (200) or (201) or more per the Bid Schedule within the 12 month period of this contract. All prices shall include delivery, applicable taxes, and insurance. The manufacturer's certification shall document that the bid items provided meets the requirements of the specifications and are identical to that described within the drawings provided for each bid item.

**Delivery shall be to:**

**Louisville Jefferson County Metro Government  
Department of Public Works, Electrical Maintenance  
636 East Gray St.  
Louisville, KY 40202**

All deliveries shall be FOB prepaid destination.

The bid items consist of:

LED Countdown Pedestrian Signal Modules and Pedestrian Signal Housings w/ LED Countdown Modules

Item #	Item Description
1	16" LED Pedestrian Signal Module w/Countdown
2	16" Ped. Signal Housing w/ LED Countdown Module (Side of Pole ; 1 ½")
3	16 " Ped. Signal Housing w/LED Countdown Module (Clam Shell)

Louisville Metro will receive bids for providing all materials, labor, transportation, insurance, testing, and documentation required for furnishing LED Countdown Pedestrian Signal Modules and Pedestrian Signal Housings w/LED Countdown Modules as described in these Technical Specifications. Bid prices shall be good for one year after award of bid.

Single unit prices will be used in determining the total amount of the bid. The unit prices shall be based on a quantity of one to fifty (1 to 50) or fifty-one to two-hundred (51 to 200), or two-hundred-one or above (201 or more). Louisville Metro shall have the right to order, at the unit price for each bid item, any quantity, during a twelve (12) month period, between 1 and 50 units or between 51 and 200 units or more than 201 units. Prices for any bid item shall not be contingent upon the purchase of any other bid item included within this bid.

Time being of the essence the bidder shall make best effort to deliver the materials as quickly as possible upon the receipt of the delivery order for any item or group of items embraced within this bid.

All material shall be new and of good quality. All workmen fabricating products described within the Technical Specifications shall be skilled in their trades and all workmanship shall be of good quality. LED Modules shall be repaired or replaced if an LED module fails to function as intended due to workmanship or material defects within the first 60 months from the date of delivery. LED Modules which exhibit luminous intensities less than the minimum values specified within the Technical Specifications within the first 60 months from the date of delivery shall be repaired or replaced.

Where the Technical Specifications refer to specific products of one or more manufacturers or vendors, such references designate the specific items comprising the base bid, and the base bid must be based on these specific products, however they are not intended to restrict competitive bidding. Substitutions for materials specified by name may be offered as a voluntary alternate. Louisville Metro's Project Manager shall decide if equivalent materials are acceptable. Whenever the word "APPROVED" is used in these Technical Specifications, it shall be interpreted as meaning approved specifically by Louisville Metro's Project Manager.

The Bidder and each of its subcontractors shall be responsible for the proper care and protection of all their materials until delivery of same is accepted by Louisville Metro. The Bidder shall be responsible for loss or damage for any reason what so ever until delivery is accepted by an authorized representative of Louisville Metro. The Bidders responsibility shall include the replacement of lost or damaged material to the Louisville Metro delivery point within the time allotted for the delivery as defined in the contract schedule.

#### Quality of Materials and Equipment

The Specifications require that the materials and equipment furnished under this agreement be of high quality, manufactured and supported by reputable and qualified vendors. Where materials and/or equipment are designated in the Technical Specifications by mention of the manufacturer's name, make, brand, or model, it shall be considered as indicating a standard of quality, style, grade, or type. The Bidder's proposal shall include as a base bid, unless specifically exempted, materials and equipment so specified. If the Bidder's proposal is accepted, it shall be the obligation of the Bidder to furnish such materials and equipment unless substitutions are allowed by the acceptance of a voluntary alternate.

For this specific Bid, catalog cuts and complete descriptive material must be submitted with the Bid. The submission shall consist of catalog cuts or other descriptive literature that includes the following:

- Physical descriptions of all equipment
- Technical descriptions of all equipment
- Documentation that confirms that each bid item meets the requirements of the Quality Assurance Testing
- Independent Laboratory reports shall be supplied to verify all Modules meet all of the requirements included within the Technical Specifications

This material shall be included in a bound GBC or ACCO binder labeled CATALOG CUTS, LED Countdown Pedestrian Signal Modules and Pedestrian Signal Housings w/LED Countdown Modules.

# Bid Schedule

## FOR LED COUNTDOWN PEDESTRIAN SIGNAL MODULES AND PEDESTRIAN SIGNAL HOUSINGS W/LED COUNTDOWN MODULE

Item #	Item Description	Unit Price Quantities		
		1 to 50	51 to 200	201+
1	16" LED Countdown Pedestrian Signal Module	\$180.00	\$180.00	\$180.00
2	16" Ped. Sig. Housing w/LED Countdown Mod.(Side of Pole; 1 ½")	\$308.00	\$306.00	\$304.00
3	16" Ped. Sig. Housing w/LED Countdown Mod. (Clam Shell)	\$298.00	\$296.00	\$295.00

All material shall be provided as per the technical specifications and in accordance with the Louisville Metro standard specifications for procurement of materials and supplies.

### 16" LED Countdown Pedestrian Signal Modules

#### GENERAL SPECIFICATION

The purpose of this specification is to provide the minimum performance requirements for the LED "walking person" and "hand" icon pedestrian signal modules with countdown (hereafter called module or modules). This specification is only for the nominal overall message-bearing surface of 406 x 457 mm (16 x 18 in). This specification is not intended to impose restrictions upon specific designs and materials that conform to the purpose and the intent of this specification. This specification refers to definitions and practices described in "Pedestrian Traffic Control Signal Indications" published in the *Equipment and Materials Standards of the Institute of Transportation Engineers*, (referred to in this document as "PTCSI") and in the Applicable Sections of Manual on Uniform Traffic Control Devices (MUTCD) 2003 Section 4E. This purchasing specification applies to modules purchased after the effective date of these specifications.

#### ETL VERIFIED & NAFTA

- All lamps manufactured shall be affixed with an Intertek ETL Verified label to demonstrate compliance to Section 6.3 (Production Tests & Inspections) of the latest ITE PTCSI Pedestrian Specification, dated March 19, 2004.
- All lamps shall be assembled or produced in a NAFTA eligible jurisdiction (ie: United States, Mexico or Canada)

#### PHYSICAL AND MECHANICAL REQUIREMENTS

##### General

Modules designed as retrofit replacements for existing pedestrian signal indication lamps shall not require special tools for installation. Retrofit replacement modules shall fit into existing pedestrian signal housings built for the PTCSI sizes stated in Section 1 of the "walking person" and "hand" icon pedestrian signal indication Standard without modification to the housing.

Installation of a retrofit replacement module into an existing pedestrian signal housing shall only require the removal of the existing optical unit components, i.e., lens, lamp module, gaskets, and reflector; shall be weather tight and fit securely in the housing; and shall connect directly to existing electrical wiring.

**The Module under physical and mechanical requirements**

The retrofit module shall be capable of replacing the optical component of the pedestrian indication.

The module lens may be a replaceable part without the need to replace the complete module. Only modules with internal mask shall be utilized. No external silk-screen shall be permitted.

When not illuminated, the WALKING PERSON (symbolizing WALK), UPRAISED HAND (symbolizing DON'T WALK), and COUNTDOWN DIGITS shall not be readily visible to pedestrians at the far end of the crosswalk.

The countdown digits of the pedestrian signal module shall be located adjacent to the associated UPRAISED HAND (symbolizing DON'T WALK).

The display of the number of remaining seconds shall begin only at the beginning of the pedestrian change interval. After the countdown displays zero, the display shall remain dark until the beginning of the next countdown.

The walking person, hand icons and countdown digits (16"x18" size only) shall be incandescent looking. The configurations of the walking person icon, hand icon and numbers icons are illustrated in Figures 1, 2 (per PTCSI Part 2 Specification) and Figure 3 respectively.



Figure 1

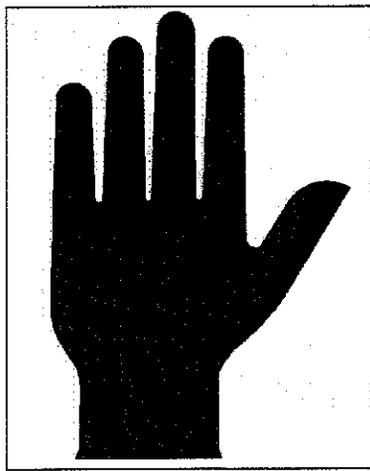


Figure 2

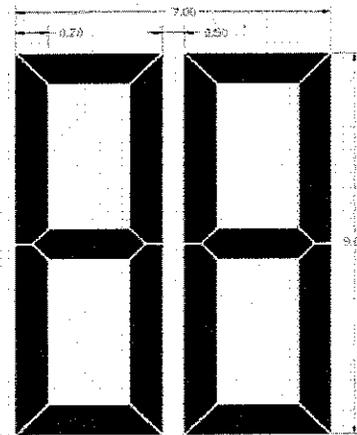


Figure 3

**Dimensions for Figures 1, 2 and 3**

For each nominal message bearing surface (module) size, use the corresponding minimum H (height) and W (width) measurements:

Module Size	Icon Height	Icon Width	Countdown Height	Countdown Width	Countdown Segment Width
406 x 457 mm (16 x 18 in)	297 mm 11 in	178 mm 7 in	229 mm 9 in	178 mm 7 in	17.78 mm 0.7 in

Note: The units shall not have any external attachments, dip switches, toggle switches or options that will allow the mode to be changed from counting the clearance cycle, to the full walk/don't walk cycle or any other modification to the icons or digits.

### **Environmental Requirements**

All exposed components of a module shall be suitable for prolonged exposure to the environment, without appreciable degradation that would interfere with function or appearance. As a minimum, selected materials shall be rated for service for a period of a minimum of 60 months in a south-facing Arizona Desert installation.

The module shall be rated for use in the ambient operating temperature range, measured at the exposed rear of the module, of -40°C to +74°C. (-40°F to +165°F)

A module shall be protected against dust and moisture intrusion, including rain and blowing rain. Shall be sealed and meet MIL-STD-810F Procedure I, Rain & Blowing Rain specifications.

The module lens shall not crack, craze or yellow due to solar UV irradiation typical for a south-facing Arizona Desert installation after a minimum of 60 months in service.

### **Construction**

The module shall be a single, self-contained device, not requiring on-site assembly for installation into an existing traffic signal housing. The power supply shall be designed to fit and mount inside the pedestrian signal module.

The assembly and manufacturing process for the module shall be designed to assure all internal LED and electronic components are adequately supported to withstand mechanical shock and vibration from high winds and other sources.

### **Materials**

Materials used for the lens and LED module construction shall conform to ASTM specifications where applicable.

Enclosures containing the power supply and electronic components of the LED module shall be made of UL94 flame retardant materials. The lens of the LED module is excluded from this requirement.

The front window shall be a transparent polycarbonate material with internal masking to prevent the icons and digits from being visible from far when not in operation. External silk-screen technology shall not be permitted.

### **Module Identification**

Each module shall be identified on the backside with the manufacturer's name, model, serial number and operating characteristics of each symbol. The operating characteristics identified shall include the nominal operating voltage and stabilized power consumption, in watts and Volt-Amperes.

Modules conforming to this specification (WALKING PERSON, UPRAISED HAND only), may have the following statement on an attached label: "Manufactured in Conformance with the ITE Pedestrian Traffic Control Signal Indications - Part 2: Light Emitting Diode (LED) Pedestrian Signal Modules".

## PHOTOMETRIC REQUIREMENTS

### Luminance, Uniformity & Distribution

For a minimum period of 60 months, the maintained minimum luminance values for the modules under the operating conditions defined in within these specifications, when measured normal to the plane of the icon surface, shall not be less than:

- Walking person: 2,200 cd/m<sup>2</sup>;
- Hand: 1,400 cd/m<sup>2</sup>.
- Countdown digits: 1,400 cd/m<sup>2</sup>;

The luminance of the emitting surface, measured at angles from the normal of the surface, may decrease linearly to a value of 50% of the values listed above at an angle of 15 degrees.

The light output requirements in this specification apply to pedestrian signal heads without any visors, hooded or louvered (egg-crate).

Maximum permissible luminance: When operated within the temperature range specified above, the actual luminance for a module shall not exceed three times the required peak value of the minimum maintained luminance.

Luminance uniformity: The uniformity of the signal output across the emitting section of the module lens (i.e. the hand, person or countdown icon) shall not exceed a ratio of 5 to 1 between the maximum and minimum luminance values (cd/m<sup>2</sup>).

### Chromaticity

The standard colors for the LED Pedestrian Signal Module shall be White for the walking person and Portland Orange for the hand icon and the countdown digits. The colors for these icons shall conform to the following color regions, based on the 1931 CIE chromaticity diagram:

#### Walking Person — White:

Blue boundary:  $x = 0.280$ .

1<sup>st</sup> Green boundary:  $0.280 \leq x < 0.400$   
 $y = 0.7917 \cdot x + 0.0983$ .

2<sup>nd</sup> Green boundary:  $0.400 \leq x < 0.450$   
 $y = 0.4600 \cdot x + 0.2310$ .

Yellow boundary:  $x = 0.450$

1<sup>st</sup> Purple boundary:  $0.450 \leq x < 0.400$   
 $y = 0.4600 \cdot x + 0.1810$ .

2<sup>nd</sup> Purple boundary:  $0.400 \leq x < 0.280$   
 $y = 0.7917 \cdot x + 0.0483$ .

White		
Point	x	y
1	0.280	0.320
2	0.400	0.415
3	0.450	0.438

4	0.450	0.388
5	0.400	0.365
6	0.280	0.270

**Hand and Countdown Digits—Portland Orange:**

Yellow boundary:  $y = 0.390$

White boundary:  $0.600 \leq x \leq 0.659$

$$y = 0.990 - x$$

Red boundary:  $y = 0.331$ .

Portland Orange		
Point	X	Y
1	0.609	0.390
2	0.600	0.390
3	0.659	0.331
4	0.669	0.331

**Color Uniformity:**

**Walking Person—White:**  $\sqrt{(\Delta x^2) + (\Delta y^2)} \leq 0.04$

where  $\Delta x$  and  $\Delta y$  are the differences in the chromaticity coordinates of the measured colors to the coordinates of the average color, using the CIE 1931 Chromaticity Diagram and a 2 degree Standard Observer.

**Hand and Countdown Digits—Portland Orange:**

The dominant wavelength for any individual color measurement of a portion of the emitting surface of a module shall be within  $\pm 3\text{nm}$  of the dominant wavelength for the average color measurement of the emitting surface as a whole.

**ELECTRICAL**

All wiring and terminal blocks shall meet the requirements of Section 13.02 of the VTCSH Standard. Maximum of three secured, color coded, 1 meter (39 in) long 600 V, 16 AWG minimum, jacketed wires, conforming to the National Electrical Code, rated for service at  $+105^\circ\text{C}$ , are to be provided for electrical connection. The conductors shall be color coded with orange for the hand, blue for the walking person and white as the common lead.

**Voltage Range**

LED modules shall operate from a  $60 \pm 3$  Hertz ac line power over a voltage range from 80 to 135 VAC RMS.

Nominal operating voltage for all measurements shall be  $120 \pm 3$  VAC RMS.

Fluctuations in line voltage over the range of 80 to 135 VAC RMS shall not affect luminous intensity by more than  $\pm 10\%$ .

To prevent the appearance of flicker, the module circuitry shall drive the LEDs at frequencies greater than 100 Hz when modulated, or at DC, over the voltage range specified in Section 4.2.1.

Low Voltage Turn Off: There should be no illumination of the module when the applied voltage is less than 35 VAC RMS. To test for this condition, each icon must first be fully illuminated at the nominal operating

voltage. The applied voltage shall then be reduced to the point where there is no illumination. This point must be greater than 35 VAC RMS.

Turn-ON and Turn-OFF Time: A module shall reach 90% of full illumination (turn-ON) within 75 msec of the application of the nominal operating voltage. The signal shall cease emitting visible illumination (turn-OFF) within 75 msec of the removal of the nominal operating voltage.

Default Condition: For abnormal conditions when nominal voltage is applied to the unit across the two-phase wires (rather than being applied to the phase wire and the neutral wire) the pedestrian signal unit shall default to the hand symbol.

### **Transient Voltage Protection**

The on-board circuitry of a module shall include voltage surge protection:

- To withstand high-repetition noise transients and low-repetition high-energy transients as specified in NEMA Standard TS-2 2003; Section 2.1.8
- Section 8.2 IEC 1000-4-5 & Section 6.1.2 ANSI/IEEE C62.41.2-2002, 3kV, 2 ohm
- Section 8.0 IEC 1000-4-12 & Section 6.1.1 ANSI/IEEE C62.41.2-2002, 6kV, 30 ohm

### **Electronic Noise**

The LED signal and associated on-board circuitry shall meet the requirements of the Federal Communications Commission (FCC) Title 47, Subpart B, Section 15 regulations concerning the emission of electronic noise by Class A digital devices.

### **Power Factor (PF) and AC Harmonics**

The modules shall provide a power factor of 0.90 or greater when operated at nominal operating voltage and 25°C (77°F).

Total harmonic distortion induced into an AC power line by the module, operated at nominal operating voltage, and at 25°C (77°F) shall not exceed 20%.

### **Controller assembly Compatibility**

The current draw shall be sufficient to ensure compatibility and proper triggering and operation of load current switches and conflict monitors in signal controller units.

Off State Voltage Decay: When the module is switched from the On state to the Off state the terminal voltage shall decay to a value less than 10 VAC RMS in less than 100 milliseconds when driven by a maximum allowed load switch leakage current of 10 milliamps peak (7.1 milliamps AC)

### **Constant Current Drive**

The countdown digits shall be driven by constant current to improve LED efficiency and lifespan.

## MODULE FUNCTIONS

### Cycle

The module shall operate in one mode: *Clearance Cycle Countdown Mode Only*. The module shall start counting when the flashing don't walk turns on and will countdown to "0" and turn off when the steady "Don't Walk" signal turns on. *The module shall not have user accessible switches or controls for the purpose of modifying the cycle, icons or digits.*

### Learning Cycle

At power on, the module enters a single automatic learning cycle. During the automatic learning cycle, the countdown display shall remain dark.

### Cycle Modification

The unit shall re-program its self if it detects any increase or decrease of Pedestrian Timing. The digits shall go blank once a change is detected and then take one complete pedestrian cycle (with no counter during this cycle) to adjust its buffer timer.

### Recycling

The module shall allow for consecutive cycles without displaying the steady Hand icon ("Don't Walk").

### Pre-Emption

The module shall recognize preemption events and temporarily modify the crossing cycle accordingly.

- If the controller preempts during the walking man, the countdown shall follow the controller's directions and shall adjust from walking man to flashing hand. It shall start to count down during the flashing hand.
- If the controller preempts during the flashing hand, the countdown shall continue to count down without interruption.
- The next cycle, following the preemption event, shall use the correct, initially programmed values. This specification is worded such that the flashing don't walk time is not modified.

### "Don't Walk" Steady

If the controller output displays Don't Walk steady condition or if both the hand/person go dark and the unit has not arrived to zero, the unit suspends any timing and the digits shall go dark.

### Power Outage

The digits will go dark for one pedestrian cycle after loss of power of more than 1.5 seconds.

## QUALITY ASSURANCE

### General

Unless otherwise specified all of the test will be conducted at an ambient temperature of 25°C and at the nominal operating voltage of 120 VAC RMS.

- The modules shall be manufactured in accordance with a vendor quality assurance (QA) program.

- QA process and test result documentation shall be kept on file for a minimum period of seven years

## **Conformance**

The module designs not satisfying design qualification testing and the production quality assurance testing performance requirements shall not be labeled, advertised, or sold as conforming to this specification.

## **Production Tests & Inspections**

Manufacturer lamps shall be listed on the Intertek ETL Verified website. All lamps manufactured shall be affixed with an Intertek ETL Verified label to demonstrate compliance to Section 6.3 (Production Tests & Inspections) of the latest ITE PTCSI Pedestrian specification, dated March 19, 2004.

**Production Test Requirement:** All new LED modules tendered for sale shall undergo the following Production Test and Inspection prior to shipment. Failure of a module to meet requirements of these Production Test and Inspection shall be cause for rejection. Test results shall be maintained for a period of 5 years following the production of the last production unit.

**Luminous Intensity:** All LED modules shall be tested for maintained minimum luminous intensity. A single point measurement with a correlation to the intensity requirements referred to in Section 3.0 may be used. The LED module shall be operated at nominal operating voltage and at an ambient temperature of 25°C (77°F).

**Power Factor:** All LED modules shall be tested for power factor per the requirements of Section 4.6.1. A commercially available power factor meter may be used to perform this measurement.

**Current:** All LED modules shall be measured for current flow in Amperes. The measured current values shall be compared against those resulting from design qualification measurements in Section 5.4.6.1. Measured current values in excess of 120% of the design qualification current values shall be cause for rejection.

**Visual Inspection:** All LED modules shall be visually inspected for any exterior physical damage or assembly anomalies.

## **Design Qualification Testing**

Design Qualification testing shall be performed on new module designs, and when a major design change has been implemented on an existing design.

High Temperature High Humidity (HTHH): 1000 hours at +60°C (+140°F), 90% Relative Humidity with cycling starting at 30 down to 0. This will ensure that each symbol is properly tested.

Unless otherwise specified, all of the tests shall be conducted on the same set of randomly selected modules, hereafter called the sample set, at an ambient temperature of 25°C and at the nominal operating voltage of 120 VAC RMS.

Testing shall be performed once every 5 years or when the module design or LED technology has been changed. The module manufacturer shall retain test data for a minimum period of 7 years and for a period of at least 5 years beyond the last date of manufacture of that model type.

Conditioning: The module shall be energized for a minimum of 24 hours in an ambient temperature of +60°C (+140°F), 0% Relative Humidity with cycling starting at 99 down to 0. This will ensure that each symbol is properly conditioned.

Mechanical Vibration: Mechanical vibration testing shall be performed per MIL-STD-883, Test Method 2007.

Temperature Cycling: Temperature cycling shall be performed per MIL-STD-883, Test method 1010. The temperature range shall include the full ambient operating temperature range specified in Section 2.3.2.

Moisture Resistance: Moisture resistance testing shall be performed per MIL-STD-810F, Test Method 506.4, Procedure I, Rain and Blowing Rain. The test shall be conducted on stand-alone modules, without a protective housing. The modules shall be vertically oriented, such that the lens is directed towards the wind source when at a zero rotation angle. The modules shall be energized throughout the test. The water shall be at  $25^{\circ} \pm 5^{\circ}\text{C}$  ( $77^{\circ} \pm 9^{\circ}\text{F}$ ). The wind velocity shall be 80 km/hr (50 mph).

## **WARRANTY**

LED modules shall be replaced or repaired if an LED module fails to function as intended due to workmanship or material defects within the first 60 months from the date of delivery.

LED modules that exhibit luminous intensities less than the minimum values specified in PTCSI Section 3.0 within the first 60 months of the date of delivery, shall be replaced or repaired.

The documentation shall clearly disclose the country in which the factory of module origin is located, the name of the company or organization that owns the factory including all of its parent companies and/or organizations, and their respective country of corporate citizenship.

For manufacturers with corporate citizenship in the United States of less than seven years, the documentation shall clearly disclose the process by which the end-users/owners of the modules will be able to obtain worst-case, catastrophic warranty service in the event of bankruptcy or cessation-of-operations by the firm supplying the modules within North America, or in the event of bankruptcy or cessation-of-operations by the owner of the factory of origin.

## **16" Pedestrian Signal Housing w/LED Countdown Module (Side of Pole; 1 ½")**

### **SPECIFICATION**

The purpose of this specification is to provide minimum requirements for the pedestrian signal housing (hereafter called housing or housings). The housings shall be assembled in accordance with the latest revision of the Manual of Uniform Traffic Control Devices. The 16" LED Countdown Pedestrian Modules shall be fully installed and wired within the housing. The housing shall meet or exceed the Equipment Standard of the Institute of Transportation Engineers' (ITE) latest version and the latest Kentucky Transportation Cabinets specifications for this equipment.

### **Polycarbonate Housing & Door**

The housing shall be a one-piece molded ultraviolet and heat stabilizing polycarbonate unit with hinge lugs, screw slots, and openings at each end. The swing-door shall be a one-piece molded ultraviolet and heat stabilizing polycarbonate with two (2) hinge lugs molded on the bottom of the door and two (2) cotter-less locking pins. The door shall be attached to the bottom of the housing using two (2) cotter-less locking pins.

Two (2) eye bolts and wing nuts on the top shall allow the door to be opened and closed without special tools.

The openings shall accommodate standard 1.5" pipe brackets. The bottom of the housing shall have an integrally-cast Shurlock boss. The radial angular grooves of the Shurlock boss shall provide 5 degree increments position of the housing to eliminate rotation or misalignment of the housing. The housing shall be available with a knock-out plug at the top and bottom to eliminate the need for additional hardware to close these openings when using a clamshell or post-top mounting bracket. The housing shall have 5 knockouts on the left and right side to accommodate clamshell mounting.

The housing shall be Siemens EAGLE brand SG7 pedestrian signal housing with 16" LED countdown pedestrian module installed in housing (Part No. SG7MC10C1BBF) or approved equal.

#### **LED Countdown Pedestrian Module**

(see 16" LED Countdown Pedestrian Module specifications)

#### **Visor**

The housing shall include an "egg crate" visor to eliminate sun phantom and minimize damage to the LED Countdown Module. The egg-crate visor shall be inserted through the back of the door and overlap by ½ inch. It shall be sealed when the door is closed preventing light from escaping between the visor and the door.

#### **Color**

The housing and door shall be molded of one color polycarbonate material throughout. The color shall be dull black and shall match Federal Standard 595a-37038

#### **Mountings, Rigid Aluminum Side of Pole (1 ½")**

The Rigid Signal Mountings, Aluminum Side-of-Pole (1 ½") shall be Pelco One-Way upper and lower SOP ICC arm aluminum black for ICC, Eagle 12" nipple (Part No. SE3146P33) or approved equal.

#### **Hubs, Aluminum Extended (1 ½")**

The Hubs, Aluminum Extended (1 ½") shall be Pelco 1 ½" NPS double extended hub with 1 ¼" NPT down hole, black (Part No. SE0381P33) or approved equal.

### **16" Pedestrian Signal Housing w/LED Countdown Module (Clam Shell)**

#### **SPECIFICATION**

The purpose of this specification is to provide minimum requirements for the pedestrian signal housing (hereafter called housing or housings). The housings shall be assembled in accordance with the latest revision of the Manual of Uniform Traffic Control Devices. The 16" LED Countdown Pedestrian Modules shall be fully installed and wired within the housing. The housing shall meet or exceed the Equipment Standard of the Institute of Transportation Engineers' (ITE) latest version and the latest Kentucky Transportation Cabinets specifications for this equipment.

#### **Polycarbonate Housing & Door**

The housing shall be a one-piece molded ultraviolet and heat stabilizing polycarbonate unit with hinge lugs, screw slots, and openings at each end. The swing-door shall be a one-piece molded ultraviolet and heat stabilizing polycarbonate with two (2) hinge lugs molded on the bottom of the door and two (2) cotter-less

locking pins. The door shall be attached to the bottom of the housing using two (2) cotter-less locking pins. Two (2) eye bolts and wing nuts on the top shall allow the door to be opened and closed without special tools.

The openings shall accommodate standard 1.5" pipe brackets. The bottom of the housing shall have an integrally-cast Shurlock boss. The radial angular grooves of the Shurlock boss shall provide 5 degree increments position of the housing to eliminate rotation or misalignment of the housing. The housing shall be available with a knock-out plug at the top and bottom to eliminate the need for additional hardware to close these openings when using a clamshell or post-top mounting bracket. The housing shall have 5 knockouts on the left and right side to accommodate clamshell mounting.

The housing shall be Siemens EAGLE brand SG7 pedestrian signal housing with 16" LED countdown pedestrian module installed in housing (Part No. SG7MC10C1BBF) or approved equal.

#### **LED Countdown Pedestrian Module**

(see 16" LED Countdown Pedestrian Module specifications)

#### **Visor**

The housing shall include an "egg crate" visor to eliminate sun phantom and minimize damage to the LED Countdown Module. The egg-crate visor shall be inserted through the back of the door and overlap by ½ inch. It shall be sealed when the door is closed preventing light from escaping between the visor and the door.

#### **Color**

The housing and door shall be molded of one color polycarbonate material throughout. The color shall be dull black and shall match Federal Standard 595a-37038

#### **Clam Shell Mounting Bracket**

The Clam Shell Mounting Bracket shall be Siemens EAGLE Clam Shell Mounting Bracket, black (Part No. BK15608P001-13P) or approved equal.

**SUBMITTED BY:**

**Firm:** Path Master, Inc.  

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**By:** Randall L. Van Scoy  

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**Title:** President  

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**Address:** 1960 Midway Dr.  

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Twinsburg, OH 44087  

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**Telephone:** 330-425-4994  

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**Fax:** 330-425-9338  

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**Date:** September 3, 2009  

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**Email:** randall.vanscoy@pathmasterinc.com  

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## SECTION V.

### EVALUATION CRITERIA

The bids received pursuant to this Competitive Sealed Bid will be evaluated on the following selection criteria:

Single unit prices will be used in determining the total amount of the bid within the quantity ranges as indicated in the technical specifications. Metro Government shall have the right to order, at the unit price for each bid item, with the respective pricing, any quantity within the specified ranges, during a twelve (12) month period. Prices for any bid item shall not be contingent upon the purchase of any other bid item included within this bid.

Proposals will be reviewed by a committee consisting of representatives from Louisville Metro Traffic Operations and the Electrical Maintenance Division.

<b>PRICING</b>	<b>---</b>	<b>90%</b>
<b>QUANTITY</b>	<b>--</b>	<b>10%</b>

**ORIGINAL**

**Path Master, Inc.**

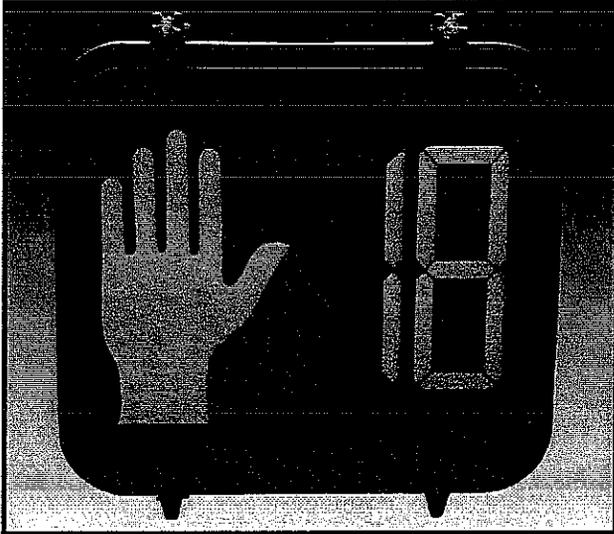
**Bid # 1887**

**CATALOG CUTS,**

**LED Countdown Pedestrian Signal Modules  
and  
Pedestrian Housings w/ LED Countdown Modules**

# Dialight

## UNIFORM APPEARANCE COUNTDOWN PEDESTRIAN SIGNALS



### Lighting Uniformity. ITE Conformity.

#### FEATURES / BENEFITS

- ▲ Uniform appearance symbols exceed ITE PTCSI-2 requirements
- ▲ 9" high 2-row countdown digits for maximum visibility
- ▲ Countdown is fully MUTCD-compliant (even for crosswalks over 100 ft.)
- ▲ Unique memory feature allows countdown time to remain stored internally, even when power is removed for extended periods of time
- ▲ Full preemption compatibility... Countdown reverts to it's previous timing immediately following a preemption call
- ▲ Up to 4 units can be connected in parallel without disturbing the monitoring of the Hand/Person
- ▲ Automatically adjusts to traffic controller interval changes
- ▲ ENERGY STAR® qualified
- ▲ 90% reduction in power vs. incandescent
- ▲ Long life, up to 10 times longer than incandescent
- ▲ Sealed moisture resistant enclosure
- ▲ Lens has a textured surface to reduce glare
- ▲ Easy to install into existing signal enclosure

#### SPECIFICATIONS

- ▲ Operating Voltage Range:  
80VAC to 135VAC (120VAC nominal)
- ▲ Operating Temperature Range: -40°C to +74°C
- ▲ Turn-on / Turn-off Time < 75 msec
- ▲ Power Factor > 0.9
- ▲ Total Harmonic Distortion < 20%
- ▲ Meets FCC Title 47, Subpart B, Section 15 regulations for electrical noise
- ▲ Conforms to MIL-STD-810F for blowing rain
- ▲ Conforms to MIL-STD-883, Test Method 2007, for mechanical vibration
- ▲ Conforms to MIL-STD-883, Test Method 1010, temperature cycling requirements
- ▲ Provided with quick connect terminals and spade adapters
- ▲ Written manufacturer's warranty available on request
- ▲ All products traceable by serial number
- ▲ Luminance uniformity and color uniformity exceed ITE PTCSI-2 LED Pedestrian Signal Specification requirements
- ▲ Transient suppression exceeds ITE PTCSI-2 LED Pedestrian Signal Specification requirements and meets the following standards:
  - NEMA TS-2 Sec. 2.1.6 and Sec. 2.1.8
  - IEC 1000-4-5, 3KV, 2 ohm source impedance
  - ANSI/IEEE C62, 41-2002; IEC 61000-4-12, 6KV, 200A, 100KHz ring wave
- ▲ 430-6479-001X meets City of Los Angeles DOT specifications

Dialight reserves the right to make changes at any time  
in order to supply the best product possible.

**Dialight Corporation**

1501 Route 34 South • Farmingdale, NJ 07727 USA

Tel: (1) 732-919-3119 • Fax: (1) 732-751-5778 • [www.dialight.com](http://www.dialight.com)



MDTSCDPEXCAL001\_B

## UNIFORM APPEARANCE COUNTDOWN PEDESTRIAN SIGNALS

### TYPICAL OPERATING CHARACTERISTICS

Part Number	Housing Size (inches)	SYMBOL COLOR			TYPICAL WATTAGE @ 25°C			MIN. LUMINANCE (cd/m <sup>2</sup> )			ENERGY STAR <sup>®</sup> Qualified
		Countdown	Hand	Person	Countdown	Hand	Person	Countdown	Hand	Person	
430-6479-001X	16 x 18	Portland Orange	Portland Orange	Lunar White	5	8	6	1,400	1,400	2,200	✓
430-7773-001X	12 x 12	Portland Orange	N/A	N/A	N/A	N/A	N/A	1,400	N/A	N/A	✓

Dialight reserves the right to make changes at any time in order to supply the best product possible.



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MDTSCDPEXCAL001\_B



A Signal of  
Quality and  
Performance

## Directory of LED Traffic Signal Modules Certified Products

Intertek's LED Traffic Signal Modules Certification Program provides manufacturers with independent, third-party test data and Intertek's ETL Verified product labeling for products that comply with the consensus ITE requirements. The ETL Verified mark, a signal of quality and performance, gives manufacturers a means of differentiation in a competitive marketplace, and fortifies consumer confidence in product quality.

ITE Vehicle Traffic Control Signal Heads: LED Circular Signal Supplement (Adopted June 27, 2005)

<u>Manufacturer</u>	<u>Signal</u>	<u>Size</u>	<u>Color</u>	<u>Lens Type</u>	<u>Catalogue Number</u>
Dialight	LED Ball	8-inch	Red	Tinted	433-1110-003XL
Dialight	LED Ball	8-inch	Red	Tinted	433-1115-003XL
Dialight	LED Ball	8-inch	Red	Clear	433-1170-003XL
Dialight	LED Ball	8-inch	Green	Tinted	433-2120-001XL
Dialight	LED Ball	8-inch	Green	Tinted	433-2125-001XL
Dialight	LED Ball	8-inch	Green	Clear	433-2170-001XL
Dialight	LED Ball	8-inch	Yellow	Tinted	433-3130-901XL
Dialight	LED Ball	8-inch	Yellow	Tinted	433-3135-901XL
Dialight	LED Ball	12-inch	Red	Clear	433-3170-901XL
Dialight	LED Ball	12-inch	Red	Tinted	433-1210-003XL
Dialight	LED Ball	12-inch	Red	Tinted	433-1215-003XL
Dialight	LED Ball	12-inch	Red	Tinted	433-1210-003XLF
Dialight	LED Ball	12-inch	Red	Clear	433-1270-003XL
Dialight	LED Ball	12-inch	Red	Clear	433-1275-003XL
Dialight	LED Ball	12-inch	Green	Tinted	433-2220-001XL
Dialight	LED Ball	12-inch	Green	Tinted	433-2225-001XL
Dialight	LED Ball	12-inch	Green	Tinted	433-2220-001XLF
Dialight	LED Ball	12-inch	Green	Clear	433-2270-001XL
Dialight	LED Ball	12-inch	Green	Clear	433-2275-001XL
Dialight	LED Ball	12-inch	Yellow	Tinted	433-3230-901XL
Dialight	LED Ball	12-inch	Yellow	Tinted	433-3235-901XL
Dialight	LED Ball	12-inch	Yellow	Tinted	433-3230-901XLF
Dialight	LED Ball	12-inch	Yellow	Clear	433-3270-901XL
Dialight	LED Ball	12-inch	Yellow	Clear	433-3275-901XL

ITE Vehicle Traffic Control Signal Heads: LED Vehicle Arrow Traffic Signal Supplement (Adopted July 1, 2007)

<u>Manufacturer</u>	<u>Signal</u>	<u>Size</u>	<u>Color</u>	<u>Lens Type</u>	<u>Catalogue Number</u>
Dialight	LED Omni-Directional Arrow	12-inch	Red	Tinted	432-1314-001XOD
Dialight	LED Omni-Directional Arrow	12-inch	Red	Tinted	432-1315-001XOD
Dialight	LED Omni-Directional Arrow	12-inch	Red	Tinted	432-1314-001XODF
Dialight	LED Omni-Directional Arrow	12-inch	Red	Clear	432-1374-001XOD
Dialight	LED Omni-Directional Arrow	12-inch	Red	Clear	432-1375-001XOD
Dialight	LED Omni-Directional Arrow	12-inch	Green	Tinted	432-2324-001XOD
Dialight	LED Omni-Directional Arrow	12-inch	Green	Tinted	432-2325-001XOD
Dialight	LED Omni-Directional Arrow	12-inch	Green	Tinted	432-2324-001XODF
Dialight	LED Omni-Directional Arrow	12-inch	Green	Clear	432-2374-001XOD
Dialight	LED Omni-Directional Arrow	12-inch	Green	Clear	432-2375-001XOD
Dialight	LED Omni-Directional Arrow	12-inch	Yellow	Tinted	431-3334-001XOD
Dialight	LED Omni-Directional Arrow	12-inch	Yellow	Tinted	431-3335-001XOD
Dialight	LED Omni-Directional Arrow	12-inch	Yellow	Clear	431-3374-001XOD
Dialight	LED Omni-Directional Arrow	12-inch	Yellow	Tinted	431-3334-901XOD
Dialight	LED Omni-Directional Arrow	12-inch	Yellow	Tinted	431-3335-901XOD
Dialight	LED Omni-Directional Arrow	12-inch	Yellow	Tinted	431-3334-901XODF

ITE Pedestrian Traffic Control Signal Indications - Part 2: LED Pedestrian Traffic Signal Modules (Adopted March 19, 2004)

<u>Manufacturer</u>	<u>Signal</u>	<u>Size</u>	<u>Color</u>	<u>Lens Type</u>	<u>Catalogue Number</u>
Dialight	LED Pedestrian Hand	9-inch	Orange	Clear Frosted	430-5570-001X
Dialight	LED Pedestrian Person	9-inch	White	Clear Frosted	430-7570-001X
Dialight	LED Pedestrian Hand	12-inch	Orange	Clear Frosted	430-5770-001X
Dialight	LED Pedestrian Hand	12-inch	Orange	Clear Frosted	430-5770-801X
Dialight	LED Pedestrian Hand/Person Overlay	12-inch	White & Orange	Clear Frosted	430-6772-001X
Dialight	LED Pedestrian Hand/Person Overlay	12-inch	White & Orange	Clear Frosted	430-6772-801X
Dialight	LED Pedestrian Hand/Person Overlay	12-inch	White & Orange	Clear Frosted	430-6772-001XF
Dialight	LED Pedestrian Person	12-inch	White	Clear Frosted	430-7771-001X
Dialight	LED Pedestrian Person	12-inch	White	Clear Frosted	430-7771-801X
Dialight	LED Pedestrian Hand/Person Side-by-Side	16 x 18 inch	White & Orange	Clear Frosted	430-6450-001X
Dialight	LED Pedestrian Hand/Person Side-by-Side	16 x 18 inch	White & Orange	Clear Frosted	430-6450-801X
Dialight	LED Pedestrian Hand/Person Side-by-Side	16 x 18 inch	White & Orange	Clear Frosted	430-6450-001XF
Dialight	LED Pedestrian Hand/Person Overlay	16 x 18 inch	White & Orange	Clear Frosted	430-6472-001X
Dialight	LED Pedestrian Hand/Person Overlay	16 x 18 inch	White & Orange	Clear Frosted	430-6472-001XF
Dialight	LED Pedestrian Hand/Person Overlay Countdown*	16 x 18 inch	White & Orange	Clear Frosted	430-6479-001X
Dialight	LED Pedestrian Hand/Person Overlay Countdown*	16 x 18 inch	White & Orange	Clear Frosted	430-6479-801X
Dialight	LED Pedestrian Hand/Person Overlay Countdown*	16 x 18 inch	White & Orange	Clear Frosted	430-6479-001XF

\* - Certification for Hand/Person only, countdown not covered in current specification



# REPORT

3933 US ROUTE 11    CORTLAND, NEW YORK 13045

Order No. 3160355

Date: October 8, 2008

REPORT NO. 3160355CRT-001

TEST OF 16" PEDESTRIAN TRAFFIC SIGNAL MODULE  
MODEL NUMBER 430-6479-001X

RENDERED TO

DIALIGHT CORPORATION  
1501 ROUTE 34 SOUTH  
FARMINGDALE, NJ 07727

TEST: Environmental, photometric, colorimetric, and electrical testing of LED pedestrian traffic signal modules were requested by the client. Testing was performed on the upraised hand and walking person only.

AUTHORIZATION: The tests were authorized by Signed Quote No. 500098375.

STANDARDS USED: Performance Specification of the Institute of Transportation Engineers, Pedestrian Traffic Control Signal Indications: Light Emitting Diode (LED) Pedestrian Traffic Signal Modules, dated March 19, 2004.

This report is for the exclusive use of Intertek's Client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this report. Only the Client is authorized to copy or distribute this report and then only in its entirety. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek. The observations and test results in this report are relevant only to the sample tested. This report by itself does not imply that the material, product, or service is or has ever been under an Intertek certification program. Measurement uncertainty budgets have been determined for applicable test methods and are available upon request.

DESCRIPTION OF SAMPLE: The client supplied six LED traffic signal modules. The samples were received by Intertek on September 15, 2008 in undamaged condition, and tested as received.

The sample designations are:

<u>Intertek Sample Number</u>	<u>Description</u>	<u>Model</u>	<u>Serial Number</u>
S08L007	16" man/hand overlay countdown	430-6479-001X	082052353
S08L008	16" man/hand overlay countdown	430-6479-001X	082052432
S08L009	16" man/hand overlay countdown	430-6479-001X	082052425
S08L010	16" man/hand overlay countdown	430-6479-001X	082052362
S08L011	16" man/hand overlay countdown	430-6479-001X	082052443
S08L012	16" man/hand overlay countdown	430-6479-001X	082052356

DATES OF TEST: September 15, 2008 through TBD.

SUMMARY OF TESTS:

<u>Test</u>	<u>Reference Paragraph</u>	<u>Result</u>
Conditioning	6.4.2	Comply
Mechanical Vibration	6.4.3.1	Comply
Temperature Cycling	6.4.3.2	Comply
Moisture resistance	6.4.3.3	Comply
Luminance at 25°C	6.4.4.1	Comply
Luminance at 74/49°C	6.4.4.2	Comply
Luminance Uniformity	6.4.4.3	Comply
Maximum Luminance	6.4.4.3.1	Comply
Chromaticity	6.4.4.4	Comply
Color Uniformity	6.4.4.4.1	Comply
Current Consumption	6.4.5.1	Comply
Temperature vs. Power Consumption	6.4.5.2	Comply
Power Factor	6.4.5.4	Comply
Total Harmonic Distortion	6.4.5.5	Comply
Low Voltage Turn Off	6.4.5.6	Comply
Turn-On/Turn-Off	6.4.5.7	Comply
Electronic Noise	6.4.5.8	Comply
Nondestruct Transient Immunity	6.4.5.9	Comply
Load Switch Compatibility	6.4.5.11.1	Comply*
Signal Conflict Monitor	6.4.5.11.2	Comply

\* Current draw is within the written requirements of two common load switches.



EQUIPMENT LIST

Equipment Used	Model Number	Control Number	Calibration Due Date
Associated	HK2164	H157	01-02-09
Thermotron	SE1000	H204	03-14-09
Vibration Controller	UDC	V254	09-19-09
Signal Conditioner	CVA-4	V252	11-02-08
Signal Conditioner	CVA-4	V272	11-29-08
Accelerometer	10B10T	V253	07-29-09
Torque Wrench	DM70NM	N580	04-02-09
Omega Anomometer	HHF-5000	Y205	01-22-09
Xitron	2503AH	V240	10-31-08
Current Transformer	411	A175	10-22-08
Current Transformer	411	A207	04-10-09
Current Transformer	411	A208	10-22-08
Tektronix	TDS 350	E276	03-06-09
LeCroy	AP030	NA	NA
Optronic Labs UDT	740-15	NA	Before Use
Spectra Scan	PR705	O052	10-23-08
X-rite	SM10	O109	10-13-09
Optronic Labs	OL730C	NA	Before Use
Optronic Labs	OL650	NA	Before Use
Omega Thermometer	640	T036	08-11-09
Despatch Oven	LAC1-67	H138	Before Use
UDT Instruments	S390	E277	Before Use
UDT	224	NA	Before Use



## TESTS, TEST METHODS AND RESULTS OF TESTS

### Conditioning – 6.4.2

The six pedestrian signal modules were conditioned before all other testing. The samples were placed in an environmental chamber and operated at nominal voltage for 24 hours at a temperature of 60 degrees C. Each indication was subjected to the 24 hour test.

#### Results

The samples had no evidence of plastic deformation and each indication remained operational.

### Mechanical Vibration – 6.4.3.1

The six pedestrian signal modules were securely mounted in traffic signal housings and vibrated along each axis for three 4 minute cycles at a displacement of 0.764" from 2 to 8 Hz and 2.5 Gs from 8 to 120 Hz. The modules were energized before and after each axis sweep. The modules were visually inspected after testing. Testing was conducted in accordance with MIL-STD-883, method 2007.

#### Results

The samples withstood the vibration along each axis without damage or operational deterioration.

### Temperature Cycling – 6.4.3.2

Six pedestrian signal modules were subjected to temperature cycling according to MIL-STD-883, Method 1010. Twenty cycles were performed with a 30 minute transfer time between temperature extremes and a 30 minute dwell time at the extremes. The temperature cycled between -40°C and +74°C. The samples were non-operating.

#### Results

The samples withstood the temperature cycling without damage or operational deterioration.

## TESTS, TEST METHODS AND RESULTS OF TESTS

### Moisture Resistance – 6.4.3.3

The six pedestrian signal modules were subjected to the rain and blowing rain test per MIL-STD-810F, Test Method 506.4, Procedure I. The test was performed on stand alone modules without a protective housing. The rainfall rate was 1.7 mm/min (4in/hr) and the droplet size was between 0.5mm and 4.5mm (0.02 to 0.18 in). The samples were vertically oriented such that the lens is directed towards the wind source when at a zero rotation angle. The samples were rotated at a rate of 4 degrees per minute about the vertical axis, from an orientation of -60 to +60 degrees during the test. The duration of the test was 30 minutes, and the samples were energized throughout the test. The water temperature was  $25^{\circ} \pm 5^{\circ}\text{C}$  ( $77^{\circ} \pm 9^{\circ}\text{F}$ ) and the wind velocity was 80 km/hr (50 mph).

### Results

The samples remained operational and had no evidence of internal moisture after testing.

### Maintained Minimum Luminance – 6.4.4.1, 6.4.4.2

Three pedestrian signal modules were operated at 120 Vac in ambient conditions. The luminance was measured using a direct viewing module calibrated with a NIST traceable luminance standard. Measurements were taken at nine locations on each signal, after a 60 minute warm up. A spot size of 12mm (0.5 inch) was used for the measurements.

A diminution factor was measured by using the submitted samples. Three pedestrian signal modules were mounted in a dual compartment temperature chamber with the lensed portion in one compartment and all portions behind the lens within the other compartment. At room ambient temperature (both inside and outside the chamber) and in calm air outside the chamber, the modules were energized per the conditions described above and a single on-axis reading ( $I_A$ ) taken and recorded. With the modules off, the chamber was heated to  $74^{\circ}\text{C}$  behind the lens and  $49^{\circ}\text{C}$  in front of the lens, and allowed to stabilize. Following stabilization, the modules were energized per the above cycle and the single on-axis reading ( $I_H$ ) taken and recorded. A diminution factor was calculated ( $I_H/I_A$ ).

The readings were factored by the diminution factor to generate the  $74^{\circ}\text{C}/49^{\circ}\text{C}$  data.

### Results

The data at  $25^{\circ}\text{C}$  and  $74^{\circ}\text{C}/49^{\circ}\text{C}$  complies with the requirements of section 4.1.1 of the referenced specification. Data follows.

TESTS, TEST METHODS AND RESULTS OF TESTS (cont'd)

Person

Sample:	S08L010	S08L011	S08L012
*Position	25°C		
1	3825	3445	3788
2	3854	2430	3088
3	2767	3750	3116
4	3902	3564	3349
5	3847	3201	3553
6	3065	2845	3069
7	3550	2915	2894
8	2646	2872	2449
9	3489	3490	4000
25°C Average	3438	3168	3256
74°C/49°C Average	2847	2588	2559

Hand

Sample:	S08L010	S08L011	S08L012
*Position	25°C		
1	2358	2509	1748
2	3475	3735	3051
3	2790	2862	2391
4	1811	1743	2048
5	2570	2055	2224
6	3464	4124	3756
7	2909	2768	2208
8	1879	2560	2627
9	2400	2649	3130
25°C Average	2628	2778	2576
74°C/49°C Average	1679	1745	1631

All measurements are in candela per meter squared.  
 \* - See attachments for approximate position location.

TESTS, TEST METHODS, AND RESULTS OF TESTS cont'd

Luminance Uniformity – 6.4.4.3

The luminance measurements taken during the luminance test at ambient were used to verify luminance uniformity. The ratio between the maximum and minimum luminance should be less than 5:1.

Results

The ratio between the maximum and the minimum luminance was less than 5:1.

Maximum Luminance - 6.4.4.3.1

The luminance data was evaluated to ensure the average luminance did not exceed three times the maintained minimum luminance. The maximum luminance would be 6,600  $\text{cd}/\text{m}^2$  for the walking person and 4,200  $\text{cd}/\text{m}^2$  for the hand.

Results

The average luminance of the walking person and hand did not exceed the maximum.

## TESTS, TEST METHODS, AND RESULTS OF TESTS cont'd

### Chromaticity - 6.4.4.4

The chromaticity measurements were performed on the submitted Pedestrian Signal Module with the spectroradiometer. The samples were operated at nominal input voltage and ambient temperature for 60 minutes before measurements were taken. Measurements were taken at 9 locations across the signal face using a ½ inch spotsize. The measurements were taken from 380-780nm utilizing a 2.0nm bandwidth.

#### Results

Both the hand and the walking person were compliant with the chromaticity requirements.

Sample	Hand/Person	Chromaticity Coordinates	
		x	y
S08L010	Hand	0.654	0.343
	Person	0.314	0.313
S08L011	Hand	0.653	0.344
	Person	0.318	0.318
S08L012	Hand	0.654	0.343
	Person	0.317	0.316

### Color Uniformity – 6.4.4.4.1

Nine color measurements were taken across the signal face using a ½" spot diameter. The data was then calculated using the following equation to verify uniformity for the walking person.

$$\sqrt{(\Delta x^2) + (\Delta y^2)} = 0.04$$

For the hand the dominant wavelength of each color measurement taken must be within ± 3nm of the average.

#### Results

Both the hand and walking person were compliant with the uniformity requirements.



TESTS, TEST METHODS, AND RESULTS OF TESTS cont'd

Current Consumption – 6.4.5.1

Three samples were measured for current flow in amperes. The measured current values are supplied for comparison of Product Quality Assurance current measurements on production modules. Current measurements were taken at start up.

Results

Measurements are in (mA).

Sample	Hand/Person	-40°C	25°C	74°C
S08L007	Hand	92.8	92.1	97.8
	Person	68.3	65.1	62.2
S08L008	Hand	88.7	88.6	94.6
	Person	66.8	64.6	61.5
S08L009	Hand	92.4	91.2	97.8
	Person	66.4	64.2	62.2

The current consumption was not in excess of 120% of the design qualification current values for an ambient temperature of 25°C.

Temperature vs. Power Consumption – 6.4.5.2

Three samples were measured for power consumption in watts. The measured power values are supplied for comparison of Product Quality Assurance power measurements on production modules.

Results

Measurements are in watts.

Sample	Hand/Person	-40°C	25°C	74°C
S08L007	Hand	10.91	10.65	11.47
	Person	7.82	7.41	7.12
S08L008	Hand	10.33	10.26	11.06
	Person	7.73	7.37	7.01
S08L009	Hand	10.67	10.56	11.42
	Person	7.67	7.31	7.09

The data is supplied for the end user.

TESTS, TEST METHODS, AND RESULTS OF TESTS cont'd

Power Factor & THD – 6.4.5.4, 6.4.5.5

Three samples were measured for power factor and total harmonic distortion. A commercially available power analyzer was used to perform these measurements.

Results

Intertek Sample	Voltage	Current (mA)	Power (W)	Power Factor	THD (I) (%)	THD (V) (%)
S08L007						
Hand	120.0	88.6	10.4	0.974	12.7	0.64
Person	120.0	63.6	7.3	0.958	13.5	0.59
S08L008						
Hand	120.0	85.3	10	0.972	12.9	0.63
Person	120.0	62.9	7.2	0.956	13.0	0.59
S08L009						
Hand	120.0	88.1	10.3	0.976	12.0	0.64
Person	120.0	62.7	7.2	0.959	12.4	0.59
Requirement	NA	NA	NA	= 0.90	= 20%	= 20%

Low Voltage Turn off – 6.4.5.6

Three samples were measured to ensure compliance with the low voltage turn-off requirement. Each sample was fully illuminated at the nominal operating voltage. The applied voltage was then reduced to the point where there was no visible illumination.

Results

There was no visible illumination when the applied voltage was less than 35Vac RMS.

Sample	Low Voltage Turn "Off" (Vac RMS)	
	Walking Person	Hand
S08L007	39.0	36.0
S08L008	39.0	37.0
S08L009	39.0	36.0



TESTS, TEST METHODS, AND RESULTS OF TESTS cont'd

Turn-On and Turn-Off Times – 6.4.5.7

Three pedestrian signal modules were measured to ensure compliance with the turn-on and turn-off requirements. The measurements were conducted using a two channel oscilloscope to measure the time delay between when the samples are energized at 120 Vac RMS and when the light output reaches 90% of full output. The same apparatus was used to measure the time delay between when the sample is de-energized and when the light output reaches 0% of full output.

Results

Measurements are in milliseconds

Sample	Turn "On"	Turn "Off"	Turn "On"	Turn "Off"
	Walking Person	Walking Person	Hand	Hand
S08L007	16.0	5.5	11.0	11.5
S08L008	16.0	6.0	11.5	14.5
S08L009	13.0	5.5	14.0	12.0

The "on" time and "off" time were within the 75ms requirement on all samples tested.

Transient Voltage Immunity – 6.4.5.9

Three pedestrian signal modules were subjected to 3 positive and 3 negative 1000V 7.5 joule pulses across their input leads at a rate of 0.5 pps in accordance with NEMA TS 2-2003 section 2.1.8. The pulses were the discharge from a 15µF capacitor. The devices were then energized with rated voltage to verify proper operation.

Results

The samples withstood the applications of the transient voltage without damage or operational deterioration.

Electronic Noise – 6.4.5.8

Three pedestrian signal modules were operated at 120 VAC/60Hz throughout the test. Emissions measurements were taken to compare values to applicable requirements.

Results

The emissions complied with the requirements of the referenced specification. The testing was performed at our Oakdale, MN office. See report 3160355MIN-010.



TESTS, TEST METHODS, AND RESULTS OF TESTS cont'd

Load Switch Compatibility – 6.4.5.11.1

Three LED Signal Modules were connected to a variable AC voltage supply. The sample was monitored for sufficient current draw to ensure proper load switch operation while the voltage is varied from 80V rms to 135 V rms.

Results

The load switch data is provided to the client to determine if the current draw is acceptable. The current is acceptable according to the written requirements of two common load switches. Eberle Design Inc. (510 load switch) and Reno A&E (LS – 200 load switch).

Intertek Sample No.	80 Vrms		120 Vrms		135 Vrms	
	Walking Person	Hand	Walking Person	Hand	Walking Person	Hand
S08L007	79.7	120.9	63.6	88.6	60.9	82.8
S08L008	78.9	115.6	62.9	85.3	60.2	79.5
S08L009	79.2	121.0	62.7	88.1	59.9	82.4

Current measurements are in (mA).

Signal Conflict Monitor – 6.4.5.11.2

Three pedestrian signal modules were operated from a 135V AC voltage supply. A 19.5 kΩ resistor was wired in series in the hot line between the LED signal monitor and the AC power supply. A single-pole-single-throw switch was wired in parallel across the 19.5 kΩ resistor. A 220 kΩ shunt resistor was wired between the hot line connection and the neutral line connection on the LED signal module. The single-pole-single-throw switch was closed, shorting out the 19.5 kΩ resistor, allowing the AC power supply to illuminate the LED signal module. Next the switch was opened and the voltage across the 220 kΩ shunt resistor was measured for a decay to a value equal to or less than 10V rms within a time period equal to or less than 100 milliseconds. The test was repeated a sufficient number of times to ensure testing occurs at the peak of the AC line voltage cycle.

Results

Intertek Sample No.	Decay Time (ms)	
	Walking Person	Hand
S08L007	< 5	< 5
S08L008	< 5	< 5
S08L009	< 5	< 5

In all samples measured the decay time was less than 100ms.

In Charge Of Tests

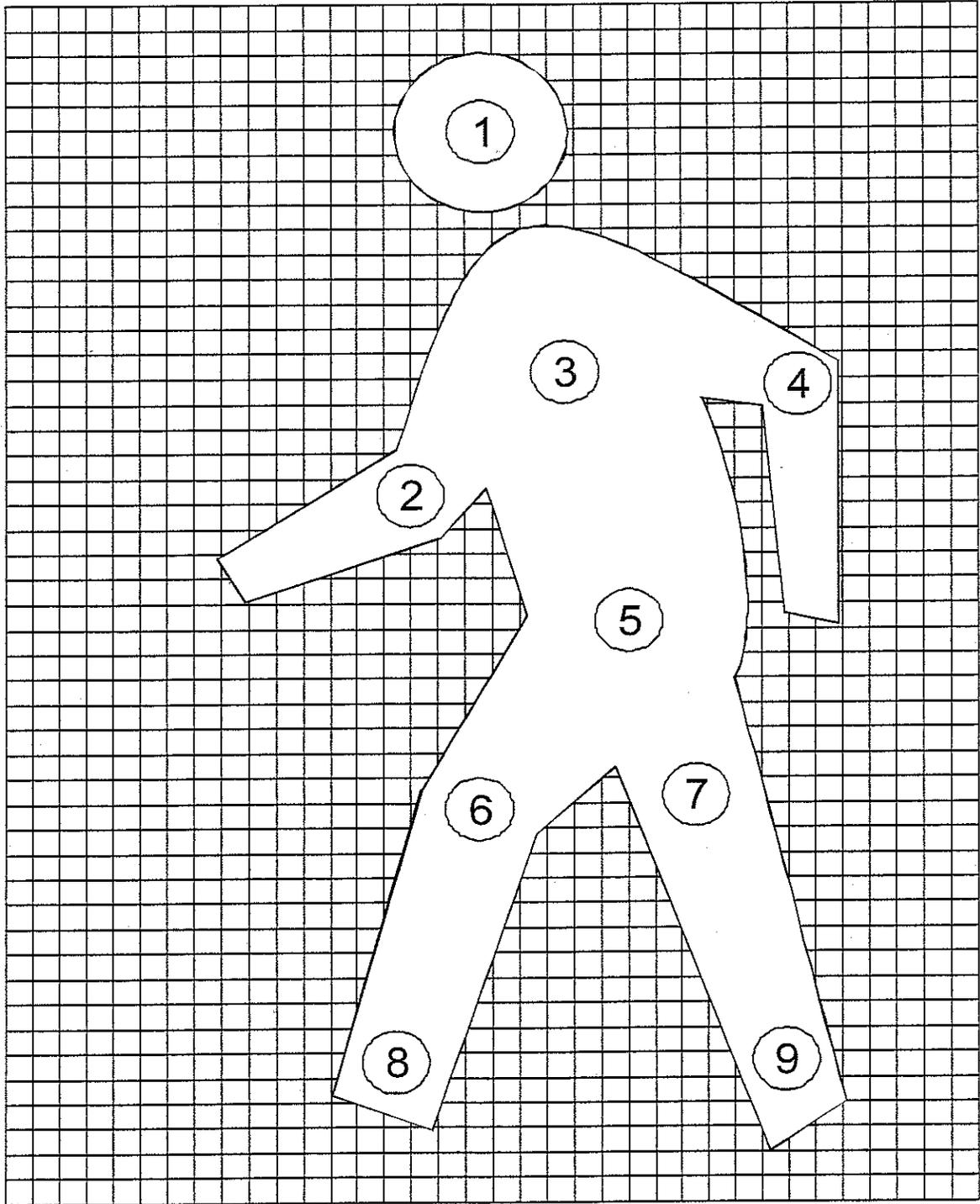
Christopher W. Metcalf  
Project Engineer  
Lighting Division

Report Reviewed By:

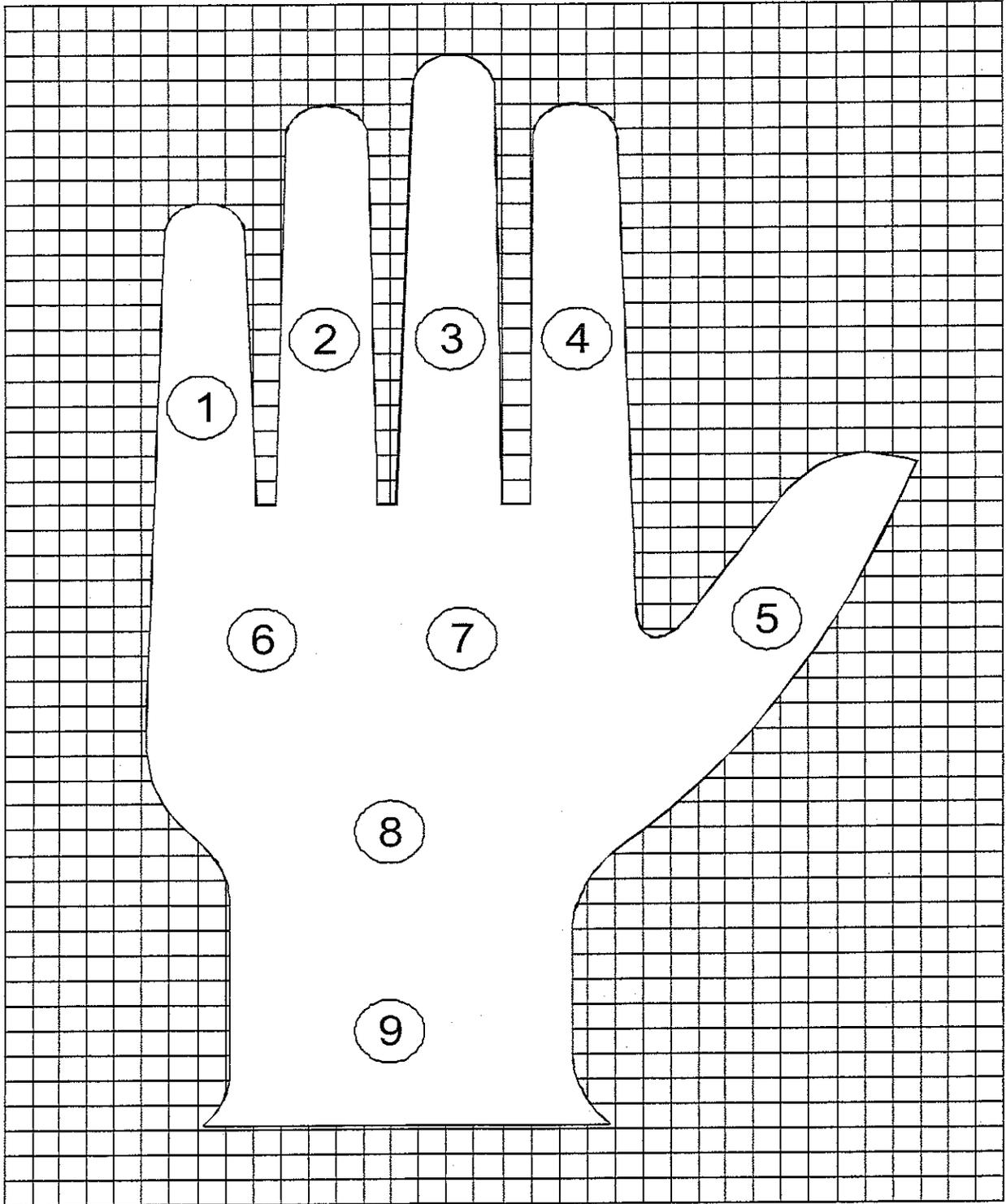
Ernest Dykeman  
Senior Project Engineer  
Lighting Division

Attachment: One hand and man diagram.  
Two picture pages.

TEST OF 16" PEDESTRIAN TRAFFIC CONTROL SIGNALS  
TESTED FOR DIALIGHT CORPORATION



TEST OF 16" PEDESTRIAN TRAFFIC CONTROL SIGNALS  
TESTED FOR DIALIGHT CORPORATION



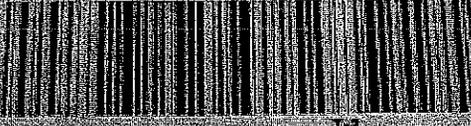
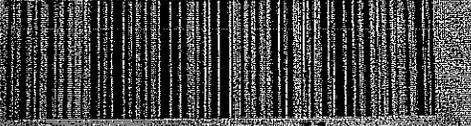
TEST OF 16" PEDESTRIAN TRAFFIC CONTROL SIGNALS  
TESTED FOR DIALIGHT CORPORATION

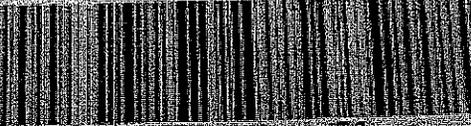


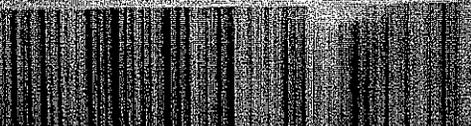
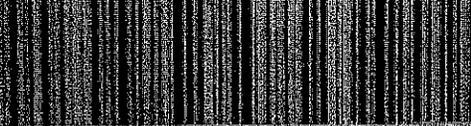
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Order No. 3160355  
Report No. 3160355CRT-001

TEST OF 16" PEDESTRIAN TRAFFIC CONTROL SIGNALS  
TESTED FOR DIALIGHT CORPORATION

 7-2	 7-2
<b>Dialight</b> Part Number: 430-5475-001X Date Code: 082052353 Rated Voltage: 120 VAC 60Hz Power Consumption: 9W 7W MADE IN MEXICO Volt - Amperes: 9.2VA / 7.2VA	<b>Dialight</b> Part Number: 430-5475-001X Date Code: 082052432 Rated Voltage: 120 VAC 60Hz Power Consumption: 9W 7W MADE IN MEXICO Volt - Amperes: 9.2VA / 7.2VA
MANUFACTURED IN CONFORMANCE WITH THE FTEC1 - PART 2 LED PEDESTRIAN SIGNAL MODULES	MANUFACTURED IN CONFORMANCE WITH THE FTEC1 - PART 2 LED PEDESTRIAN SIGNAL MODULES

 7-2	 7-2
<b>Dialight</b> Part Number: 430-5475-001X Date Code: 082052426 Rated Voltage: 120 VAC 60Hz Power Consumption: 9W 7W MADE IN MEXICO Volt - Amperes: 9.2VA / 7.2VA	<b>Dialight</b> Part Number: 430-5475-001X Date Code: 082052362 Rated Voltage: 120 VAC 60Hz Power Consumption: 9W 7W MADE IN MEXICO Volt - Amperes: 9.2VA / 7.2VA
MANUFACTURED IN CONFORMANCE WITH THE FTEC1 - PART 2 LED PEDESTRIAN SIGNAL MODULES	MANUFACTURED IN CONFORMANCE WITH THE FTEC1 - PART 2 LED PEDESTRIAN SIGNAL MODULES

 7-2	 7-2
<b>Dialight</b> Part Number: 430-5475-001X Date Code: 082052366 Rated Voltage: 120 VAC 60Hz Power Consumption: 9W 7W MADE IN MEXICO Volt - Amperes: 9.2VA / 7.2VA	<b>Dialight</b> Part Number: 430-5475-001X Date Code: 082052443 Rated Voltage: 120 VAC 60Hz Power Consumption: 9W 7W MADE IN MEXICO Volt - Amperes: 9.2VA / 7.2VA
MANUFACTURED IN CONFORMANCE WITH THE FTEC1 - PART 2 LED PEDESTRIAN SIGNAL MODULES	MANUFACTURED IN CONFORMANCE WITH THE FTEC1 - PART 2 LED PEDESTRIAN SIGNAL MODULES



## Model 4302 LED-Ready Pedestrian Signals

### Overview

When you first look at a the Model 4302 pedestrian signal from Peek Traffic, you see a sign of experience — it comes from more than 40 years of building pedestrian signals. Look even closer and you'll find the quality and durability that have made it our most popular signal ever...

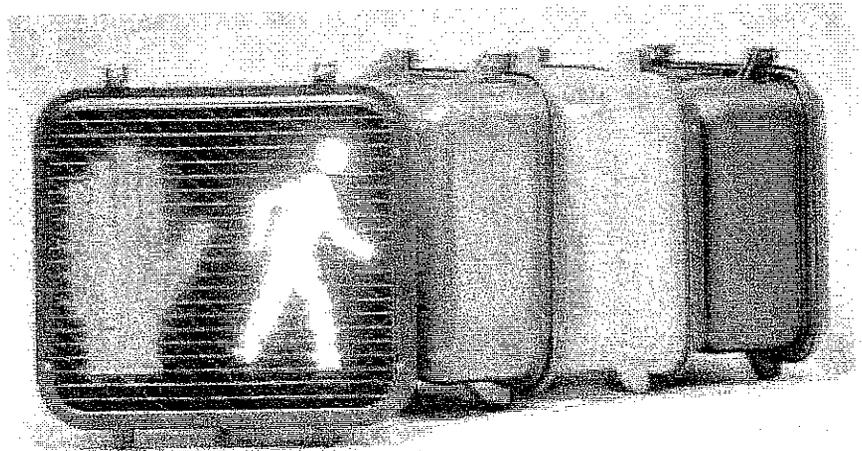
Color: Black

Maintenance Style housing

### Features & Benefits

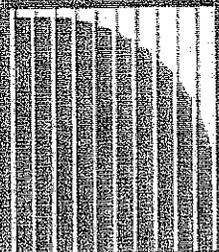
- Available in polycarbonate and aluminum
- Vandal-resistant construction
- Compatible with our patented clamshell mount, which makes installing the 4302 a quick and clean process
- 4302 Pedestrian Signals are compatible with mounting hardware used on California type A, B, C, and G Pedestrian types
- Z-Crate Visor virtually eliminates sun-phantom
- Designed for long years of service in all types of weather and harsh environmental conditions

Our aluminum and polycarbonate lines are completely interchangeable with one another, allowing you to design the exact pedestrian signal you need. If you need a polycarbonate body with an aluminum door, or an aluminum body with a polycarbonate door, we can accommodate you. Couple that with the ability to exchange the Z-crate for an open visor, or just a door alone, and Peek is sure to have the pedestrian signal that meets your exact needs.



Peek Model 4302 Pedestrian Signal - Available in polycarbonate and aluminum

# PEEK signals



## Specifications

<b>Property</b>	<b>Description</b>	<b>Environmental</b>	Dustproof and weatherproof when properly mounted
<b>Weight</b>	Aluminum: 15 pounds (6.8kg) Polycarbonate: 12 pounds (5.5kg)	<b>Door Frame Hardware</b>	Stainless steel. Type 304 Stainless steel spring pins. Latching and unlatching of door requires no tools
<b>Dimensions</b>	18.75"H x 9.0"D x 18.5"W (476mm x 229mm x 470mm)	<b>Terminal Strip</b>	An aluminum terminal strip with a pre-mounted three-position quick-connect terminal block is a standard feature in all Model 4302 LED-ready pedestrian signals
<b>Temperature Range</b>	-4°F to +158°F (-20°C to +70°C)		
<b>Z-Crate Visor</b>	100% impregnated black polycarbonate plastic with a flat black finish		
<b>Aluminum Door</b>	One piece corrosion resistant aluminum alloy die-cast door, containing two integrally cast hinge lugs and two latch slots		
<b>"Vision" Z-Crate Visor/Door Combo</b>	One piece door and z-crate combination, cast from 100% impregnated black polycarbonate, including two hinge lugs and two latch slots		
<b>Housing Types</b>	Smooth Top, Shurlock Top, or Ports Cast Closed housings are available in both Aluminum and Polycarbonate. All types contain 72 teeth on each Shurlock (if applicable) to allow for 5° alignment angles and four integrally cast lugs. All housings have a Shurlock boss on the bottom and can be ordered Standard, Drill-Right, Drill Left, or Maintained.		
<b>Coatings</b>	All aluminum items are coated with electrostatically applied powder after undergoing a five stage pre-wash. Housings, Open Visors, and Clamshells come in Yellow, Black, or Green, as standard options. Other colors are available upon request. All aluminum doors are powder coated black.		

## One Year Limited Warranty

Peek Traffic warrants these products against manufacturing defects in materials and workmanship for one year from the date of shipment from Peek Traffic. Specific contracts and regional laws may vary or alter these terms.



Peek Traffic Corporation  
2906 Corporate Way, Palmetto, FL 34221  
Phone: (941) 845-1200 • Fax: (941) 365-0837



Peek Traffic Signals Division  
141 Railroad Street, Bedford, PA 15522  
Phone: (814) 623-9303 • Fax: (814) 623-0974

U.S. Traffic Corporation

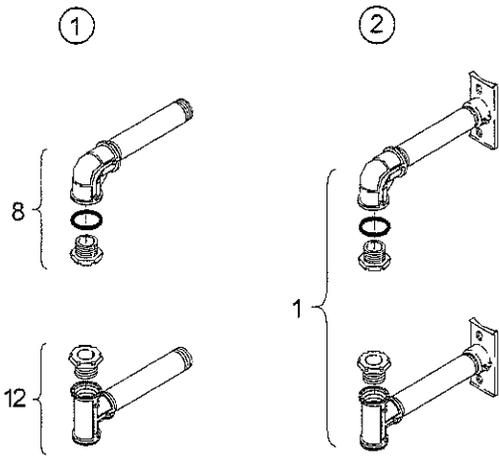
U.S. Traffic Corporation  
4025 E. La Palma Ave., Anaheim, CA 92807



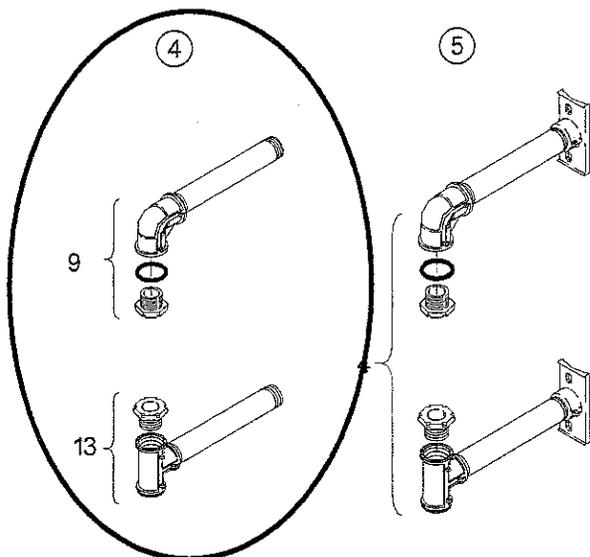
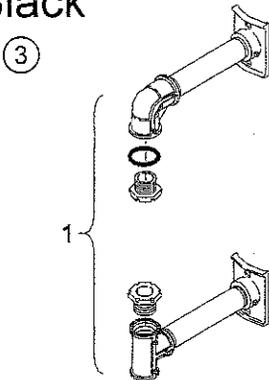


# RIGID SIGNAL MTGS

## Aluminum Side-of-Pole, 1 1/2"



Color: Black

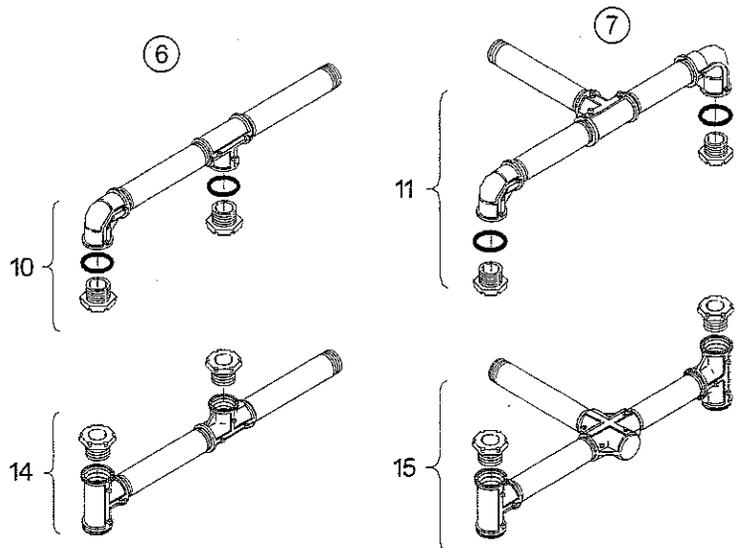


ITEM	DESCRIPTION	PART NO.
<b>UPPER &amp; LOWER ARM ASSY:</b>		
①	1-Way w/ 10" Nipples, Alum.	SE-3036
②	1-Way w/ 10" Nipples & Universal Hubs, Alum.	SE-3215
③	1-Way w/ 10" Nipples & Large Pole Hubs, Alum.	SE-3148
④	1-Way ICC Ped Hd w/ 12" Nipples, Alum.	SE-3146
⑤	1-Way ICC Ped Hd w/ 12" Nipples & Universal Hubs, Alum.	SE-3214
⑥	2-Way Tandem w/ 10" Nipples, Alum.	SE-3100
⑦	2-Way 16 1/2" CTC, Alum.	SE-3075
<b>UPPER ARM ASSY:</b>		
8	1-Way w/ 10" Nipple, Alum.	SE-3000
9	1-Way w/ 12" Nipple, Alum.	SE-3144
10	2-Way Tandem w/ 10" Nipples, Alum.	SE-3098
11	2-Way W/ 10" Nipples, Alum.	SE-3014
<b>LOWER ARM ASSY:</b>		
12	1-Way w/ 10" Nipple, Alum.	SE-3001
13	1-Way w/ 12" Nipple, Alum.	SE-3145
14	2-Way Tandem w/ 10" Nipples, Alum.	SE-3099
15	2-Way 16 1/2" CTC, Alum.	SE-3015

Notes:

- All assemblies are supplied standard with stainless steel fasteners.
- See section T11 for additional hub choices.
- Please specify options when ordering.

OPTIONS
PAINT

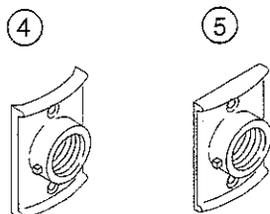
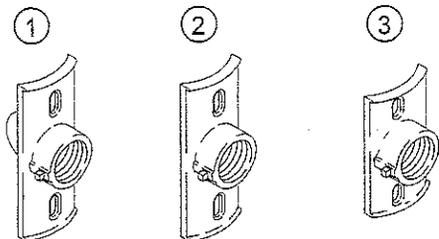




# COMPONENTS

## Hubs and Mounting Brackets

Hub Qty. 2  
each



ITEM 1-5 OPTIONS
DOUBLE SET SCREWS
1 1/2" NPT THREADS
PAINT

Black →

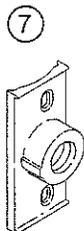
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<b>HUB PLATE:</b>		
①	w/ Cable Guide, 1 1/2" NPS, Alum .....	SE-0444
②	w/o Cable Guide, 1 1/2" NPS, Alum .....	SE-0445
	w/o Cable Guide, 1 1/2" NPS, Iron .....	SE-4124
③	4" Pipe, 1 1/2" NPS, Alum .....	SE-0454
④	Large Pole, 1 1/2" NPS, Alum .....	SE-0357
⑤	Flat Back, 1 1/2" NPS, Alum .....	SE-0415
⑥	Universal, 1 1/2" NPS, Alum .....	SE-4071
⑦	Universal, Alum .....	SE-4130
⑧	Extended, 1 1/2" NPS, Alum .....	SE-0381
⑨	Extended Flat Back, 1 1/2" NPS, Alum .....	SE-0465
⑩	Narrow, 1 1/2" NPS, Alum .....	SE-4050
⑪	Single, 1 1/2" NPS, Alum .....	SE-0111
⑫	Double, 1" NPT, Alum .....	SE-0112
⑬	Wood Pole, Horizontal, 1 1/2" NPS, Alum .....	SE-4079

**Notes:**

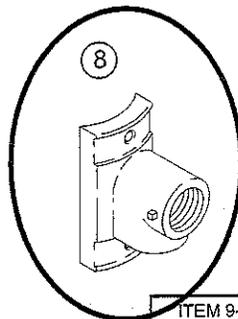
- All assemblies are supplied standard with stainless steel fasteners and natural aluminum alodine coating.
- Please specify options when ordering.



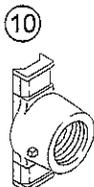
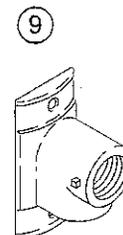
OPTIONS
DOUBLE SET SCREWS
REAR HOLE:
15/16" Dia.
3/4"-14 NPT
1 1/2" Dia.
PAINT



OPTIONS
THREADS:
3/4"-14 NPT
3/8"-16 NC
PAINT



ITEM 9-10 OPTIONS
1 1/2" NPT DOWN HOLE
3/4" MOUNTING HOLES
PAINT



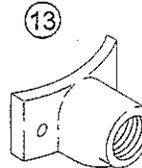
OPTIONS
DOUBLE SET SCREWS
1 1/2" NPT THREADS
REAR HOLE:
3/4" NPT or 15/16"
PAINT



OPTIONS
9/16" MOUNTING HOLES
DOUBLE SETSCREWS
1 1/2" NPT THREADS
PAINT



OPTIONS
PAINT



OPTIONS
1 1/2" NPT DOWN HOLE
PAINT

# U.S. Traffic Corporation

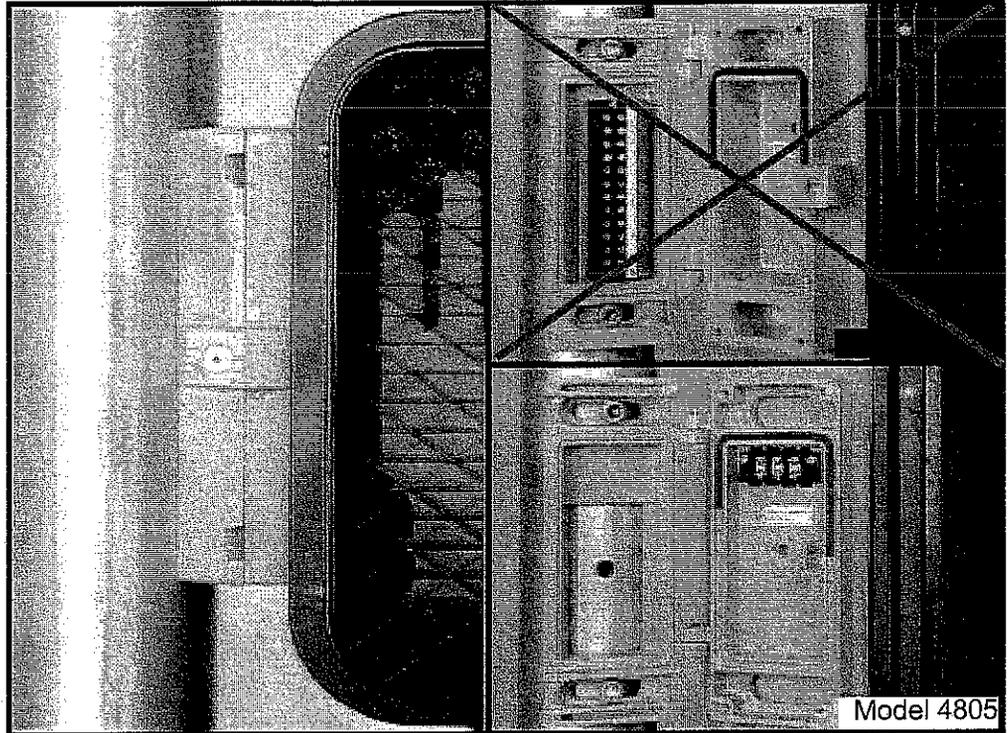
Manufacturers & System Engineers

## Model

# 4805

Clamshell Mount  
Pedestrian Signal  
Mounting Hardware

\*Black



Model 4805

### Features & Benefits

- **Model 4805 - 3 position terminal block**
- **Clean, simple installation**
- **Patented, reversible design for left or right hand mounting**
- **Flexible mounting, including through-bolt and band-it**
- **Vandal - proof exterior lock**

From procurement through installation and on to maintenance, our Models 4835 and 4805 are built to make everyone's job easier. Whether you prefer bolting or banding, installation of the 4835/4805 is quick and hassle-free. Add the further flexibility of a patented design that's reversible for left - or right - hand mounting, and most of the headaches of stockpiling disappear.

Since a single hex key gives you full access to the wiring block, it's hard to imagine how servicing could become any more convenient. By creating a simple, streamlined shape, the 4835/4805 even makes signals easier to look at.

Of course, there is one group the 4835/4805 makes things tougher for ... vandals. Its exterior lock and solid construction assure that. Which should make everyone else's job just that much easier.



## Specifications

The subject mounting hardware shall be a two-piece, cast aluminum alloy assembly. The two separate castings shall be joined in the final assembly by the use of stainless steel spring pins. The spring pins shall be factory installed into the hinge ears which shall be integrally cast into the pole half of the assembly. Final mating of the two halves shall be accomplished by inserting the spring pins into the drilled hinge ears of the head half of the assembly (loose fit).

### Applicable Installations:

The pole half of the assembly shall be designed to adapt to a wide range of pole configurations (4" [102 mm] minimum diameter). The pole mating surface shall be configured much like terminal compartments used for conventional bracket mounting.

The half of the assembly mounted to the pole shall not weigh more than 3.4 lb./4.43 kg. (Model 4835) or 2.7 lb./1.22 kg (Model 4805), thus facilitating rapid installation.

### Adaptable Mounting:

Unit construction shall allow for through-bolt, bolt to tapped pole, lag screw and band-it type mounting. Through bolt mounting shall accept two 1/2" (13 mm) diameter hex head bolts located on 9" (229 mm) inch centers. A channel with a recessed shoulder shall be included to retain the bolt head (or nut) and thus prevent rotation.

Clearance shall be provided on the mating half of the assembly such that the bolt can extend through the nut when it is desired to enclose the nut and bolt end rather than the bolt head.

The clamshell mounting system shall include an option for bolting directly to a tapped pole or lag screwing directly to a wood pole. Steel spacers with a 9/16" (14 mm) hole to slip over the shank and under the head of the mounting bolt or the lag screw shall be available as an extra cost accessory.

Band-it type mounting shall be provided by integrally casting two recessed slots near the top and bottom of the pole half of the assembly. The corners of this slot shall be relieved to prevent damage to the band-it type strapping material. Approximate dimensions of each slot shall be 7/8" (22 mm) wide and 1/8" deep thus adequately retaining 3/4" (19 mm) strapping material.

### 30 Degree Adjustment:

The bolt hole shall be elongated from side to side and the recessed shoulder shall be curved to allow rotation of the installed assembly 15 degrees in either direction from center for a total of 30° (when installed on a 4" [102 mm] pole).

### Improved Mounting Location:

The subject mounting hardware shall allow a "pole to pedestrian signal" clearance of approximately ~~3 7/16 mm (Model 4835)~~ or 2 1/2" (63.5 mm) (Model 4805) thus providing stronger and more rigid mounting than conventional bracket mounts. This close spacing between the pole and the pedestrian signal in most locations should reduce the vulnerability to damage by curb-hugging trucks and should be esthetically more pleasing to the eye.

### Vandal - Proof Installation:

The head half of the assembly shall be secured to the pedestrian signal with four 5/16" (8 mm) bolts. The pedestrian assembly shall be mounted on the pole by lining up the mounting pins of the pole half with the mounting ears of the pedestrian assembly and lowered to the permanent position. The pedestrian assembly shall then be rotated until the clamshell is closed. Locking is accomplished by inserting the flat head socket bolt and tightening with a 3/16" (5 mm) allen wrench.

### Terminal Block and Dual Wiring:

~~Model 4835 shall have twelve sets of screw terminal pairs located on a terminal block in the pole half of the clamshell assembly.~~ Model 4805 shall have three sets of screw terminal pairs located on a terminal block in the upper third of the head half of the clamshell assembly. A corresponding rain shield shall be provided for both models in the upper third of the pole half to prevent water intrusion.

A closed cell neoprene sponge gasket shall be provided on the mating surfaces of the two halves of the assembly to complete the rain-tight construction.

Provisions shall be provided to allow wiring to the field wires by conventional screw type terminals or by quick disconnects. Field wires shall be either AWG 12 or AWG 14.

When pedestrian signals and clamshell mounting hardware are ordered concurrently, the clamshell mounting hardware shall be mechanically assembled and wired to the pedestrian signal on the side specified. If top and bottom holes exist in the mating pedestrian signal, such holes shall be plugged as part of the clamshell installation procedure.

### Weight:

The subject clamshell mounting hardware assembly shall weigh ~~3.3 lb./3.76 kg. maximum (Model 4835)~~ or 5.5 lb./2.94 kg. maximum (Model 4805).

### Dimensions:

11.25"/286mm H x 5.5"/140mm W (including hinge ears) x ~~3.75"/96mm D (Model 4835)~~ or 2.75"/70mm D (Model 4805).

### Painting:

Prior to final assembly, the clamshell mounting hardware shall be thoroughly cleaned and then etched with an iron phosphate solution. An appropriate chemical sealer is then applied. For all gloss finish colors, a top grade T.G.I.C. polyester powder is electrostatically applied and oven-baked. To provide a true low luster flat black, an epoxy hybrid powder is applied in the same manner. This material chalks black and is often referred to as a "self cleaning" flat black. This process yields a high quality and very durable finish.

### Paint Options:

Olive Green  
Federal Yellow  
Gloss Black  
Flat Black

International patent number 4,101,191.

Applicable Patent: The product described herein is protected by U.S. and International patent number 4,101,191.