



The following documentation is an electronically-submitted vendor response to an advertised solicitation from the *West Virginia Purchasing Bulletin* within the Vendor Self-Service portal at ***wvOASIS.gov***. As part of the State of West Virginia's procurement process, and to maintain the transparency of the bid-opening process, this documentation submitted online is publicly posted by the West Virginia Purchasing Division at ***WVPurchasing.gov*** with any other vendor responses to this solicitation submitted to the Purchasing Division in hard copy format.

## Header 2

List View

**General Information** | [Contact](#) | [Default Values](#) | [Discount](#) | [Document Information](#)

Procurement Folder: 321520

Procurement Type: Central Master Agreement

Vendor ID:

Legal Name: PATH MASTER INC

Alias/DBA:

Total Bid: \$0.00

Response Date:

Response Time:

SO Doc Code: CRFQ

SO Dept: 0803

SO Doc ID: DOT1700000094

Published Date: 7/20/17

Close Date: 7/25/17

Close Time: 13:30

Status: Closed

Solicitation Description:

Total of Header Attachments: 2

Total of All Attachments: 2



Purchasing Division  
 2019 Washington Street East  
 Post Office Box 50130  
 Charleston, WV 25305-0130

**State of West Virginia  
 Solicitation Response**

**Proc Folder :** 321520

**Solicitation Description :** ADDENDUM\_1: TRAFFIC SIGNAL PARTS & EQUIPMENT

**Proc Type :** Central Master Agreement

Date issued	Solicitation Closes	Solicitation Response	Version
	2017-07-25 13:30:00	SR 0803 ESR07241700000000237	1

VENDOR
000000176550 PATH MASTER INC

**Solicitation Number:** CRFQ 0803 DOT1700000094

**Total Bid :** \$0.00                      **Response Date:** 2017-07-25                      **Response Time:** 09:58:48

**Comments:** Please note that the spreadsheet Exhibit A did not allow for the unit pricing column to be widened, therefore, some of the numbers are only able to be viewed if you are in the cell. The file was locked so that no changes could be made.  
 See attached pricing Exhibit A and catalog cuts for equivalent/alternate items proposed.

**FOR INFORMATION CONTACT THE BUYER**  
 Mark A Atkins  
 (304) 558-2307  
 mark.a.atkins@wv.gov

<b>Signature on File</b>	<b>FEIN #</b>	<b>DATE</b>
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All offers subject to all terms and conditions contained in this solicitation

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
1	Pricing shall be completed on Exhibit A Pricing Pages	0.00000	LS	\$0.000000	\$0.00

Comm Code	Manufacturer	Specification	Model #
46161504			

**Extended Description :** TRAFFIC SIGNAL PARTS & EQUIPMENT:  
Note: Vendor shall use Exhibit\_A Pricing Page(s) for bid pricing.  
If vendor is submitting a bid online, Vendor should enter \$0.00 in the Oasis commodity line.

**Comments:** Line Items 32-38 Prices quoted are with Equivalent Dialight LED's  
Line Items 39-40 Prices quoted are with Equivalent Econolite Housings  
Line Item 41 Prices quoted are with Equivalent Campbell Company AGPS  
Line Item 42 Prices quoted are with Equivalent EDI-PS250 as an Alternate to Eagle CPS105  
Line Item 44 Prices quoted are with Equivalent RTC AP21T Time Clock

## EXHIBIT A Pricing Pages

CRFQ 0803 DOT1700000094						
Item Number	Estimated Quantity	Unit of Measure	Description	UNSPC CODE	Unit Price	Extended Cost
<b>SECTION 1</b>						
1	20	ea	Siemens Eagle Traffic Controller M50 Series or Equal	46161504	No Bid	#VALUE!
2	10	ea	Siemens Eagle Master Traffic Controller M50 Series or Equal	46161504	No Bid	#VALUE!
3	30	ea	Repairs of Siemens Eagle Traffic Controllers or Equal	46161504	No Bid	#VALUE!
4	1	ea	Eagle Traffic Signal TS2 Pole Mounted Signal Cabinet or Equal	46161504	No Bid	#VALUE!
5	1	ea	Eagle TS2 Ground Mounted Traffic Signal Cabinets or Equal	46161504	No Bid	#VALUE!
<b>Section 1 Grand Total</b>						#VALUE!
<b>SECTION 2</b>						
6	20	ea	Econolite Cobalt ATC Traffic Signal Controller or Equal	46161504	#####	\$ 50,000.00
7	10	ea	Econolite Master Signal Controller or Equal	46161504	#####	\$ 52,000.00
8	20	ea	Repair of Econolite Traffic Controller or Equal	46161504	\$ 750.00	\$ 15,000.00
9	1	ea	Econolite TS2 Pole Mounted Signal Cabinet or Equal	46161504	#####	\$ 10,000.00
10	1	ea	Econolite TS Ground Mounted Signal Cabinet or Equal	46161504	#####	\$ 10,250.00
<b>Section 2 Grand Total</b>						\$ 137,250.00
<b>SECTION 3</b>						
11	10	ea	Iteris RZ4 Vehicle Detection Camera or Equal	46161504	No Bid	#VALUE!
12	5	ea	Repair of Iteris RZ4 Video Detection Camera or Equal	46161504	No Bid	#VALUE!
13	10	ea	Iteris Vehicle Detection Card or Equal	46161504	No Bid	#VALUE!
14	10	ea	Repair of Iteris Video Detection Card or Equal	46161504	No Bid	#VALUE!
<b>Section 3 Grand Total</b>						#VALUE!
<b>SECTION 4</b>						
15	10	ea	Autoscope Vehicle Detection Video Camera or Equal	46161504	#####	\$ 14,600.00
16	10	ea	Repair of Autoscope Vehicle Detection Camera or Equal	46161504	\$ 625.00	\$ 6,250.00
17	10	ea	Autoscope Vehicle Detection Cards or Equal	46161504	#####	\$ 28,150.00
18	10	ea	Repair of Autoscope Vehicle Detection Cards or Equal	46161504	\$ 625.00	\$ 6,250.00
<b>Section 4 Grand Total</b>						\$ 55,250.00
<b>SECTION 5</b>						
19	1	ea	Wavetronix Smart Sensor Matrix Vehicle Detection Radar or Equal	46161504	No Bid	#VALUE!
20	1	ea	Wavetronix Smart Sensor"Advance" Matrix Vehicle Detection Radar or Equal	46161504	No Bid	#VALUE!
21	10	ea	Wavetronix Smart 2-Channel Detection Card or Equal	46161504	No Bid	#VALUE!
22	5	ea	Wavetronix 4-Channel Vehicle DetectionCard or Equal	46161504	No Bid	#VALUE!
<b>Section 5 Grand Total</b>						#VALUE!

			SECTION 6					
23	1	ea	Smart Micro Universal Medium Range Radar (UMRR) "Stop Bar"+Vehicle Detection Radar	46161504	#####	\$	2,965.00	
24	1	ea	Smart Micro Universal Medium Range Radar (UMRR) "Stop Bar"+ Advance Vehicle Detection Radar	46161504	#####	\$	2,965.00	
25	10	ea	Smart Micro Vehicle Detection Radar Controller Interface Card or Equal	46161504	#####	\$	37,350.00	
			<b>Section 6 Grand Total</b>			\$	43,280.00	
			SECTION 7					
26	30	ea	TOMAR Preemption Control Systems Detectors or Equal	46161504	No Bid	#VALUE!		
27	20	ea	TOMAR Preemption Control Systems Detection Cards or Equal	46161504	No Bid	#VALUE!		
28	15	ea	Repair of TOMAR Preemption Control Systems Detection Cards or Equal	46161504	No Bid	#VALUE!		
			<b>Section 7 Grand Total</b>			#VALUE!		
			SECTION 8					
29	30	ea	Traffic Signal Conflict Monitor	46161504	\$ 575.00	\$	17,250.00	
30	15	ea	Traffic Signal Malfunction Management Unit	46161504	\$ 815.00	\$	12,225.00	
31	30	ea	Traffic Signal Bus Interface Unit	46161504	\$ 200.00	\$	6,000.00	
32	150	ea	Green LED Signal Lamp	46161504	\$ 24.00	\$	3,600.00	
33	150	ea	Yellow LED Signal Lamp	46161504	\$ 24.00	\$	3,600.00	
34	150	ea	Red LED Signal Lamp	46161504	\$ 24.00	\$	3,600.00	
35	60	ea	Green Arrow LED Signal Lamp	46161504	\$ 31.00	\$	1,860.00	
36	60	ea	Yellow Arrow LED Signal Lamp	46161504	\$ 29.00	\$	1,740.00	
37	20	ea	Red Arrow LED Signal Lamp	46161504	\$ 29.00	\$	580.00	
38	30	ea	LED Pedestrian Signal Head with Housing	46161504	\$ 175.00	\$	5,250.00	
39	5	ea	Three -head LED Traffic Signal Enclosure	46161504	\$ 125.00	\$	625.00	
40	5	ea	Five - head LED Traffic Signal Enclosure	46161504	\$ 210.00	\$	1,050.00	
41	30	ea	Audible Pedestrian Push Button	46161504	\$ 510.00	\$	15,300.00	
42	50	ea	TS1 Cabinet Power Supply	46161504	\$ 460.00	\$	23,000.00	
43	15	ea	TS2 Cabinet Power Supply	46161504	\$ 460.00	\$	6,900.00	
44	5	ea	Time Clocks	46161504	\$ 350.00	\$	1,750.00	
45	50	ea	56K Wired Modems	46161504	\$ 125.00	\$	6,250.00	
46	20	ea	Flash Transfer Relays	46161504	\$ 30.00	\$	600.00	
47	5	ea	Solar Flasher Controller	46161504	\$ 125.00	\$	625.00	
48	5	ea	Solar Flasher Motor Unit	46161504	\$ 30.00	\$	150.00	
			<b>Section 8 Grand Total</b>			\$	111,955.00	
			SECTION 9					
49	40	ea	4G/LTE Wireless Modems	46161504	\$ 975.00	\$	39,000.00	
			<b>Section 9 Grand Total</b>			\$	39,000.00	
			SECTION 10					
50	20	ea	ENCOM Radio Transceivers or Equal	46161504	No Bid	#VALUE!		
			<b>Section 10 Grand Total</b>			#VALUE!		
			SECTION 11					
51	10	ea	Intuicom Radio Transceivers or Equal	46161504	#####	\$	17,600.00	
			<b>Section 11 Grand Total</b>			\$	17,600.00	

The Contract shall be awarded to the Vendor that provides the Contract Items meeting the required specifications for the lowest overall Grand Total cost by section as shown on the Pricing Pages. Each section shall be evaluated independently and award shall be made to multiple vendors if needed.

# Dialight

WVDOH Solicitation CRFQ 0803 DOT1700000094

Item #32, Qty. 150

Item #33, Qty. 150

Item #34, Qty. 150

Item #35, Qty. 60

Item #36, Qty. 60

Item #37, Qty. 20



## ITE Compliant LED Signal Modules

# ITE Compliant LED Traffic Signal

## Module Performance Specifications

### All LED Ball Signal Modules - 8 inch (200mm) and 12 inch (300mm)

All shall be fully compliant to the ITE VTCSH LED Circular Supplement specifications dated and adopted June 27, 2005. Compliance to the ITE VTCSH-2 Interim Purchase Specification is not sufficient, and will not substitute for compliance to the ITE VTCSH LED Circular Supplement specifications. Additionally, prior to bid award, the manufacturer shall submit to purchaser, reports from ETL/Intertek, that certify full compliance of all LED ball signal modules to the entire ITE specification. These tests should include but not be limited to the luminous intensity measurements and requirements outlined in the ITE specification sections 6.4.4 through 6.4.4.4.2 (25°C and 74°C / 49°C). Evidence of full compliance to all required testing methods, procedures and sections as outlined in the above ITE document Figure 2, Design Qualification Testing Flow Chart must be included without any exceptions, changes or omissions. The manufacturer must also submit a datasheet showing the catalog number of the items submitted on the bid and the Independent Lab report must show full qualification of this catalog number.

### All LED 12 inch (300mm) Arrow Signal Modules

All shall be fully compliant to the "Omni-directional" specifications of the ITE VTCSH - LED Vehicle Arrow Traffic Signal Supplement adopted July 1, 2007. Additionally, prior to bid award, the manufacturer shall submit to purchaser, reports from ETL/Intertek that certify full compliance of all LED Arrow signal modules. These tests should include but not be limited to the luminous intensity measurements and requirements outlined in the ITE specification sections 6.4.4 through 6.4.4.4.2 (25°C and 74°C / 49°C). Evidence of full compliance to all required testing methods, procedures and sections as outlined in the above ITE document Attachment 1, "Design Qualification Testing Flow Chart" must be included without any exceptions, changes or omissions. The manufacturer must also submit a data sheet showing the catalog number of the items submitted on the bid and the Independent Lab report must show full qualification of this catalog number.

### All LED 16x18 Countdown Pedestrian Signal Modules

All shall be fully compliant to the ITE PTCSI Part-2: LED Pedestrian Traffic Signal Modules specifications adopted August 4, 2010 or the latest adopted version as listed on the ITE website at time of bid. Additionally, prior to bid award, the manufacturer shall submit to purchaser, reports from ETL/Intertek that certify full compliance of LED signal modules, to these specifications. Evidence of full compliance to all required testing methods, procedures and sections as outlined in the above ITE document Attachment 2, "Design Qualification Testing Flow Chart" must be included without any exceptions, changes or omissions. The manufacturer must also submit a data sheet showing the exact catalog number of the items submitted on the bid and the Independent Lab report must show full qualification of this catalog number. Combination hand/person pedestrian signal modules shall incorporate separate power supplies for the hand and the person icons.

In addition to, and in excess of the above applicable ITE specification compliance, the on-board circuitry of all LED traffic signal modules shall include voltage surge protection, to withstand high-repetition noise transients and low-repetition high-energy transients as stated in Section 2.1.8, NEMA Standard TS 2-2003. In addition, the module shall comply with the following standards: IEC 1000-4-5 at 3kV with a 2 ohm source impedance, ANSI/IEEE C62, 41-2002; IEC 61000-4-12 (6kV, 200A, 100kHz ring wave).

### Warranty

Manufacturer shall provide at time of bid, a written warranty which provides for repair or replacement of modules that fail to function as intended due to workmanship or material defects within the first 60 months from date of delivery. Modules which exhibit luminous intensities less than the minimum as specified in the ITE specifications as indicated above, within the first 60 months from date of delivery shall be replaced or repaired.



### Notes

CSA approved to the following applicable requirements:

- CSA Standard C22.2 No. 9.0-96 General Requirements for Luminaires
- CSA Std. No. C22.2 No. 250.0-04 Luminaires
- UL Std. No. 1598-2004 (May 2006) Luminaires



# Uniform Appearance LED Traffic Signal Modules



### Features & Benefits

- \*Fully compliant to ITE VTCSH-LED Circular Signal Supplement dated 6/27/2005
- Industry's lowest power for all colors
- Meets or exceeds ITE intensity, color & uniformity spec, including 49°C / 74°C requirements
- Temperature compensated power supplies for longer LED life
- Uniform appearance
- Expanded view radiation pattern suitable for span wire and steep grade applications
- Transient suppression exceeds ITE and NEMA specifications (Up to 6KV ring wave)
- Manufactured with anti-capillary wires
- Conformal coated power supply
- Secondary lens treatment for abrasion resistance
- Patent No. 7,281,818 and other patents pending
- Intertek/ETL certified and listed on ETL certification program
- All units operate at 80-135VAC RMS, 60+/-3Hz

Part Number	Color	Lens Type	Dominant Wavelength (nm)	Typical Wattage at 25°C	Peak Minimum Maintained Luminous Intensity (cd)	Size (in)	*Meets ITE Spec	CSA Approved
433-1110-003XL	Red	Tinted	625	7	165	8	•	•
433-1170-003XL	Red	Clear	625	7	165	8	•	•
433-3130-901XL	Yellow	Tinted	590	8	410	8	•	•
433-3170-901XL	Yellow	Clear	590	8	410	8	•	•
433-2120-001XL	Green	Tinted	500	7	215	8	•	•
433-2170-001XL	Green	Clear	500	7	215	8	•	•
433-1210-003XL	Red	Tinted	625	7	365	12	•	•
433-1270-003XL	Red	Clear	625	7	365	12	•	•
433-3230-901XL	Yellow	Tinted	590	9	910	12	•	•
433-3270-901XL	Yellow	Clear	590	9	910	12	•	•
433-2220-001XL	Green	Tinted	500	8	475	12	•	•
4332270-001XL	Green	Clear	500	8	475	12	•	•

# Omni-Directional Uniform Appearance LED Arrow



### Features & Benefits

- \*Fully compliant to ITE VTCSH-LED Vehicle Arrow Supplement dated 7/01/2007
- Allows for mounting in any orientation in the signal head
- Industry's lowest power for all colors
- Meets or exceeds ITE intensity, color & uniformity spec, including 49°C / 74°C requirements
- Temperature compensated power supplies for longer LED life
- Uniform appearance
- Transient suppression exceeds ITE and NEMA specifications (Up to 6KV ring wave)
- Manufactured with anti-capillary wires
- Conformal coated power supply
- Secondary lens treatment for abrasion resistance
- Intertek/ETL certified and listed on ETL certification program
- All units operate at 80-135VAC RMS, 60+/-3Hz

Part Number	Color	Lens Type	Dominant Wavelength (nm)	Typical Wattage at 25°C	Peak Minimum Maintained Luminous Intensity (cd)	*Meets ITE Spec	CSA Approved
432-1314-001XOD	Red	Tinted	628	6	56.8	•	•
432-1374-001XOD	Red	Clear	628	6	56.8	•	•
431-3334-901XOD	Yellow	Tinted	590	7	141.6	•	•
431-3374-901XOD	Yellow	Clear	590	7	141.6	•	•
432-2324-001XOD	Green	Tinted	500	6	73.9	•	•
432-2374-001XOD	Green	Clear	500	6	73.9	•	•

## Uniform Appearance Hand & Person Pedestrian Signals



### Features & Benefits

- \*Fully compliant to ITE PTCSI Part 2 LED Pedestrian Traffic Signal Module Specification dated 3/09/2004
- Meets or exceeds ITE uniformity ration of not more than 1 to 5 between the max and the min luminance values as measured in (.5") dia spots
- Manufactured with anti-capillary wires
- Conformal coated power supply
- Fuse and transient suppressor incorporated for superior line and load protection
- Independent dedicated power supplies for added safety and reliability
- Intertek/ETL certified and listed on ETL certification program
- Transient suppression exceeds ITE and NEMA specifications (Up to 6KV ring wave)
- All units operate at 80-135VAC RMS, 60+/-3Hz

Part Number	Size	Description	Typical Wattage at 25°C		Min. Luminance (cd/m2)		*Meets ITE Spec	CSA Approved
			Hand	Person	Hand	Person		
430-6450-001X	16 x 18	Side-by-side Hand and Person	9	7	1,400	2,200	•	•
430-6472-001X	16 x 18	Overlay Hand and Person	11	7	1,400	2,200	•	•
430-5770-001X	12 x 12	Hand Only	8	N/A	1,400	N/A	•	•
430-7771-001X	12 x 12	Person Only	N/A	6	N/A	2,200	•	•
430-6772-001X	12 x 12	Overlay Hand and Person	8	10	1,400	2,200	•	•

## Uniform Appearance Countdown Pedestrian Signals



### Features & Benefits

- \*Fully compliant to ITE PTCSI Part 2 LED Pedestrian Traffic Signal Module Specification dated 8/04/2010
- MUTCD compliant for countdown applications
- Full preemption compatibility
- Up to 8 units can be connected in parallel without affecting the monitoring of the Hand/Person
- Manufactured with anti-capillary wires
- Three (3) independent dedicated power supplies for added safety and reliability
- Intertek/ETL certified and listed on ETL certification program
- Reduced off state icon visibility results in increased pedestrian safety by eliminating the potential to misinterpret the signal
- Conformal coated power supply
- New improved one piece housing design
- Improved optical design to provide superior uniform appearance of the icons
- Transient suppression exceeds ITE and NEMA specifications (Up to 6KV ring wave)
- All units operate at 80-135V AC RMS, 60+/-3Hz

Part Number	Housing Size	Symbol Color			Typical Wattage at 25°C			Min. Luminance (cd/m2)			*Meets ITE Spec	CSA Approved
		Countdown	Hand	Person	Countdown	Hand	Person	Countdown	Hand	Person		
430-6479-001X	16 x 18	Portland Orange	Portland Orange	Lunar White	8	11	10	1,400	1,400	2,200	•	•
430-7773-001X	12 x 12	Portland Orange	N/A	N/A	5	N/A	N/A	1,400	N/A	N/A	•	•

# Pedestrian Signal Housing

WVDOH Solicitation CRFQ 0803 DOT1700000094  
Item #38  
Qty. 30

Cabinets  
Controllers  
**Signals**  
Signs  
Software  
Specialty

12" Housing

16" Housing

Aluminum

Polycarbonate



16 inch housing  
shown in Federal yellow



12 inch housing  
shown in black

## Overview

McCain's Pedestrian Signal Housings are designed to be used in conjunction with standard or LED pedestrian signal modules to promote pedestrian safety at intersections. McCain housings exceed the Institute of Transportation Engineers (ITE) standards, offering a low maintenance and durable housing in either die cast aluminum or injection molded polycarbonate resin. They are available in 12" or 16" styles, and the 12" housings are available in 1-section or 2-section varieties. The 12" polycarbonate housings are reinforced with a 10 percent fiberglass fill for superior strength and durability unmatched by standard polycarbonate resins. The fiberglass fill is optional on the 16" polycarbonate housings.

## Benefits

- 12" or 16" styles
- Rugged aluminum or polycarbonate construction
- Designed for standard symbol or word pedestrian signal modules including LED
- Door-hinge hardware can be removable and reversible or permanently attached
- Highly customizable including a variety of fabrication, mounting, and visor options
- 16" available with *Vantage Visor™* for increased visibility and impact protection

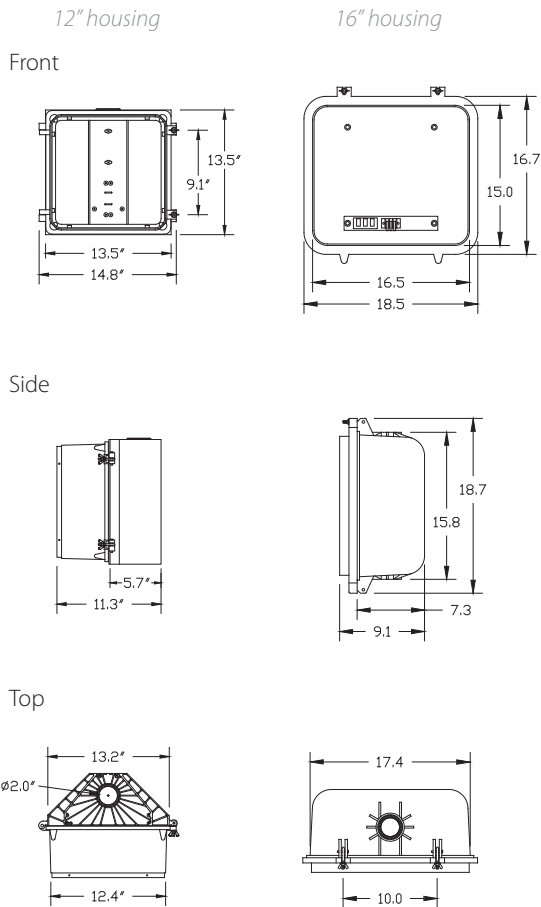
## Product Description

The McCain Pedestrian Signal Housing is available in 12" and 16" styles and a variety of configurations including aluminum or polycarbonate construction, with a number of options (see Options for details).

The door is attached with stainless steel detent-type clevis or roll pins and eye bolt/wing nut assemblies. Two equally spaced mounting lugs, integrally cast into the top and bottom of the 16" and the sides of the 12", allow the doors to hinge from either direction. When clevis pins are used, the door and eye bolt assemblies can be removed and rotated without the use of any tools, facilitating maintenance.

All interior mounting locations on the 16" housing are symmetrically positioned, allowing the rotation of components when using the bi-directional McCain Clamshell Mount to mount to the right or left side.

# Pedestrian Signal Housing



Dimensions rounded to the nearest 0.1"



12" 2-section with tunnel visors



16" with Vantage Visor

Hand/Man modules (sold separately)



16" Vantage Visor (sold separately)



16" Tunnel visor (sold separately)



16" Clamshell mount (sold separately)

\*Dimensions are approximate and vary based on material used

## Standard Features

- Stainless steel hardware includes hinge pins (detent-type clevis or roll) and eye bolt/wing nuts (latch)
- Terminal block with quick-disconnect fittings on one side of each terminal position and screw clamps on the other side

## General Specifications

Dimensions*:	12" Housing	16" Housing
Housing:	13.2" H x 13.2" W x 5.7" D	15.8" H x 17.4" W x 7.3" D
Door (incl. tabs):	13.5" H x 15.0" W x 5.6" D	18.7" H x 18.5" W x 1.8" D
Overall:	14.0" H x 15.0" W x 11.3" D	18.7" H x 18.5" W x 9.1" D
Material:	Polycarbonate: Ultraviolet and heat stabilized, flame retardant, permanently colored, 10% fiberglass reinforcement (12" standard, 16" optional) Aluminum: Type 360, reduced corrosion, increased powder coat adhesion	
Finish(es):	Polycarbonate: Colored resins integral to housing Aluminum: Powder coated	
Color(s):	Federal yellow, signal green, black, or custom colors	
Access:	Front door (1), 16": hinged top or bottom 12": hinged left or right	
Latching System:	Eye bolt assemblies	
Mounting:	Standard signal hardware	
Environmental:	Operating temperature: -37°C to +74°C Humidity: 0 to 95% (non-condensing)	
Shipping Weight:	12": Poly 5 lbs, Al 9 lbs 16": Poly 9 lbs, Al 10 lbs	

## Options

- Polycarbonate 10% fiberglass fill for added durability (optional on 16", standard on 12")
- Modules: LED or incandescent; international Hand/Man symbol, "WALK"/"DON'T WALK" words
- Visors: Vantage Visor (16" only), tunnel, or cap (12" only)
- Clamshell mount (16" only - housing available pre-drilled for mount)
- Custom terminal blocks
- Door hardware permanent (roll pins) or removable (clevis pins)

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



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

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# Dialight



## ITE Compliant LED Signal Modules

# ITE Compliant LED Traffic Signal

## Module Performance Specifications

### All LED Ball Signal Modules - 8 inch (200mm) and 12 inch (300mm)

All shall be fully compliant to the ITE VTCSH LED Circular Supplement specifications dated and adopted June 27, 2005. Compliance to the ITE VTCSH-2 Interim Purchase Specification is not sufficient, and will not substitute for compliance to the ITE VTCSH LED Circular Supplement specifications. Additionally, prior to bid award, the manufacturer shall submit to purchaser, reports from ETL/Intertek, that certify full compliance of all LED ball signal modules to the entire ITE specification. These tests should include but not be limited to the luminous intensity measurements and requirements outlined in the ITE specification sections 6.4.4 through 6.4.4.4.2 (25°C and 74°C / 49°C). Evidence of full compliance to all required testing methods, procedures and sections as outlined in the above ITE document Figure 2, Design Qualification Testing Flow Chart must be included without any exceptions, changes or omissions. The manufacturer must also submit a datasheet showing the catalog number of the items submitted on the bid and the Independent Lab report must show full qualification of this catalog number.

### All LED 12 inch (300mm) Arrow Signal Modules

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### All LED 16x18 Countdown Pedestrian Signal Modules

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In addition to, and in excess of the above applicable ITE specification compliance, the on-board circuitry of all LED traffic signal modules shall include voltage surge protection, to withstand high-repetition noise transients and low-repetition high-energy transients as stated in Section 2.1.8, NEMA Standard TS 2-2003. In addition, the module shall comply with the following standards: IEC 1000-4-5 at 3kV with a 2 ohm source impedance, ANSI/IEEE C62, 41-2002; IEC 61000-4-12 (6kV, 200A, 100kHz ring wave).

### Warranty

Manufacturer shall provide at time of bid, a written warranty which provides for repair or replacement of modules that fail to function as intended due to workmanship or material defects within the first 60 months from date of delivery. Modules which exhibit luminous intensities less than the minimum as specified in the ITE specifications as indicated above, within the first 60 months from date of delivery shall be replaced or repaired.



### Notes

CSA approved to the following applicable requirements:

- CSA Standard C22.2 No. 9.0-96 General Requirements for Luminaires
- CSA Std. No. C22.2 No. 250.0-04 Luminaires
- UL Std. No. 1598-2004 (May 2006) Luminaires

# Uniform Appearance LED Traffic Signal Modules



### Features & Benefits

- \*Fully compliant to ITE VTCSH-LED Circular Signal Supplement dated 6/27/2005
- Industry's lowest power for all colors
- Meets or exceeds ITE intensity, color & uniformity spec, including 49°C / 74°C requirements
- Temperature compensated power supplies for longer LED life
- Uniform appearance
- Expanded view radiation pattern suitable for span wire and steep grade applications
- Transient suppression exceeds ITE and NEMA specifications (Up to 6KV ring wave)
- Manufactured with anti-capillary wires
- Conformal coated power supply
- Secondary lens treatment for abrasion resistance
- Patent No. 7,281,818 and other patents pending
- Intertek/ETL certified and listed on ETL certification program
- All units operate at 80-135VAC RMS, 60+/-3Hz

Part Number	Color	Lens Type	Dominant Wavelength (nm)	Typical Wattage at 25°C	Peak Minimum Maintained Luminous Intensity (cd)	Size (in)	*Meets ITE Spec	CSA Approved
433-1110-003XL	Red	Tinted	625	7	165	8	•	•
433-1170-003XL	Red	Clear	625	7	165	8	•	•
433-3130-901XL	Yellow	Tinted	590	8	410	8	•	•
433-3170-901XL	Yellow	Clear	590	8	410	8	•	•
433-2120-001XL	Green	Tinted	500	7	215	8	•	•
433-2170-001XL	Green	Clear	500	7	215	8	•	•
433-1210-003XL	Red	Tinted	625	7	365	12	•	•
433-1270-003XL	Red	Clear	625	7	365	12	•	•
433-3230-901XL	Yellow	Tinted	590	9	910	12	•	•
433-3270-901XL	Yellow	Clear	590	9	910	12	•	•
433-2220-001XL	Green	Tinted	500	8	475	12	•	•
4332270-001XL	Green	Clear	500	8	475	12	•	•

# Omni-Directional Uniform Appearance LED Arrow



### Features & Benefits

- \*Fully compliant to ITE VTCSH-LED Vehicle Arrow Supplement dated 7/01/2007
- Allows for mounting in any orientation in the signal head
- Industry's lowest power for all colors
- Meets or exceeds ITE intensity, color & uniformity spec, including 49°C / 74°C requirements
- Temperature compensated power supplies for longer LED life
- Uniform appearance
- Transient suppression exceeds ITE and NEMA specifications (Up to 6KV ring wave)
- Manufactured with anti-capillary wires
- Conformal coated power supply
- Secondary lens treatment for abrasion resistance
- Intertek/ETL certified and listed on ETL certification program
- All units operate at 80-135VAC RMS, 60+/-3Hz

Part Number	Color	Lens Type	Dominant Wavelength (nm)	Typical Wattage at 25°C	Peak Minimum Maintained Luminous Intensity (cd)	*Meets ITE Spec	CSA Approved
432-1314-001XOD	Red	Tinted	628	6	56.8	•	•
432-1374-001XOD	Red	Clear	628	6	56.8	•	•
431-3334-901XOD	Yellow	Tinted	590	7	141.6	•	•
431-3374-901XOD	Yellow	Clear	590	7	141.6	•	•
432-2324-001XOD	Green	Tinted	500	6	73.9	•	•
432-2374-001XOD	Green	Clear	500	6	73.9	•	•

## Uniform Appearance Hand & Person Pedestrian Signals



### Features & Benefits

- \*Fully compliant to ITE PTCSI Part 2 LED Pedestrian Traffic Signal Module Specification dated 3/09/2004
- Meets or exceeds ITE uniformity ration of not more than 1 to 5 between the max and the min luminance values as measured in (.5") dia spots
- Manufactured with anti-capillary wires
- Conformal coated power supply
- Fuse and transient suppressor incorporated for superior line and load protection
- Independent dedicated power supplies for added safety and reliability
- Intertek/ETL certified and listed on ETL certification program
- Transient suppression exceeds ITE and NEMA specifications (Up to 6KV ring wave)
- All units operate at 80-135VAC RMS, 60+/-3Hz

Part Number	Size	Description	Typical Wattage at 25°C		Min. Luminance (cd/m2)		*Meets ITE Spec	CSA Approved
			Hand	Person	Hand	Person		
430-6450-001X	16 x 18	Side-by-side Hand and Person	9	7	1,400	2,200	•	•
430-6472-001X	16 x 18	Overlay Hand and Person	11	7	1,400	2,200	•	•
430-5770-001X	12 x 12	Hand Only	8	N/A	1,400	N/A	•	•
430-7771-001X	12 x 12	Person Only	N/A	6	N/A	2,200	•	•
430-6772-001X	12 x 12	Overlay Hand and Person	8	10	1,400	2,200	•	•

## Uniform Appearance Countdown Pedestrian Signals



### Features & Benefits

- \*Fully compliant to ITE PTCSI Part 2 LED Pedestrian Traffic Signal Module Specification dated 8/04/2010
- MUTCD compliant for countdown applications
- Full preemption compatibility
- Up to 8 units can be connected in parallel without affecting the monitoring of the Hand/Person
- Manufactured with anti-capillary wires
- Three (3) independent dedicated power supplies for added safety and reliability
- Intertek/ETL certified and listed on ETL certification program
- Reduced off state icon visibility results in increased pedestrian safety by eliminating the potential to misinterpret the signal
- Conformal coated power supply
- New improved one piece housing design
- Improved optical design to provide superior uniform appearance of the icons
- Transient suppression exceeds ITE and NEMA specifications (Up to 6KV ring wave)
- All units operate at 80-135V AC RMS, 60+/-3Hz

Part Number	Housing Size	Symbol Color			Typical Wattage at 25°C			Min. Luminance (cd/m2)			*Meets ITE Spec	CSA Approved
		Countdown	Hand	Person	Countdown	Hand	Person	Countdown	Hand	Person		
430-6479-001X	16 x 18	Portland Orange	Portland Orange	Lunar White	8	11	10	1,400	1,400	2,200	•	•
430-7773-001X	12 x 12	Portland Orange	N/A	N/A	5	N/A	N/A	1,400	N/A	N/A	•	•



# 12-Inch Polycarbonate Signal



▷ ▷All Econolite signals are designed to meet or exceed the Institute of Transportation Engineers (ITE) standards.

## About Signals

Traffic and pedestrian signals represent the foundation of safety at any signalized intersection. They also represent the first, and arguably the most important, interaction motorists, bicyclists and pedestrians have with Intelligent Transportation Systems (ITS).

Polycarbonate provides transportation agencies and MPOs with key benefits such as reduced weight, corrosion resistance and reduced maintenance. Reduced weight is necessary when adding signals to existing mast arms or new longer reach structures. Polycarbonate signals are also less susceptible to corrosion in high humidity applications, as well as pitting from sand in high wind areas. Each traffic signal consists of a number of identical polycarbonate signal sections rigidly fastened together to present a continuous, attractive appearance. Each section has a separate and complete housing. The traffic signal meets or exceeds the latest version of the equipment standard from the Institute of Transportation Engineers' (ITE).

### At A Glance

- ▷ Tested to ITE required wind loading on single-point attachment
- ▷ Reversible door - left side standard, right side optional
- ▷ Doors equipped with two latches
- ▷ "Fast-on" tab terminal block
- ▷ Provisions for one five-position and one six-position terminal block in each housing
- ▷ Ethylene Propylene Diene Monomer (EPDM)



## Housing

The housing of each section is a one-piece molded, ultraviolet, and heat-stabilized polycarbonate unit. Two integrally-cast hinge lugs and latch screws are cast on each side of the housing. Built upon a symmetrical concept, each housing is capable of providing either right or left-hand door openings. While the left hinge is standard, the right hinge must be specified. The top and bottom of the housing have openings to accommodate standard 1½-inch pipe brackets. Each signal section is rigidly attached, one above the other, by means of corrosion-resistant bolts and a washer attachment that allows sections to be rotated about a vertical axis. Alternate means for attaching sections together are available. The housing consists of four matching punch-out locations on the top and bottom of each section to allow sections to be bolted together with four 1½-inch and 10-32 corrosion-resistant screws.

The top and bottom of the signal housing have an integrally-cast Shurlock boss. The radial angular grooves of the Shurlock boss, when used with Shurlock fittings, provide positive five-degree increment positioning of the entire signal head to eliminate rotation or misalignment of the signal. Each housing has molded bosses for one five and one six-position terminal block. Each housing has provisions for easily adding a back-plate. Hinge pins, door latching hardware, visor back-plate, and lens clip screws are high-quality stainless steel.

## Housing Door

The housing door of each section is a one-piece molded ultraviolet and heat-stabilized polycarbonate unit. Two hinge lugs are molded into one side and two latch jaws are molded onto the other side. The door is attached to the housing by means of two stainless steel hinge pins. Two stainless steel "eye" bolts and wing nuts on one side of the door allow for opening and closing the signal door without the use of any special tools. A gasket groove on the inside of the door accommodates a weatherproof and mildew-proof resilient gasket which, when the door is closed, seals flat against the housing, creating a positive seal. The outer face of the door has four metal threaded inserts, equally spaced about the circumference of the lens opening, with four screws to accommodate the signal head visors. The door and visor overlap to prevent light escaping between visor and door.

## Basic Specifications

- ▷ **Dimensions** - 14 in. H x 15¼ in. W x 7¾ in. D
- ▷ **Weight, typical:**
  - ◉ Single Section: 3.4lbs
- ▷ **Standard Colors:**
  - ◉ Dark Olive Green (matches Federal Standard 595b-14056)
  - ◉ Yellow (matches Federal Standard 595b-13538)
  - ◉ Dull Black (matches Federal Standard 595b-37038)

## Terminal Block

Each complete signal face is provided with a terminal block. The terminal block is placed in the bottom section, unless otherwise specified. The terminal block for a standard three-section head is a five-position, ten-terminal, barrier-type strip. To one side of each "Fast-on" terminal strip is the attached AC common, red, yellow, and green signal section leads, leaving the opposite screw clamp terminal for field wires.

## Visors

Visors are tunnel, full-circle, or cap, and are a minimum of ten inches long. Visors are molded from ultraviolet and heat-stabilized polycarbonate and include attaching tabs to facilitate installation.





# Advisor Guide Accessible Pedestrian Station (AGPS)



## Overview

Pedestrians are finding it more challenging to cross safely at signalized intersections. The Advisor AGPS provides important cues to assist all pedestrians to cross the intersection safely by providing audible, tactile, and visual indications at the crosswalk.

A locator tone tells a pedestrian that the crossing is equipped with APS and where it can be found. The acknowledgement tone and visual LED indication accompany a pedestrian call. An extended press provides specific intersection information and access to additional functions. The walk tone or message is accompanied by a vibro-tactile indication during the visual walk display. Optional clearance phase indications may provide additional information to the pedestrian where appropriate. All volumes are controlled by AGC.

## FEATURES

- Data Collection
- Night Mode Volume
- Sound Directionality
- Adjustable Station Angle

## KEY BENEFITS

- Independent Locations
- 4-wire Interface
- Configuration Templates
- Event Tracking Log
- Ped Count / Call Data
- USB Interface
- Simple Menu Utility
- NEMA TS 2 Certified
- Meets MUTCD Guidelines

## Independent Station

AGPS is independent, one pedestrian display requires one AGPS. There are no additional devices in the cabinet. Simple, easy to install, robust in operation.

## Agency Benefits

The Advisor Guide (AGPS) is designed around flexibility and ease of use. Each station is configured at the factory, although customization and data extraction are simple. Software with GUI interfaces guide technicians through programming and configurations with roll over help menus. Night mode volume controls, along with forward facing speakers, incorporate Quiet Signals Technology to accommodate residential and evening business considerations. Our "mounting buttons" adjust the angle of the arrow on the actuator to point at the crossing destination point. Agencies can identify specific parameters for residential, retail, and industrial areas and save them as a configuration templates. Campbell's SFP hand held programmer allows one button press configuration.

AGPS is designed to also work properly with:

- RRFBs,
- Solar Mid-Block crossings
- Passive pedestrian detectors
- Non-pedestrian actuated downtown core areas



Verisys  
Registrars®  
ISO 9001:2008  
Certified





AGPS 915

Configuration	Type
Interface	Windows Utility
Audio File update	USB
Data Format	CSV
Firmware Upgrade	USB

SPI



Adjustment Buttons

Parameter ( SPI)	Rating
Input voltage	85 -135 VAC 220 VAC
Output voltage	12V DC
Connection	4 wire
Dimension	2 3/4 x 3 1/2 x 1 7/8"



AGPS 400

## Installation

AGPS is ready to mount, out of the box, a four conductor cable connects to the Signal Power Interface (SPI) in the pedestrian signal head.

Aesthetically pleasing extension brackets and mounting hardware are available allowing stations to be mounted within accessibility guidelines.

## Technical Specification

Parameter	
BS Size	5 x 12 x 1 3/4 "
BS Weight	7.0 lbs
AGPS 400	5 X 9" Rectangle Insert
Power (rest)	2.2W @ 120 VAC
Current (rest)	18 mA @ 120 VAC
Max Power	8.4 W
Switch life	100 x 10 <sup>6</sup>
Operational force	< 3lbf
Operating Temp Range	-40C to +85C
Max Volume	100dB @ 1m
AGC Range	Adjustable 0 – 5dB over ambient
Audio Output Options	Default plus 4 options
LED	3000 mcd , 160 degree viewing angle
Volume control	Fully adjustable, independent channels
Reporting	Pedestrian Usage, Event Logging, System Evaluation
Synchronicity	Beaconing, Group Walk
Night Mode	Volume, Recall, or complete configuration.
Selectable Options (options selected via lap top USB connection via a menu drive utility)	EP APS, Vib Pulse Call, Recall, Beaconing, Group Walk, Walk time out, Locator Tempo, EP Time, Vib Intensity
Sign Sizes	5 X 7 3/4", 5 X 9", 9 X 12 ", 9 X 15"
Warranty	3 year
Test Type	Compliance
Functionality	MUTCD 4E, TAC
Transient Voltage Protection Mechanical Shock and Vibration	NEMA TS2

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Additional information can be found at: [www.pedsafety.com](http://www.pedsafety.com)



# PS-250

## Heavy Duty Cabinet Power Supply

The ideal power source when using high current devices such as video detection cards.

The PS-250 Cabinet Power Supply is a shelf mounted unit which supplies regulated DC power, unregulated AC power, and a line frequency reference for the Detector Rack, BIUs, load switches, and other auxiliary equipment. The PS-250 meets and/or exceeds all requirements of the NEMA TS2-2003 (R2008) Standard.

All TS-2 Type 1 cabinet assemblies require the use of this unit as well as any TS-2 Type 2 cabinet assemblies that utilize Bus Interface Units (BIU).

Each EDI PS-250 Cabinet Power Supply is put through a rigorous three part Total Quality Assurance program and tested under the extreme environmental conditions experienced on the street. It is this commitment to quality and performance that EDI products are known for, providing years of trouble free operation.

### PS-250 OPERATIONAL FEATURES

**Basic Functions:** The PS-250 provides four outputs rated over the full -30°F to 165°F (-34°C to +74°C) Nema operating temperature range:

- +12 VDC rated at 5 Amps
- +24 VDC rated at 3 Amps
- 12 VAC rated at 0.25 Amps
- 60 Hz Line Frequency Reference rated at 50 mAmps
- Input Voltage Operating Range is 89 Vac to 135 Vac at 50/60 Hz
- Power Factor Corrected

**Display Indicators:** A separate LED indicator is provided to display output status and fuse integrity for the four supply outputs. The Line Frequency Reference LED indicator pulses to show 60 Hz activity.

**Input / Output Pins:**

Pin	Function
A	AC Neutral
B	Line Frequency Reference Output
C	AC Line Input
D	+12 VDC Output
E	+24 VDC Output
F	Reserved
G	Logic Ground
H	Earth Ground
I	12 VAC Output
J	Reserved

**Test Points:** Individual test jacks are provided for the +12 VDC output, +24 VDC output, and Logic Ground reference.

**Output Protection:** The +12 VDC, +24VDC, and 12 VAC outputs are fused for over-current protection. Each output is protected against voltage transients by a 1500 Watt suppressor.

**Dimensions:** Compact Size: 6.0 inches High x 4.0 inches Wide x 8.4 inches Deep

#### EBERLE DESIGN INC.

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

Tel (480) 968-6407  
Fax (602) 437-1998



# AP21 SERIES TIME SWITCH

WVDOH Solicitation CRFQ 0803 DOT1700000094  
 Item #44  
 Qty. 5



**AP21**  
 AC/DC Powered



**AP21T**  
 AC/DC Powered  
 with Program Transfer



**AP21TR**  
**AP21TRDC**  
 Compact Size: 2" x 2 1/2" x 4"

- 16-character, alpha-numeric, Liquid Crystal Display (LCD)
- Daylight Savings Time entered from the keyboard
- 48-hour capacitive back-up, no batteries
- Auto Prompt for user friendly programming
- 16 Powerful Program Steps
- 10 Skip Plans for Holidays
- 15 Amp relay output
- Program Transfer from unit to unit (AP21T & AP21TR)
- Laptop Computer Programmable using the 21PC Software
- AP21's are AC/DC, AP21T's are AC/DC, ← AP21TR's are AC only AP21TRDC's are DC only
- Smallest Time Switch ever built for Traffic Applications (AP21TR)

# RTC

RTC Manufacturing, Inc.

"Serving the traffic signal industry since 1987."

[www.rtc-traffic.com](http://www.rtc-traffic.com)

# AP21 SERIES TIME SWITCH

The family of AP21's are single circuit, calendar programmable solid state time switches. They are used for switching electric circuits according to a pre-set time and date program. The AP21's AUTO PROMPTING alpha-numeric display makes programming fast and simple. Program transfer can be accomplished by using a Laptop Computer or an AP21T. The AP21TR is only 2" x 2 1/2" x 4" making it the smallest time switch ever designed specifically for traffic applications. The AP21 and AP21T draw their power from any 120VAC or 12VDC supply. The AP21TR is 120VAC powered and the AP21TRDC is 12VDC powered.

## STANDARD FEATURES

- 16 character, alpha-numeric, easy to read **Liquid Crystal Display** (LCD). Optional back-lit display available.
- **Automatic Daylight Savings Time** (DST) compensation.
- DST data entered from keyboard - **makes future DST changes quick and easy.**
- Time of Day entered in **12-hour format.**
- Automatic Leap Year compensation.
- 48-hour capacitive memory back-up - **no batteries to replace.**
- The display "Auto Prompts" the operator through the programming process - **very user friendly.**
- **16 powerful program steps.**
- Single Day, Week End, Week Day, or Every Day programming capability for each program step.
- **10 Skip Plans** - Each skip plan prevents the time switch output from activating on a specific day or consecutive days.
- **Program Transfer** from one AP21T to another, or from an AP21T to an AP21TR (AC or DC).
- **Laptop Computer Programmable** - using the 21PC Software.
- SPDT **Relay Output rated at 15 Amps** at 115 VAC resistive load.
- AP21 and AP21T's work on **120VAC and 12VDC** power sources.

## SPECIFICATIONS

Display . . . . .16 character, Alpha-Numeric,  
Liquid Crystal Display (LCD),  
Back-lit Display Optional

Keyboard . . . . .16 Key, Positive Action Push Button

Back-up Power . . . . .48 Hour Capacitive

Electrical Connection . . .Terminal Block (#12 to #20 AWG)  
or CPC Connector with Harness (optional)

Output. . . . . SPDT Relay Rated at 15 Amps  
115 VAC Resistive Load

Line Voltage . . . . .95 to 135VAC, 60 HZ and 12VDC

Time Base . . . . . AC Powered (power line)  
Back-up and DC Powered +/- .005% Crystal

Size . . . . .7.6"h x 3.7"w x 1.55"d (AP21)  
8.0"h x 3.7"w x 1.55"d (AP21T)  
2.0" x 2.5" x 4.0" (AP21TR)

Temperature Range. . . . . -30 to +74 Degrees C

## ORDERING INFORMATION

Part Number	Description
AP21	Single Circuit Time Switch
→ AP21T	Single Circuit Time Switch with Transfer
AP21TR	Single Circuit Time Switch (2" x 2.5" x 4")
AP21TRDC	12VDC Version of AP21TR
21PC	Laptop Programming Software & Cables
EL	Electro-Luminescent (back-lit) Display
21048	CPC Connector with 48" Wiring Harness
21072	CPC Connector with 72" Wiring Harness
91107	Program Transfer Cable

NOTE: All AP21 and AP21T's are AC and DC powered,  
AP21TR is AC and AP21TRDC is DC powered.

## RTC Manufacturing, Inc.

# RTC

P. O. Box 150189 \* Arlington, TX 76015  
**(800) 782-8721 (817) 860-1217**  
(800) 448-8850 fax (817) 274-3610 fax

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[www.rtc-traffic.com](http://www.rtc-traffic.com)



# DATA SHEET

## SSF-86-3



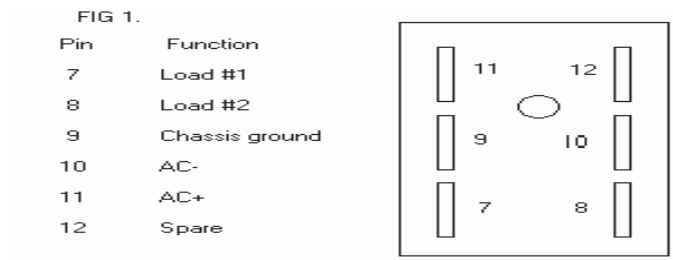
WVDOH Solicitation CRFQ 0803 DOT170000094  
 Item #48  
 Qty. 5

### Solid State Flasher:

#### Description:

The PDC model SSF-86 solid state flasher is a dual circuit flasher designed for the Traffic Control Industry. This unit is conservatively rated up to 20 A per circuit. The flash rate is 56.25 flashes per minute and does not vary due to voltage or temperature variations. With the zero voltage switching design, there are no contacts to wear out or deteriorate due to arcing or corrosion. Also, extended life of the bulbs can be expected as well as reduced Radio Frequency Interference (RFI). The extruded aluminum heatsink provides more than adequate heat dissipation.

### Connector Pinout:



Mates with a Beau P-5406-LAB or equivalent

### Electrical Characteristics:

Zero voltage turn on-----	0V +5 degrees
Zero voltage turn off-----	0A +5 degrees
Tungsten Lamp or Gas Tubing Transformer load-----	Up to 20 A max.
Operating Voltage-----	60-135 VAC
Mechanical-----	Length.....8.40 inches
	Width.....1.70 inches
	Height.....4.18 inches
	Weight.....1.135 lbs

Operating Temperature : Full load from -35 to +74 degrees C

Guarantee: The flasher is fully guaranteed against all failures due to manufacturing defects for two years.

