

DATE: 7/20/2017

INVITATION TO BID
THIS IS NOT AN ORDER

Page: 1

BID NO.: 50-00120382

JEFFERSON PARISH
PURCHASING DEPARTMENT
P.O. BOX 9
GRETNA, LA. 70054-0009
504-364-2678

VENDOR: 27118 BLANK BID COPY VENDOR

BUYER: DMEVANS@jeffparish.net

Bids will be received until 11:00 AM, 7/26/2017 via online at www.jeffparishbids.net or by hand delivery, USPS mail or other courier service to Purchasing Department, 200 Derbigny Street (General Government Building), Suite 4400, Gretna, LA 70053. For convenience, bidders may also submit bids in the East Bank Purchasing Department, Suite 404, Jefferson Parish Joseph S. Yenni Building, 1221 Elmwood Park Blvd., Jefferson LA 70123. However, if submitting bids on the day of bid opening, bidders must submit at the West Bank location only.

All bids submitted are subject to these instructions and general conditions and any special conditions and specifications contained herein, all of which are made part of this bid proposal reference. By submitting a bid, vendor agrees to comply with all provisions of Louisiana Law, as well be in compliance with the Jefferson Parish Code of Ordinances, Louisiana Code of Ethics, applicable Jefferson Parish ethical standards and Jefferson Parish Resolution No. 113646 and/or Resolution No. 113647. A copy of these resolutions may be obtained from the Office of the Parish Clerk, Suite 6700, Jefferson Parish General Government Building, 200 Derbigny Street, Gretna, LA 70053. You may also obtain a copy by visiting the Purchasing Department webpage at purchasing.jeffparish.net and clicking on On-line forms.

All vendors submitting bids should register as a Jefferson Parish vendor if not already yet registered. Registration forms may be downloaded from <http://purchasing.jeffparish.net> and by clicking on Vendor Information. Current W-9 forms with respective Tax Identification numbers and vendor applications may be submitted at any time; however, if your company is not registered and/or a current W-9 form is not on file, vendor registration is mandatory. Further, a current W-9 form and respective Tax Identification number must be supplied upon contract execution, should you be awarded a contract and/or issued purchase order. Failure to do so may result in delay of payment.

As per LSA-RS 47:301 et seq., all governmental bodies are excluded from payment of sales taxes to any Louisiana taxing body. Quotations shall be based on F.O.B. Delivered, anywhere within the Parish as designated by the Purchasing Department. JEFFERSON PARISH WILL ACCEPT ONE BID ONLY FROM EACH VENDOR. Items bid must meet specifications. JEFFERSON PARISH will accept one price for each item unless otherwise indicated. Two or more prices for one item will result in bid rejection. Bidders are required to complete, sign and return the bid form and/or complete and return the associated line item pricing forms as indicated. The price quoted for work shall be stated in figures. In the event there is a difference in unit prices and totals, the unit prices shall prevail.

JEFFERSON PARISH reserves the right to award contracts or place orders on a lump sum or individual item basis, or such combination, as shall in its judgment be in the best interest of JEFFERSON PARISH. Every contract or order shall be awarded to the LOWEST RESPONSIVE and RESPONSIBLE BIDDER, taking into consideration the CONFORMITY WITH THE SPECIFICATIONS and the DELIVERY AND/OR COMPLETION DATE

PROTESTS: Only those vendors that submitted a bid in response to this solicitation may submit a protest in writing to the Director of the Purchasing within 48 hours of bid opening. The Purchasing Director will review it in connection with the Parish Attorney's Office as appropriate and a written response will be provided as soon as possible.

JEFFERSON PARISH reserves the right to cancel all or any part of an order if not shipped promptly. No charges will be allowed for parking or cartage unless specified in the quotation. The order must not be filled at a higher price than quoted. JEFFERSON PARISH reserves the right to cancel at any time and for any reason by issuing a THIRTY (30) day written notice to the contractor.

JEFFERSON PARISH requires all products to be new (current) and all work must be performed according to standard practices for the project. Unless otherwise specified, no aftermarket parts will be accepted. Unless otherwise specified, all workmanship and materials must have at least one (1) year warranty, in writing, from the date of delivery and/or acceptance of the project. Any deviations or alteration from the specifications must be indicated on the bid form for each item and upon request, product data for same must be submitted by the time specified by the Purchasing Department.

If this bid requires a pre-bid conference (see Additional Requirements section), bidders are advised that such conference will be held to allow bidders the opportunity to identify any discrepancies in the bid specifications and seek further clarification regarding instructions. The Purchasing Department will issue a written response to bidders' questions in the form of an Addendum.

All formal Addenda require written acknowledgment on the bid form by the bidder. Failure to acknowledge an Addendum on the bid form shall cause the bid to be rejected; JEFFERSON PARISH reserves the right to award bid to next lowest responsive and responsible bidder in this event.

USE OF BRAND NAMES AND STOCK NUMBERS: Where brand names and stock numbers are specified, it is for the purpose of establishing certain minimum standards of quality. Bids may be submitted for products of equal quality, provided brand names and stock numbers are specified. Complete product data may be required prior to award.

Quantities listed are for bidding purposes only. Actual requirements may be more or less than quantities listed.

Bidders are not to exclude from participation in, deny the benefits of, or subject to discrimination under any program or activity, any person in the United States on the grounds of race, color, national origin, or sex; nor discriminate on the basis of age under the Age Discrimination Act of 1975, or with respect to an otherwise qualified handicapped individual as provided in Section 504 of the Rehabilitation Act of 1973, or on the basis of religion, except that any exemption from such prohibition against discrimination on the basis of religion as provided in the Civil Rights Act of 1964, or Title VI and VII of the Act of April 11, 1968, shall also apply. This assurance includes compliance with the administrative requirements of the Revenue Sharing final handicapped discrimination provisions contained in Section 51.55 (c), (d), (e), and (k)(5) of the Regulations. New construction or renovation projects must comply with Section 504 of the 1973 Rehabilitation Act, as amended, in accordance with the American National Standard Institute's specifications (ANSI A117.1-1961).

Jefferson Parish and its partners as the recipients of federal funds are fully committed to awarding a contract(s) to firm(s) that will provide high quality services and that are dedicated to diversity and to containing costs. Thus, Jefferson Parish strongly encourages the involvement of minority and/or woman-owned business enterprises (DBE's, including MBE's, WBE's and SBE's) to stimulate participation in procurement and assistance programs.

INSTRUCTIONS FOR BIDDERS AND GENERAL CONDITIONS

IN ACCORDANCE WITH STATE REGULATIONS JEFFERSON PARISH OFFERS ELECTRONIC PROCUREMENT TO ALL VENDORS

This electronic procurement system allows vendors the convenience of reviewing and submitting bids online. This is a secure site and authorized personnel have limited read access only. Bidders are encouraged to submit electronically using this free service; while the website accepts various file types, one single PDF file containing all appropriate and required bid documents is preferred. Bidders submitting uploaded images of bid responses are solely responsible for clarity. If uploaded images/documents are not legible, then bidder's submission will be rejected. Please note all requirements contained in this bid package for electronic bid submission.

Please visit our E-Procurement Page at www.jeffparishbids.net to register and view Jefferson Parish solicitations. For more information, please visit the Purchasing Department page at <http://purchasing.jeffparish.net>.

ADDITIONAL REQUIREMENTS FOR THIS BID

PLEASE MATCH THE NUMBERS PRINTED IN THIS BOX WITH THE CORRESPONDING INSTRUCTIONS BELOW.

13

1. All bidders must attend the MANDATORY pre-bid conference and will be required to sign in and out as evidence of attendance. In accordance with LSA R.S. 38:2212(l), all prospective bidders shall be present at the beginning of the MANDATORY pre-bid conference and shall remain in attendance for the duration of the conference. Any prospective bidder who fails to attend the conference or remain for the duration shall be prohibited from submitting a bid for the project.
2. Attendance to this pre-bid conference is optional. However, failure to attend the pre-bid conference shall not relieve the bidder of responsibility for information discussed at the conference. Furthermore, failure to attend the pre-bid conference and inspection does not relieve the successful bidder from the necessity of furnishing materials or performing any work that may be required to complete the work in accordance with the specification with no additional cost to the owner.
3. Contractor must hold current applicable JEFFERSON PARISH licenses with the Department of Inspection and Code Enforcement. Contractor shall obtain any and all permits required by the JEFFERSON PARISH Department of Inspection and Code Enforcement. The contractor shall be responsible for the payment of these permits. All permits must be obtained prior to the start of the project. Contractor must also hold any and all applicable Federal and State licenses. Contractor shall be responsible for the payment of these permits and shall obtain them prior to the start of the project.
4. A LA State Contractor's License will be required in accordance with LSA R.S. 37-2150 et. seq. and such license number will be shown on the outside of the bid envelope. Failure to comply will cause the bid to be rejected. Additionally if submitting the bid electronically, then the license number must be entered in the appropriate field in the Electronic Procurement system. Failure to comply will cause the bid to be rejected.
5. It is the bidder's responsibility to visit the job site and evaluate the job before submitting a bid.
6. Job site must be clean and free of all litter and debris daily and upon completion of the contract. Passageways must be kept clean and free of material, equipment, and debris at all times. Flammable material must be removed from the job site daily because storage will not be permitted on the premises. Precautions must be exercised at all times to safeguard the welfare of JEFFERSON PARISH and the general public.

INSTRUCTIONS FOR BIDDERS AND GENERAL CONDITIONS

7. PUBLIC WORKS BIDS: All awards for public works in excess of \$5,000.00 will be reduced to a formal contract which shall be recorded at the contractor's expense with the Clerk of Court and Ex-Officio Recorder of Mortgages for the Parish of Jefferson. A price list of recordation costs may be obtained from the Clerk of Court and Ex-Officio Recorder of Mortgages for the Parish of Jefferson. All awards in excess of \$25,000.00 will require both a performance and a payment bond. Unless otherwise stated in the bid specifications, the performance bond requirements shall be 100% of the contract price. Unless otherwise state in the bid specifications, the payment bond requirements shall be 100% of the contract price. Both bonds shall be supplied at the signing of the contract.
8. NON-PUBLIC WORKS BIDS: A performance bond will be required for this bid. The amount of the bond will be 100% of the contract price unless otherwise indicated in the specifications. The performance bond shall be supplied at the signing of the contract.
9. NON-PUBLIC WORKS BIDS: A payment bond will be required for this bid. The amount of the bond will be 100% of the contract price unless otherwise indicated in the specifications. The payment bond shall be supplied at the signing of the contract.
10. Unless otherwise stated in the bid specifications, the successful bidder will be required to procure standard insurance policies evidencing Parish-mandated insurance requirements as indicated on the attached "insurance requirements" sheet. All bidders must comply with the instructions in this sheet. Failure to comply will cause bid to be rejected.
11. A bid bond will be required with bid submission in the amount of 5% of the total bid, unless otherwise stated in the bid specifications. Acceptable forms shall be limited to cashier's check, certified check, or surety bid bond. All sureties must be in original format (no copies). If submitting a bid online, vendors must submit an electronic bid bond through the respective online clearinghouse bond management system(s) as indicated in the electronic bid solicitation on Central Auction House. No scanned paper copies of any bid bond will be accepted as part of the electronic bid submission.
12. This is a requirements contract to be provided on an as needed basis. JEFFERSON PARISH makes no representations on warranties with regard to minimum guaranteed quantities unless otherwise stated in the bid specifications.
13. Freight charges should be included in total cost when quoting. If not quoted FOB DELIVERED, freight must be quoted as a separate item. Bid may be rejected if not quoted FOB DELIVERED or if freight charges are not indicated on bid form.
14. PUBLIC WORKS BIDS - Completed, Signed and Properly Notarized Affidavits Required; This applies to all solicitations for construction, alteration or demolition of public buildings or projects, in conformity with the provisions contained in LSA-RS 38:2212.9, LSA-RS 38:2212.10, LSA-RS 38:2224, and Sec 2-923.1 of the Jefferson Parish Code of Ordinances. For bidding purposes, all bidders must submit with bid submission COMPLETED, SIGNED and PROPERLY NOTARIZED Affidavits, including: Non-Collusion Affidavit, Non-Collusion Affidavit, Campaign Contribution Affidavit, Debt Disclosures Affidavit and E-Verify Affidavit. For the convenience of vendors, all affidavits have been combined into one form entitled PUBLIC WORKS BID AFFIDAVIT. This affidavit must be submitted in its original format, and without material alteration, in order to be compliant and for the bid to be considered responsive. A scanned copy of the completed, signed and properly notarized affidavit may be submitted with the bid, however, the successful bidder must submit the original affidavit in its original format and without material alteration upon contract execution. Failure to comply will result in the bid submission being rejected as non-responsive. The Parish reserves the right to award bid to the next lowest responsive and responsible bidder in this event.
15. NON PUBLIC WORK BIDS - Completed, Signed and Properly Notarized Affidavits Required in conformity with the provisions contained in LSA - RS 38:2224 and Sec 2-923.1 of the Jefferson Parish Code of Ordinances. For bidding purposes, all bidders must submit with bid submission COMPLETED, SIGNED and PROPERLY NOTARIZED Affidavits, including: Non-Collusion Affidavit, Debt Disclosures Affidavit and Campaign Contribution Affidavit. For the convenience of vendors, all affidavits have been combined into one form entitled NON PUBLIC WORKS BID AFFIDAVIT. This affidavit must be submitted in its original format, and without material alteration, in order to be compliant and for the bid to be considered responsive. A scanned copy of the completed, signed and properly notarized affidavit may be submitted with the bid, however, the successful bidder must submit the original affidavit in its original format and without material alteration upon contract execution. Failure to comply will result in the bid submission being rejected as non-responsive. The Parish reserves the right to award bid to the next lowest responsive and responsible bidder in this event.
16. The ensuing contract for this bid solicitation may be eligible for FEMA reimbursement and/or Federal funding/reimbursement. As such, the referenced appendix will be applicable accordingly and shall be considered a part of the bid documents. All applicable certifications must be duly completed, signed and submitted with bid submission. Failure to submit applicable certifications with bid submission will result in bid rejection.

It shall be the duty of every parish officer, employee, department, agency, special district, board, and commission; and the duty of every contractor, subcontractor, and licensee of the parish, and the duty of every applicant for certification of eligibility for a parish contract or program, to cooperate with the Inspector General in any investigation, audit, inspection, performance review, or hearing pursuant to Jefferson Parish Code of Ordinances Section 2-155.10(19). By submitting a bid, vendor acknowledges this and will abide by all provisions of the referenced Jefferson Parish Code of Ordinances.

DATE: 7/20/2017

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Page: 4

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JEFFERSON PARISH

PURCHASING DEPARTMENT
P.O. BOX 9
GRETNA, LA. 70054-0009
504-364-2678

VENDOR: 27118 BLANK BID COPY VENDOR

BUYER: DMEVANS

As per LSA-RS 47:301 et seq., all governmental bodies are excluded from payment of sales taxes to any Louisiana taxing body. Quotations shall be based on F.O.B. Agency warehouse or jobsite, anywhere within the Parish as designated by the Purchasing Department.

JEFFERSON PARISH reserves the right to cancel all or any part of an order if not shipped promptly. No charges will be allowed for parking or cartage unless specified in quotation. The order must not be filled at a higher price than quoted. JEFFERSON PARISH reserves the right to cancel at any time and for any reason by issuing a THIRTY (30) day written notice to the contractor.

JEFFERSON PARISH is expecting all products to be new and all work to be done in workman-like manner, according to standard practices. Any deviations or alteration from the specifications must be indicated on the bid form for each item and upon request, product data for same must be submitted by the time specified by the Purchasing Department.

DELIVERY: FOB JEFFERSON PARISH	
INDICATE DELIVERY DATE ON EQUIPMENT AND SUPPLIES	<u>3 week lead time</u>
INDICATE STARTING TIME (IN DAYS) FOR CONSTRUCTION WORK	_____
INDICATE COMPLETION TIME (IN DAYS) FOR CONSTRUCTION WORK	_____

In the event that addenda are issued with this bid, bidders MUST acknowledge all addenda on the bid form. Bidder must acknowledge receipt of an addendum on the bid form as indicated. Failure to acknowledge any addendum on the bid form will result in bid rejection.

Acknowledge Receipt of Addenda: NUMBER: _____

NUMBER: _____

NUMBER: _____

NUMBER: _____

LOUISIANA CONTRACTOR'S LICENSE NO.: (if applicable) 164

*** ALL BIDDERS MUST COMPLETE SECTION BELOW ***	
FIRM NAME: TRAFFIC SOLUTIONS INC	
SIGNATURE: (Must be signed here)	TITLE: President
PRINT OR TYPE NAME: Stacy Seamon	
ADDRESS: 2950 St Anthony Ave	
CITY, STATE: New Orleans	ZIP: 70122
TELEPHONE: (504) 948-4809	FAX: (504-948-4802
EMAIL ADDRESS: stacy@trafficsolutionsinc.net	

TOTAL PRICE OF ALL BID ITEMS: \$ 8920.00

INVITATION TO BID FROM JEFFERSON PARISH - continued

BID NO.: 50-00120382

SEALED BID

ITEM NUMBER	QUANTITY	U/M	DESCRIPTION OF ARTICLES	UNIT PRICE QUOTED	TOTALS
1	2.00	EA	<p>ONE TIME PURCHASE OF A SOLAR POWERED 25 LAMP (LED) ARROW BOARD</p> <p>0010 Solar Power 25 Lamp (LED) Arrow Board. 48 inch x 96 inch All aluminum fabrication with black powder coat finish to give smooth look, 40 watts of solar, solar regulator with LVD to protect batteries from over discharge. 2 (two) 18 amp batteries, 5 (five) swivel type jacks (one on each end of the trailer plus one tongue jack MODEL - AT254896</p> <p>Ship to: Drainage 4901 Jefferson Hwy Suite D Jefferson, La</p> <p>Att: Latrenda McGhee 736-6645</p> <p><i>* Quoting Solar Tech 25 Lamp Arrowboard AB-0525 (SEE ATTACHED LITERATURE)</i></p>	<p>\$4410.00</p>	<p>\$8820.00</p>
2	.00		<p>Ship to: Eastbank Warehouse 4901 Jefferson Hwy Jefferson, La</p> <p>Signs are for Drainage Latrenda Mc Ghee 736-6645</p>	<p>50.00</p>	<p>100.00</p>



JEFFERSON PARISH

Department of Purchasing

Michael S. Yenni
Parish President

Brenda C. Patel
Director

CHANGES TO JEFFERSON PARISH BIDDING PROCEDURES

The East bank Office of Purchasing is now open! We are located in the Joseph S. Yenni Building, 1221 Elmwood Park Blvd., Suite 404, Jefferson, LA 70123. Bidders may submit bid responses at this location, pending authorization in each bid package. **Bidders should carefully read and must respond accordingly per the requirements of the bid packages. NOTE: Bidders submitting bids on the day of bid opening, bidders must submit at the West Bank location only.**

Other Changes Continued:

- For all advertised sealed bids, written evidence of signature authority must be included with bid submission.
- Current W9 Forms and vendor applications may be submitted at any time; however, if your company is not registered and/or a current W-9 form is not on file, a current W-9 form must be supplied upon contract execution, should you be awarded a contract and/or issued a purchase order.
- Upon contract execution, successful bidder must produce final insurance certificates per standard Jefferson Parish insurance requirements. Proof of insurance is required for bidding purposes. Bidders must read the insurance requirements attachment included in each bid package for specific instructions.

Bidders should reference the "Additional Requirements" section of the bid instructions and/or the "Important Notice to Bidders" included in the bid package for specific requirements to respond accordingly.

For more information, please call Jefferson Parish Purchasing at 504-364-2678.

General Government Bldg. – 200 Derbigny St – Suite 4400 - Gretna, LA 70053

Office 504.364.2678 – Fax 504.364.2693

Email: Purchasing@jeffparish.net Website: www.jeffparish.net

CORPORATE RESOLUTION

EXCERPT FROM MINUTES OF MEETING OF THE BOARD OF DIRECTORS OF
INCORPORATED.

AT THE MEETING OF DIRECTORS OF Traffic Solutions Inc
INCORPORATED, DULY NOTICED AND HELD ON May 1, 2017,
A QUORUM BEING THERE PRESENT, ON MOTION DULY MADE AND SECONDED. IT
WAS:

RESOLVED THAT Stacy Seamon, BE AND IS HEREBY
APPOINTED, CONSTITUTED AND DESIGNATED AS AGENT AND ATTORNEY-IN-
FACT OF THE CORPORATION WITH FULL POWER AND AUTHORITY TO ACT ON
BEHALF OF THIS CORPORATION IN ALL NEGOTIATIONS, BIDDING, CONCERNS
AND TRANSACTIONS WITH THE PARISH OF JEFFERSON OR ANY OF ITS AGENCIES,
DEPARTMENTS, EMPLOYEES OR AGENTS, INCLUDING BUT NOT LIMITED TO, THE
EXECUTION OF ALL BIDS, PAPERS, DOCUMENTS, AFFIDAVITS, BONDS, SURETIES,
CONTRACTS AND ACTS AND TO RECEIVE ALL PURCHASE ORDERS AND NOTICES
ISSUED PURSUANT TO THE PROVISIONS OF ANY SUCH BID OR CONTRACT, THIS
CORPORATION HEREBY RATIFYING, APPROVING, CONFIRMING, AND ACCEPTING
EACH AND EVERY SUCH ACT PERFORMED BY SAID AGENT AND ATTORNEY-IN-
FACT.

I HEREBY CERTIFY THE FOREGOING TO BE
A TRUE AND CORRECT COPY OF AN
EXCERPT OF THE MINUTES OF THE ABOVE
DATED MEETING OF THE BOARD OF
DIRECTORS OF SAID CORPORATION, AND
THE SAME HAS NOT BEEN REVOKED OR
RESCINDED.



SECRETARY-TREASURER

5/31/17

DATE



As Reliable as the Sun

Silent Sentinel Arrow Board 15 or 25 Lamp Models

USES AND ADVANTAGES

The "Silent Sentinel" Arrow Board is widely used for both construction and general traffic control. Sturdy and portable, this Arrow Board is available in 15 or 25 lamp configurations. The Arrow Board comes with a 96" w x 48" h display panel on a rugged steel trailer with a wide footprint for better stability, powered by a combination of solar panels and batteries. The torsion axle provides better ground clearance.

FREE REMOTE COMMUNICATION

Remote Access and GPS Tracking are now standard, thanks to the built-in GPS receiver and cellular transceiver with **FREE lifetime service**. Now you can:

- LOCATE your board via Command Center's maps
- SEE Battery Voltage from your desk
- SEE HISTORY of what was displayed and when

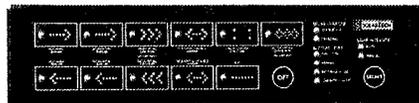


Free remote access plus our 5 Year Bumper-to-Bumper Warranty makes our Arrow Board **A Better Board**.

EASY-TO-USE CONTROLLER

Control module displays:

- Battery level
- Solar charger status
- Lamp intensity
- Cellular status
- GPS status



Arrow and warning patterns can be set with the press of a button. Automatic fault protection is built in.



OPTIONAL CONTROLLER:

SIDE RAIL MOUNTED CONTROLLER

Installed on side rail at eye level.

Access the controller without opening battery box.

Keep battery box locked - reduce theft.

Vehicle-mounted Arrow Boards are also available. See website for a handy Configuration Guide

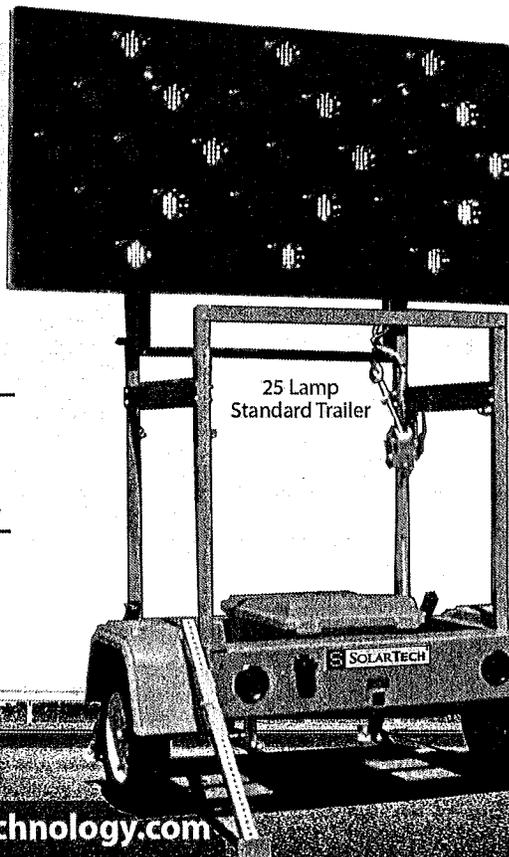


15 Lamp Models

Model	Solar Array
AB-0515	40 Watt
AB-0715	80 Watt

25 Lamp Models

Model	Solar Array
AB-0525	40 Watt
AB-0725	80 Watt



25 Lamp Standard Trailer



15 Lamp Standard Trailer with optional large rear crossmember

www.solartechnology.com

Silent Sentinel Arrow Board

DISPLAY

Panel Size	96" x 48" (244 cm x 122 cm)
Panel Construction	All aluminum with welded frame
Panel Finish	Matte black baked enamel finish
Lamp Intensity	1,000 Candela (typical), 750 Candela (min.)
Lamp Beam Angle	30° horizontal x 6° vertical (minimum)
Lamp Construction	LED (21 per lamp) in unbreakable sealed polycarbonate housing
Lamp Shrouds	360° high-impact plastic
Rear Panel Indicators	Three (3) LED

TRAILER

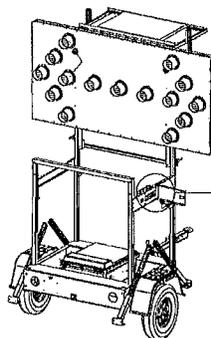
Length Overall	100" (254 cm)
Length	53" (135 cm) excluding tongue
Width Overall	96" (244 cm)
Width Across Fenders	75" (190 cm)
Height Traveling	92" (234 cm)
Height Operating	134" (340 cm)
Ground Clearance	13.5" (34 cm)
Weight (approx)	1,180 lbs. (535 kg)
Hitch	2" ball (50 mm) or 2.5" (64 mm) pintle ring
Lifting Mechanism	1,000 lb. (454 kg) capacity (minimum) automatic brake winch and cable

CONTROLLER

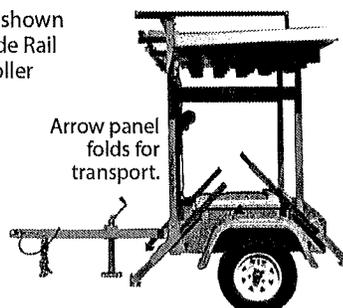
Controller Circuitry	Ultra-low power solid state
Lamp Patterns	All standard 15 & 25 lamp flashing & sequential
Lamp Flash Rate	30 per minute
Lamp Dimming	Manual and automatic
Lamp Dimming Ratio	50%, fully dimmed at approx. 5 footcandles
Lamp Power Drivers	Current limited and thermal overload protected with "soft start" feature
Voltage Disconnect	Low disconnect at 10.70 volts, high at 15.10 volts

ENERGY SOURCE

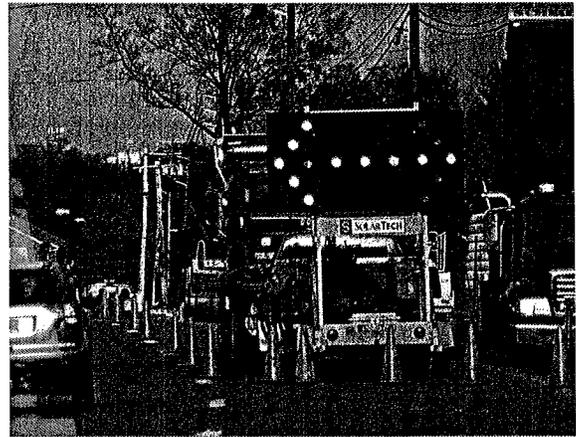
Operating Voltage	12 Volts DC (nominal)
Battery Type	6 Volt heavy duty, deep cycle (GC-2) protected by anti-theft steel security frame and hardware
Number of Batteries	Two (2) standard lead acid (flooded)
with Auxiliary Batteries	Four (4) standard lead acid (flooded)
Battery Capacity	260 amp hours
with Auxiliary Batteries	520 amp hours
Battery Status Indicator	Displays battery voltage, charging activity and low battery condition
Battery Security	Anti-theft steel battery frame bolted to trailer
Solar Array Construction	Top-mounted solar panels in aluminum frame
Solar Array Power Output	40 or 80 watts - field-upgradable
Solar Charge Controller	Fully automatic, temperature compensated



15-Lamp model shown with optional Side Rail Mounted Controller



Arrow panel folds for transport.



AVAILABLE OPTIONS

BATTERY UPGRADES

- Four (4) standard Flooded
- Two (2) maintenance-free Gel Cell or AGM
- Two (2) maintenance-free Gel Cell or AGM

AUXILIARY BATTERY CHARGERS

- 45 amp, 120 volt AC line-powered: recharges batteries in less than 9 hours

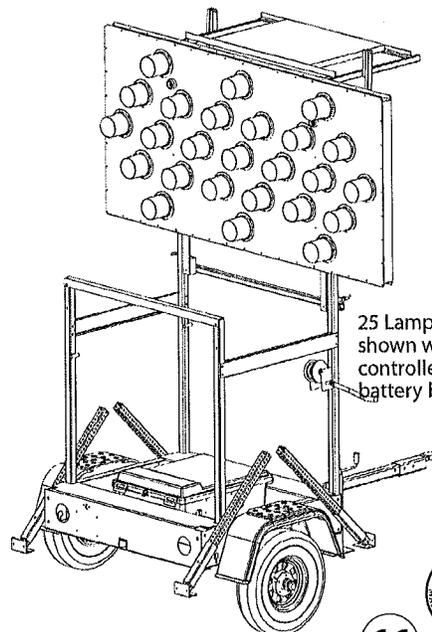
OPTIONAL SIDE-MOUNT CONTROLLER

Side-Mount Controller brings controls to eye-level and away from battery box

OTHER OPTIONS

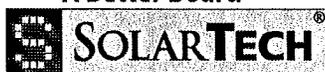
Security: Vandal-Proof Battery Box reinforced steel cage
Brakes: Electric Brakes
Custom Colors and Canadian versions available

All models meet or exceed the standards for Flashing Arrow Panels as listed in the U.S. Federal Highway Administration (FHWA) Manual on Uniform Traffic Control Devices (MUTCD).



25 Lamp model shown with controller in battery box

A Better Board



SOLAR TECHNOLOGY, INC.

7620 Cetronia Rd. Allentown, PA 18106
Phone: 800-475-5442 or 610-391-8600

P/N 500-025-010 Rev. F 2017

www.solartechology.com



Made in the USA



As Reliable as the Sun

Silent Sentinel Arrow Board

15 or 25 Lamp Models

USES AND ADVANTAGES

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Remote Access and GPS Tracking are now standard, thanks to the built-in GPS receiver and cellular transceiver with **FREE lifetime service**. Now you can:

- LOCATE your board via Command Center's maps
- SEE Battery Voltage from your desk
- SEE HISTORY of what was displayed and when

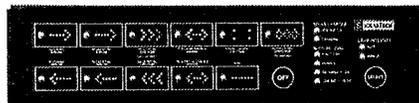
Free remote access plus our 5 Year Bumper-to-Bumper Warranty makes our Arrow Board **A Better Board**.



EASY-TO-USE CONTROLLER

Control module displays:

- Battery level
- Solar charger status
- Lamp intensity
- Cellular status
- GPS status



Arrow and warning patterns can be set with the press of a button. Automatic fault protection is built in.



OPTIONAL CONTROLLER:

SIDE RAIL MOUNTED CONTROLLER

Installed on side rail at eye level.

Access the controller without opening battery box.

Keep battery box locked - reduce theft.

Vehicle-mounted Arrow Boards are also available. See website for a handy Configuration Guide

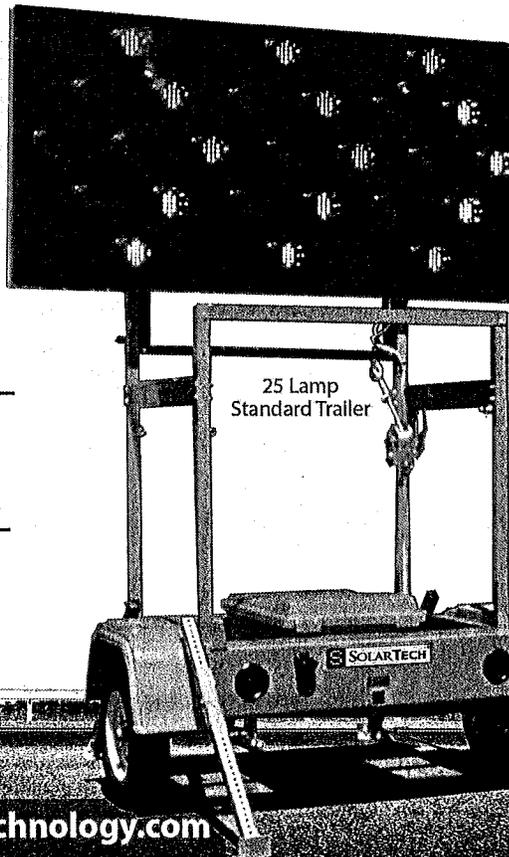


15 Lamp Models

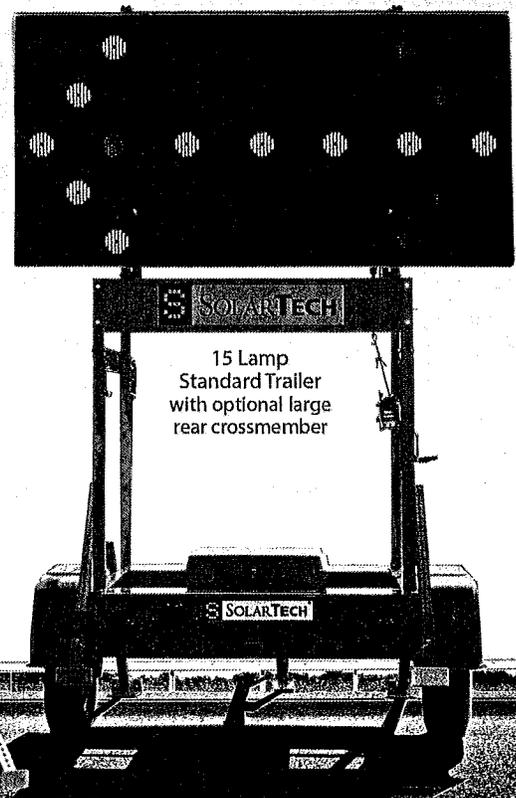
Model	Solar Array
AB-0515	40 Watt
AB-0715	80 Watt

25 Lamp Models

Model	Solar Array
AB-0525	40 Watt
AB-0725	80 Watt



25 Lamp Standard Trailer



15 Lamp Standard Trailer with optional large rear crossmember

www.solartechology.com

Silent Sentinel Arrow Board

DISPLAY

Panel Size	96" x 48" (244 cm x 122 cm)
Panel Construction	All aluminum with welded frame
Panel Finish	Matte black baked enamel finish
Lamp Intensity	1,000 Candela (typical), 750 Candela (min.)
Lamp Beam Angle	30° horizontal x 6° vertical (minimum)
Lamp Construction	LED (21 per lamp) in unbreakable sealed polycarbonate housing
Lamp Shrouds	360° high-impact plastic
Rear Panel Indicators	Three (3) LED

TRAILER

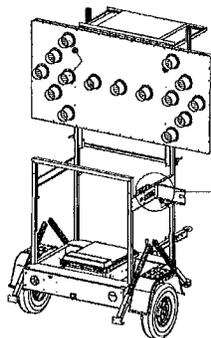
Length Overall	100" (254 cm)
Length	53" (135 cm) excluding tongue
Width Overall	96" (244 cm)
Width Across Fenders	75" (190 cm)
Height Traveling	92" (234 cm)
Height Operating	134" (340 cm)
Ground Clearance	13.5" (34 cm)
Weight (approx)	1,180 lbs. (535 kg)
Hitch	2" ball (50 mm) or 2.5" (64 mm) pintle ring
Lifting Mechanism	1,000 lb. (454 kg) capacity (minimum) automatic brake winch and cable

CONTROLLER

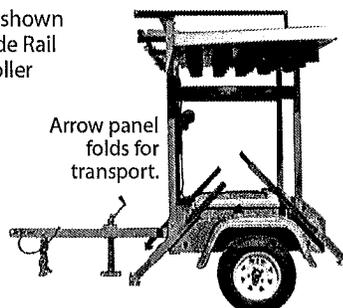
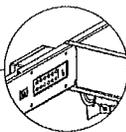
Controller Circuitry	Ultra-low power solid state
Lamp Patterns	All standard 15 & 25 lamp flashing & sequential
Lamp Flash Rate	30 per minute
Lamp Dimming	Manual and automatic
Lamp Dimming Ratio	50%, fully dimmed at approx. 5 footcandles
Lamp Power Drivers	Current limited and thermal overload protected with "soft start" feature
Voltage Disconnect	Low disconnect at 10.70 volts, high at 15.10 volts

ENERGY SOURCE

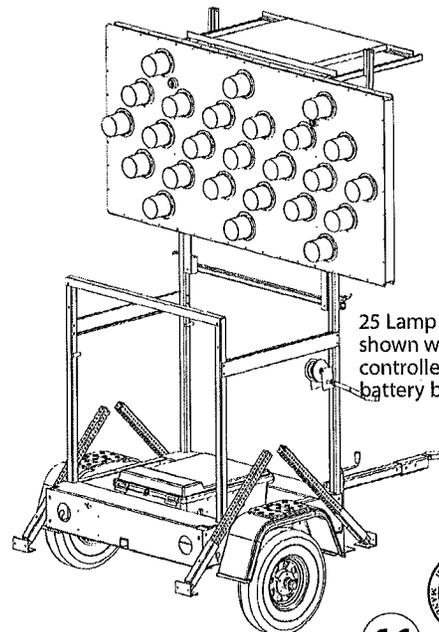
Operating Voltage	12 Volts DC (nominal)
Battery Type	6 Volt heavy duty, deep cycle (GC-2) protected by anti-theft steel security frame and hardware
Number of Batteries	Two (2) standard lead acid (flooded)
with Auxiliary Batteries	Four (4) standard lead acid (flooded)
Battery Capacity	260 amp hours
with Auxiliary Batteries	520 amp hours
Battery Status Indicator	Displays battery voltage, charging activity and low battery condition
Battery Security	Anti-theft steel battery frame bolted to trailer
Solar Array Construction	Top-mounted solar panels in aluminum frame
Solar Array Power Output	40 or 80 watts - field-upgradable
Solar Charge Controller	Fully automatic, temperature compensated



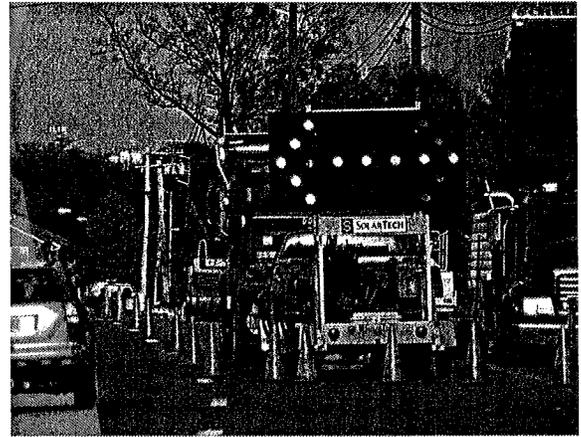
15-Lamp model shown with optional Side Rail Mounted Controller



Arrow panel folds for transport.



25 Lamp model shown with controller in battery box



AVAILABLE OPTIONS

BATTERY UPGRADES

- Four (4) standard Flooded
- Two (2) maintenance-free Gel Cell or AGM
- Two (2) maintenance-free Gel Cell or AGM

AUXILIARY BATTERY CHARGERS

- 45 amp, 120 volt AC line-powered: recharges batteries in less than 9 hours

OPTIONAL SIDE-MOUNT CONTROLLER

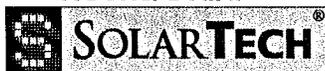
Side-Mount Controller brings controls to eye-level and away from battery box

OTHER OPTIONS

- Security:** Vandal-Proof Battery Box reinforced steel cage
- Brakes:** Electric Brakes
- Custom Colors and Canadian versions available

All models meet or exceed the standards for Flashing Arrow Panels as listed in the U.S. Federal Highway Administration (FHWA) Manual on Uniform Traffic Control Devices (MUTCD).

A Better Board



SOLAR TECHNOLOGY, INC.

7620 Cetronia Rd. Allentown, PA 18106
Phone: 800-475-5442 or 610-391-8600

P/N 500-025-010 Rev. F 2017

www.solartechnology.com

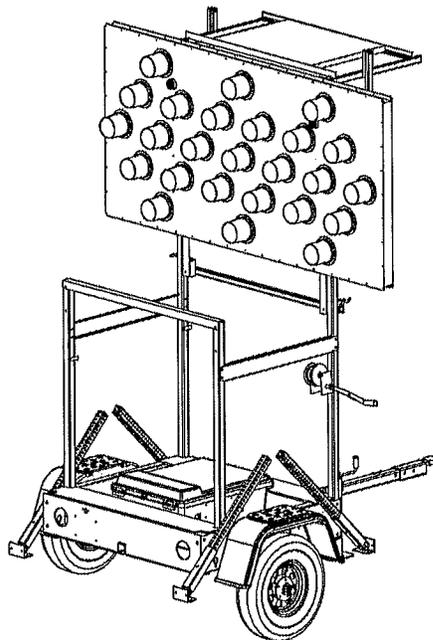


Made in the USA

Silent Sentinel
Solar Powered Advanced Warning

Arrow Panels

Procurement Specifications



7620 Cetronia Road, Allentown, PA 18106 ■ Phone 610-391-8600
www.solartechtechnology.com

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This document presents a detailed specification for a type-C advance warning (flashing) arrow panel. This specification typically requires additions and/or modifications to meet a user's specific requirements.

This specification is subject to periodic revisions as required without notice.

P/N 500-525-120

Twelfth Edition: 25 August 2016

General email: info@solartechnology.com
Technical Support email: techsupport@solartechnology.com

Web site: www.solartechnology.com

1. General

1.1 Product Description

The **SILENT SENTINEL** is a solar powered advance warning (flashing) arrow panel (FAP). The **SILENT SENTINEL** consists of an arrow display panel, a supporting structure for the display panel, a photovoltaic array, a battery power supply and an electronic control console, all mounted on a heavy duty trailer frame.

1.2 Design Objectives

1.2.1 Maximize reliability by using generally accepted design techniques for outdoor-use electrical and electronic equipment.

1.2.2 Minimize operating cost by using a renewable energy source, requiring minimal maintenance.

1.2.3 Maximize safety and effectiveness by using a high contrast arrow display panel with long-life expectancy, high-reliability LED lamp technology.

1.2.4 Meet or exceed the standards for Arrow Boards as listed in the U.S. Federal Highway Administration (FHWA) Manual on Uniform Traffic Control Devices (MUTCD).

1.3 Performance Objectives

1.3.1 Visibility greater than 1 mile.

1.3.2 Legibility at 1 mile.

1.3.3 Minimal glare from sunlight and headlights.

1.3.4 Continuous, uninterrupted operation on solar power.

1.3.5 One month minimum, three month typical maintenance interval.

1.4 Quality Assurance Objectives

1.4.1 All manufacturing shall be carried out in a facility with a completely implemented and properly maintained ISO 9001:2015 certified quality management system.

1.4.2 All units shall bear the CE Mark indicating acceptable EMC (Electromagnetic Compatibility) to insure that the units are neither susceptible to nor produce any electromagnetic interference.

1.4.3 Manufacturer shall have a factory authorized service center located within 150 miles of point of delivery. Authorized service center shall receive all units from factory in order to inspect for any shipping damage and verify proper operation prior to final delivery. Delivery directly from manufacturer's facility without inspection by an authorized service center shall not be permitted. Additionally, authorized service center shall be capable of performing warranty service and repairs, and shall provide on-site training on the proper use and maintenance of all equipment delivered.

2. Physical

2.1 Dimensions

2.1.1 Length

2.1.1.1 Overall - 100 in. (254 cm)

2.1.1.2 Without tongue - 53 in. (135 cm)

2.1.2 Width

2.1.2.1 Overall - 96 in. (244 cm)

2.1.2.2 Across fenders - 74 in. (188 cm)

2.1.3 Height

2.1.3.1 Sign in transport position - 92 in. (234 cm)

2.1.3.2 Sign in operating position - 134 in. (340 cm)

2.1.4 Ground Clearance, minimum - 13 1/2 in. (34 cm)

2.1.5 Weight - 1,180 lbs. (535 kg)

2.2 Environmental

2.2.1 Temperature, operating and storage - -40 to +185 °F (-40 to +85 °C)

2.2.2 Relative Humidity - 20% to 98%, non-condensing

2.2.3 Wind

2.2.3.1 Transport position, maximum towing speed - 70 MPH (112 KPH)

2.2.3.2 Operating position, max. height, outriggers in place - 80 MPH (128 KPH) sustained

2.2.4 Electrical Interference - Unaffected by RFI (Radio Frequency Interference) and EMI (Electromagnetic Interference).

3. Trailer Chassis and Sign Support

3.1 Trailer Chassis

3.1.1 Frame Construction

3.1.1.1 Trailer frame shall be constructed of welded 7 Gauge (3/16-inch) CNC formed steel plate and structural steel tubing with 3 x 3 x 3/16 inch structural steel tubing receiver for the tongue, reinforced and welded to the front crossmember.

3.1.1.2 Trailer shall be equipped with a 2 1/2 x 2 1/2 x 3/16 inch structural steel tubing receiver capable of accepting a standard Class 2 drawbar and hitch pin to accommodate tandem towing. The rear hitch receiver shall be reinforced and welded to a 7 Gauge (3/16-inch) CNC formed steel plate rear cross member. Tandem trailer towing using rear hitch receiver is intended for off road use only and is subject to local laws and regulations!

3.1.1.3 The trailer tongue shall consist of 2 1/2 x 2 1/2 x 3/16 inch structural steel tubing. The tongue shall bolt into the tongue receiver to facilitate easy removal of the tongue for repair, transportation, or security purposes. The trailer tongue shall be equipped with a 2,000-pound minimum capacity swivel-type top-wind screw jack with a formed steel footpad.

3.1.1.4 Trailer frame shall be equipped with tie down points to facilitate securing unit to utility trailer or truck deck for transport.

3.1.2 Suspension

3.1.2.1 Trailer shall be equipped with an independent suspension, torsion-type axle with a 2,200 pound overall capacity. Axle load capacity shall be set at 1,400 pounds.

3.1.2.2 Axle wheel spindles shall be equipped with grease fittings to accommodate wheel bearing lubrication.

3.1.3 Coupler

3.1.3.1 Trailer tongue shall be capable of accepting a 2-inch ball coupler, a 2 1/2-inch pintle ring, an optional removable combination coupler (2-inch ball coupler & 2 1/2-inch pintle ring), or an optional adjustable height coupler (2-inch ball coupler and/or 2 1/2-inch pintle ring).

3.1.3.2 Trailer shall be equipped with 1/4-inch safety chains with snap-type hooks for secure attachment to tow vehicle hitch.

3.1.3.3 All coupler and safety chain configurations shall comply with SAE J684 standards for Class II (2) trailers.

3.1.4 Surface Preparation and Finishing

3.1.4.1 Trailer chassis and superstructure shall be completely cleaned and deburred prior to finishing. All metal surfaces shall be prepared for finishing using an iron phosphate wash-down process.

3.1.4.2 A polyamide epoxy primer shall be applied to a dry film thickness of 1.5 mils.

3.1.4.3 A high gloss federal safety orange aliphatic acrylic urethane finish shall be applied to a dry film thickness of 1.25 mils.

3.1.5 Lighting

3.1.5.1 Trailer shall be equipped with sealed flush-mounted combination stop, tail and turn lights.

3.1.5.2 Trailer shall be equipped with a lighted license plate holder.

3.1.5.3 Trailer wiring harness shall be completely sealed and water resistant.

3.1.6 Fenders

3.1.6.1 Trailer shall be equipped with unbreakable, molded, solid color, UV-stabilized HDPE (High Density Polyethylene) fenders, completely closed on the inside.

3.1.6.2 Fenders shall be secured to trailer frame with zinc-plated steel thread forming screws and fender washers so as to facilitate easy repair or replacement.

3.1.7 Leveling Jacks

3.1.7.1 Trailer shall be equipped with four telescoping jacks consisting of 2 x 2 inch x 12 gauge perforated galvanized steel tubing equipped with a 3 x 3 x 3/16 inch x 6 inch wide steel foot plate.

3.1.7.2 Jack stands shall be inserted into 2 1/4 x 2 1/4 inch x 12 gauge galvanized steel tubing, welded to the trailer frame at a 45 degree angle.

3.1.7.3 Jack stands shall be locked into position by 3/8-inch zinc-plated steel tab lock pins secured to trailer frame by nylon-coated stainless steel lanyards.

3.1.7.4 Jack stands and tongue jack shall be configured such that unit can be set up on jack stands, level, in operating position, with the trailer wheels raised completely off the ground, permitting removal of wheels and tires for additional security.

3.1.7.5 Jack stands shall be configured such that, when in the operating position, they create a footprint of at least 93 inches, front to rear, and 56 inches, side to side, to provide adequate stability of unit in high winds.

3.1.8 Tires and Wheels

3.1.8.1 Tires shall be B78-13 Load Range C.

3.1.8.2 Wheels shall be 13-inch x 4 1/2-inch, 5-lug pattern (4 1/2-inch bolt circle), white spoke dress wheel.

3.1.8.3 Wheels and tires shall be sized according to load requirements of trailer and axle.

3.2 Arrow Panel Support

3.2.1 Trailer superstructure shall provide complete support of the arrow panel in the transport (down) position. Cantilevered support of arrow panel is not acceptable!

3.2.2 Trailer superstructure shall be completely assembled with removable fasteners to accommodate quick, easy maintenance and repair.

3.2.3 All fasteners shall be rust resistant and equipped with either all metal (stover) or nylon lock stop-nuts to prevent loosening of fasteners during normal transportation and operation.

3.2.4 All aluminum to steel attachments shall be made with stainless steel hardware and stainless steel or nylon spacers so as to minimize galvanic corrosion.

3.2.5 Arrow Panel Lifting Mechanism

3.2.5.1 Arrow panel lifting mechanism shall consist of a minimum 1,000-pound capacity, automatic brake type winch with 1/4-inch wire rope capable of holding the arrow panel in any position from full upright to the travel (down) position.

3.2.5.2 Winch shall be zinc-plated to minimize rust and corrosion.

3.2.5.3 Winch shall be designed such that the handle can be removed, for added security, without interfering with the operation of the automatic brake.

3.2.5.4 Arrow panel shall be secured in the operating (up) position by two stainless steel, spring-loaded, locking pins. Locking of the arrow panel in the down position shall not be required; however, available as an field installable option.

3.2.6 Trailer superstructure shall provide for support and operation of solar array, with solar array positioned to accommodate charging in both the operating and the traveling positions.

3.2.7 Solar array shall fold flat and flush onto back of arrow panel when arrow panel is in the transport (down) position so as to minimize wind resistance without the need for an air deflector or spoiler.

3.2.8 Trailer superstructure shall be equipped with a formed steel upper rear crossmember and formed steel upper side members to reinforce the arrow panel and solar array support frame.

3.2.9 Trailer superstructure shall be equipped with an integral sighting device, welded in place, to accommodate proper alignment of the arrow panel with oncoming traffic, during setup.

4. Arrow Panel

4.1 Dimensions

4.1.1 Width Overall - 96 in. (244 cm)

4.1.2 Height Overall - 48 in. (122 cm)

4.1.3 Depth Overall - 3 in. (7.6 cm)

4.2 Construction

4.2.1 Arrow panel frame, including internal braces, shall consist of 3 x 1 x 1/8 inch extruded aluminum alloy channel, pulse MIG welded at corners and at internal braces.

4.2.2 Front and rear surfaces shall consist of .063 inch aluminum alloy sheet with a baked matte black enamel finish.

4.2.3 Front and rear panels shall be attached to welded aluminum frame with 8-32 x 3/8-inch, black-

finish, stainless steel, torx-head, thread-rolling screws located on 6-inch centers. In order to facilitate simple repair, rivets or any other form of non-removable fastener shall not be permitted.

4.2.4 Arrow panel shall be equipped with 2 1/2-inch diameter by 1-inch thick rubber bumpers to support panel when in the transport (down) position.

4.2.5 Arrow panel shall be equipped with a light sensing device to monitor ambient light and provide information to the control module to regulate the intensity of the arrow panel lamps.

4.3 Lamps

4.3.1 Arrow panel shall be equipped with 15 or 25 lamps, approximately five (5) inches in diameter.

4.3.2 Arrow panel lamps shall consist of an array of at least 21 LEDs mounted in a weather resistant high impact polycarbonate housing.

4.3.3 The arrow panel lamp housing shall be completely sealed to protect the internal components from corrosion caused by harsh environmental conditions.

4.3.4 The outer surface of the lamp shall be convex (diverging) to minimize reflection of incident light and to maximize the contrast of the arrow panel display.

4.3.5 The lamps shall provide an Approximate Initial Maximum Beam Candlepower of 1000 candela typical, 750 candela minimum, over an operating voltage range of 10.7 to 16.0 VDC. The lamp intensity shall remain constant over the entire operating voltage range.

4.3.6 The lamps shall produce a field spread (angularity) of 30 degrees horizontal by 6 degrees vertical.

4.3.7 The color of the light produced by the lamps shall be amber (approximate wavelength of 592 nanometers).

4.3.8 The lamps shall have a minimum life expectancy of 100,000 hours (200,000 hours typical).

4.3.9 The lamps shall be equipped with quick disconnect terminals to accommodate quick, easy replacement of lamps without regard to polarity. The lamps shall not be polarity sensitive (i.e. capable of connection and operation without concern for polarity).

4.3.10 Arrow panel lamps shall be equipped with a automatic polarity detection circuit to enable operators to connect quick disconnect terminals to lamp without regard to polarity (i.e. either orientation) and ensure proper operation.

4.3.11 Arrow panel lamps shall be secured to the arrow panel by a black, molded, impact-resistant shroud, approximately five (5) inches in diameter and approximately four (4) inches high. Lamp shroud shall mount to panel with stainless steel screws through keyholes such that the shroud and lamp can be removed from the panel without the need to remove the screws from the panel.

4.3.12 Arrow panel lamps shall be keyed to the shroud and the shroud shall be keyed to the front panel so the lamps are secured to the front panel with proper lamp beam orientation.

4.3.13 The rear of the arrow panel shall be equipped with three (3) ultra-bright LEDs, in watertight housings, to indicate the arrow panel pattern currently being displayed. This provides a visual indication to individuals in the work zone that the arrow panel is functioning properly.

4.4 Connectors and Wiring

4.4.1 Arrow panel shall be equipped with a watertight connector, AMP CPC Series 2 Receptacle P/N 205843-1 with Peripheral Seal P/N 206403-3, or equivalent, to permit arrow panel to be removed quickly and easily for repair. Arrow panel control cable connector shall be suitable for outdoor use and completely sealed against moisture. Arrow panel control cable connector shall be equipped with gold flashed pins to provide maximum electrical contact reliability.

4.4.2 All internal wiring pass throughs shall be fitted with plastic grommets to prevent wire damage and/or failure.

4.4.3 All internal wiring shall be secured to inside of front panel to prevent wire damage and/or failure.

5. Main Control Module

5.1 Physical

5.1.1 Control module shall consist of a totally solid state fully integrated device which provides for control of the arrow sign panel, lamp pattern generation, battery status monitoring and indication, solar electric charge control, low battery voltage disconnect, high battery voltage disconnect, reverse battery polarity, surge protection and remote control and tracking via an integrated cellular/GPS transceiver module.

5.1.2 Control module shall be enclosed in a weather resistant, lockable, molded HDPE (High Density Polyethylene) enclosure secured to the trailer chassis *or* enclosed in a weather resistant enclosure mounted inside the arrow panel with a lockable aluminum cover to prevent tampering while in service (*specify desired controller location*).

5.1.3 Control module front panel shall be completely sealed to accommodate operation in all types of weather.

5.1.4 Control module shall be constructed of all industrial temperature range components to insure reliable operation under all outdoor environmental conditions.

5.1.5 Control module power and control cables shall be equipped with locking type connectors to provide secure reliable operation while permitting quick, easy removal of the control module for maintenance and repair.

5.2 General Operation

5.2.1 Control module shall be equipped with an array of membrane push buttons to enable an operator to locally select the desired arrow panel pattern with the push of a single button.

5.2.2 Control module shall be equipped with multicolored LED indicators for local monitoring of battery voltage (charge) level, solar charger activity, and lamp intensity control settings.

5.2.3 Control module shall provide for full local and remote (via integrated cellular transceiver and antenna) control of the arrow panel including geographic location monitoring (via integrated GPS module and antenna) without the need for additional hardware, software, external computers or hand-held control devices.

5.2.4 Control module shall include all necessary hardware and software to operate the arrow panel locally (via an array of membrane push buttons) and remotely (via integrated cellular transceiver and

antenna), including geographic location monitoring (via integrated GPS module and antenna). Full remote control (including GPS mapping) via internet accessible server based remote control software shall be included free of charge from date of purchase (i.e. cellular service shall be included free from date of original purchase for life of the unit).

5.2.5 Control module embedded CPU shall incorporate an ARM based microprocessor design to insure future hardware and software compatibility through upgrades provided by manufacturer free for life of the machine. Operating system shall be Linux based and include multiple watchdog timers to ensure automatic system restarts in the event that any critical function stops working properly or communication with remote control servers is interrupted.

5.2.6 Control module operating processor, firmware and software shall be remotely upgradeable over an IP addressable network connection via the integrated cellular transceiver. Additionally, upgrades shall be provided by manufacturer free of charge for life of machine and automatically applied via integrated cellular transceiver and included remote control service from date of original purchase.

5.2.7 Control module shall employ lamp power drivers that provide completely automatic short circuit and over temperature protection. If lamp wire leads are shorted together or to the chassis or if the wrong type of lamp is connected to the lamp wire leads no damage should occur to the lamp power drivers.

5.2.8 Control module shall be completely protected against reverse battery and solar array connections.

5.2.9 Integrated charge control circuit shall provide for dual slope, temperature compensated control so as to maximize transfer of energy into the battery while protecting batteries from overcharging, minimizing outgassing and minimizing loss of electrolyte.

5.2.10 Control module shall be equipped with a lamp intensity control circuit to automatically adjust arrow panel lamp intensity to suit changing ambient lighting conditions and to maintain consistent lamp intensity over a wide operating voltage range. A manual override shall be provided for the automatic intensity control circuit so that minimum or maximum lamp intensity can be manually selected. In the event that the lamp intensity control function is inadvertently left in the High or Low setting, the lamp intensity control circuit shall return to the Auto setting upon the occurrence of the first day/night cycle sensed by the light sensing device in the arrow panel. This feature prevents the use of potentially hazardous lamp intensities, i.e. low intensity during daylight hours and high intensity at night, and unexpected excess energy consumption.

5.2.11 Control module shall provide for the following display patterns:

1. Right Arrow - 10 lamps flashing in unison, forming an arrow.
2. Left Arrow - 10 lamps flashing in unison, forming an arrow.
3. Double Arrow - 5 lamps in each arrow head, 3 in center of shaft, flashing in unison.
4. Caution Bar - 7 lamps in center horizontal bar, flashing in unison.
5. Four-Corner Caution - 4 lamps in outer most corners, flashing in unison.
6. Sequential Right Arrow - 2 lamps in left side of center bar in first phase, plus 3 lamps in middle of center bar in second phase, plus 5 lamps in arrow head in third phase flashing in sequence.
7. Sequential Left Arrow - 2 lamps in right side of center bar in first phase, plus 3 lamps in middle of center bar in second phase, plus 5 lamps in arrow head in third phase flashing in sequence.

25 Lamp Panels only:

8. Right Sequential Chevron - 5 lamps on left side of the panel forming a right-hand arrow head in the first phase, plus 5 lamps in the center forming a second right-hand arrow head in the second phase, plus 5 lamps forming a third right-hand arrow head on the right side of the panel in the third and final phase.

9. Left Sequential Chevron - 5 lamps on the right side of the panel forming a left-hand arrow head in the first phase, plus 5 lamps in the center forming a second left-hand arrowhead in the second phase, plus 5 lamps forming a third left-hand arrow head on the left side of the panel in the third and final phase.

10. Sequential Double Arrow - 1 lamp in the center of the panel in the first phase, plus the two lamps adjacent to the center lamp forming a bar in the center of the panel in the second phase, plus 5 lamps in each arrow head (total 10 lamps) in the third phase.

11. Alternating Double Diamonds - 8 lamps in the center of the panel forming a diamond shape in the first phase, dark in the second phase, 16 lamps forming diamond shapes at each end of the panel in the third phase, and dark in the fourth phase.

5.2.12 Control module power consumption, not including lamps, shall be less than 0.5 Watts so as to optimize overall energy consumption.

5.2.13 Control module operating firmware shall be field upgradeable.

5.2.14 Control module shall be equipped with positive locking connectors to provide for reliable operation and easy removal for maintenance and repair. Battery bank and solar array power connector shall be AMP CPC, or equivalent, with a 20-Amp per contact minimum current rating to insure minimum voltage drop and maximum energy transfer. Arrow panel control connector shall be AMP D-subminiature 37-pin right angle female header AMP P/N 747847-5, or equivalent, with gold flashed pins for optimum reliability.

6. Power System

6.1 General

6.1.1 Operating Voltage - 12 Volts DC nominal

6.1.2 Operating Energy Requirement - Single Flashing Arrow, <6 Amp Hours per day nominal at Spring or Fall Equinox (i.e. 12 hours of daylight, 12 hours of darkness)

6.1.3 Main Power Switch - Main power switch shall be unnecessary. When arrow panel pattern selection switch is in the OFF position, control module shall automatically shut down all unnecessary operations to reduce energy consumption to less than 0.05 Watts. Solar generator charge controller shall operate automatically, as required, during daylight hours and shut down completely at night.

6.2 Battery Bank

6.2.1 Number of batteries - 2 std. - upgradeable to 4

6.2.2 Battery type - 6-Volt, heavy duty, deep cycle (Flooded Lead Acid, Gel-Cell or AGM - Specify)

6.2.3 Energy capacity - 260 Amp-Hours nominal - upgradeable to 520 Amp-Hours. Sufficient energy capacity to operate the arrow panel, displaying a single flashing arrow for more than 30 days, without any energy input from the solar array.

6.2.4 Battery / Equipment Compartments

6.2.4.1 Battery / Equipment Compartments shall be constructed of molded HMWPE (High Molecular Weight Polyethylene), color impregnated with Federal Safety Orange with 0.5% UV stabilizer added to prevent fading.

6.2.4.2 Compartments shall be designed to completely contain spills from a failed or damaged battery case.

6.2.4.3 Compartments shall be capable of supporting an operator standing on top of the battery / equipment compartment to service unit.

6.2.4.4 Compartments shall be designed such that the lid automatically latches in the closed position and holds the batteries in place. Lid shall be equipped with a locking hasp capable of being locked in the closed position with a standard padlock.

6.2.4.5 Lid shall be secured to compartment by an integral hinge that permits the lid to be completely removed from the compartment for service.

6.2.4.6 Compartments shall be designed to provide adequate ventilation for the batteries during charging yet prevent the ingress of water during use or transport.

6.2.4.7 Compartments shall be capable of housing four (4) BCI Group GC-2 batteries.

6.3 Solar Array

6.3.1 Solar array shall remain horizontal in both the travel (down) and the operating (up) positions. Solar array shall erect automatically when arrow panel is raised to operating position.

6.3.2 Photovoltaic module type - Single crystal (monocrystalline) silicon

6.3.3 Number of solar cells per module - 36

6.3.4 Solar array power output - 40 Watts std. - upgradeable to 80 Watts (peak)

6.3.5 Entire unit shall tilt back and rest on jack stands for fast, easy cleaning and maintenance.

6.3.6 Solar array energy output shall be sufficient to operate the arrow sign, under normal operating conditions, with the solar array in a flat, horizontal position. It shall not be necessary to tilt or rotate the solar array to provide sufficient energy output from the solar array to operate the arrow panel continuously.

6.3.7 Photovoltaic module junction boxes shall be equipped with watertight strain reliefs at all cable entry points.

6.4 Wiring and Cabling

6.4.1 All external wire and cable shall be covered with a weatherproof jacket, rated for outdoor use, and secured to trailer frame or superstructure with UV resistant cable ties and anchors.

6.4.2 All wire and cable fittings shall be sealed at bulkheads or enclosure entry points.

6.4.3 All wiring shall be marine grade, multi-strand, tin-plated copper with PVC insulation rated for outdoor use.

6.4.4 All power system wire terminals shall be tin-plated copper to minimize the effects of galvanic corrosion.

6.4.5 Main power wiring shall be 16 AWG minimum.

6.4.6 Battery power and solar array power cables shall be equipped with AMP CPC connectors to mate with the connectors specified in Section 5, Main Control Module.

6.5 Charge Controller

6.5.1 Solar power system shall include a solid state charge controller.

6.5.2 Charge controller shall monitor battery voltage and ambient temperature.

6.5.3 Charge controller shall regulate energy flow from the solar array into the battery bank so as to avoid over charging of the batteries and minimize the consumption of electrolyte.

7. Documentation

7.1 Operation and Maintenance Manual (Available on CD-ROM and Website)

7.1.1 Installation and Operation

7.1.2 Maintenance

7.1.3 Service, Repair & Troubleshooting

7.1.4 Wiring Diagrams

7.1.5 Parts Lists & Assembly Drawings

7.1.6 Specifications

7.3 User Guide

7.3.1 Pre-transport checklist.

7.3.2 Job site setup checklist.

7.3.3 Basic programming instructions.

7.3.4 Basic system status evaluation.

7.3.5 Weatherproof card attached to unit with nylon-coated stainless steel lanyard.

8. Maintenance

8.1 Scheduled Maintenance

8.1.1 Solar Array - Clean with water and mild detergent as needed.

8.1.2 Battery Bank - Check electrolyte level once each month and add distilled water as needed.

8.2 Preventive Maintenance

8.2.1 Battery Bank - Clean and tighten battery electrical terminals.

9. Warranty

9.1 Standard Warranty

9.1.1 Bumper to Bumper - Five (5) full years

9.1.3 LED Lamps - Ten (10) years

9.1.4 Solar Panels - Ten (10) years

9.2 Extended Warranty - Consult factory

10. Options

10.1 Battery Charger

10.1.1 Charger type - Switching regulator, constant voltage with automatic switch to maintenance or trickle charge.

10.1.2 Input Voltage - 110 VAC 50/60 Hz

10.1.3 Available models with typical recharge times.

10.1.3.1 45-Amp - 13 hours

10.1.4 Battery charger unit shall install in the field with minimum effort.

10.2 Combination Coupler

10.2.1 Combination coupler shall provide for quick easy selection of a 2-inch ball coupler or a 2 1/2-inch pintle ring.

10.2.2 Combination coupler shall provide for the quick, easy removal of coupler and safety chains for additional security.

10.2.3 Combination coupler shall install on front of tongue, secured with 1/2-inch diameter hitch pins locked into place with locking-type (rue ring) pins for maximum safety and reliability.

10.2.4 Combination coupler shall comply with SAE J684 standards for Class II (2) trailers.

10.3 Adjustable Height Coupler

10.3.1 Adjustable height coupler shall accommodate hitch heights ranging from 18 to 28 inches.

10.3.2 Adjustable height coupler shall accept a 2-inch ball coupler or a 3-inch pintle ring.

10.3.3 Adjustable height coupler shall install on front of trailer tongue, secured with 1/2-inch diameter hitch pins locked into place with locking-type (rue ring) pins or with 1/2-inch diameter, grade 8 bolts and all metal (stover) lock nuts.

10.3.4 Combination coupler shall comply with SAE J684 standards for Class II (2) trailers.



Harness the Power of the Sun

SOLAR TECHNOLOGY, INC Comprehensive 5-Year Limited Warranty

Welcome to the SOLAR TECHNOLOGY family! Your purchase represents the very finest in traffic control devices. To insure the quality that goes into the design and manufacturing of every new SOLAR TECHNOLOGY product, we offer a Comprehensive Protection Program (CPP) which provides for a five-year limited warranty covering all Silent Messenger changeable message signs (message boards), Silent Sentinel advanced warning arrow panels (arrow boards) and Silent Advisor radar speed trailers (radar speed displays) purchased for U.S. Domestic and Canadian use. Additionally, Solar Technology, Inc. provides a ten-year limited warranty on all LED lamps used in its Silent Sentinel line of advanced warning arrow panels.

LIMITED WARRANTY

SOLAR TECHNOLOGY, INC. (STI) warrants that this product will conform to the manufacturer's standard specifications without defects in materials or workmanship for a period of five years. This is a "bumper to bumper" warranty that covers repair or replacement of all components, on an exchange basis, with the exception of vendor supplied items and consumables, including, but not limited to, modems, radar guns, tires, batteries and battery chargers. Other components may be warranted for an extended period of time. Components, sub-assemblies, and devices produced by other manufacturers not covered under this warranty are covered separately and individually under warranties provided by the specified manufacturer.

This warranty is granted to the original end-user of the product and is not assignable to any subsequent purchaser or user. Any leasing or borrowing of these goods or other use beyond normal demonstration of the same shall be deemed to be a use by the original end-user. The period of this warranty shall commence on the date of delivery to the first original end user. Proof of purchase and delivery date may be required when warranty service is requested. The sole remedy under this warranty shall be the repair or replacement of parts which have been determined to be defective after inspection by an approved representative of STI. STI reserves the right to demand the return of parts replaced under this warranty or in disputable fitness and must be consulted for authorization before any such return. All defective parts replaced under this warranty shall become the property of STI. If a claimed defect cannot be identified or reproduced in service, the end-user will be held responsible for the costs incurred.

The cost of shipping of parts to be repaired to STI shall be the responsibility of the user, while the cost of shipping replacement or re-manufactured parts to the user shall be the responsibility of STI. Under no circumstances shall STI be responsible for duties, customs, or import fees associated with repair or replacement of warranted products or parts. Under no circumstances shall STI be responsible for transportation or mileage costs associated with repair or replacement of warranted products or parts. Tampering with the serial number, STI logo and graphics, or posted safety and operating instructions may constitute a breach of and voids this warranty.

This warranty shall not extend to any goods or parts which have been altered, repaired, operated, or maintained outside of approved STI procedures or directives. This warranty does not cover damage resulting from causes beyond the control of STI, including without limitation: misuse, abuse, neglect, or accident; external electrical faults, power surges, or power failure; damage occurring in shipment or from improper transportation, installation, operation or application; or damage resulting from improper usage or use of the product with components, accessories or expansion items not supplied by STI. The end-user is responsible for the selection, use and results obtained from the product. This warranty does not apply to any product which has not been paid for according to the terms under which the product has been invoiced.

This warranty is exclusive and in lieu of all other warranties, express or implied including warranties of merchantability or of fitness for purpose, and there are no other warranties which extend beyond the descriptions on the face hereof. The remedies set forth herein are exclusive and manufacturer shall not be liable for special, indirect or consequential damages. The obligations of STI hereunder shall in no way exceed the cost of the equipment or part upon which such liability is based.

"On the leading edge of quality design and manufacturing - now and always"

Byron Zerphy
President, CEO

Eric Zerphy
VP, COO

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