



STATE OF LOUISIANA
DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT
TECHNICAL SPECIFICATIONS FOR
PORTABLE TRAFFIC SIGNAL, TRAILER MOUNTED

SERIES NO. 278-000
EQUIPMENT SPECIFICATION 278-000G

REV. 1/10/2023

GENERAL

These specifications describe a single unit solar-powered portable traffic signal (PTS) that is trailer mounted. More than one of these trailers can be linked together to form a portable traffic signal system (PTSS). Each PTS must be capable of controlling a minimum of eight (8) phases of traffic. Each PTS must be capable of controlling at least 10 PTS trailers within a PTSS. Each PTS must be addressable as the primary signal or as a secondary signal in the PTSS. The PTS must be capable of being transported and deployed by a single operator. Each trailer must have a bank of batteries, solar recharging capability, utility power connection, two signal heads, an integrated radio, and a solid-state signal controller with integrated malfunction management system. Each PTS shall have a wind load rating of at least ninety miles per hour (90 mph) while deployed. The PTS must be compliant with MUTCD and NEMA TS-5 standards.

Equipment shall be new, a production model of current manufacture, and must meet all state and Federal safety and emission standards in effect at time of order.

REPRESENTATIVE SPECIFICATIONS

An Addco PTS-2000, with appropriate options and standard features, was used to develop these specifications and establish equivalency evaluation criteria.

Equipment of similar style, type, character, quality, features, and purpose conforming to the following detailed requirements/specifications will be considered. For evaluation purposes, bidder's proposing an exception/equivalent option/feature to those specified herein, may be required to provide manufacturer/product information (catalogue sheets, detailed specifications, pictures, etc.). This information will be evaluated against the minimum requirements of this specification. Proposed submittals that are determined to not be equivalent to the established criteria will be rejected.

LOUISIANA AUTHORIZED DEALER(S)

Proposed item(s) must be from a manufacturer who has at least one (1) authorized dealer **within the State of Louisiana** where parts and service can be obtained. Authorized dealer(s) must have properly trained technicians plus all other resources necessary to perform warranty and repair services in complete accordance with the manufacturer's requirements. A letter certifying the ability to meet this requirement, inclusive of the company name(s) and address(es) of the Louisiana authorized dealer(s), should be supplied with the bid submittal and may be required prior to award.

DELIVERY & ACCEPTANCE

Vendor shall perform a test run of each unit to verify that all features and capabilities are operating properly at time of delivery. Documentation of testing may be required prior to acceptance by the Department.



Unit(s) must be delivered completely assembled (including all components, accessories, etc.) and ready for operation without any additional preparation including, but not limited to, ensuring all fluid levels are at their full mark, fuel tank(s) is full, all necessary lubrication has been performed, etc.

Any unit delivered under this specification is subject to rejection if there is evidence of poor workmanship, by either the vendor or the original manufacturer. Noted defects and/or nonconformance findings may be corrected by the vendor. Corrections must be completed and approved by the Equipment Engineer or his representative prior to final acceptance.

Unit(s) shall be delivered "**on the ground**;" DOTD will not unload nor provide any unloading equipment to the vendor/delivery driver in order to offload the unit(s).

NOTE: The Department will have space available for equipment to be unloaded.

EACH UNIT MUST BE SUPPLIED WITH THE FOLLOWING DOCUMENTATION:

1. Dealer's Service Policy
2. Owner's/Operator's Manual(s)
 - a. One (1) Hardcopy
 - b. One (1) Digital Copy
 - i. Acceptable Formats: PDF delivered via USB "Flash Drive", or E-mail
3. Service Manual(s)
 - a. One (1) Hardcopy
 - b. One (1) Digital Copy
 - i. Acceptable Formats: PDF delivered via USB "Flash Drive", or E-mail
4. Build Sheet(s) – as applicable
 - a. One (1) Hardcopy
 - b. Build sheets should be writing in plain language (not company specific codes) and include, at a minimum, all standard & optional features of the delivered unit.

NOTE: Invoices will not be processed for payment until the unit(s) have been inspected by the Equipment Engineer or their representative and deemed in compliance with the specifications.

BID SUBMITTALS

Any additions, deletions, or variations from the specifications should be noted in the "Bidder's Exceptions" page of this specification. Exceptions that are noted to be less than a minimum requirement will not be accepted.

Any additions, deletions or variations from the manufacturer's standard published specifications should be noted on the "Bidder's Exceptions" page of this specification. Unless otherwise noted, any items appearing in the manufacturer's standard published specifications furnished by the Bidder are assumed to be included in the Bidder's submittal.

Bidder should note on their submittal any installation(s) to the equipment that will be performed by the vendor instead of the manufacturer.

Failure to note any specification exceptions, manufacturer specification alterations, and/or vendor installations prior to award may result in rejection of the equipment at the time of delivery.

THE NUMBER OF DELIVERY DAYS AFTER RECEIPT OF ORDER (ARO) MAY BE USED AS A FACTOR IN THE AWARD.



EQUIPMENT SPECIFICATIONS

NOTICE TO BIDDERS

Bidder should review the detailed "Equipment Specification" completely and respond to the compliance question at the end of each section by marking "X", in the space provided, for "Yes" or "No". Mark "Yes" to indicate that the equipment bid meets the section exactly as specified. Mark "No" if there are exceptions to any part of that section. Exceptions/deviations to any part of the specification are to be detailed on the "Bidder's Exceptions" page of this specification.

IN ORDER TO BE CONSIDERED FOR AWARD, BIDDER SHOULD RETURN THIS SPECIFICATION, COMPLETED IN FULL, WITH THEIR BID SUBMITTAL.

Note: All Values listed below are minimums unless noted otherwise.

1. Trailer

- 1.1. Structural steel tubing
- 1.2. Trailer must be manufactured in compliance with the National Association of Trailer Manufacturers (NATM)
- 1.3. Fenders must be non-slip, walk-on fenders
- 1.4. Must be capable of tandem tow and individual tow
 - 1.4.1. Each trailer must be equipped with all necessary hardware for tandem towing
 - 1.4.2. Overall length in tandem tow configuration must not exceed 30'0"
- 1.5. Transport height (pavement to highest point on unit): 8'6" (maximum)
- 1.6. Trailer width: 7'6" (maximum)
- 1.7. Equipped with four (4) stabilizing and leveling jacks
 - 1.7.1. Must have drop leg with 4"x6" (minimum) ground contact foot
 - 1.7.2. Combined range of travel plus drop leg reach must be capable of lifting the trailer a minimum of 24"
- 1.8. Retractable or removable tongue with 2" or 2⁵/₁₆" ball hitch coupler
 - 1.8.1. ¼" grade 30 safety chains
- 1.9. Each trailer must have a single axle rated at 5,000 lb. or greater, with electric brakes and a breakaway switch
 - 1.9.1. 15" 8-ply tires. Load range must be such that combined capacity of both tires meets or exceeds axle capacity.
- 1.10. Trailer finish must utilize a combination UV resistant powder coat topcoat with a zinc-rich primer basecoat. Topcoat color to be FHWA safety orange.
- 1.11. Trailer lighting and reflectors must meet federal DOT requirements
 - 1.11.1. All lighting must be LED

Comply: ___ Yes ___ No

2. Vertical Mast, Horizontal Arm & Solar Array Positioning

- 2.1. Lifting and deployment of mast and arm may be accomplished by hydraulic power or by electro-mechanical actuator
 - 2.1.1. If hydraulic system is used:
 - 2.1.1.1. The pump must be in a lockable enclosure
 - 2.1.1.2. A single locking pin must ensure the mast remains upright
- 2.2. Lifting and deployment of mast and arm must be accomplished by a single operator



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- 2.3. Controls for mast, arm & solar array (if present) must be located in a lockable, weather-tight enclosure
- 2.4. Horizontal Arm
 - 2.4.1. Fully extended arm must be capable of aligning the center of the outer signal head at least 12.5' horizontally from the nearest fender of the trailer
 - 2.4.2. Must allow multiple signal head positions along mast arm

Comply: ___ Yes ___ No

3. Signal Heads

- 3.1. Must meet display and operational requirements of the Manual on Uniform Traffic Control Devices (MUTCD) 2009 or newer
- 3.2. Two (2) 3-section signal heads are required per trailer
- 3.3. All signal heads must have 12" LED indications conforming to the Institute of Transportation Engineers (ITE) specifications
- 3.4. All horizontal signal heads must be mounted such that a minimum of 17' of clearance from pavement to bottom of signal heads is achieved
- 3.5. Must be removable and have the capability to be replaced by 5-section signal heads on horizontal arm
- 3.6. Outer signal head must be mounted at the end of the extendable mast arm
- 3.7. A second signal head must be mounted on the vertical mast at a minimum height of 8' above pavement to the bottom of the signal head
 - 3.7.1. The second signal head must have the ability to be quickly moved and mounted on the horizontal mast arm by the operator
- 3.8. Must be equipped with tunnel visors & background shields
- 3.9. Signal head must be able to rotate 180 degrees to face opposite direction, with incremental positive locking
- 3.10. Must be equipped with work zone safety indicators
 - 3.10.1. Rear side of each signal head must indicate workers of the traffic signal status
 - 3.10.2. Must illuminate towards the work zone when the traffic signal displays a RED indication.

Comply: ___ Yes ___ No

4. Power Supply

- 4.1. Self-contained primary power source consisting of (minimum) eight (8) 6-volt deep cycle sealed lead acid (AGM) batteries
- 4.2. Batteries must be located in weatherproof and lockable battery enclosure(s)
- 4.3. Capacity of batteries must provide 21 days of continuous operation (24 hours per day) without solar assistance
- 4.4. Battery voltage must be visible via external LED battery voltage display on the exterior of the control cabinet
- 4.5. Onboard auxiliary 120 VAC charger
- 4.6. Solar panel array must have a minimum capacity of 400 Watts

Comply: ___ Yes ___ No

5. Control System

- 5.1. Each PTS trailer must have a solid-state microprocessor-based controller, powered by the PTS 12 VDC battery system



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- 5.2. All controller hardware must be mounted in a lockable, weatherproof enclosure, with interior light which will automatically turn off when the cabinet door is closed
- 5.3. Wireless radio-interconnect between controllers
 - 5.3.1. Each trailer must be capable of serving as the primary controller for the system
- 5.4. Must be programmable without the use of external device (laptop computer, micro terminal, etc.)
- 5.5. Must include emergency vehicle preemption hardware
- 5.6. Must include a malfunction management system (MMS) and must sound an alarm in the event the controller detects a problem
- 5.7. Controller must display the following:
 - 5.7.1. Phase timing/status
 - 5.7.2. Actuation status/vehicle calls
 - 5.7.3. System faults
 - 5.7.4. Battery voltage
 - 5.7.5. Signal lamp status
 - 5.7.6. Radio communication signal connection or strength
 - 5.7.7. Date & time
- 5.8. Operation
 - 5.8.1. Default mode must be user programmable as Solid Red, Red Flash, or Yellow Flash
 - 5.8.2. Operating modes
 - 5.8.2.1. Fixed time
 - 5.8.2.2. Traffic actuated
 - 5.8.2.3. Manual operation via main user interface of controller and/or wired/wireless handheld remote control
 - 5.8.2.4. Pilot car mode
- 5.9. Timing:
 - 5.9.1. Minimum ranges: all must be settable in increments of 1 second or less
 - 5.9.1.1. Red: 1-600 seconds
 - 5.9.1.2. Yellow: 3-15 seconds
 - 5.9.1.3. Green: 3-300 seconds
- 5.10. Programming
 - 5.10.1. Must be capable of being programmed via local on-screen menu and tablet or laptop
 - 5.10.2. Must be capable of programming changes while system is in operation
 - 5.10.3. Must be capable of storing ten (10) user-programmed traffic signal plans, selectable for use by the front panel controls
- 5.11. Must have the capability to automatically change timing plans based on the time of day and day of week, with a minimum of eight (8) time-of-day timing plan changes
- 5.12. Must be capable of extending the red clearance time when a slow moving vehicle is detected traveling through a one-lane work zone
- 5.13. Controller software must support all methods of vehicle detection
 - 5.13.1. Microwave traffic sensors
 - 5.13.2. Video detection
 - 5.13.3. Emergency vehicle preemption

Comply: ___ Yes ___ No



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6. Wireless Remote Control

- 6.1. Hand-held wireless control device capable of being used as a manual control for the PTS and as a status monitor for the PTSS
- 6.2. Water Resistant
- 6.3. Battery powered, with a minimum run-time of 10 hrs. on a single battery or set of batteries
- 6.4. Operation
 - 6.4.1. Provide visual and audible confirmation of the signal status and/or change
 - 6.4.2. Capable of calling a programmed signal phase to green
 - 6.4.3. Capable of controlling the PTS when operating as a pilot car control signal

Comply: ___ Yes ___ No

