

JUNO BEACH POLICE DEPARTMENT

MEMORANDUM

TO: JOSEPH F. LO BELLO, TOWN MANAGER
FROM: CHIEF BRIAN SMITH *BS*
MATTHEW PAZANSKI, FINANCE DIRECTOR
SUBJECT: EQUIPMENT PURCHASE-MESSAGE BOARD-FROM DONATION
DATE: APRIL 15, 2016

BACKGROUND

The Town received a donation of \$15,000.00 from the Frenchman's Creek Charities Foundation for the purchase of a Roadside Portable Message Board. We currently own one functioning unit and requested the funds to purchase a second unit. The Town utilizes the message boards to alert drivers of road closures, special event dates, general law enforcement reminders, etc.

DISCUSSION

The Town received a generous donation from the Frenchman's Creek Charities Foundation in the amount of \$15,000.00. Staff proposes a new Solar Message Center Model #4000 Mast-Mini unit with a base cost, not to exceed \$15,000.00. Staff proposes to add an extended warranty to the unit. The current Solar Message Center Model #4000 Mast-Mini unit works well in Juno Beach, offering functionality, user friendliness and effectiveness. Therefore, staff proposes that we purchase the same model.

The unit specifications and image are attached for your convenience.

RECOMMENDATION:

Staff requests Council's approval to purchase a Precision Solar Concepts, Inc. - Solar Message Center Model 4000 from QPR ShopWorx, not to exceed \$15,000.00. Funding is requested from Contingency through a \$15,000.00 donation from Frenchman's Creek Charities Foundation.

BS



SPECIFICATION
SOLAR MESSAGE CENTER
MODEL MMMC – 4000 MINI

1.0 INTRODUCTION

This specification shall describe a trailer-mounted, portable changeable sign upon which varying electronically generated lamp messages and graphics will be displayed to highway traffic as advisories or for the purposes of warning and/or control.

The equipment described shall be a standard model produced by a manufacturer with experience in the production of trailer-mounted traffic control products. All workmanship, materials, and assembly procedures shall be of quality design. Each component of the unit shall be adequate for and compatible with all structural and performance requirements of the complete unit. The equipment shall remain operational under inclement weather conditions.

1.1 DESCRIPTION

The Mast Mini Message Center manufactured by Work Area Protection Corp. is a trailer mounted variable message board consisting of LED lamp matrix panels powered by a bank of batteries in order to convey bright, distinctive messages to the traveling public. The batteries are in turn recharged automatically by a group of solar panels located at the highest point on the unit. The Solar Message Center is designed with sufficient energy backup to operate for a period of 15 days without any sun. The solar panel generator array shall recharge the battery bank at a rate of 2.5 hours sun to one 24 hour period of usage.

2.0 CONSTRUCTION REQUIREMENTS

2.1 GENERAL

The trailer and all mounted equipment shall be structurally adequate for unlimited, normal operation in wind velocities normally encountered on the roadway. The equipment shall be designed to enable one person to perform all transporting and operation functions easily and effectively without assistance.

2.2 Trailer

The 2-wheel trailer shall be structurally adequate to serve both as a carrier and as an operating platform for all components of the complete unit. The open deck design shall be 2 inches by 3 inches 11 gauge steel tubing, providing an adequate foundation for the unit. Welding shall join all tubing and all structural welds shall be continuous bead welds.

The axle shall be rated at 2,000 pounds capacity, and the suspension shall consist of 1400 pound leaf springs. Wheels and tires shall be a minimum of 14 inches and shall be rated for towing at on-highway speeds of 65 miles per hour. A plastic fender shall be installed over each wheel.

The mast pivot tube shall be .250" x 5" round carbon steel tubing.

The battery box shall be constructed from 14 gauge steel. The batteries shall be secured in position, and the enclosure lid shall be lockable using a single-latch/locking device.

The trailer tongue shall be .250" thick x 2 ½" square tubing x 60" overall length. A 2" ball type trailer hitch with double safety chains in accordance with SAE J684F shall be installed. A 2 ½" or 3" pintle ring hitch is optional. The tongue shall be removable.

Four crank type, heavy duty, industrial leveling jacks, one at each corner of the trailer deck mounted to the adjustable telespar outriggers shall be installed for maximum stabilization.

A lighting system shall be provided for the trailer, to include tail lights, stop lights, turn signals, license plate light and reflectors. A trailer electrical cable and connector compatible with towing vehicles shall be installed.

2.3 MESSAGE SIGN

The sign panel shall be of aluminum construction and so assembled as to prevent dissimilar metal action from occurring. The sign panel frame shall be an assembly made of aluminum alloy channel.

The size of the Mast Mini Message Center sign panel shall not exceed 96 inches wide by 48 inches high. The front face of the sign shall be covered with a UV inhibited polycarbonate to prevent fading.

The Mast Mini Message Center sign panel shall consist of one continuous LED lamp matrix which provides text messages as well as graphic symbols. The sign panel shall be capable of projecting two different size characters, ranging from 12 inches to 18

inches, as are created in the standard software. Double stroke fonts shall be projected in 12 inch letter heights. The full matrix panel shall consist of 25 LED lamp matrix pixels in height and 48 LED lamp pixels in length. Each pixel shall incorporate 4 LED's. Message color shall be approximately 590 nanometers.

In addition, 80 standard preprogrammed graphics symbols can be shown due to the full matrix capability.

The sign shall have the capability to display up to six (6) pages in message, with variable timing in 0.1 second increments under computer control. The entire sign shall completely change all lines of message in not more than 100 milliseconds.

The sign, when projecting 12 inch characters, shall be clearly visible and legible from a distance of 600 feet under both day and night conditions. Legibility shall increase proportionately to the size of the symbols. Under variable light level conditions, the sign shall automatically adjust its light source so as to meet the 600 feet legibility requirements without being too dim or too intense.

The Mast Mini Message Center sign panel shall incorporate a lifting mechanism with a 1,500 pound capacity hand-operated braking winch using ¼" wire cable. The mast shall be fabricated with 3" x 3" square steel tubing. The lifting sleeve shall be .250" formed steel, fully welded to the 2" x 2" square steel tube panel support frame. A locking device to secure the panel in the raised(display) and lowered(travel) position shall be provided. The bottom of the sign shall be at least 84 inches above the ground when in the raised position. In a transport position, the sign shall rest horizontally in a manner that effectively reduces aerodynamic drag during towing.

3 POWER AND MISCELLANEOUS REQUIRED EQUIPMENT

The power supply type shall be a battery bank consisting of two size 4-D, deep cycle, lead acid 12 volt DC batteries wired in parallel. The battery bank shall be housed in lockable heavy duty steel weatherproof battery box. The batteries shall be recharged by a solar panel array producing 110 watts of power.

4 System Control Requirements

The Mast Mini Message Center shall be controlled in all functions by an on-board dedicated computer that shall:

- a) Be of solid state design and be removable.

- b) Include a keyboard which user originated messages may be entered for display or storage.
- c) Include an LCD screen upon which messages can be reviewed before/during display on the message sign.
- d) Store 250 preprogrammed messages for display when called upon by the operator through the keyboard.
- e) Store 80 preprogrammed graphic messages/
- f) Store 100 user created multi-page messages.
- g) Maintain stored message list.
- h) Provide password protection.
- i) Provide control programming to display stored messages by operator control through keyboard entry.
- j) Provide control for moving arrow display.
- k) Provide automatic word centering without separate programming.
- l) Provide programming capability while message is being displayed.
- m) Include a scheduling (calendar) program to automatically start and stop the display of messages at predetermined times.
- n) Provide character board and battery diagnostics.

The computer and charge controller shall be modular to allow for ease of replacement. The computer and charge controller shall be housed in a separate, lockable, weather resistant enclosure, and shall be able to be removed and/or replaced with a standard Phillips screwdriver. Battery voltage and amperage generated from the solar array to the battery bank shall be monitored and displayed at the system's computer.

The charge controller shall incorporate a PV regulator with thermal compensation for variances in ambient temperature to regulate the charge rate to the battery bank.

The Mast Mini Message Center shall incorporate an automatic intensity control feature to keep the LED intensity constant and not vary due to battery bank voltage. This allows the message center to maintain a constant legibility distance any time the unit is operational. The Solar Message Center also incorporates a photocell to reduce lamp intensity at night to reduce glare.

MAST MINI MESSAGE CENTER
-GENERAL SPECIFICATION-

TRAILER SPECIFICATIONS:

TRAILER HEIGHT - TRAVEL POSITION.....100"
TRAILER HEIGHT - ERECTED POSITION.....134"
TRAVEL WIDTH.....68"
TRAILER LENGTH WITH TONGUE.....107"
TRAILER LENGTH WITHOUT TONGUE.....55"
TRAILER WEIGHT.....850 LBS.

MAIN FRAME: 2 X 3 X 11 GA. FORMED CHANNEL
TONGUE : 2 ½ X 2 ½ X .250 SQUARE STEEL TUBING
SOLAR PANEL ARRAY FRAME: .125" ALUMINUM ANGLE

MESSAGE CABINET: WIDTH.....95.5"
HEIGHT.....48"
DEPTH - INCLUDING SOLAR PANEL
ARRAY.....40.25"
DEPTH - TOP-WITHOUT SOLAR PANEL
ARRAY.....5.0"
DEPTH - BOTTOM.....5.0"
POLYCARBONATE WINDOW THICKNESS - .125"
CABINET DELTA - TYP.....20° F

AXLE CAPACITY.....2000 LBS.
LEAF SPRING CAPACITY..... 1400 LBS.
FENDERS: FORMED PLASTIC
BATTERY ENCLOSURE - ONE: 14 GAUGE STEEL
SWING JACK CAPACITY.....2000 LBS.
SWING JACK TRAVEL.....10"

SMC CENTRAL PROCESSING UNIT
- CPU SPECIFICATIONS:

PROCESSOR.....PC-104 386 33 MHz
POWER REQUIREMENTS.....500 mA @ 12V DC
MEMORY TYPE & SIZE.....4 MB STATIC RAM

MEMORY BACK – UP: SRAM/3 YEAR LIFE
TEMPERATURE.....-25° TO +50° C
HUMIDITY.....95% NON-CONDENSING

DISPLAY TYPE: LIQUID CRYSTAL DISPLAY-LCD
SCREEN SIZE.....320 X 240 DOT PIXELS
INTERFACES: RS232, ETHERNET OPTIONAL

LED LAMP MATRIX SPECIFICATION:

PIXEL SIZE.....0.75" X 0.75"
OPERATING TEMPERATURE.....-55° C TO 100° C

CONTRAST ENHANCEMENT FEATURES:

- * BLACK BACKGROUND
- * LED FULL LAMP MATRIX

ELECTRICAL CONTROL:

- * COMPUTER CONTROLLED/AUTOMATIC INTENSITY CONTROL-
ADJUSTS LED OUTPUT WITH VARIANCES OF AMBIENT LIGHT AND
TEMPERATURE / PHOTOCCELL CONTROLLED
- * OVERCURRENT PROTECTION: PREVENTS WAVELENGTH SHIFT
OVER TEMPERATURE AND CURRENT VARIATIO

SOLAR GENERATOR SPECIFICATIONS:

SOLAR PANEL ARRAY..... 110 WATT MINIMUM
OPERATING VOLTAGE.....12 VDC
BATTERY BANK: TWO 4D DEEP CYCLE 12 VOLT BATTERIES 468

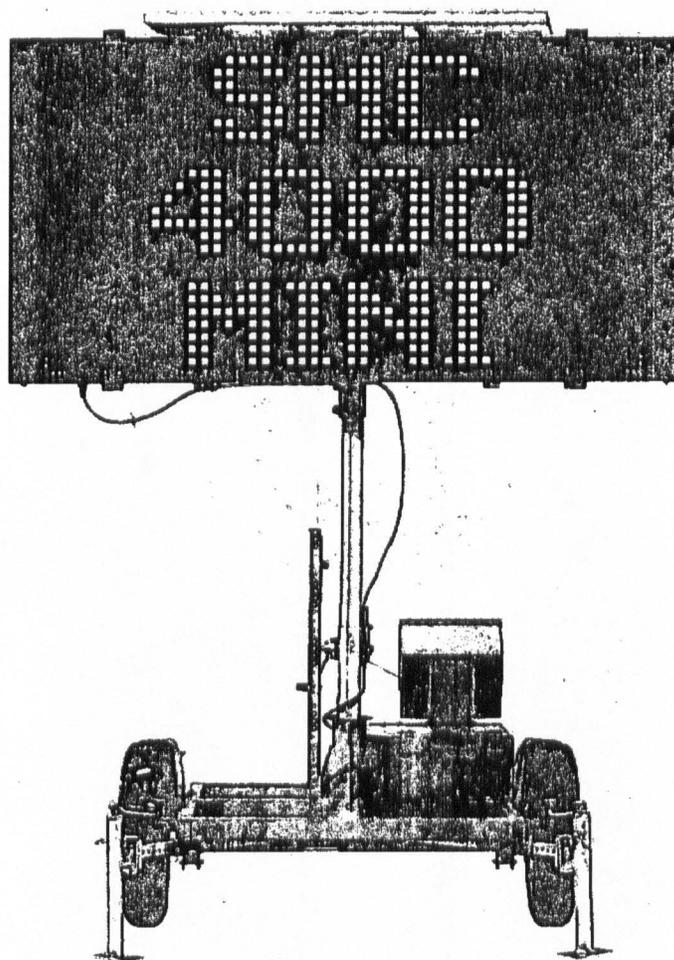
AMP HOURS TOTAL
CHARGE CONTROLLER: SERIES REGULATOR WITH THERMAL
COMPENSATION
LOW VOLTAGE DISCONNECT.....11.2 VDC
AC/DC BATTERY CHARGER.....25 AMP

SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE

Precision
ES
Controls Inc.

Solar
Message
Center

INTRODUCING
The



THE ALL NEW SOLAR MESSAGE CENTER
FULL MATRIX
SMC 4000 MAST-MINI



Marketed and Distributed by
Work Area Protection

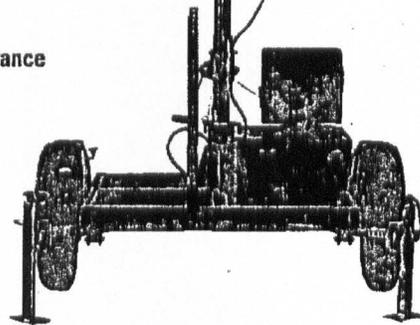


Precision Solar Controls has been recognized as the industry benchmark for quality and performance since the introduction of the original Solar Message Center.

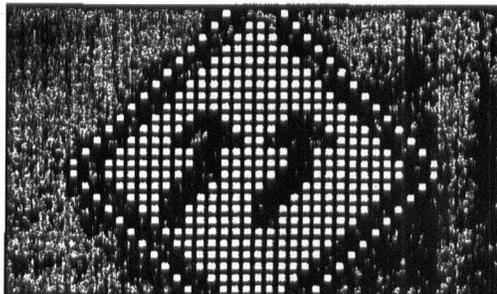
Manufactured to the same quality standards Precision Solar Controls is recognized for, the new SMC 4000 Mast-Mini message center deploys in places larger signs cannot.

You'll get just the features you want, in a compact design.

- Energy-efficient LED display provides minimal battery maintenance and long operational life
- Automatic intensity control provides optimum LED intensity
- Industrial-grade trailer provides stable platform
- 4 leveling jacks with slide out extensions provide stability when deployed
- Powder-coat paint for improved fade and scratch resistance
- Calendar programming capability
- Full Matrix display provides graphic messages and arrow board capability



- Graphic and Arrow Board functions available



- On-board dedicated NTCIP controller provides easy programming with secure password protection



 Precision
Solar
Controls Inc.
800-686-7414

System Integrity

The SMC 4000 Mast-Mini is capable of operating independently of sunlight for 21 days using the 2 batteries in the battery bank. The solar array is sized to provide one day's power requirement in just 2.5 hours of good sunlight. This combination of extended day's use from the battery bank and quick recharge capability from the solar array result in a viable solar-assist system that will provide years of service with minimal maintenance.

Sign Flexibility

The SMC 4000 Mast-Mini is designed for use in areas where space is limited, and provides variable character fonts with both 12" and 18" character heights.

Standard NTCIP-Compliant Controller

A user-friendly, NTCIP-compliant, dedicated computer designed by Precision Solar Controls reduces the number of keys required to program the SMC 4000 Mast-Mini.

Full Matrix Display

The SMC 4000 Mast-Mini provides 250 text, 60 graphic and 20 arrow board display messages preprogrammed and stored in the controller. Additionally, 100 user-created messages can be programmed and stored.

Industrial-Grade Structural Steel Trailer

The SMC 4000 Mast-Mini uses a durable trailer system designed to provide years of dependable service. The trailer's high-quality, powder-coat paint, 2" x 3" 11-gauge steel frame, and a 2,000-pound axle enhance the overall durability of the unit.

Modular Electronic Componentry

The entire system was developed with the operator/end user in mind: Electronic components are easily replaced, reducing downtime and maintenance costs. This modularity also improves system diagnostics.

SMC 4000 Mast-Mini Unit Specifications

- Raised height – 134" (3.4 m)
- Travel height – 102" (2.6 m)
- Width – 68" (1.73 m)
- Length with tongue – 107" (2.72 m)
- Length w/o tongue – 55" (1.4 m)
- Weight – 850 lbs. (385.5 Kg)
- Energy Source – (2) 4D Deep Cycle batteries
- Autonomy – 21 days
- Generator – Solar Panel Array
- Operating Temperature Range – -20 to +120 degrees F (-29 to +49 degrees C)
- Lift Mechanism – 1,500 lbs. brake winch
- Main Frame – 2" x 3" x .120" high grade steel

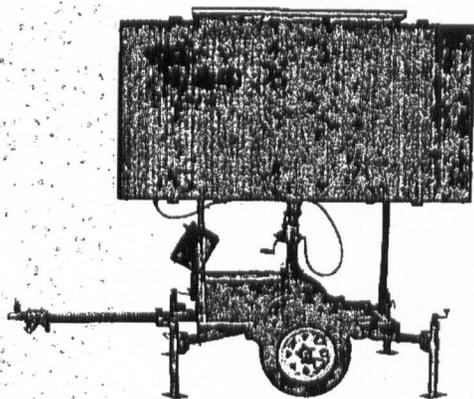
Sign Case Specifications

- Height – 48" (1.22 m)
- Width – 96" (2.43 m)
- Character Height – 12" (30.48 cm) and 18" (46 cm)
- Lamp – LED (4 per pixel)
- Legibility – 1000 ft. (304 m)

SMC Computer Specifications

- Control Console Display: LCD
- Pre-programmed messages: 250
- User programmed messages: 100
- NTCIP-compliant software
- Update speed: 100 Milliseconds
- Removable Solid State Design
- Off-the-shelf QWERTY keyboard

Specifications are subject to change without notice.



► The SMC 4000 Mast-Mini shown in travel position

OPTIONS

The new SMC 4000 Mast-Mini Solar Message Center. Start with the basic board, then choose the options you want. All...or none.

Remote Communication System Provides NTCIP-compliant remote programming with mapping capability. Diagnostics, including pixel out detection is also provided.

Radar Option Enables the message board to display the speed of approaching vehicles.

Increased Autonomy / Recharge Capability Additional battery(ies) are available for extended autonomy. Additional solar panels are available to recover battery voltage quicker.

Optional Brake Systems Both electric and surge brakes are available.

Tilting / Rotating Solar Panels The solar array can tilt for cleaning, or rotate to increase solar charge.

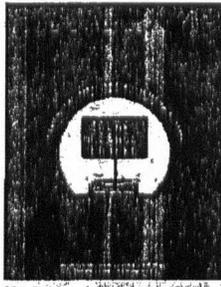
Pintle / Combination Hitch Option A 3-inch pintle ring, and a combination 2-inch ball with 3-inch pintle hitch coupler are available.

Steel Fenders / Steel Battery Box Heavy-duty walk-on steel fenders and steel battery box are available.

6-Volt Battery Bank

Custom Paint

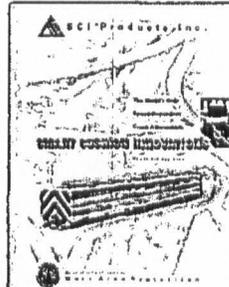
Other catalogs available to you from the Work Area Protection Family of Products



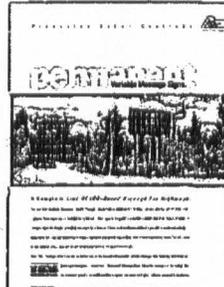
Solar LED Message Centers



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