

WORK AREA PROTECTION



WORK AREA PROTECTION'S Line of Precision Solar Products

Work Area Protection Corporation is one of the driving forces in the traffic safety industry, leading the way in the development of innovative technologies. We offer a wide range of work zone safety products all designed to ensure the safety of the workers and motorists entering a work zone environment.

As a manufacturer since 1969, Work Area Protection has the vast experience in manufacturing trailers of all types to meet the demand of a safety conscious market. With brands including



Precision Solar Controls, Arrowmaster and ASTI, Work Area Protection brings a portfolio of products that will cover all of your safety needs. Learn more by visiting us at www.workareaprotection.com or calling us at (630) 377-9100.



CONTENTS

Message Boards	4-5
SMC 1000 ST	6-7
SMC 1000.....	8-9
SMC 2000 FM ST	10-11
SMC 2000.....	12-13
SMC 4000 Mast-Mini	14-15
SMC 5000 Mast-Mini	16-17
Options & Accessories.....	18
SMC Modular Components.....	19
Asset Tracker & Remote Programming System.....	20-21

Arrow Boards	22-23
ArrowMaster Pro-Line Solar-Assisted Advance Warner.....	24-25
Work Area Solar-Assisted Advance Warner	26-27
Vehicle-Mounted Arrow Boards	28
ConSAM Construction Speed Awareness Monitor	29

Smart Work Zone Systems	30-31
Queue Trailer	32
Mobile Video Trailer.....	33
Variable Speed Limit Trailer.....	34
SMC Message Board Trailers	35
Computerized Highway Information Processing System.....	36

- SMC 1000 ST
- SMC 1000
- SMC 2000 FM ST
- SMC 2000
- SMC 4000 Mast-Mini
- SMC 5000 Mast-Mini
- Options & Accessories
- Asset Tracker & Remote Programming System



MESSAGE BOARDS





The Work Area Protection line of Precision Solar Controls (PSC) Variable Message Signs is a pioneer in traffic safety products having introduced the first LED, Battery/Solar Powered trailers to the industry over 20 years ago. The PSC brand is behind many of the innovations that are now considered to be standard in work zones all around the world.

The Precision Solar Controls line of mini message boards are available for truck and trailer-mounted applications including the Display Only (4'x8' & 3'x6') with all electronics, CPU and power cables.

SMC 1000 ST

Three-Line Solar Message Center

Manufactured to the same quality standards Precision Solar Controls is recognized for, the SMC 1000 ST meets all the requirements of the MUTCD.

Standard Features

- On-board dedicated NTCIP-compliant controller
- 5 LEDs per pixel provide uniform light output
- 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
- Powder-coat paint for improved fade and scratch resistance
- 6 lockable polycarbonate slide-out windows provide easy access to components



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





Ease of Computer Programming

A user-friendly dedicated computer designed by Precision Solar Controls reduces the number of keys required to program the Message Center. The unit provides NTCIP compliant functionality.

LED Lamp Pixel Design

The SMC 1000 ST uses 5 high-intensity, solid-state LEDs per 2-inch pixel. This creates a more uniform light output in each pixel, resulting in increased message definition and distance legibility.

Industrial-Grade Structural Steel Trailer

The SMC 1000 ST uses a durable trailer system designed to provide years of dependable service. The trailer's high-quality, powder-coat paint; 2"x 4" 11-gauge steel frame; and a 3,500-pound suspension system enhance the overall quality 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.



- Six 6-Volt Deep Cycle Batteries and hydraulic pump are standard

SMC 1000 ST Unit Specifications

- Raised height – 158" (4.01 m)
- Travel height – 103" (2.61 m)
- Width – 96" (2.43 m)
- Length with tongue – 168" (4.26 m)
- Length w/o tongue – 130" (3.3 m)
- Weight – 1920 lbs. (870.89 Kg)
- Energy Source – (6) 6-volt Deep Cycle batteries
- Generator – solar panel array
- Operating Temperature Range – -20 to +120 degrees F (-29 to +49 degrees C)
- Lift Mechanism – Leak resistant electro-hydraulic
- Main Frame – 2" x 4" x .120" high grade steel

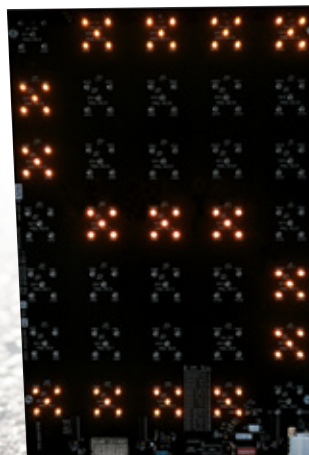
Sign Case Specifications

- Height – 70" (1.76 m)
- Width – 127" (3.22 m)
- Character Height – 18" (46 cm)
- Lamp – LED (5 per pixel)
- Legibility – 1000 ft. (304 m)
- Characters – 3 rows, 8 characters per row

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.



- 5 LEDs per pixel enhance light output and provide a more uniform pixel definition

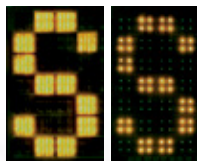
SMC 1000

Solar Message Center

The SMC 1000 Solar Message Center is a portable, changeable message sign consisting of advanced LED (light-emitting diode) lamp matrix panels. These character panels use patented optical assemblies that emit bright, distinctive messages to the traveling public. They enhance legibility and visibility while requiring less power than other types of illuminated signage.

Standard Features

- Industrial-grade trailer to give years of dependable service
- Flashing message function
- Built-in 25 amp / 120 Volt A/C battery charger
- 360° message panel rotation
- 365-day/calendar program
- Heavy-duty surge brakes (optional)
- Optically enhanced LED Lamp Matrix – Illuminates entire 2" pixel (below left)
- Top solar panel mounting for maximum exposure to sun without system shadows
- On-board dedicated computer provides:
 - 350 message capacity
 - NTCIP-compliant programming capability
- UV-inhibited clear polycarbonate panel
- Efficient long life L.E.D. lamps – 10 year average operational life
- 4 leveling jacks for proper placement and stability
- Easily accessible message panel
- Automatic intensity control
- 12 volt non-hazardous operation
- Sighting device to assure proper directional alignment



PSC Optically
Enhanced Lamp

Bare LED
Display



Solar-Assist Power

The SMC 1000 is powered by batteries, which are continually recharged by solar panels for long-lasting service. Solar power means no diesel fuel required, no pollution, noise, fuel costs, fuel exhaust, engine maintenance and caustic pavement erosion.

LED Lamp Matrix Design

The SMC 1000 features a solid-state LED lamp matrix with patented optical technology. That means increased legibility and message definition for safer traffic conditions.

Modular Electronic Components

The entire system was developed with the operator in mind. Modules are easily replaced, dramatically reducing downtime and maintenance costs.

Superior Truncated Panel Design

The innovative message panel shape was developed to reduce both headlight and sunlight glare. The design provides clearer, more distinct message to the reader.

Ease of Computer Programming

A user-friendly dedicated computer designed by Precision Solar Controls reduces the number of keys required to program the Message Center. The unit provides NTCIP-compliant functionality.

Industrial-Grade Structural Steel Trailer

The SMC 1000 uses a durable trailer support system designed to provide years of dependable service. The trailer's high quality automotive paint, 2" x 6" 11-gauge steel frame and a 3500-pound suspension system reflect the quality of the overall construction.



SMC 1000 HE Unit Specifications

- Raised height – 162.5" (4.12 m)
- Travel height – 105.5" (2.68 m)
- Width – 93" (2.36 m)
- Length with tongue – 194.5" (4.94 m)
- Length w/o tongue – 150" (3.81 m)
- Weight – 2518 lbs. (1142 Kg)
- Energy Source – (3) 4D Deep Cycle batteries
- Generator – solar panel array
- Temperature range – (-) 20° F / 120° F (-29° C / 49° C)
- Lift mechanism – Leak resistant electro-hydraulic
- Main Frame – 2" x 6" x .120" high grade steel (5.08 cm x 15.24 cm x .30 cm)

Sign Case Specifications

- Height – 76" (1.93 m)
- Width – 127" (3.22 m)
- Character Height – 18" (46 cm)
- Lamp – Optically enhanced L.E.D.
- Legibility – 1000 ft. (304 m)
- Characters – 3 rows, 8 columns
- Illumination – Active L.E.D.

SMC Computer Specifications

- Control Console Display: LCD
- Pre-programmed messages: 250
- User-Programmed Capability: 100 messages
- NTCIP-compliant software
- Flash Rate: Adjustable
- Update Speed: 100 Milliseconds
- Removable Solid State design
- Off-the-shelf QWERTY keyboard
- Console box light for night operation

Specifications are subject to change without notice.



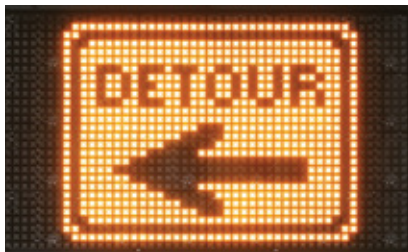
SMC 2000 FM ST

Full-Matrix Solar Message Center

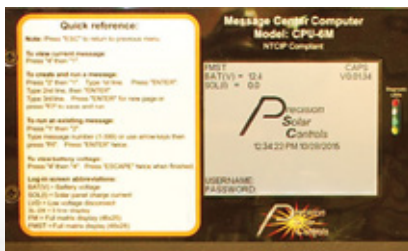
Manufactured to the same quality standards Precision Solar Controls is recognized for, the SMC 2000 FM ST meets all the requirements of the MUTCD.

Standard Features

- 5 LEDs per pixel provide uniform light output
- 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
- 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 displays available



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





Full Matrix Design

The continuous, full matrix design allows the display of messages using text, graphic symbols or both. Graphic symbols are displayed at a standard 50-inch height and text messages are displayed using either 20" or 28" tall characters.

LED Lamp Pixel Design

The SMC 2000 FM ST uses 5 high-intensity, solid-state LEDs per 2-inch pixel. This creates a more uniform light output in each pixel, resulting in increased message definition and distance legibility.

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 2000 FM ST.

Full Matrix Display

The SMC 2000 FM ST 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 2000 FM ST uses a durable trailer system designed to provide years of dependable service. The trailer's high-quality, powder-coat paint; 2"x 4" 11-gauge steel frame; and a 3,500-pound suspension system enhance the overall quality 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 2000 FM ST Unit Specifications

- Raised height – 163" (4.14 m)
- Travel height – 104" (2.64 m)
- Width – 96" (2.43 m)
- Length with tongue – 168" (4.26 m)
- Length w/o tongue – 134" (3.4 m)
- Weight – 1875 lbs. (850.5 Kg)
- Energy Source – (6) 6-volt Deep Cycle batteries
- Generator – solar panel array – 140 Watt
- Operating Temperature Range –
-20 to +120 degrees F (-29 to +49 degrees C)
- Lift Mechanism – Leak resistant electro-hydraulic
- Main Frame – 2" x 4" x .120" high grade steel

Sign Case Specifications

- Height – 79.5" (2.02 m)
- Width – 133" (3.38 m)
- Character Height – 18" (46 cm)
- Lamp – LED (5 per pixel)
- Legibility – 1000 ft. (304 m)

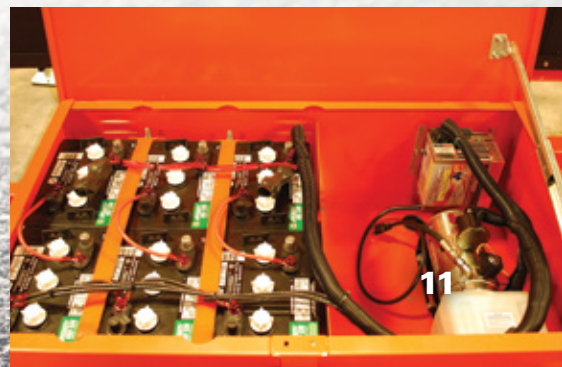
SMC Computer Specifications

- 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 2000 FM ST shown in travel position



SMC 2000

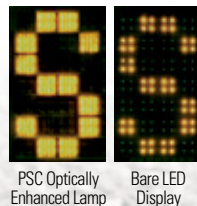
Full-Matrix Solar Message Center

As the pioneer in the design of LED-based, solar powered, changeable message signs, Precision Solar Controls offers the Full-Matrix Solar Message Center. Full-matrix display allows graphic symbols, as well as variable text heights from 20 to 28 inches for safer work zones.

The Model SMC 2000 Message Center is a portable, changeable message sign consisting of LED lamp matrix panels and special optical assemblies in a continuous "Full-Matrix" format. This allows you to display text messages using characters up to 28 inches in height and graphic symbols that are even larger.

Standard Features

- Industrial-grade trailer to give years of dependable service
- Built-in 25 amp / 120 Volt A/C battery charger
- 360° message panel rotation
- 365-day/calendar program
- Heavy-duty surge brakes (optional)
- Optically enhanced LED Lamp Matrix – Illuminates entire 2" pixel (below left)
- Top solar panel mounting for maximum exposure to sun without system shadows
- Expanded memory storage capacity:
 - 60 graphic messages
 - Arrow board function capability
 - 350 message capacity
 - NTCIP-compliant programming capability
- UV-inhibited clear polycarbonate panel
- Efficient long life L.E.D. lamps – 10 year average operational life
- 4 leveling jacks for proper placement and stability
- Flashing message function
- Easily accessible message panel
- Automatic intensity control
- 12 volt non-hazardous operation
- Sighting device to assure proper directional alignment



PSC Optically
Enhanced Lamp

Bare LED
Display



Full-Matrix Design

The continuous, full-matrix design allows the display of messages using text, graphic symbols or both. Graphic symbols are displayed at a standard 50-inch height and text messages are displayed using either 20" or 28" tall characters.

LED Lamp Matrix

The SMC 2000 uses advanced LED technology. The LEDs are positioned under special optics, enhancing the light from each pixel and making the message legible from up to 1,400 feet away.

Solar-Assist Power

The Full-Matrix Message Center is powered by deep-cycle batteries for long-lasting service. The batteries are recharged by a solar panel array sized to provide optimum charge capability.

Pre-Programmed Text And Graphics

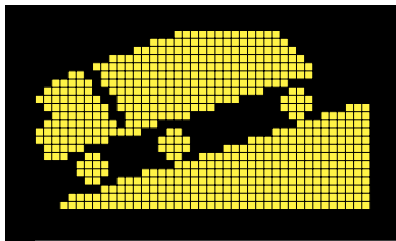
The SMC 2000 comes standard with 250 text messages and 60 graphic symbols in the system's computer. The pre-programmed messages help minimize set-up time, making overall operation easier. Additionally, the unit has the capacity to include 100 customized messages.

Remote Programming Capability

In conjunction with the remote communication option, the SMC 2000 gives you the ability to create messages from a remote location using a laptop or desktop computer.

Proven System Integrity

Since releasing the Solar Message Center, we have put thousands of units in operation around the world. The SMC 2000 is unmatched in reliability and performance. It is a truly intelligent transportation information system.



SMC 2000 FM Unit Specifications

- Raised height – 164" (4.16 m)
- Travel height – 107" (2.71 m)
- Width – 93" (2.36 m)
- Length with tongue – 194.5" (4.94 m)
- Length w/o tongue – 144" (3.65 m)
- Weight – 2700 lbs. (1224.7 Kg)
- Energy Source – 4D Deep Cycle batteries
- Generator – solar panel array
- Temperature range – (-) 20° F / 120° F (-29° C / 49° C)
- Lift mechanism – Leak resistant electro-hydraulic with optional manual backup
- Main Frame – 2" x 6" x .120" high grade steel (5.08 cm x 15.24 cm x .30 cm)

Sign Case Specifications

- Height – 76" (1.93 m)
- Width – 139" (3.53 m)
- Character Height – 20" (50.8 cm), 28" (71.1 cm)
- Lamp – Optically enhanced L.E.D.
- Legibility – up to 1400 ft. (427 m)
- Full matrix pixels – 25 rows / 48 columns
- Illumination – Active L.E.D.

SMC Computer Specifications

- Control Console Display: LCD
- Pre-programmed messages: 250
- User-Programmed Capability: 100 messages
- Flash Rate: Adjustable
- Update Speed: 100 Milliseconds
- Removable Solid State design
- Off-the-shelf QWERTY keyboard
- Console box light for night operation

Specifications are subject to change without notice.



SMC 4000 Mast-Mini

Full-Matrix Solar Message Center (4' x 8' Display)

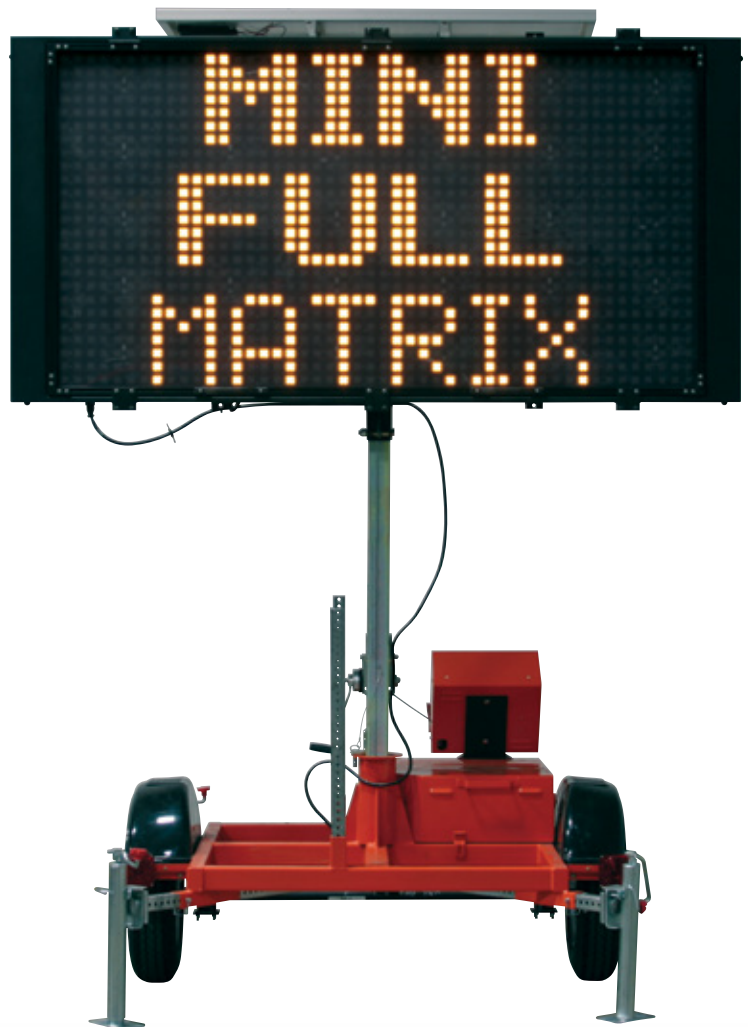
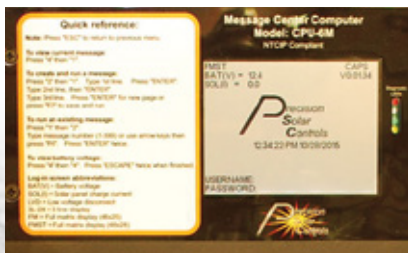
Manufactured to the same quality standards Precision Solar Controls is recognized for, the SMC 4000 Mast-Mini message center deploys in places larger signs cannot. The 4' x 8' Display Only, including all Electronics, CPU and AC power cables, can be purchased for truck and trailer-mounted applications.

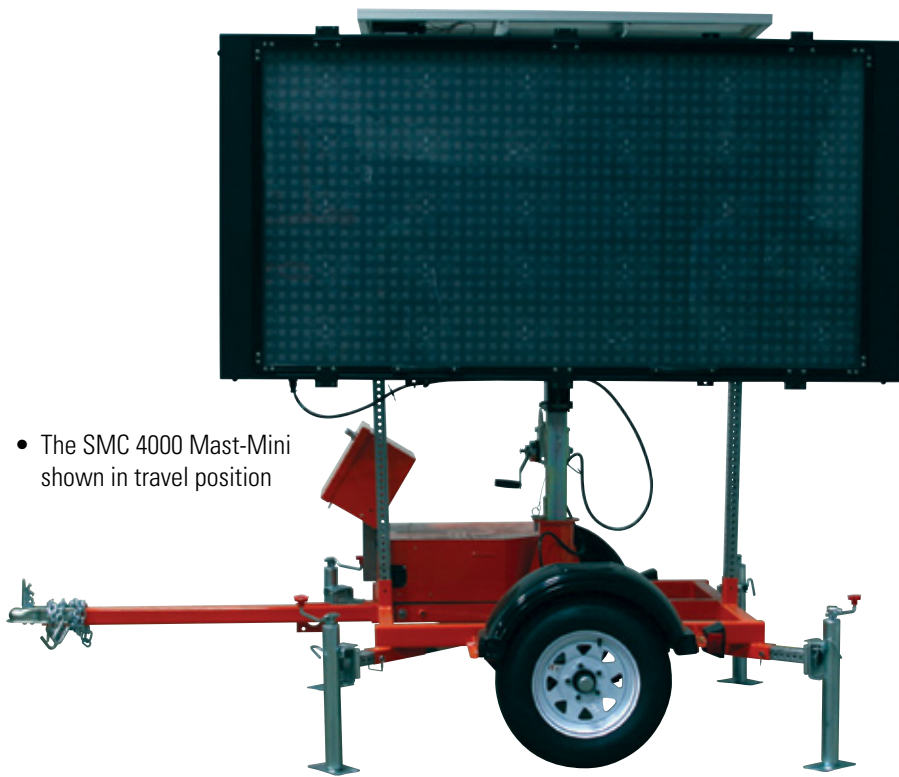
You'll get just the features you want, in a compact design.

- 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 displays available



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





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
- 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

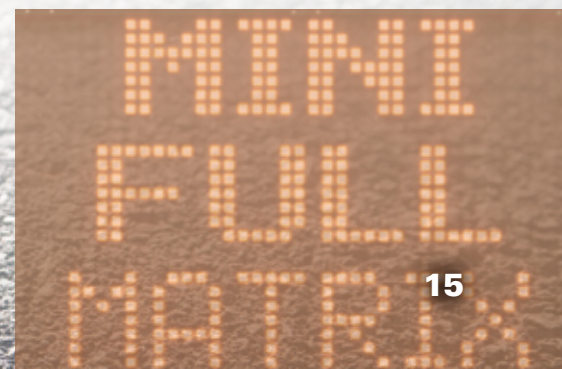
Sign Case Specifications

- 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.



SMC 5000 Mast-Mini

Full-Matrix Solar Message Center (3' x 6' Display)

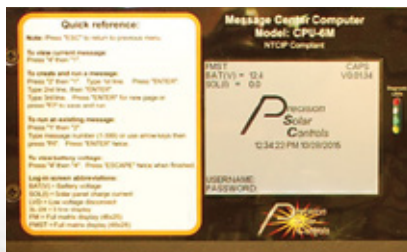
The All New SMC 5000 Mast-Mini message center provides the same features as the SMC 4000 but in a smaller more compact display ideal for locations where larger message centers cannot be deployed. The 3' x 6' Display Only, including all Electronics, CPU and AC power cables, can be purchased for truck and trailer-mounted applications.

Provides maximum visibility with a full-matrix display while utilizing minimal space.

- 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 displays available



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



- The SMC 5000 Mast-Mini shown in travel position



Sign Flexibility

The SMC 5000 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 5000 Mast-Mini.

Full Matrix Display

The SMC 5000 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 5000 Mast-Mini uses a durable trailer system designed to provide years of dependable service. The trailer's high-quality, powder-coat paint; 2"x3" 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 5000 Mast-Mini Unit Specifications

- Raised height – 131" (3.3 m)
- Travel height – 99" (2.5 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 – (4) 6-volt Deep Cycle batteries
- Generator – solar panel array - 140 Watt
- 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 – 44" (1.11 m)
- Width – 77" (1.95 m)
- Character Height – 9" (22.86 cm) - 37" (93.98 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.



Options & Accessories

Remote Communication System

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

Internet-Based Communications System - Accessible from any device with an internet web browser.

Verizon Modem (Sprint & AT&T also available) - 273042

Available in 3G and 4G service.

Radar Option

With Data Collection - PN 239548

Without Data Collection - PN 273920



Increased Autonomy/Recharge Capability

Optional Brake Systems

Electric Brake System - PN 270925

Surge Brake System - PN 270922

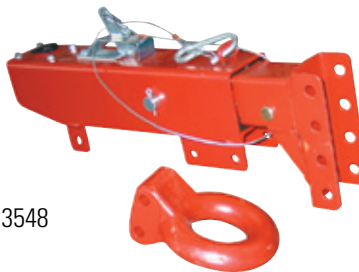
Tilting/Rotating Solar Panels

Tilting/Rotating Solar Panels - PN 275756

Pintle/Combination Hitch Option

Standard 3" Pintle Eye Ring Hitch - PN 273540

3" Pintle Eye Ring/2" Ball Combination Hitch - PN 273548



Steel Fenders

Steel Fenders - PN 272148

Custom Paint

SMC Modular Components

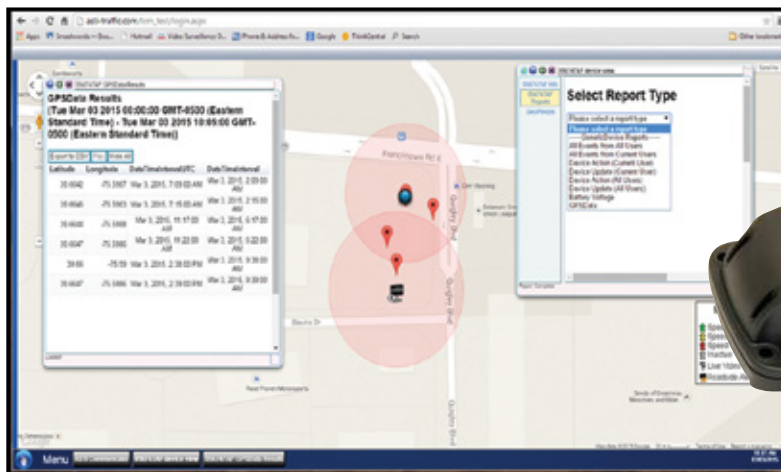


For replacement parts, call PSC Customer Service at 800-686-7414. For faster service, have trailer serial number and component number available.

Asset Tracker

GPS Remote Access System

TRACK any high value asset in your inventory
MONITOR all rental inventory and inventory location
VIEW real time and historical data and locations details



Specifications	
Enclosure	Sealed Plastic – SAE J1455, Section 4.4
Shock Resistance	20g, 11 msec per axis – SAE J1455 Section 4.10.3.4
Operating Vibration	2.4 gRMS, 10-100 Hz, 3 axes
Water Resistance	IP67 Pressure Wash to 1000 PSI
Operating Voltage	9 - 32 VDC Power Cable
Internal Antennas	CDMA, GPS
Battery Heater	Thaws Battery When Unit is Powered On

Features
Internet-Based System – Smart Phone/Tablet Accessible
Track Hours of Operation for Use and Billing
Quick, Easy, Stealth Installation
Can be Used on ANY Piece of Equipment
Status Change Notifications & Diagnostic Tool Box

Remote Programming System

Contractor and Platinum Grade Services Available

Real Time Message Updating & Control

Smart Phone/Tablet/Web Compatible

Battery Voltage Monitoring and Alerting

Detailed reports including charts and graphs



Specifications

Rugged Mobile 3G/4G Gateway
10/100 Base-T RJ45 Ethernet
RS-232 Serial Port
Operating Temperature: -30°C to +70°C / -22°F to +158°F
Input Voltage: 9 to 36 VDC
Approved for Deployment by Verizon, AT&T, Sprint, Rogers, Bell, Telus, Telstra
GPS Technology
Wi-Fi Option Adds 802.11 b/g/n Wi-Fi Hotspot (GX450, GX440, GX400)
I/O Option Adds 4 Digital I/O, 4 Analog Input, and a Second RS-232 Serial Port (GX450, GX440, GX400)
Ethernet Option Adds 2 More Ethernet Ports for a Total of 3 (GX450, GX440, GX400)

Contractor Grade Features

Real Time Message Updating and Control
Smart Phone/Tablet/Web Compatible
Hourly Polling and Monitoring
Diagnostic Tool Box
Secure User Access

Platinum Grade Features

Real Time Message Updating and Control	Historical Message Data Logger
Customizable Private Client Website	Message Change Alert
Smart Phone/Tablet/Web Compatible	Patented "CHIPS" Software
Minute by Minute Polling	Automated Alerts
User Activity Monitoring	IP Filtering For Secure User Access

- **ArrowMaster™ Pro-Line Solar-Assisted Advance Warner**
- **Work Area Solar-Assisted Advance Warner**
- **Vehicle-Mounted Arrow Boards**
- **ConSAM Construction Speed Awareness Monitor**



**ARROW
BOARDS**


ArrowMASter



The Work Area Protection line of Arrowmaster trailer- and truck-mounted arrow boards is a pioneer in traffic safety products having introduced the first LED, Battery/Solar Powered trailers to the industry over 20 years ago directing traffic safely and smoothly through road construction work zones. Powered by a solar-charged battery bank, these products provide high efficiency and low operating cost.

The Work Area Protection line of arrow boards is also available for truck- and trailer-mounted applications – including the display only, all electronics, controller and power cables.

ArrowMaster™ Pro-Line

Solar-Assisted Advance Warner

The Arrowmaster™ Pro-Line Solar-Assisted Advance Warner is a versatile, low-operating-cost arrow board that provides maximum visibility at all times while directing traffic through construction zones. This system is powered by a battery storage bank charged by a top-mounted, shadow-free solar panel. The Arrowmaster™ conforms to and, in most cases, exceeds all federal and state MUTCD specifications.

Available with 15 or 25 lights in both the standard and wide-angle models.

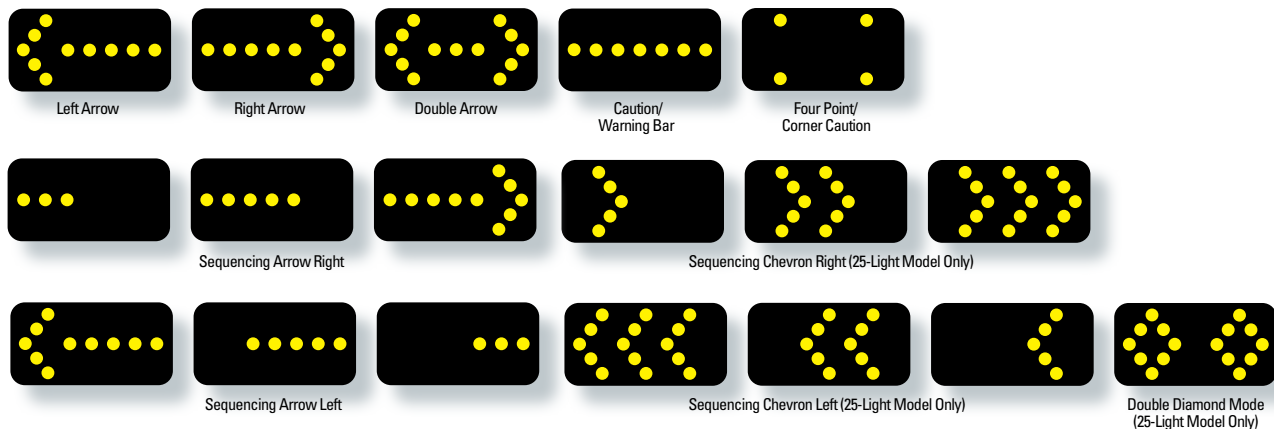
Features

- Solar Panel: Single, top-mounted unit in constant horizontal position
- Battery: Four 12V 18AH sealed maintenance-free batteries hidden inside the trailer deck
- Lamp: Fully sealed, 5" PAR 46 LED with high-impact plastic hoods
- Sign Panel: Full-sized 48" x 96" all-aluminum construction, sealed against the elements
- Controller: On-Board self-contained controller with 7 modes of operation
- Main Frame: 2" x 3" x .120" high-grade steel
- Axle: 2,000-lb. axle, 1,400-lb. leaf springs, roller bearings and hubs
- Tire Size: 205/75D14
- Removable Tongue: Designed for safety and security
- Hitch: 2" ball standard Pintle ring available as an option
- Battery Charger: Each unit is available with or without a battery charger. Frequent use of an AC charger will prolong battery life.
- Finish: Durable powder-coat paint
- Mast: 3"x 3"x 3/16" steel tube assembly



Meets **MUTCD**
Type C Requirements

15-Light & 25-Light Display Modes



The solar panel is positioned for maximum charging capabilities in both the operating and travel modes.

The Arrowmaster VI™ hi-tech, solid-state controller incorporates an automatic intensity control that keeps the lamps bright, even under low battery conditions. Auto-Trac provides an automatic, full-time tracking system that adjusts the lamp intensity to the ambient light conditions. The controller is located in an easy-to-access lockable location inside the back of the sign case with the batteries securely enclosed and hidden inside the trailer deck.

The 5", amber, PAR 46, LED lamp is a sophisticated, high-output, low-power-consumption, sealed-beam lamp with a life that is unparalleled by other conventional arrow board lamps. The lamp is backed by a five-year warranty.



Optically enhanced LED Lamps



15-Light Arrowmaster™ Pro-Line Unit

Model No.	Description
WAAW-PL15	Arrowmaster Pro-Line w/o Charger, Standard Angularity
WAAW-PL15C	Arrowmaster Pro-Line w/Onboard AC Charger, Standard Angularity
WAAW-PL15CW	Arrowmaster Pro-Line w/Onboard AC Charger, Wide Angularity

25-Light Arrowmaster™ Pro-Line Unit

Model No.	Description
WAAW-PL25	Arrowmaster Pro-Line w/o Charger, Standard Angularity
WAAW-PL25C	Arrowmaster Pro-Line w/Onboard AC Charger, Standard Angularity
WAAW-PL25CW	Arrowmaster Pro-Line w/Onboard AC Charger, Wide Angularity

Options

Model No.	Description
WAAW-PL-HP	Rear Ball Hitch Plate
WAAW-PL-BC	2-in. Bulldog Coupler
WAAW-2131	3-in. Pintle Ring Hitch
WAAW-PL-CH	Combination Hitch

Specifications

	15-Light	25-Light
Shipping Weight	850 lbs.	880 lbs.
Tongue Weight (Panel Down)	75 lbs.	75 lbs.
Tongue Weight (Panel Up)	75 lbs.	75 lbs.
Length with Tongue	116"	116"
Width	68"	68"
Traveling Height	93"	93"
Operation Height	142"	142"
Sign Panel Size	48"H x 96"W	48"H x 96"W
Number of Batteries	4	4
Battery Type	12V 18AH wired in parallel	12V 18AH wired in parallel

Work Area

Solar-Assisted Advance Warner

The Arrowmaster™ Pro-Line Solar-Assisted Advance Warner is a versatile, low-operating-cost arrow board that provides maximum visibility at all times while directing traffic through construction zones. This system is powered by a battery storage bank charged by a top-mounted, shadow-free solar panel. The Arrowmaster™ conforms to and, in most cases, exceeds all federal and state MUTCD specifications.

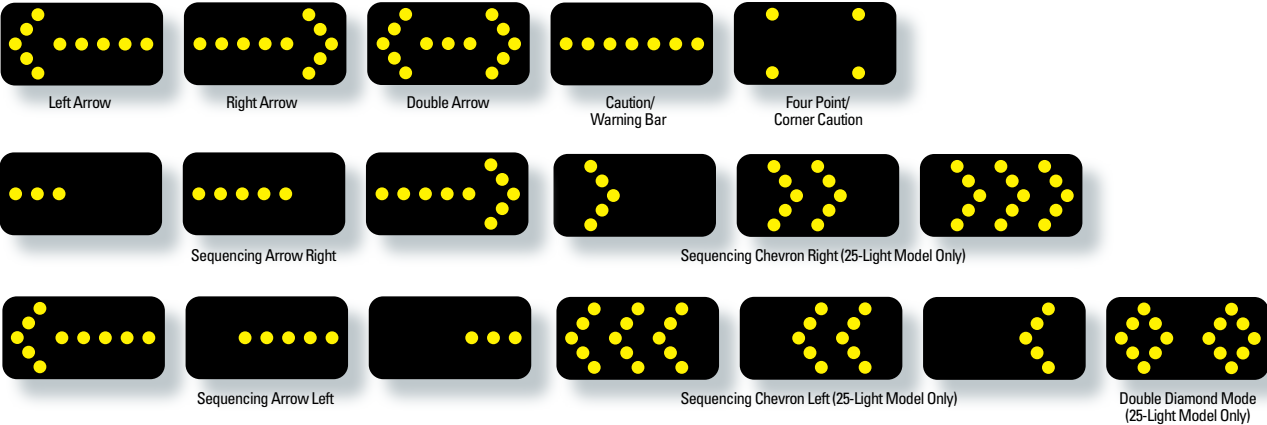
Available with 15 or 25 lights in both the standard and wide-angle models.

Features

- Solar Panel: Single, top-mounted unit in constant horizontal position
- Battery: Two 6 Volt GC -2 Wired to 12 Volt - 20 Ah Rate = 450 - 6 Ah Rate = 342 - 230 Minutes @ 75 Amps
- Lamp: Fully sealed, 5" PAR 46 LED with high-impact plastic hoods
- Sign Panel: Full-sized 48" x 96" all-aluminum construction, sealed against the elements
- Controller: Solid-state with durable rotary switch, full-mode configuration and LED display
- Frame Construction: Fully welded with 2,000-lb. axle, 1,000-lb. leaf springs, roller bearings and hubs
- Tire Size: P185/70R14
- Maintenance Access Cover: Easy-access design to reach batteries, controller and battery charger in a lockable enclosure; made of 14-GA steel
- Removable Tongue: Designed for safety and security
- Hitch: 2" ball standard Pintle ring available as an option
- Battery Charger: Each unit is available with or without a battery charger. Frequent use of an AC charger will prolong battery life.



15-Light & 25-Light Display Modes



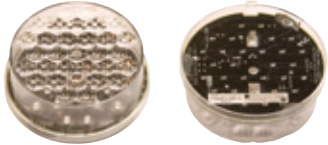
Shown with optional conspicuity tape option

The Arrowmaster V™ hi-tech solid-state controller incorporates an automatic-intensity control that keeps the lamps bright when under low battery conditions. "Auto-Track" provides an automatic full-time tracking system that adjusts the lamp intensity to the ambient light conditions. The 24-amp battery charger, the controller and the batteries are securely enclosed in a lockable, ventilated, insulated box designed to allow for easy removal of batteries.



Front of box folds down to allow for easy removal of the batteries

The 5" amber 46 LED lamp is a sophisticated, high-output, low-power-consumption sealed-beam lamp that provides for a lamp life unparalleled by other conventional arrow board lamps. The lamp is backed by a five-year warranty.



Optically enhanced LED Lamps

15-Light Arrowmaster™ Units

Model No.	Description
WAAW15LED-STD-M90EZ	Arrowmaster V w/onboard AC charger, 24° horizontal x 8° vertical standard angularity.
WAAW15LED-STD-M90EZ	Arrowmaster V w/o charger, 24° horizontal x 8° vertical standard angularity.
WAAW15LED-WA-M90EZ	Arrowmaster V w/onboard AC charger, 33° horizontal x 11° vertical wide angle angularity.
WAAW15LED-WA-M90EZ	Arrowmaster V w/o charger, 33° horizontal x 11° vertical wide angle angularity.

25-Light Arrowmaster™ Units

Model No.	Description
WAAW25LED-STD-M90EZ	Arrowmaster V w/onboard AC charger, 24° horizontal x 8° vertical standard angularity.
WAAW25LED-STD-M90EZ	Arrowmaster V w/o charger, 24° horizontal x 8° vertical standard angularity.
WAAW25LED-WA-M90EZ	Arrowmaster V w/onboard AC charger, 33° horizontal x 11° vertical wide angle angularity.
WAAW25LED-WA-M90EZ	Arrowmaster V w/o charger, 33° horizontal x 11° vertical wide angle angularity.

15-Light Skid-Mount Arrowmaster™ Units

Model No.	Description
15LT-M90EZ-SKID	Skid-mount arrow board. No axle, wheels or outriggers. Can be set in place on truck and clamped or bolted down. 24° horizontal x 8° vertical angularity.

Specifications

	15-Light	25-Light
Shipping Weight	940 lbs.	1,000 lbs.
Tongue Weight (Panel Down)	65 lbs.	75 lbs.
Tongue Weight (Panel Up)	125 lbs.	135 lbs.
Length	110"	110"
Width	96"	96"
Traveling Height	88"	88"
Operation Height	142"	142"
Solar Panel Watts	40 Watts	40 Watts
Sign Panel Size	48"H x 96"W	48"H x 96"W
Number of Batteries	2	2
Battery Type	6 Volt GC-2	6 Volt GC-2

Vehicle-Mounted Arrow Boards

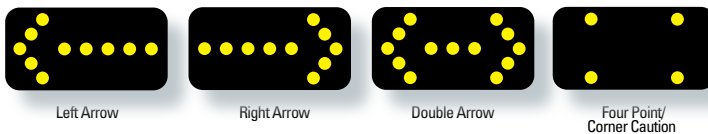
The Work Area Vehicle-Mounted Arrow Boards are your best choice for jobs that keep you on the move. The durable, all-aluminum units are easy to handle and ideal for short-term or temporary projects.

Features

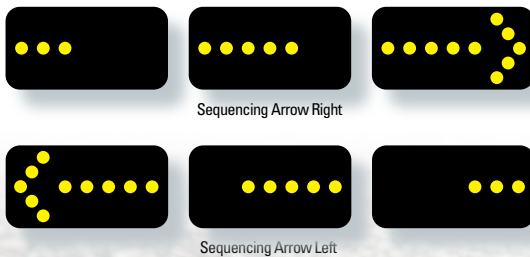
- Available in 4 sizes: 48" x 24", 60" x 30", 72" x 36" and 96" x 48"
- Available in 15- and 25-light models
- Durable, lightweight, all-aluminum construction
- Equipped with a spring-loaded locking device for added stability in both travel and display positions
- Available in manual or power-lift models
- Available in Par 36 or 46 LED lamps
- Solid-state controller provides photocell dimming to reduce nighttime glare
- Complies with MUTCD requirements



15-Light & 25-Light Display Modes



25-Light Display Modes



ConSAM Construction

Speed Awareness Monitor

The new ConSAM Construction Speed Awareness Monitor from Protection Services detects and displays the speeds of approaching vehicles to slow them down and protect workers. Combining solid-state electronics, LED display and solar panel battery recharging, this new monitor offers high reliability, low maintenance and long life along the side of the road.

Features

- Battery bank and solar panel array sized to provide continuous uninterrupted operation up to 18 days
- Top-mounted solar panel charges batteries in either travel or display position
- Solid state controller with thermal compensation assures optimum charge and extends battery life
- Clean, efficient solar energy
- Battery power eliminates refueling, noise and moving parts
- 18" optically enhanced LED display provides legibility up to 1000 feet
- Automatic intensity control assures distance legibility at all times, regardless of battery bank voltage
- Durable all-steel trailer for long service life
- Includes speed recording system, violator alert and maximum speed display cutoff feature



Trailer Specifications

- Height (travel position) – 93" (2.36 m)
- Height (display position) – 140" (3.56 m)
- Width (outside fenders) – 67" (1.7 m)
- Width (outside display sign) – 72" (1.82 m)
- Length – 112" (2.84 m)
- Weight – 1000 lbs. (453.59 Kg)
- Tire size – 14" (35.56 cm)

Radar Gun Specifications

- Detection distance – 1/4 to 1/2 mile
- Beam width – 12° conical

Display Characters Specifications

- Type – LED Lamp Matrix
- Display Legibility – 1000' (304.8 m)
- Size – 18" (45.72 cm)

Power Source Specifications

- Battery bank – Two 6-volt
- Solar panel array – One 55-watt panel



- Queue Trailer
- Mobile Video Trailer
- Variable Speed Limit Trailer
- SMC Message Board Trailers
- Computerized Highway Information Processing System



**SMART WORK
ZONE SYSTEMS**



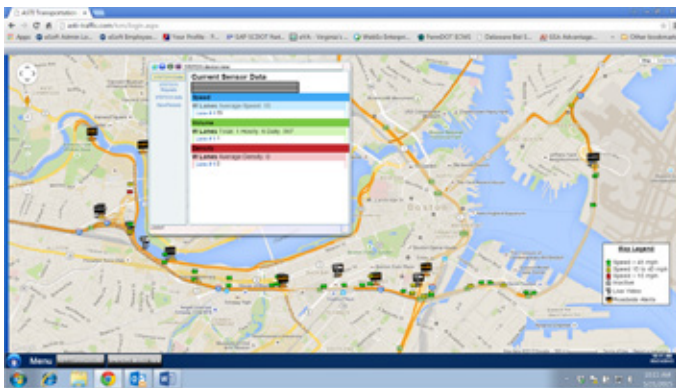


ASTI is the leading provider of Smart Work Zone Systems within North America. Those systems include the portable queue trailer using the highest quality Wavetronix sensor, the mobile video trailer for video management, any fleet of message board inventory for real time traffic condition reporting and travel time updating, and most importantly, the software needed to complete a quality system.

Queue

Trailer-Mounted Queue Detection

The Queue Trailer is a portable trailer that provides a versatile and lightweight platform with a small footprint to mount a microwave radar unit to detect speed, volume and occupancy for up to 22 lanes of traffic. When equipped with ASTI's communication package, the Queue Trailer can provide data remotely to a variety of information-gathering components.



Features

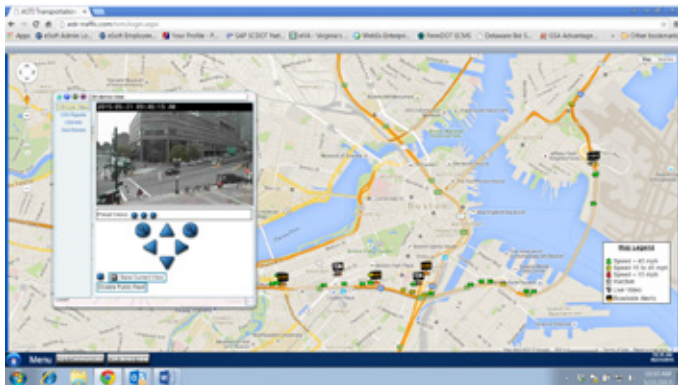
- Industrial-grade trailer to give years of dependable service
- Reports the speed, length and classification of individual vehicles
- Adjustable solar array for maximum exposure to sun
- Optional digital cellular communications
- Detects up to 22 lanes of traffic
- Accurately detects lane changing vehicles
- Available as a portable unit or permanent mount
- Removable tongue
- Battery bank sized for 30-day autonomy



MVT

Mobile Video Trailer

The MVT provides a portable, self-contained all-weather, trailer-mounted equipment platform. Through the use of wireless communication, the MVT provides the end user a rapidly deployable real-time video system viewable from a remote location. The MVT can be used as a stand-alone camera system or tied into a larger existing CCTV system.



Features

- Can use virtually any camera
- Additional mast heights available
- Day/Night, Adjustable
- Pan/Tilt/Zoom IP addressable cameras
- 32-ft. extendable mast with 360-degree lockable rotation
- Capable of providing streaming or snapshot video
- Optional electric hoist available for rapid deployment
- Battery bank sized for 30-day autonomy
- Industrial-grade trailer to give years of dependable service
- Microwave and digital cellular communications available
- 360-degree adjustable solar array for maximum exposure to sun
- Custom options are available and can include a Wavetronix sensor for traffic detection



VSL

Variable Speed Limit Trailer

The Variable Speed Limit Trailer can be utilized in both a fixed mounted application or portable application providing the best solution for your highway safety needs. An L.E.D. display allows optimum viewing for varying highway speeds. Through the use of wireless communication, the speed limit sign can be controlled from a remote location allowing rapid changing of the roadway speeds in the event of a road repair or inclement weather conditions.

Features

- Provides remote programming of posted speeds
- Allows speed adjustment based on conditions, traffic and weather
- Available in amber or white L.E.D.
- Available as portable unit or permanent mount
- Removable tongue
- Industrial-grade trailer to give years of dependable service
- L.E.D. display for maximum viewing for varying speeds
- Top solar panel mounting for maximum exposure to sun
- Battery bank sized for 30-day autonomy



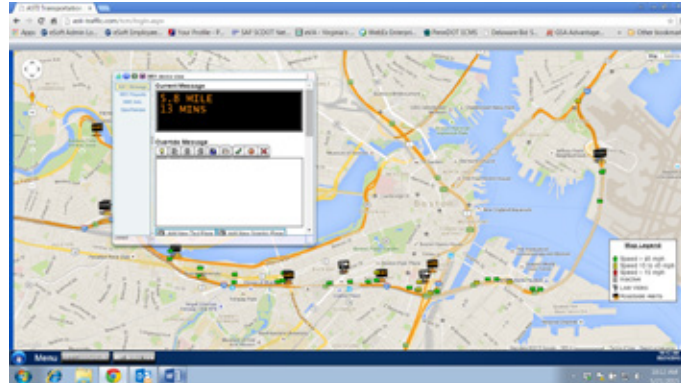


Message Board Trailers

One of the key components of a portable ITS System is to provide real time messages to the traveling public. The results of having real time traffic conditions posted to a message board fleet are:

- Alternate Routing and Trip Planning
- Reduction in Collisions and Accidents
- Decreased Volume through Work Zone
- Safer Work Zone for Workers
- Safer Experience for Motorists
- Convenient Travel Time Messaging

All SMC Message Board Trailers can be integrated into a portable solution providing the flexibility needed for all roadway conditions.



See pages 6-17 for product details

Computerized Highway Information Processing System

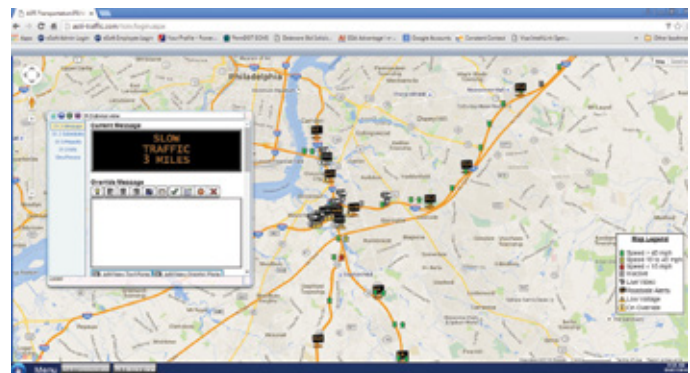
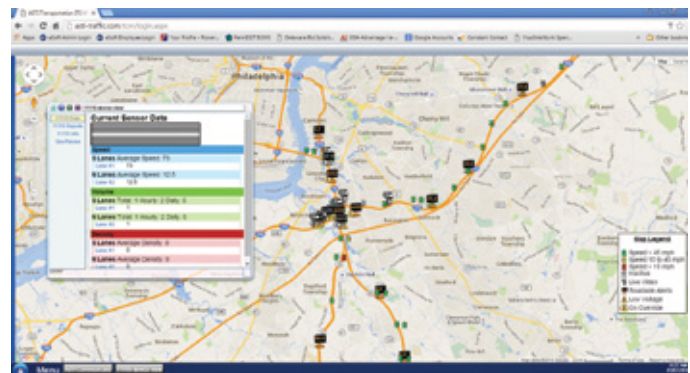
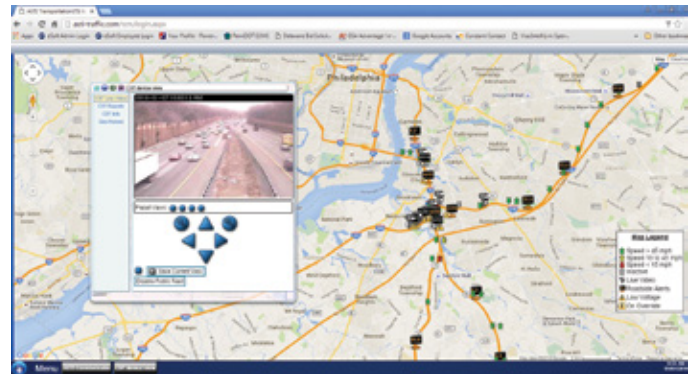
Computerized Highway Information Processing System "CHIPS" is a patented software/web-based system that is the core of an ITS solution. The web-based system provides a central location to monitor, track and control all ITS field devices in a secure and easy-to-use application.

By providing secure log-in access, the web-based system allows all approved users to have administration rights to not only view all real time traffic conditions, but also respond to incidents as quickly as they occur. This can include monitoring of all lanes to capture speed, volume, density and vehicle classification.

That data capture can then be disseminated via the website as well as a direct XML feed to stakeholders. The data can then provide historical scenarios, trends and forecasting for future project design. The real time data collection is then utilized to provide an automated message to the message board fleet that will then empower the traveling public to make informed decisions.

This can include alternate routing, trip planning or simply providing a safer experience when entering a live work zone. Some of the examples of these systems include, but are not limited to:

- Real Time Traffic Management
- Smart Work Zone Systems
- Automated Work Zone ITS
- Dynamic Merge Solutions
- Travel Time Systems



Notes

Notes



Other products manufactured by Work Area Protection



Crash Attenuators



Traffic Cones



Drums and Channelizers

Other catalogs available to you from Work Area Protection



Traffic Control Products



Crash Attenuators



Work Area Protection Corp.

2500 Production Drive • St. Charles, IL 60174-9081
Phone: 630.377.9100 • Orders: 800.327.4417 • Fax: 630.377.9270
Web: www.workareaprotection.com

Member ATSSA

Disclaimer

Designs are subject to change without prior notice. Any modification or unintended use voids all warranties.

NESL and all subsidiaries, including Work Area Protection, disclaim all liabilities for injuries to persons or property due to any modification or unintended use of these products.

U.S. Patents

Channelizer Cones U.S. Patent D485,775
Optics for Advance Warner U.S. Patent 5,174,649

Distributed by: