

DATE: 1/10/2017

INVITATION TO BID
THIS IS NOT AN ORDER

Page: 4

BID NO.: 50-00118655

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

VENDOR: _____

BUYER: SFOLSE

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 is to be done in a workman-like manner, according to standard practices. Any deviations or alterations from the specifications must be indicated and backup documentation supplied with your quotation.

DELIVERY: FOB JEFFERSON PARISH	
INDICATE DELIVERY DATE ON EQUIPMENT AND SUPPLIES	<u>45 days</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) _____

*** ALL BIDDERS MUST COMPLETE SECTION BELOW ***	
FIRM NAME: <u>Temple Inc</u>	
SIGNATURE: <u>Wes Prater</u> <small>(Must be signed here)</small>	TITLE: <u>Sales Support</u>
PRINT OR TYPE NAME: <u>Wes Prater</u>	
ADDRESS: <u>305 Bank St. SE</u>	
CITY, STATE: <u>Decatur, AL</u>	ZIP: <u>35601</u>
TELEPHONE: <u>(256) 353-3820</u>	FAX: <u>(256) 353-4578</u>
EMAIL ADDRESS: <u>wes.prater@temple-inc.com</u>	

TOTAL PRICE OF ALL BID ITEMS: \$ 11,578⁰⁰

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INVITATION TO BID FROM JEFFERSON PARISH - continued

BID NO.: 50-00118655

SEALED BID

ITEM NUMBER	QUANTITY	U/M	DESCRIPTION OF ARTICLES	UNIT PRICE QUOTED	TOTALS
1	2.00	EA	<p>SOLAR POWERED SIGN FOR THE JEFFERSON PARISH DEPARTMENT OF TRAFFIC ENGINEERING</p> <p>0010 SPEEDCHECK DRIVER FEEDBACK SIGN SOLAR ASSEMBLY</p> <p>MUST INCLUDE ALL NECESSARY EQUIPMENT, AND INSTALLATION HARDWARE FOR 4-1/2" O.D. PEDESTAL POLE MOUNT SOLAR POWERED, RADAR ACTIVATED DRIVER FEEDBACK SIGNS</p> <p>VENDOR TO ASSEMBLE THE SIGNS</p> <p>SIGNS WILL BE MOUNTED BY JEFFERSON PARISH TRAFFIC ENGINEERING</p>	5,220 ⁰⁰	10,440 ⁰⁰
2	2.00	EA	<p>0020 MEDIUM DUTY FOUNDATION ANCHOR ASSEMBLY</p> <p>SCREW IN ANCHOR BASE</p> <p>SPECIFICATIONS ATTACHED</p> <p>TO BE DELIEVERED TO: JEFFERSON PARISH TRAFFIC ENGINEERING DIVISION 2100 DICKORY AVENUE HARAHAN, LA 70123</p>	569 ⁰⁰	1,138 ⁰⁰

SPECIFICATIONS FOR A SOLAR POWERED, 4-1/2" O.D. PEDESTAL POLE-MOUNT RADAR-ACTIVATED DRIVER-SPEED FEEDBACK SIGNS

1.0 General

- 1.1 This specification consists of providing all necessary equipment, and installation hardware (for 4-1/2" O.D. pedestal pole mount) required to purchase two (2) solar powered, radar activated driver speed feedback signs.
- 1.2 The signs shall be installed by Jefferson Parish Traffic Engineering.
- 1.3 The exact location of the signs shall be determined by the Traffic Engineering Division.

2.0 Standards

- 2.1 All signs shall meet the standards for color, dimension, and layout listed in the current edition of the FHWA Manual on Uniform Traffic Control Devices.
- 2.2 The signs shall have a minimum wind load rating of 90 mph (144 km/h).
- 2.3 The signs shall be FCC approved with no operating license requirements.
- 2.4 The signs must meet the Buy America requirements set forth by the FHWA and other Federal agencies for use on federal-aid construction projects.

3.0 Compliance and Submittals

- 3.1 Included with the bid package, all bidders shall provide Jefferson Parish a Certification of Compliance from the manufacturer. The certificate shall certify that the radar speed signs, solar power system, batteries and solar controller complies with the requirements of these specifications.
- 3.2 The vendor must verify the equipment can perform the following:
 - 3.2.1 The ability to support numerous (minimum thirty five) event schedules
 - 3.2.2 Wireless programming of the signs – (onsite only)
 - 3.2.3 Programming signs speed thresholds, display on/off modes and schedules
 - 3.2.4 Ability to install and verify firmware updates

SPECIFICATIONS FOR A SOLAR POWERED, 4-1/2" O.D. PEDESTAL POLE-MOUNT RADAR-ACTIVATED DRIVER-SPEED FEEDBACK SIGNS

- 3.2.5** Ability to store, download, and clear traffic speed data
- 3.3** Submittals shall include an equipment List, standard drawings, and standard specifications. The submittals shall also include:
 - 3.3.1** Maintenance Manuals (2 required)
 - 3.3.2** Operation Manuals (3 required)
 - 3.3.3** Shop drawings showing mechanical signs support for the solar power system and the radar speed signs
 - 3.3.4** Radar speed signs and all electrical connections (2 required)
 - 3.3.5** Warranty documentation
- 3.4** The radar speed signs shall be factory tested. As part of the evaluation process, the apparent low bidder shall perform site functional testing by a qualified representative of the vendor and shall be done in the presence of a representative from the Jefferson Parish Traffic Engineering Division. The site test shall include the following:
 - 3.4.1** Run test sequence. A full roll up of all digits indicating the display is working.
 - 3.4.2** Approach Only Radar. The signs shall be verified for approach-only radar, by displaying approach only traffic and not displaying traffic in front of the signs that is driving away.
 - 3.4.3** Instant on: The display shall activate within an appropriate distance to allow motorists to see and react to the signs.
 - 3.4.4** Minimum Display Speed. The display shall begin displaying the speed once the driver speed reaches this threshold.
 - 3.4.5** Violation Alert. The display shall optionally flash the driver's speed once the radar detects the pre-set Violation Alert speed threshold and increase flashing rate proportional to higher speed. The display shall blank out or display slow down message once the radar detects the pre-set high speed threshold.
 - 3.4.6** Visibility. The display shall have high contrast and visibility in all lighting conditions.

SPECIFICATIONS FOR A SOLAR POWERED, 4-1/2" O.D. PEDESTAL POLE-MOUNT RADAR-ACTIVATED DRIVER-SPEED FEEDBACK SIGNS

3.4.7 Auto Dim. Cover the auto-dim switch to verify it is operational.

4.0 Reliability

4.1 Environmental Specifications

- 4.1.1 The operating temperature range shall be -40°C to $+75^{\circ}\text{C}$.
- 4.1.2 The signs material and enclosure shall be .09" (2.29mm) minimum thickness aluminum.
- 4.1.3 The signs mounting hardware shall be of brass and/or stainless steel.
- 4.1.4 The outer surfaces of enclosure shall be coated with white UV resistant coating to minimize solar heat absorption.
- 4.1.5 The electronic main board must have conformal coating.

4.2 Electronic Performance

- 4.2.1 Power to the LEDs shall use DC display drive to provide continuous, non-pulsating current to LEDs when speeds are displayed, to maximize LED life.
- 4.2.2 The display shall operate on 12VDC nominal (10V – 18V) and display control electronics must automatically turn the display off when the voltage is below a lower threshold to prevent over-discharge damage to the solar power system.
- 4.2.3 The charging control system shall be a solar industry standard item with temperature-compensated charging voltage and battery temperature monitoring for long battery life of 5 to 10 years.
- 4.2.4 The display control electronics shall monitor 12-volt supply to estimate the charge available and determine when the signs may be powered up for reliable operation.
- 4.2.5 The individual LEDs shall be wired such that a short failure of one LED will not result in the loss of more than 5 percent of that segment. – ensuring the digits will remain visible.

SPECIFICATIONS FOR A SOLAR POWERED, 4-1/2" O.D. PEDESTAL POLE-MOUNT RADAR-ACTIVATED DRIVER-SPEED FEEDBACK SIGNS

4.3 Vandalism Protection

- 4.3.1 The display cabinet shall be constructed to absorb impacts from thrown objects or vandalism attempts, by allowing the display boards to deflect inwards up to 2" (50mm) without damaging internal components.
- 4.3.2 The display window shall be made of 1/4" (6.35mm) minimum thickness shatter-resistant polycarbonate.
- 4.3.3 The LEDs shall be protected so that LEDs are not impacted by the polycarbonate window upon deflection.
- 4.3.4 The vandalism-resistant designs must not add significant weight or reduce the display contrast or visibility.
- 4.3.5 The housing shall be provided with tamper proof (vandal resistant) fasteners that are compatible with existing agency tools.

5.0 Serviceability

- 5.1 Manufacturer's name, date of manufacture, model number, serial number, voltage requirement, and FCC approval number will be labeled on the back of the signs.
- 5.2 For field support, programmability, data downloads and diagnostics must be accessible via Bluetooth™ wireless link to a Windows-compatible notebook computer, and shall have the following display diagnostics:
 - 5.2.1 Test the real-time connection to the signs
 - 5.2.2 Run a test sequence that initiates a display digit roll-up test to verify the signs are operating properly.
 - 5.2.3 System voltage check, to validate the DC power source
 - 5.2.4 Validate real-time vehicle count to determine if data is being collected and radar is operational
 - 5.2.5 Ability to verify and update to new firmware version
- 5.3 Display alignment must be easily adjusted, without exchanging internal parts, to work on the center median, left, or right side of the roadway.

SPECIFICATIONS FOR A SOLAR POWERED, 4-1/2" O.D. PEDESTAL POLE-MOUNT RADAR-ACTIVATED DRIVER-SPEED FEEDBACK SIGNS

- 5.4 Internal components shall be easily accessible with removal of four or fewer external vandal-resistant fasteners.
- 5.5 The display shall be comprised of modular components that can be exchanged easily in the field without removal of the signs from the mounting post.
- 5.6 The following components shall be field replaceable: Radar unit, Controller board, Fuse block(s) and fuse(s), communication options such as modems or adapters, LED Display boards, optional "TimeKeeper" GPS unit, AC power supply

6.0 Dimensions, Weight and Color

- 6.1 Sign sizes shall adhere to the current edition of the MUTCD requirements of 6" size increments (sect. 2A.11-06) and shall be minimum 30" (76.2cm) wide by minimum 42" (106.7cm) high with minimum 15" (38.1cm) display digits.
- 6.2 The signs shall weigh no more than 60 lbs.
- 6.3 The sign letters, "YOUR SPEED" shall be printed in two lines using approximately 6" high letters. The signs background surface shall be white high intensity sheeting or equivalent.
- 6.4 The display housing shall be minimum 26.5" wide by minimum 20" high by minimum 6" deep (67x51x15CM).
- 6.5 An optional "SLOW DOWN" message shall be LED characters approximately 6" high, formed with amber or red LEDs.

7.0 Electronic Specification

- 7.1 The RADAR device shall meet specifications for an FCC part 15 Low Power Device - 24.150 GHz (K-band) and shall not require an operating license.
 - 7.1.2 The radar shall have a reporting accuracy of ± 1 MPH and shall be set to detect approaching vehicles only

7.2 Solar Power

- 7.2.1 Solar powered signs shall be capable of ten (10) days of fully autonomous operation assuming use based on AADT of approximately 17,000 vpd.

SPECIFICATIONS FOR A SOLAR POWERED, 4-1/2" O.D. PEDESTAL POLE-MOUNT RADAR-ACTIVATED DRIVER-SPEED FEEDBACK SIGNS

- 7.2.2 Solar system shall be designed to take into account the following factors:
 - 7.2.2.1 Minimum solar radiation available in the geographic region
 - 7.2.2.2 Total power draw for all devices connected to the signs as ordered
 - 7.2.2.3 Local site conditions reviewed and calculated
- 7.2.3 Sign displays at maximum brightness shall consume less than 6.5 watts maximum of DC power.
- 7.2.4 Display Signs shall consume less than 1.75 watts in stealth mode (collecting data but no display)
- 7.2.5 Display shall consume less than 0.95 watts in standby

7.3 Solar Controller

- 7.3.1 The solar controller and panel system shall include: temperature compensation, constant voltage, allowing up to 100 percent capacity, reverse leakage current protection, ambient temperatures from - 40°C to at least +50°C, anodized casing or equivalent, and charging indicator.
- 7.3.2 The solar controller shall have short circuit, over current, high temperature, and over voltage protection.
- 7.3.3 The controller shall be capable of constant voltage low-frequency PWM battery charging.
- 7.3.4 The controller shall meet all requirements of Underwriters Laboratories UL 1741.
- 7.3.5 The solar controller shall be connected to the solar panels and batteries inside a weather proof (NEMA 3R or better) enclosure in natural aluminum or light color paint to reflect sunlight for increased battery life.

SPECIFICATIONS FOR A SOLAR POWERED, 4-1/2" O.D. PEDESTAL POLE-MOUNT RADAR-ACTIVATED DRIVER-SPEED FEEDBACK SIGNS

7.4 Gel Cell Batteries

- 7.4.1 The gel cell battery shall include a 55AH or greater, 12 VDC, deep cycle; solar rated, sealed valve regulated, gelled electrolyte lead acid battery, and rated as non-spillable.
- 7.4.2 Gel cells battery shall be located inside the NEMA 3R (or better) enclosure.

7.5 Solar Array Panel

- 7.5.1 Single solar panel with appropriate wattage for the application shall be supplied, as industry-standard 12 V dc designs with tempered glass cover. Adding signs options may increase the number or size of solar panels on an individual basis.
- 7.5.2 Frames shall be anodized or equivalent, and rain tight, with industry standard cable fittings.
- 7.5.3 The power output shall be designed for at least 15 years of usable output and shall be free from defects in materials and workmanship for three years.

7.6 Solar Array Panel Mounts

- 7.6.1 Mounts may be fixed-angle and shall be manufactured from corrosion resistant aluminum with all stainless steel fastening hardware.
- 7.6.2 Mounts, if adjustable, shall include similar materials for adjustable leg parts for the solar array pitch angle adjustment.

7.7 Display Functionality

- 7.7.1 Display shall be capable of displaying numbers from 1 to 99 with optional display in miles or kilometers per hour if requested.
- 7.7.2 Display shall be capable of displaying the numeric readout value within one second of detection of a vehicle, and shall hold the detected speed for approximately one second after the vehicle passes outside the detection area and then return to standby mode with a blank display when no vehicles are present.

SPECIFICATIONS FOR A SOLAR POWERED, 4-1/2" O.D. PEDESTAL POLE-MOUNT RADAR-ACTIVATED DRIVER-SPEED FEEDBACK SIGNS

- 7.7.3 Display must maximize viewing contrast by effectively managing stray light from outside sources.
- 7.7.4 The signs shall be designed to reduce driver distractions introduced by the radar speed display. The display view to the forward viewing angle shall be limited to approximately 30° from the roadside in order to discourage the drivers from watching the display as they pass the signs to keep the driver's eyes on the road ahead.
- 7.7.5 The signs shall have the option of adding an integrated external strobe which shall be powered and triggered from the display's controller, at a speed threshold from 5 to 99 MPH independent of any other speed-driven option.

7.8 Display Visibility

- 7.8.1 The permanently affixed words "YOUR SPEED" printed on two lines and the detected vehicle's speed displayed with two-LED digits shall be clearly visible to a person with normal vision at a minimum distance of 400 feet.
- 7.8.2 The display design shall have very high contrast between LEDs and their immediate background. Display window shall have clear LED windows and a black surround matrix, to maximize viewing contrast in all lighting conditions, direct sunlight, fog and the LEDs will automatically dim during nighttime operation.
- 7.8.3 The maximum brightness shall be selectable to allow for special local lighting conditions.
- 7.8.4 The display must not use anti-glare sheeting that would reduce the display's visibility and contrast.
- 7.8.5 The display must not have visible ghosting characters when a mix of on and off segments is displayed.
- 7.8.6 The display shall be of modified seven-segment designs for maximum digit recognition and shall not be a full matrix or a 13 segment designs.
- 7.8.7 Each display segment shall consist of 16 discrete LEDs of approximately 15° to 17° viewing angle. LEDs shall be individually aimed to within +/- 2° of each other to concentrate light distribution

SPECIFICATIONS FOR A SOLAR POWERED, 4-1/2" O.D. PEDESTAL POLE-MOUNT RADAR-ACTIVATED DRIVER-SPEED FEEDBACK SIGNS

within the drivers viewing area and to provide consistent cut-off of the display at the edge of the viewing cone.

7.8.8 LEDs shall be AllnGaP II technology or equivalent; rated for 100,000 hours or more continuous operation. Amber LEDs shall have a wavelength from 590 to 595nm and the light intensity of each LED shall be a minimum of 5,000 mcd at normal current setting, with a typical output of 10,000 mcd, within 15 degrees of the optical center axis.

8.0 Traffic Data Collection and Reporting (OPTIONAL)

8.1 Optional: All displays shall have the capability of an add-on data collection and reporting option, with the following specification:

8.1.1 Separate data points for each target shall be stored, which shall include but not be limited to final speed and the date and time for each detected target.

8.1.2 The data shall not be averaged, consolidated or binned as the individual data points are then lost.

8.1.3 Capacity for storing over 200,000 individual target data points.

8.1.4 Capability of capturing vehicle speed data with the display off (stealth mode) to support "before and after" studies.

8.2 Data shall be formatted as a .csv file providing access to the raw data and the ability to import into other traffic analysis tools.

8.3 Reporting software.

Reporting software must be compatible with existing communication software (Display Manager™) currently in use.

Reporting software shall be easy to use and charts easy to modify. Automatic reports will be provided with graphical analysis of the following data using a personal computer running Microsoft Excel™. Reporting, and graphing must run locally on a desktop PC without requiring the internet. The reports shall contain the following information:

8.3.1 A reference posted speed limit.

8.3.2 Average vehicle speeds, 85th percentile vehicle speeds and three additional percentile speeds defined by the user

SPECIFICATIONS FOR A SOLAR POWERED, 4-1/2" O.D. PEDESTAL POLE-MOUNT RADAR-ACTIVATED DRIVER-SPEED FEEDBACK SIGNS

- 8.3.3 Total number of vehicles and Percent of conforming vehicles
- 8.3.4 Moving averages of vehicle speeds with the ability for the user to adjust the number of data points used in calculating the moving average.
- 8.3.5 Must have the ability to select a range of dates and times that is less than the total time period for which data is collected. (data windowing) and automatically generate reports with the subset of data.

8.4 Windowing Software.

A software utility shall be provided to further window the raw data:

- 8.4.1 to include/exclude certain hours of the day (school hours), weekdays or weekends
- 8.4.2 to remove statistical outliers, and optionally remove data points above or below a certain speed and
- 8.4.3 to create a new .csv file for this data that can be used with the reporting software

9.0 Wireless Notebook communication and programming (onsite)

- 9.1 Signs shall be programmable in the field; using a PC Notebook with a wireless Bluetooth™ connection, up to 50 feet in front of the signs. The programming interface must be easy to use, with minimal training required. The following functions shall be field programmable:
 - 9.2 The Signs must have the ability to install new software updates and features as needed
- 9.3 **Display Speed Thresholds**
 - 9.3.1 Display shall have the capability of programming the minimum displayed speed.
 - 9.3.2 The display shall have a feature where the display digits flash while displaying a speed which is in excess of a pre-set limit to assist in getting the attention of the speeding driver.
 - 9.3.3 The display shall have an optional "Slow Down" message which can be displayed at a preset speed threshold that is separate from the

SPECIFICATIONS FOR A SOLAR POWERED, 4-1/2" O.D. PEDESTAL POLE-MOUNT RADAR-ACTIVATED DRIVER-SPEED FEEDBACK SIGNS

programmed speed threshold. The display must switch between the driver's speed and Slow Down until the High Speed Blanking threshold is met or until the driver's speed is lower than the message threshold.

- 9.3.4** The display shall have the option of setting a high-speed threshold for blanking out the display when a driver's speed reaches this limit to discourage drivers from racing the signs.

Optional: If the slow down message is enabled the display shall be set to show the slow down message instead of a blank display.

10.0 Warranty

- 10.1** The manufacturer's warranty for the display and accessories shall be at least three years from the time of purchase.
- 10.2** The manufacturer's warranty on the LEDs comprising the display segments shall be at least 10 years from the time of purchase.
- 10.3** The manufacturer at no charge shall provide replacement components for in-warranty repairs when provided in exchange for the part being replaced. Outbound shipping costs for warranty replacement parts shall be paid by the manufacturer.
- 10.4** Manufacturer will supply technical telephone support at no extra charge during the warranty period.
- 10.5** All control software and/or firmware updates will be available to the end user at no charge during the warranty period.

11.0 Foundation Anchors

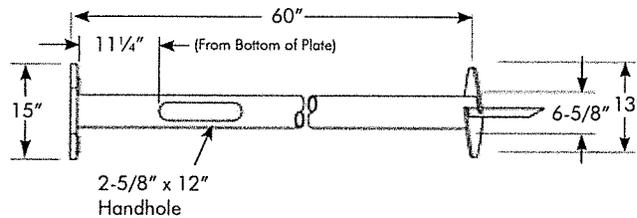
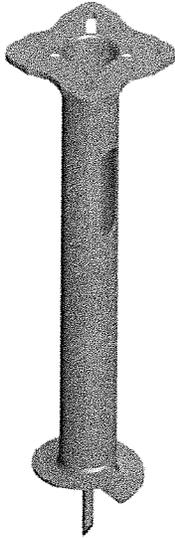
- 11.1** Each sign will require one (1) Medium Duty Foundation Anchor Assembly for a total of two (2). (PELCO Part No. PB-5372-GLV or approved equal).
- 11.2** Each anchor assembly shall be Schedule 40 with ten inch to fifteen inch (10" - 15") bolt circle, four (4) one inch (1") – 8NC Grade 5 galvanized bolts.
- 11.3** The foundation anchors shall feature a top plate which enables the bolt head to be inserted after the anchor is in place.
- 11.4** The foundation anchor shaft shall include a two and three-eighths inch by twelve inch (2-3/8" x 12") hand hole for cable access.

SPECIFICATIONS FOR A SOLAR POWERED, 4-1/2" O.D. PEDESTAL
POLE-MOUNT RADAR-ACTIVATED DRIVER-SPEED FEEDBACK
SIGNS

11.5 The foundation anchors shall be hot dip galvanized per ASTM A123.

Medium Foundation Anchor Assy, 6" Sch 40 x 5'-0" 10" to 15" Bolt Circle, 1"-8NC Hardware

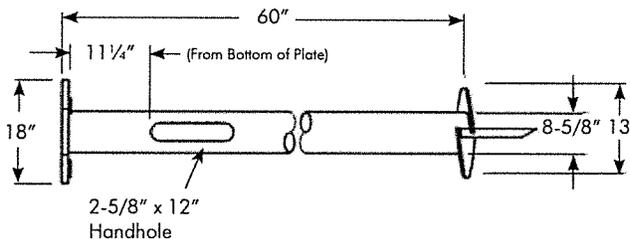
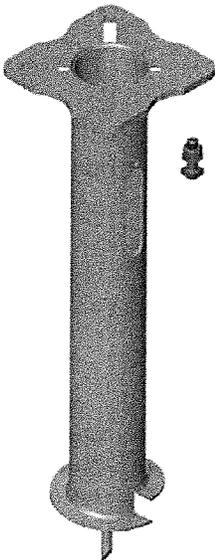
PB-5372-GLV



Pelco's foundation anchors feature a top plate which enables the bolt head to be inserted after the anchor is in place. This eliminates the necessity of digging under the plate to install base bolts. Plate scrapers loosen the soil for easy bolt installation from top of the plate. The square head bolts are held in place by the plate scrapers, which prevent them from turning. For residential lights, parking lots, and street lights. Typically for poles ranging from 20'-30' in height (wt. 167 lbs)

Heavy Duty Foundation Anchor Assy, 8" Sch 40 x 5'-0" 13" to 18" Bolt Circle, 1-1/4"-7NC Hardware

PB-5375-GLV



Pelco's foundation anchors feature a top plate which enables the bolt head to be inserted after the anchor is in place. This eliminates the necessity of digging under the plate to install base bolts. Plate scrapers loosen the soil for easy bolt installation from top of the plate. The square head bolts are held in place by the plate scrapers, which prevent them from turning. For street and highway lighting. Typically for poles ranging from 30'-40' in height (wt. 239 lbs)

- Note: 1. Foundation anchors are hot dip galvanized per ASTM A123.
2. All assemblies are supplied with Grade 5 Galvanized Bolts.
3. All assemblies with hardware are bagged in a nylon weatherproof bag.



THE BEST IN THE BUSINESS

SPEEDCHECK™

Certification of Warranty Coverage

This certifies that Information Display Company, the manufacturer of the SpeedCheck brand of radar speed displays for traffic calming, hereby warrants the products listed below for three (3) years from date of delivery to the end-user, on any failure of components, such replacement components to be provided upon request, shipping pre-paid, for the return of the defective components within one week of replacement.

For warranty replacement, contact your installer or contact the company directly, at:

Information Display Company
10950 SW 5th, Suite 330
Beaverton OR 97005
support@informationdisplay.com
800-421-8325

Replacement parts are shipped to the end-user within two days of receipt of requirement or diagnosis. Models covered by this warranty include:

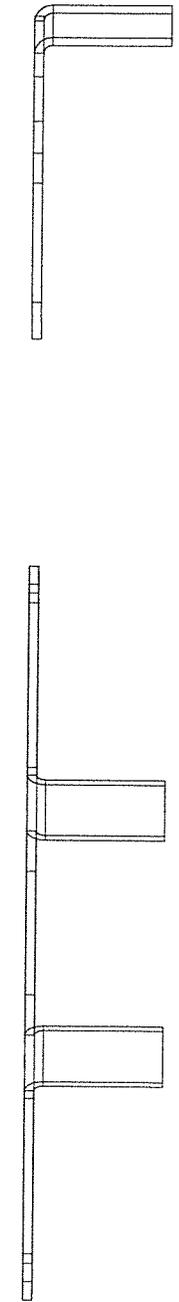
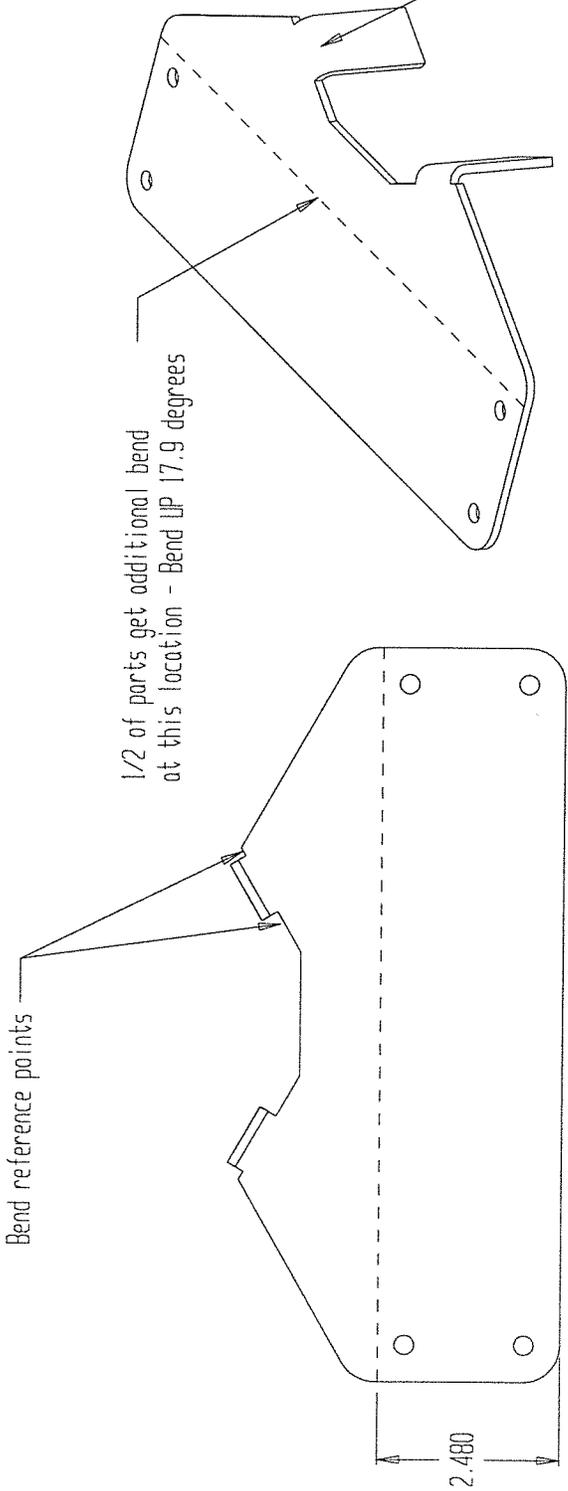
- SpeedCheck (SC) speed display
- SlowDown Alert (SDA) advisory display
- Variable Speed Limit (VSL) advisory display
- SpeedLimit Alert (SLA) display
- P18 18" portable display
- Solar power package options provided by Information Display Company

In addition, the LED display components for all the above product having such displays are hereby warranted for a period of ten (10) years from date of delivery to the end-user, shipping and returns to be handled as outlined above.

Warranty status is subject to confirmation of the failure of the returned component by Information Display Company, and does not cover unauthorized product modifications, improper installation or maintenance, computer virus attacks, or damage from impacts, vandalism, lightning strikes, power source surges, or lightning damage, or excessive exposure to corrosive or harmful chemical compounds including road salt and sea water. Warranty does not cover any of the above products if solar power systems other than those supplied by Information Display Company are used, or if Information Display Company solar power systems are used outside the design operating hours per day.

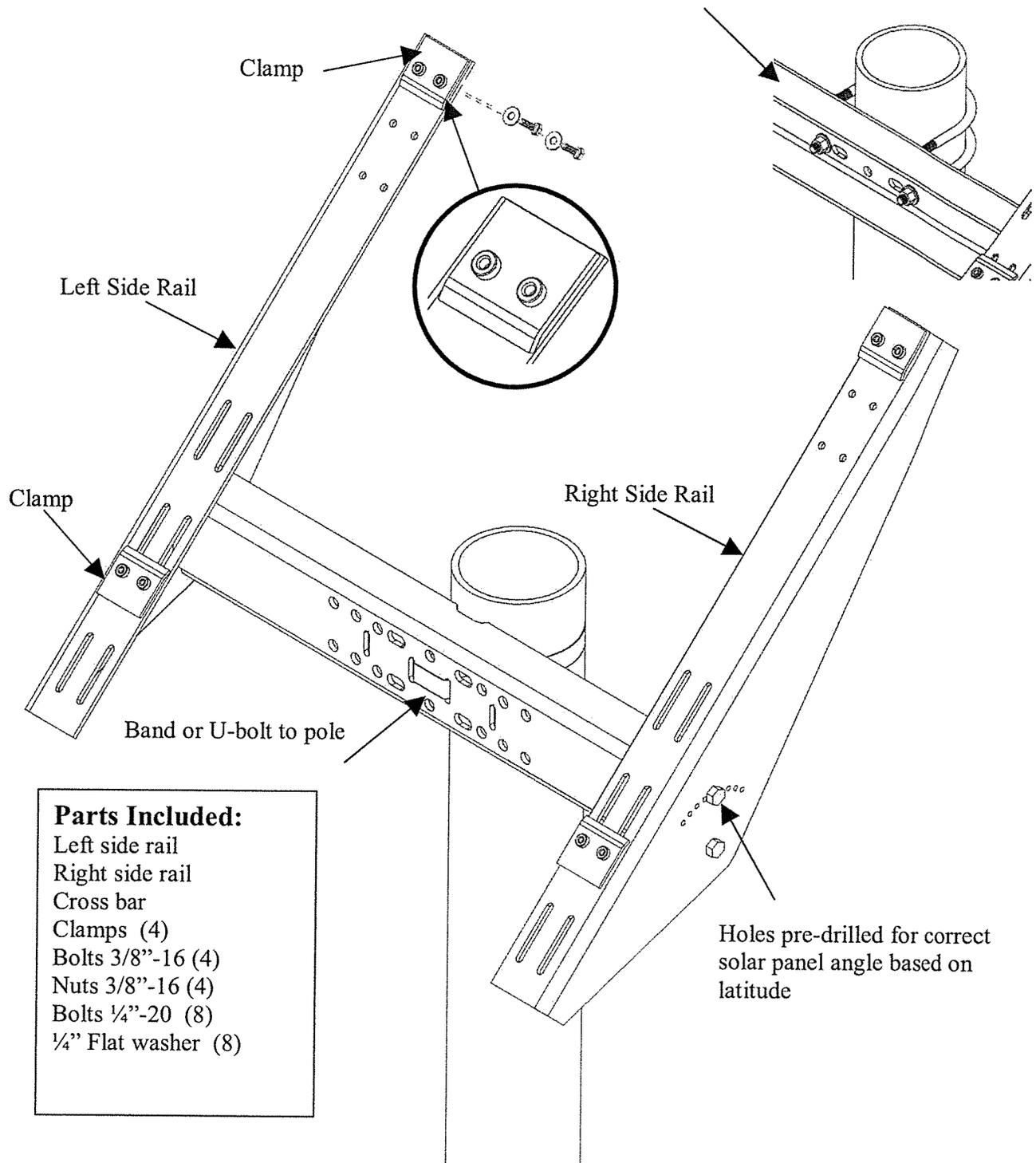
Liability is limited solely to replacement parts, and Information Display Company assumes no liability for any incidental or consequential damages in any way related to the product. THIS WARRANTY IS MADE IN LIEU OF ALL OTHER WARRANTIES AND CONDITIONS, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES AND CONDITIONS OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE,

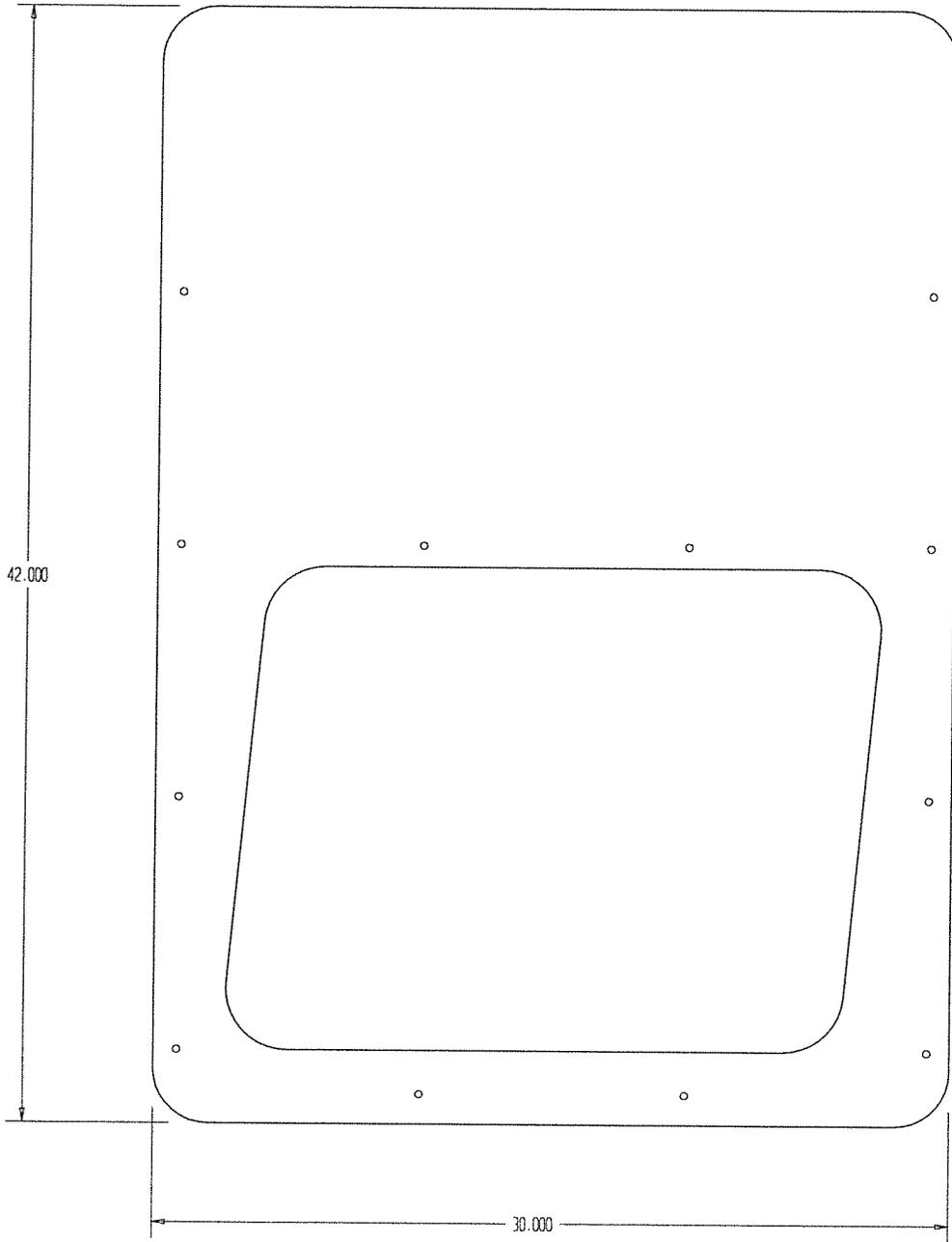
Product: 1520 mtg. brkts 2.5-3.5", 4-5.5", 6-9"	S. Kelley Company
File Name: 1520.prt	Portland, OR
Part Desc:	(503) 678-2861
Dwg. # 1 Rev: B	Rev Date: 8/29/02
Material: 1/8" Stainless Steel	Drawn by: Scott Kelley
Finish: None - deburr any sharp edges	

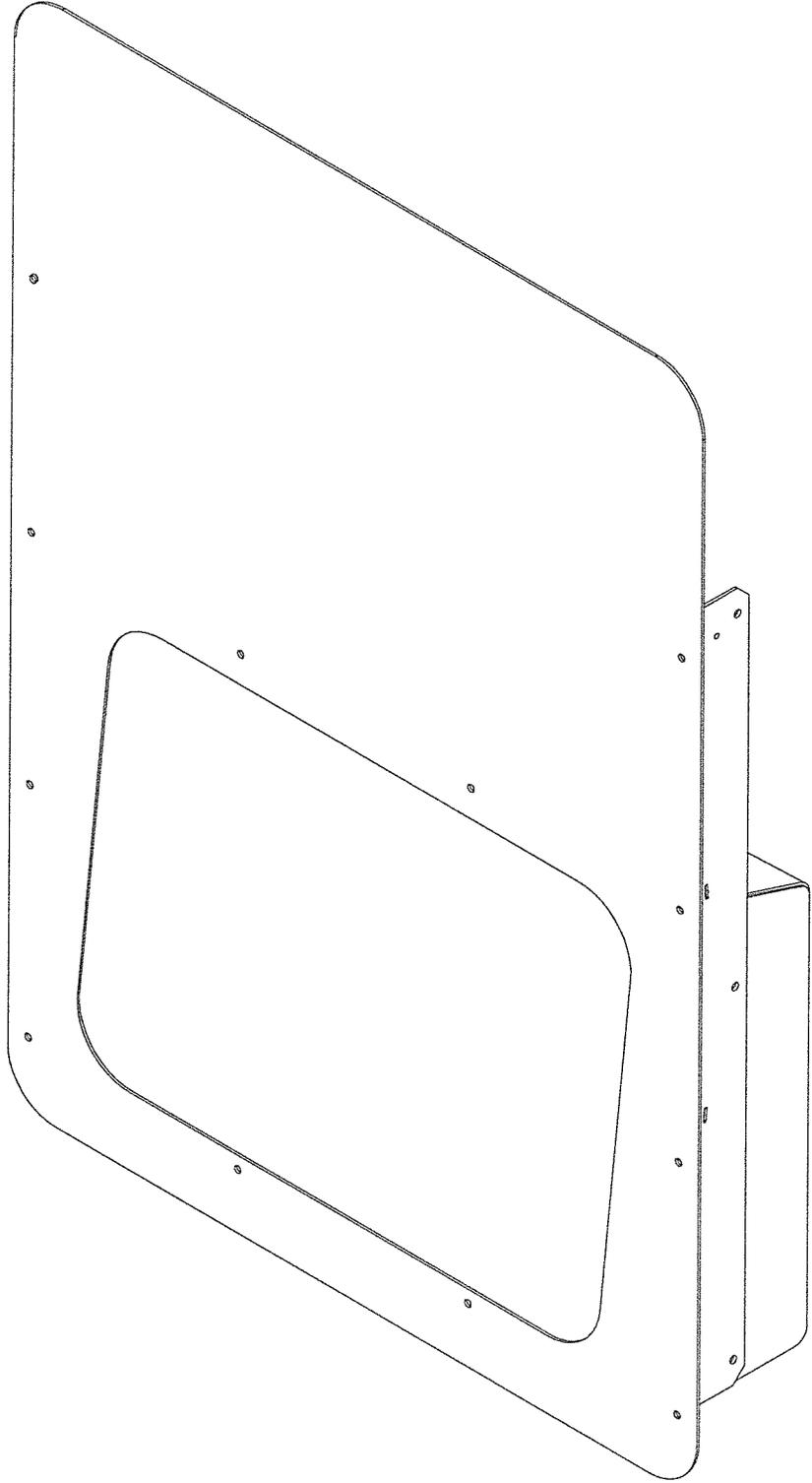


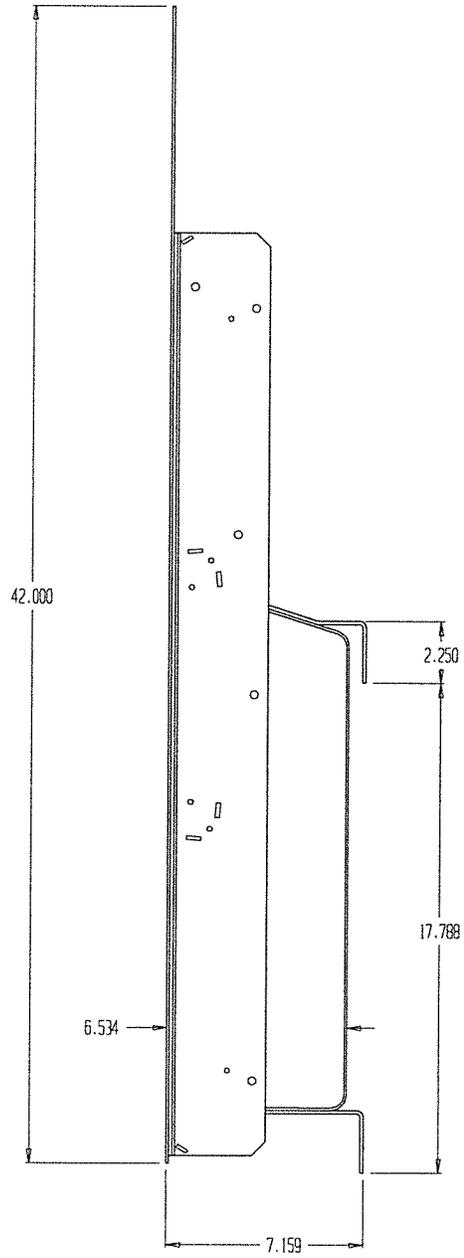
Assembly and Mounting of IDC Pole Top Rack

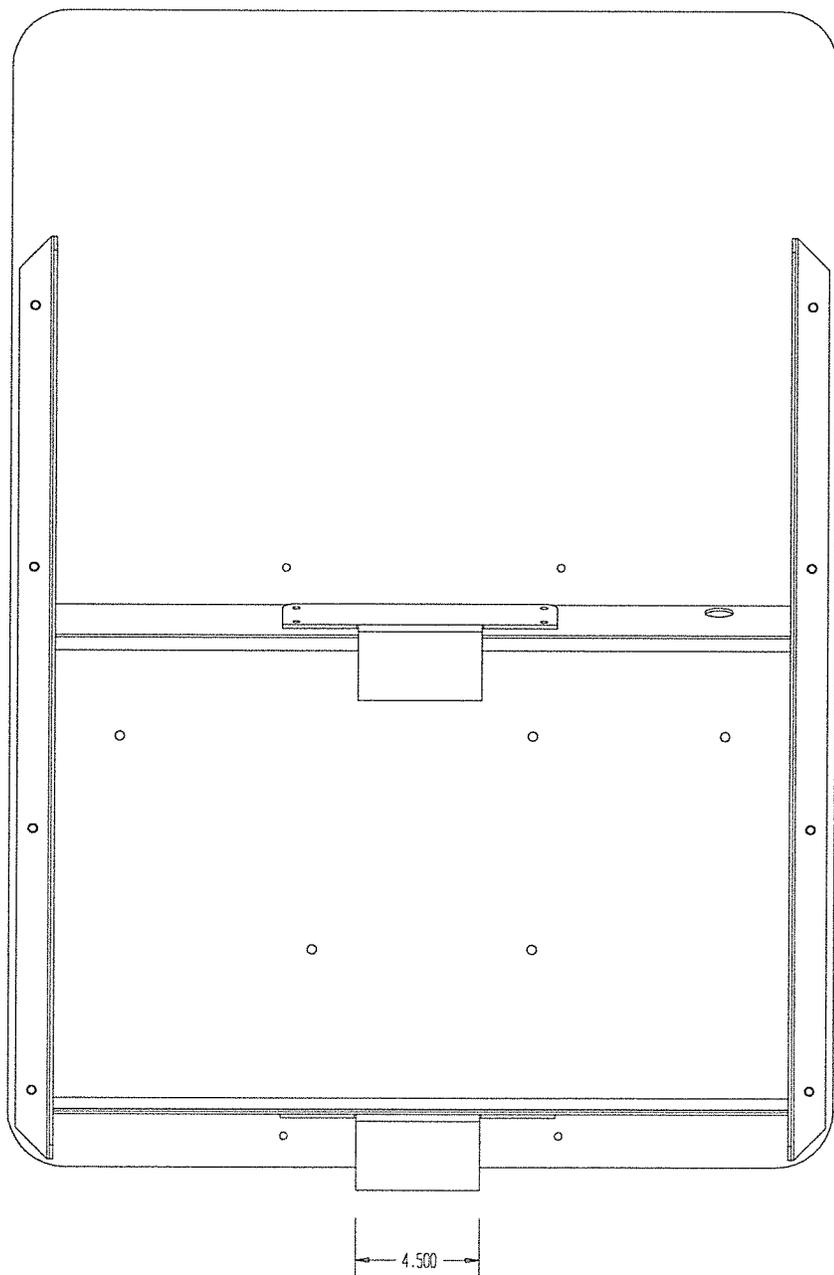
1. Attach left and right side rails to the cross bar using 3/8"-16 bolts. Holes have been pre-drilled to provide the correct angle for solar exposure based on your latitude.
2. Mount solar panel to frame using provided clamps and 1/4"-20 bolts and washers.
3. Band or U-bolt (installer supplied) cross bar to top of pole. The cross bar can be reversed to be U-bolted.

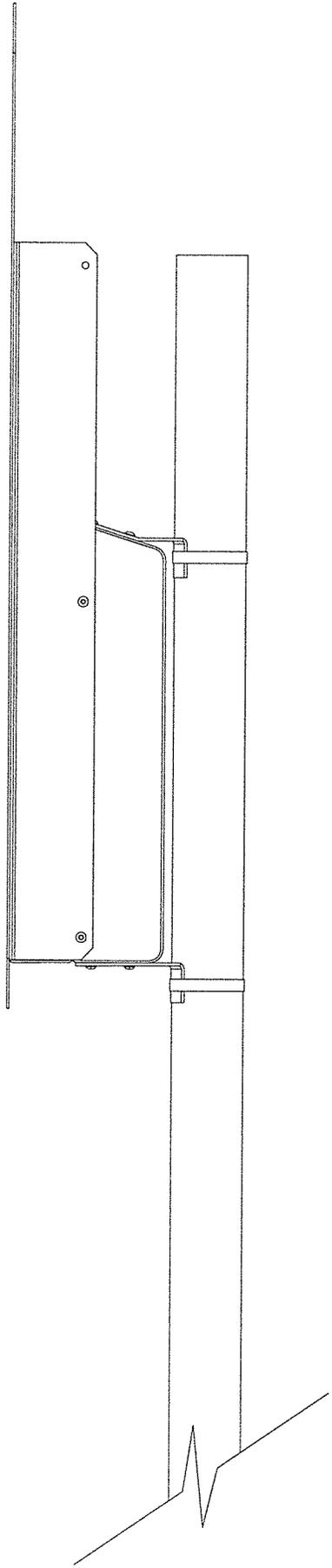












SpeedCheck™



Speeding drivers put others at risk, especially when pedestrians are present in school zones, neighborhood streets and work zones. Well-designed radar speed signs are highly effective in getting drivers to slow down in these areas.

SpeedCheck™ radar speed signs detect the speed of oncoming vehicles and display the speed in bright LED digits. The display is combined with an FHWA MUTCD-compliant YOUR SPEED sign face, making it easy for drivers to understand the intended message at a glance--and react to it by slowing down.

Calming Traffic. Saving Lives.

DeviceManager™

Device set-up,
diagnostics,
service and
data alerts,
upgrades

Two-way wireless communication

Local: Onsite™ Bluetooth®
Remote: InstaNet™
Failure Alerts: OfficeAlert™

SchedulePro™

Program with ease,
unlimited schedules,
modes, exceptions

TrafficAnalyzer™

Traffic data and
reporting

SpeedCheck™ radar speed signs dramatically outperform any other brand on the market by incorporating these exceptional features:

- Highest contrast UltraClear™ display technology for best viewability in all weather and lighting conditions
- Unique SafetyMask™ driver safety feature to prevent hazardous "rubbernecking" when drivers take their eyes off the road to look at the sign while passing it
- Integrated ViolationAlert™, high-speed cut-off, and optional Slow Down message at user-defined speed thresholds
- Lowest power consumption on the market for cost saving up-front and over time
- Most durable construction throughout, using heavy 11-gauge welded aluminum and stainless steel and brass hardware
- Best vandal-resistant design with ability to absorb up to two inches of impact deflection without damage to internal components
- Modular design for easy repair in the field using standard tools
- Backed by the best warranty in the business and supported by our highly-acclaimed customer service team

800.421.8325

sales@informationdisplay.com
www.informationdisplay.com

THE BEST IN THE BUSINESS

 **INFORMATION DISPLAY**
COMPANY

SpeedCheck™ Specifications	
15-inch digits (SC-15)	Seven segment design, white or amberLED's Recommended for use in speed zones 45MPH or lower. Includes static YOUR SPEED sign (30" x 42", 36 lbs or 30" x 30", 33 lbs.)
18-inch digits (SC-18)	Seven segment design, white or amberLED's Recommended for use in speed zones 45MPH or higher. Includes static YOUR SPEED sign (36" x 48", 45 lbs.)
AC Power	Supports 110-240VAC, 25 watts.
Solar Power	Industry-standard 12VDC. Solar power systems designed for specific geographic location and sign application. Performance guaranteed 24/7/365.
Environmental specifications	Conformal-coated electronics. NEMA 3R cabinet, sealed ventilated. Operating temperature: -40°C to +75°C, -40°F to +167°F. 90% RH non-condensing, 5-30Hz 3-axis vibration, ½-sine 3-axis shock, FCC 15.107 and 15.109 Class A radiated and conducted emissions compliance. Radar FCC part 15 low-power device.
Warranty	Three years on products, five years on white LED panels, 10 years on amber LED panels. Free technical support for three years.
Options	
SchedulePro™	Sets operation hours by time of day and day of week with unlimited schedules and modes on perpetual calendar; includes two-year exception list. Schedule times of day for on and off control, view current schedule and speed settings modes, edit exceptions by date and time, and download pre-configured schedules to any of our devices.
Output Manager™	Triggers external devices, e.g. flashing beacons or cameras, by speed threshold, schedule, or remotely from your Traffic Management Center.
TrafficAnalyzer™	Collects date, time and speed for over 200,000 individual target vehicles and provides access to the raw data via .csv file for further analysis. Program ON or OFF times, download and erase data in device, select stop-when-full or FIFO data storage. Generate easy pre-defined speed compliance reports; includes advanced data windowing and statistics.
Package 01	"SLOW DOWN" Message. Alternately displays speed limit and SLOW DOWN message in 6" digits for 15" display, or 7" digits for 18" display; red or amber LED's. Includes DeviceManager OnSite.
Package 02	SchedulePro™ and TrafficAnalyzer™ Includes DeviceManager OnSite.
Package 03	SchedulePro™, TrafficAnalyzer™ and "SLOW DOWN" Message. Includes DeviceManager OnSite.
TimeKeeper™	Automatic daily time clock synchronization via GPS satellite signal.
Mounting Options	Mounting brackets support poles, posts, portable stands, and lockable QuickChange™ bracket for our DuraTrailer™ or for moving the sign to different locations.
OnSite™	Enables two-way onsite communication using a laptop with a Bluetooth® wireless link to program, update, and conduct display diagnostics, and download speed data, from up to 50 feet from front of device equipped with DeviceController with a Bluetooth® interface. One USB Bluetooth® module per agency included.
InstaNet™	Enables two-way remote communication from TMC to program, update, download speed data, conduct diagnostics via NTCIP, fiber, WAN TCP/IP, cellular modem, radio/RF modem, serial, or Ethernet.
OfficeAlert™	Failure reporting and alert notification via text message or email. Includes failure notification of LED segments, power monitoring for solar systems, recent high detected speed for speeding problems, and built-in time clock correction using NIST time servers. Allows separate maintenance, administrative, and enforcement email or text message contacts. Requires InstaNet.
Information Display Company Products: AdvisorySpeed™; DeviceController™- Flashing Beacon Retrofit, NTCIP; FlashAlert™; Flashing Beacon Systems; InstaNet™ Two-Way Wireless Remote Communication; OfficeAlert™; Portables; Rectangular Rapid Flashing Beacons (RRFB); SlowDown Alert™; SchedulePro™; SpeedCheck™; TollRate™; TimeKeeper™; TravelTime™; TrafficFlow Manager™; TrafficInfo™; TrafficAnalyzer™; VariableSpeed Limit™	

SpeedCheck 15" Series Installation



THE BEST IN THE BUSINESS



INFORMATION DISPLAY

COMPANY

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The following describes the common installation methods, and a listing of the components that are required for each method of installing SpeedCheck fixed mount displays. All items listed as “end user supplied components” are readily available from electrical or traffic control equipment suppliers.

Components Supplied with SpeedCheck System

Display System

- Display unit
- Mounting brackets and fasteners ¼-20x1/2” BH Cap screws (mounted to sign rails for shipping)
- Flexible conduit, ½” liquid-tight

Solar Package (if purchased with SpeedCheck System)

- Solar panel(s) (usually drop-shipped from a solar panel distributor)
- Solar panel mounting bracket(s); top mount bracket is standard – side mount is available for light, telephone or other existing tall poles (may be drop-shipped or sent directly from IDC)
- Pole-mounted battery box (including solar battery) with charge controller.
- Conduit end fittings, ring terminals for connecting power cable to battery (included in battery box)
- Wiring cable (to be cut and used between solar panel, battery box, and display)

End user supplied components

AC Powered System –Recommendations for Overhead Drop

- 3” diameter or larger pole recommended for sign warranty
- Frangible or break-away base & hardware if required by local regulations
- Footing materials for frangible or break-away base if required
- ½” weather head or pole cap
- Sign strapping and strap installation tool (see chart on p. 6 for strap size recommendations), heavy-duty tamper proof band clamps, or appropriate size U-bolts with back plates. Consult your local regulations for appropriate attachment methods.
- Hose clamps of the proper diameter for the pole size. These are used to determine best display alignment and radar detection range, before permanently attaching the display to the pole.

Power feed options

Wiring Internal to pole (recommended)

The cleanest installation method is to use internal wiring with an entrance fitting going through the side of the pole a foot or two above the display housing location, on the side of the pole facing the display. To do this you will also need the following items:

- 1 length $\frac{3}{4}$ " conduit for burial as lead-in to pole base
- Pole cap
- $\frac{3}{4}$ " entrance elbow to be mounted to the pole
- Fittings to go from this entrance elbow to the entrance elbow on the display – liquid-tight conduit is supplied

Wiring External to pole

The simplest installation uses external conduit strapped to the pole. To do this you will also need these items in addition to those listed above:

- 1 length of $\frac{1}{2}$ " conduit suitable for the application (recommended IMC)
- 3 additional bands to attach the conduit to the pole

Solar Powered System

Pole

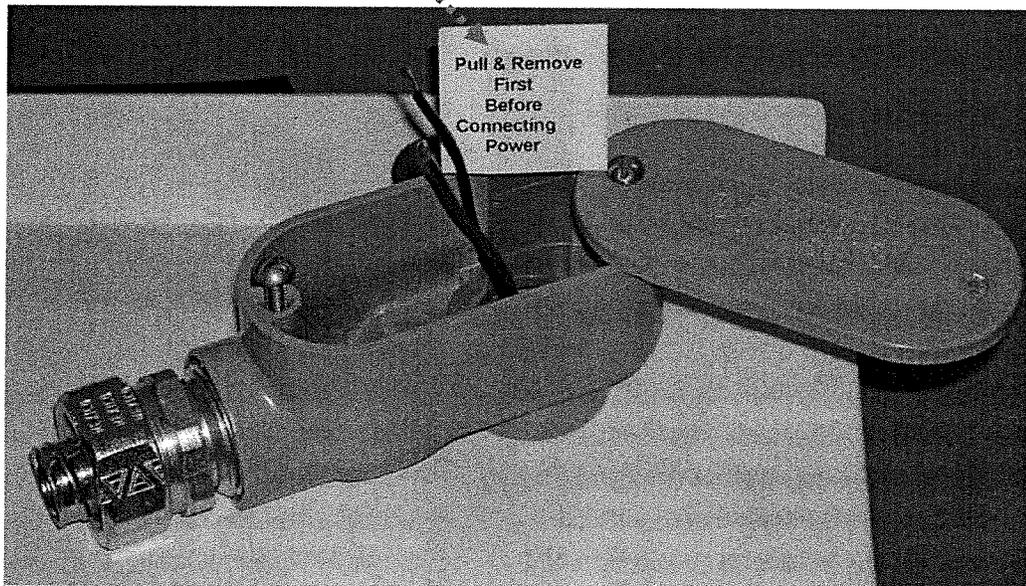
- For solar powered installations, use a 4" pipe size pole to provide a solid platform that will withstand heavy wind loads with solar panels mounted. For your specific installation, number and size of solar panels, regional minimum wind design requirements, etc., a traffic engineer or traffic control equipment specialist may suggest another approach.
- Frangible or break-away base & hardware, if required
- Footing materials, if required
- If power is run on outside of pole (as is typically done when installing to existing poles, or in the case of direct burial of pole), 2 lengths of $\frac{1}{2}$ " conduit suitable for application (recommended IMC or Rigid)
- Sign attachment banding and installation tool (see chart on p. 6 for strap size recommendations) or heavy-duty tamper proof band clamps; U-bolts cannot be used with pole mounted battery box or SpeedCheck solar racks.
- Hose clamps of the proper diameter for the pole size. These are used to determine best display alignment and radar detection range, before permanently banding display to pole.

Overall pole length is not given, as it will vary depending upon footing, frangible base use, etc. Additional pole-mounted signage or devices may require higher and stronger poles. Select pole length to achieve minimum height above ground as shown in the drawing.

For square posts, use the IDC Flat Surface Mounting Bracket. If such square post mounting is used with a solar-powered installation, remove the battery box banding brackets and bolt the box directly to the square post. Attach a section of round pipe to the top of the post for mounting the solar panel to allow correct panel orientation due (true) south.

Prior to connecting the input power, pull and remove the battery tape (see below).

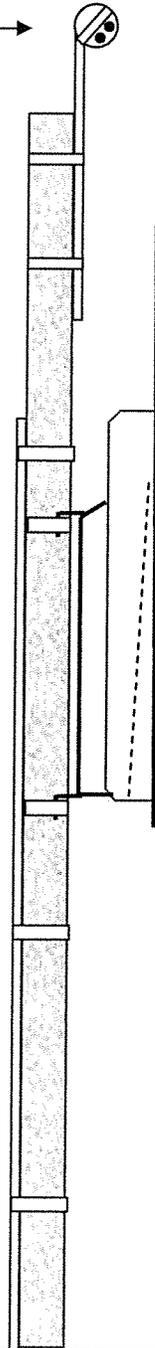
Important: *If the battery tape is not removed first, the sign will not power up.*



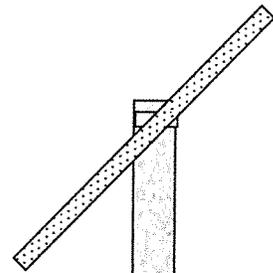
Weatherhead
For overhead service
type of installation



Conduit
For under-ground
service installation



Pole Mounted
Battery Box

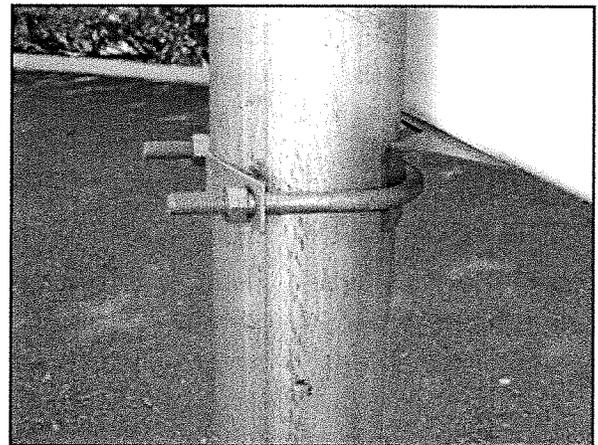
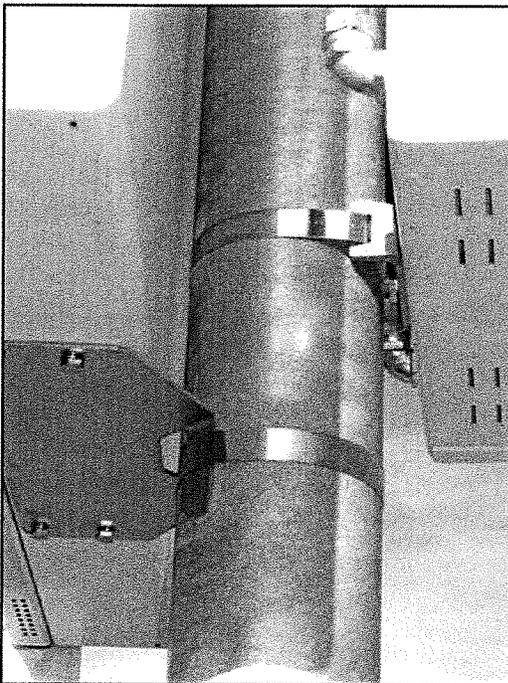
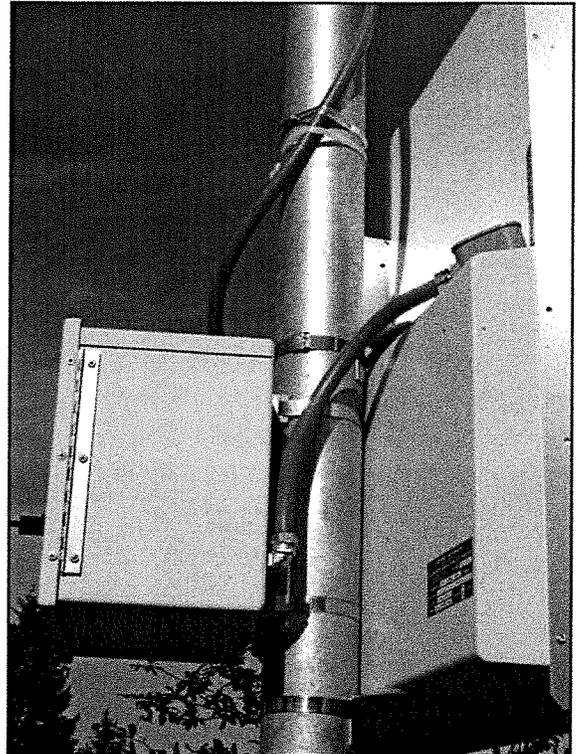
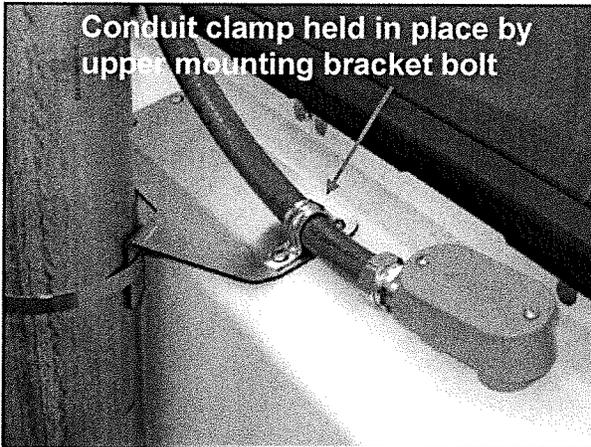


12'-6"
Minimum

7'-0"
(MUTCD Urban)

Use hose clamps for initial setup and alignment of the display to determine proper radar detection of oncoming vehicles. Adjust as necessary before permanently attaching the display to the pole with strapping or U-bolts.

These photos illustrate the mounting of the display and battery box to a pole. Sign and battery box brackets are best attached to the pole using standard stainless steel strapping equipment. The chart on p. 6 lists the strapping requirements.



Note: Strapping provides the most secure and vandal-resistant mounting. If strapping equipment is not available, U-bolts can be used for most applications.

Strapping Recommendations

Strapping size recommendations for 15" displays	
90 MPH wind loading	
3/4" x .030" band	Single wrap provides adequate strength for 90 MPH wind loading
5/8" x .030" band	Single wrap provides adequate strength for 90 MPH wind loading.
1/2" x .030" band	Single wrap provides adequate strength for 90 MPH wind loading. However double wrap is preferred on upper mounting bracket to prevent rotational slippage.

Avoid These Common Installation Mistakes

- Installing immediately after a sharp curve, as radar might not pick up approaching traffic. Sign needs to be aimed correctly at approaching traffic
- Installing on a steep incline or decline without using grade tilt brackets
- Mounting a solar powered system in the shade of trees or large structures
- Installing where large trucks may park and obscure the sign
- Installation where the radar beam does not have a clear view of oncoming traffic because of obstructions, such as trees, foliage, signs, buildings, etc.
- Installing the sign too far from the roadside. Typically, the SpeedCheck display is mounted between 5 feet and 12 feet from the roadside.
- Permanently banding display to pole without using hose clamps first to determine best display alignment and radar detection range.

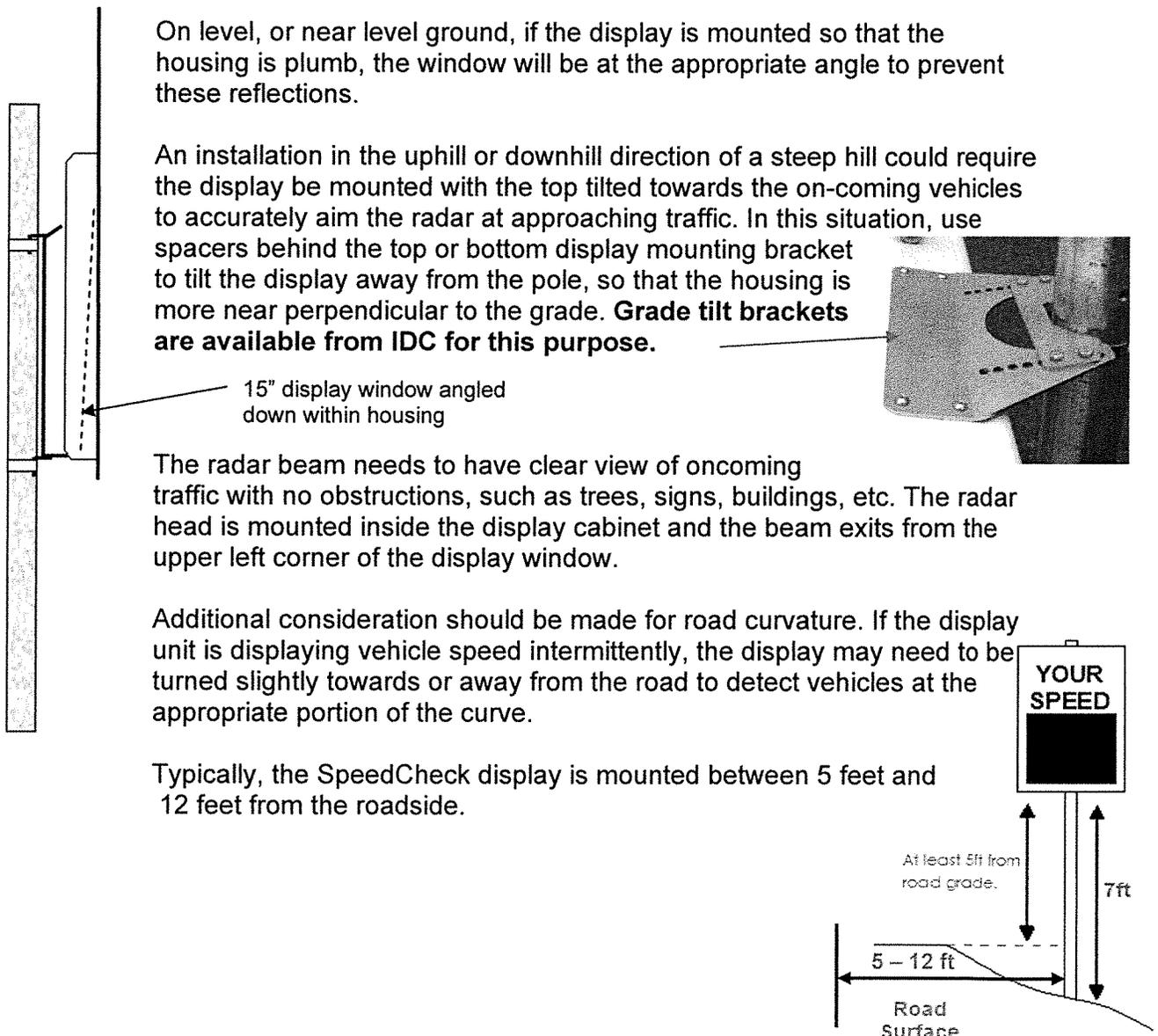
Display Alignment

The 15" series display systems are designed to maximize the contrast of the display and minimize the glare from the window. For these systems to function properly, the display must be aligned properly in relation to the roadway.

There are two main potential sources of severe glare from the display: 1) sun and sky, 2) headlights of oncoming vehicles.

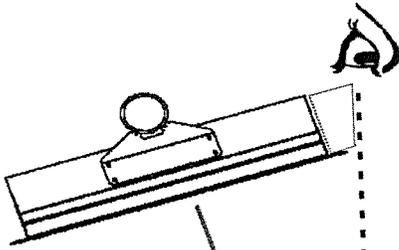
Sky Reflections:

The 15" display is designed with a substantial downward tilt to the display window, which prevents sun or sky reflections from being seen from a vehicle.

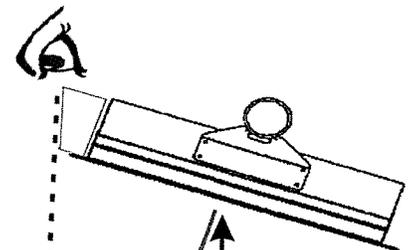


This procedure shows proper alignment for most cases; your site may need additional adjustments. Use hose clamps for temporary installation to test radar detection range before permanently banding display to pole. Adjust display as necessary by rotating it slightly left or right if detection range is short. Normal detection range is 300 to 700 feet.

Left side of roadway sign mounting:

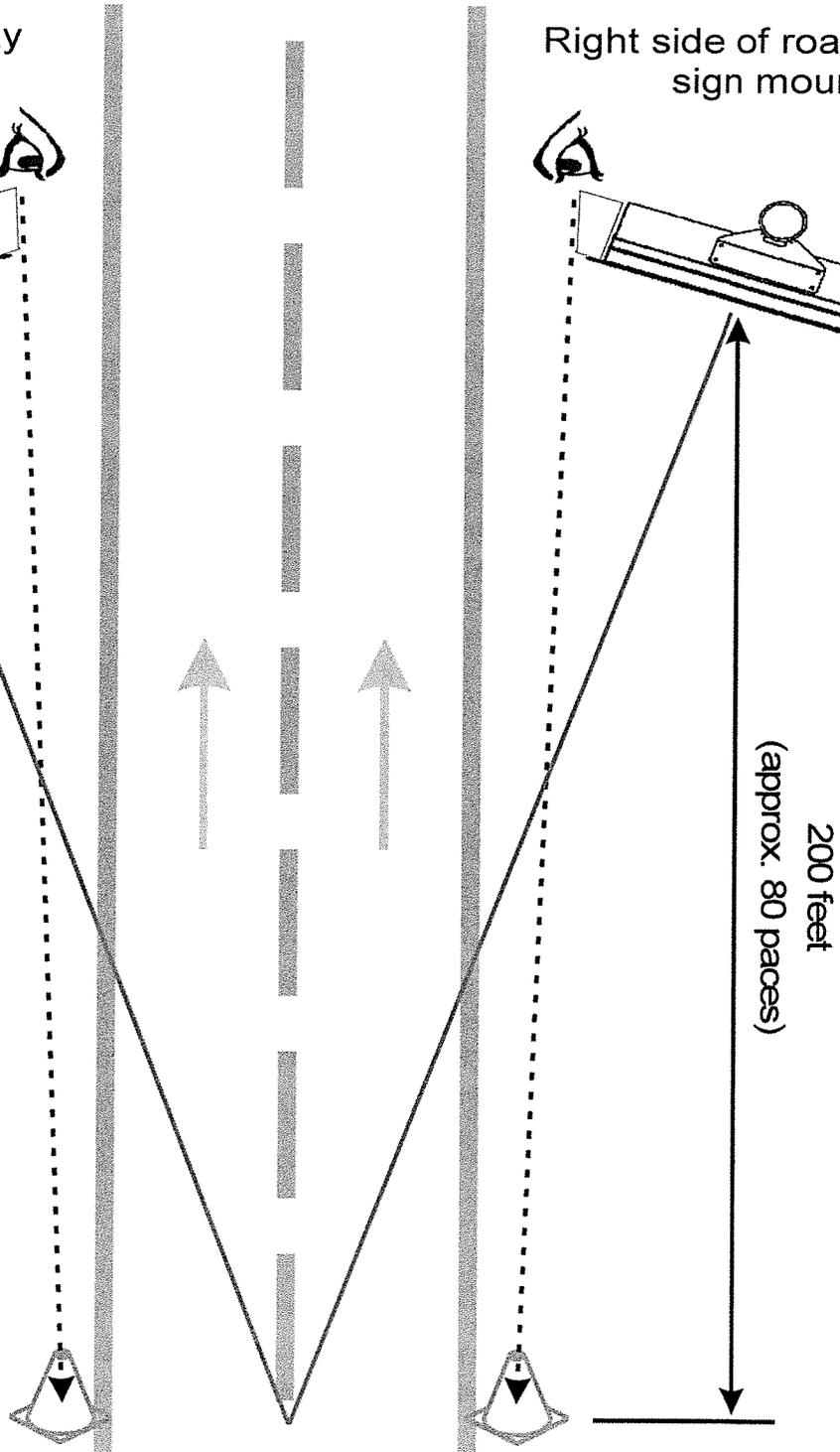


Right side of roadway sign mounting:



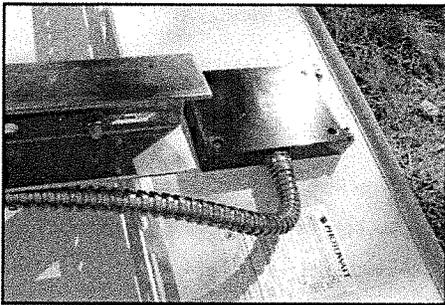
Rotational sign alignment

1. Position the SpeedCheck sign at the correct height, and attach clamping devices loosely to allow rotation of the sign
2. Place the orange cone at the edge of the road (next to the fog line) 200 feet (about 80 paces) from the display, towards the direction of traffic.
3. Hold the aiming guide flange against the roadway side of the sign, with the narrow end of the guide to the front as shown.
4. Rotate the SpeedCheck display on the pole until the two points on the aiming guide visually line up with the orange cone as shown here.
5. If done correctly, the sign face is now aimed at a point in the roadway approximately 200 feet from the sign and 12 feet in from the fog line as shown by the red line.
6. Tighten attachment devices.

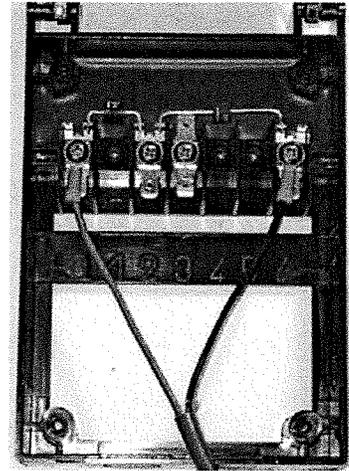


Solar Panel Installation

When installing solar panel(s) always refer to manufacturer specifications for that particular panel(s), or feel free to call *Information Display Company* for technical assistance. *Always use a volt meter to determine proper terminal connection. Open solar panel circuit voltage should be between 17 – 22 volts. Actual terminal connections may vary depending upon the solar panel purchased*

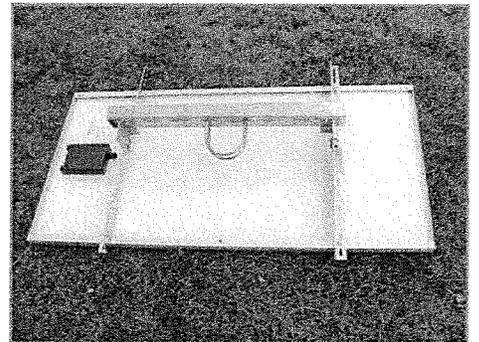


When attaching conduit to the junction box, use caution to put a minimum amount of strain on the box. A broken junction box cannot be repaired.



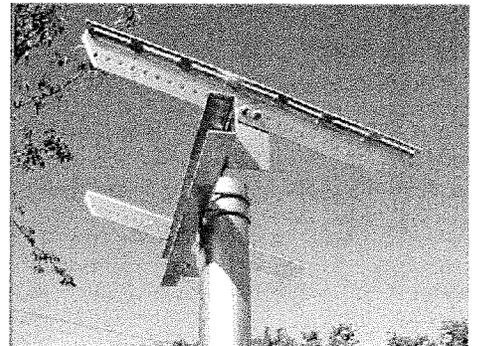
When a typical pole top mount is used, fully assemble the mounting bracket as shown in the assembly instructions that come with the bracket.

Adjust the mounting bracket to fit the solar panel mounting holes. Do not mount to panel yet.

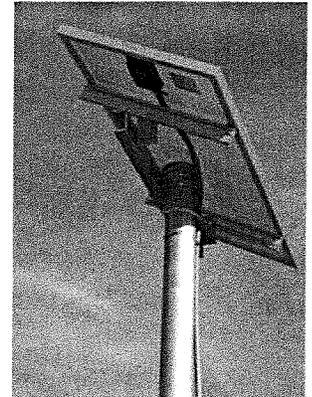


After the mounting bracket is assembled and properly set up for your specific solar panels, mount the bracket to the pole without the solar panel(s).

It is easier to install the bracket first, and then simply lay the solar panel atop the mounting bracket. With the mounting bracket holding most of the weight of the solar panel, attach the mounting bolts to hold the panel in place. This is also safer, in that there is less chance of damaging the solar panel.



The solar panels supplied have been selected to provide adequate power to the system under the worst-case situation, which will typically be during the period of time following the winter solstice. The solar panels must be oriented for maximum efficiency at that time.



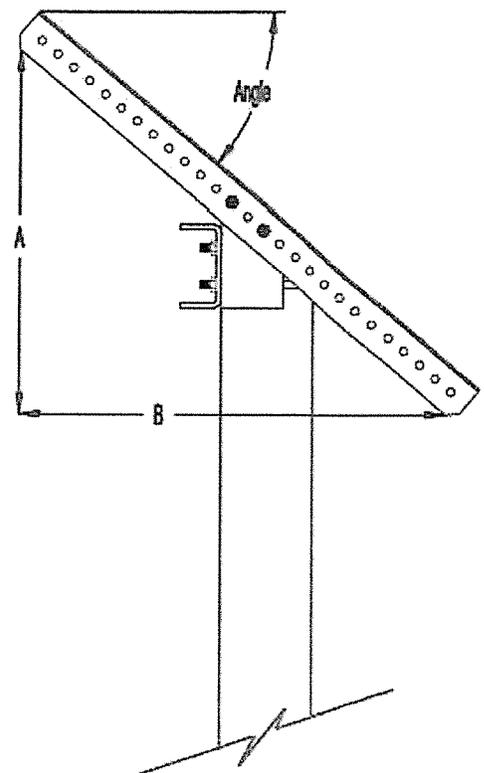
It is also important to know the location and hours of operation the system was designed for. If a solar powered display is operated in a manner not compatible with the original solar sizing design, or is operated more hours per day than it was designed for, then the solar power components may be overly stressed and could fail to power your display as intended.

The mounting bracket allows the panel to be tilted towards the sun at the appropriate angle. Determine the correct angle for your location using the table below, and adjust the bracket to the approximate angle shown (accuracy within 5 degrees is close enough).

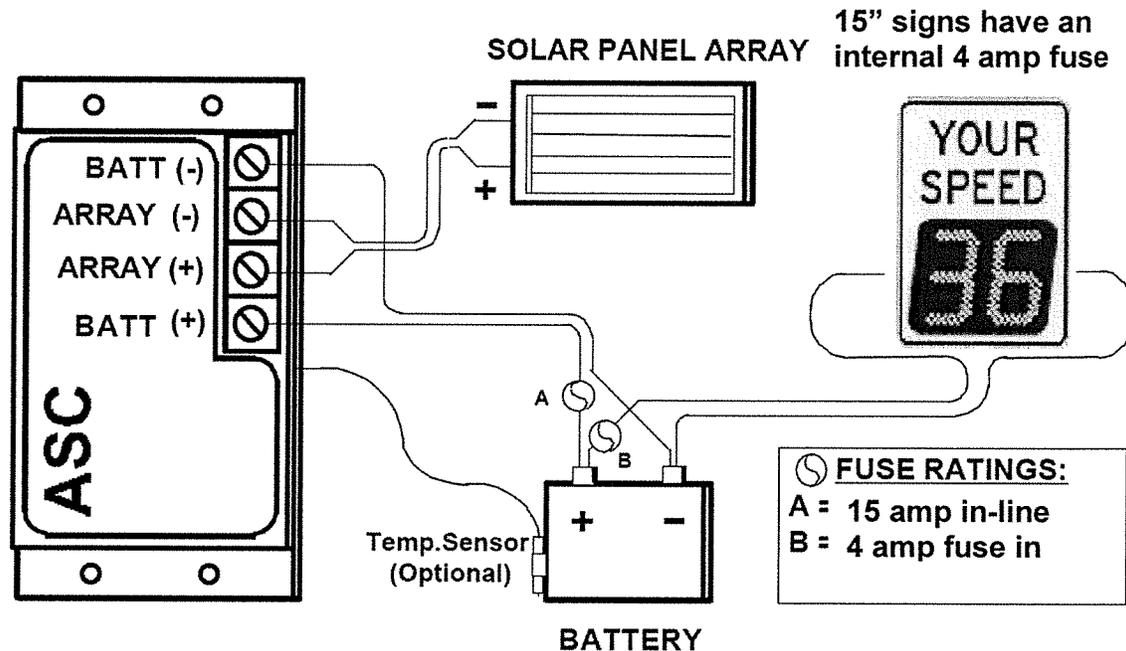
Locate the panel rotationally on the pole so that it is directed due (true) south. Note that true south may be different from magnetic south in your area.

Solar Panel Mounting Angle

Your Latitude	Angle From Horizontal	Rise / Run (A/B)
60	77	4.33
55	72	3.08
50	67	2.36
45	62	1.88
40	57	1.54
35	52	1.28
30	47	1.07
25	42	0.90
20	37	0.75



Connecting Solar Panel, Solar Controller, Battery and Sign



At the Solar Panel

Using a voltmeter, check for voltage (17v – 22v) at the junction box on the back of the solar panel.

- Connect the red 16 gauge wire to the positive voltage terminal
- Connect the black 16 gauge wire to the negative voltage terminal

In the Battery Box

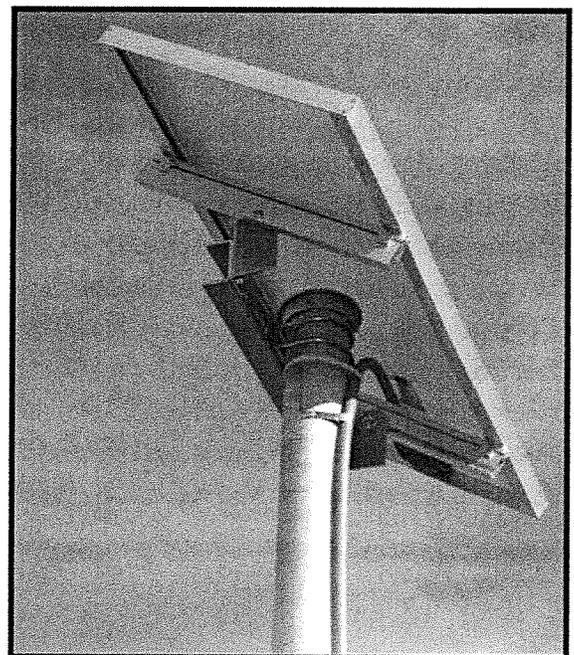
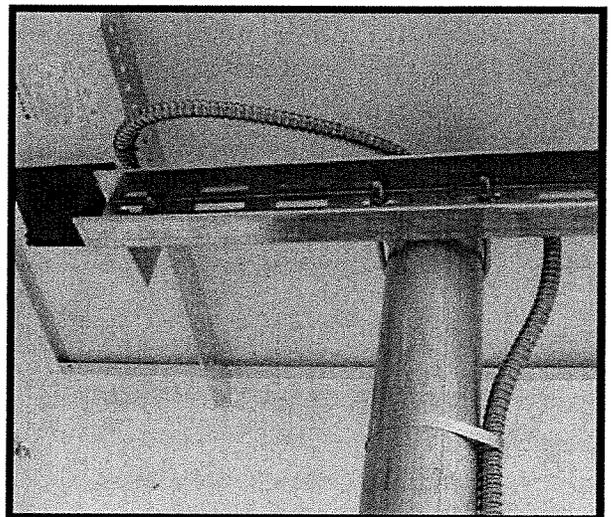
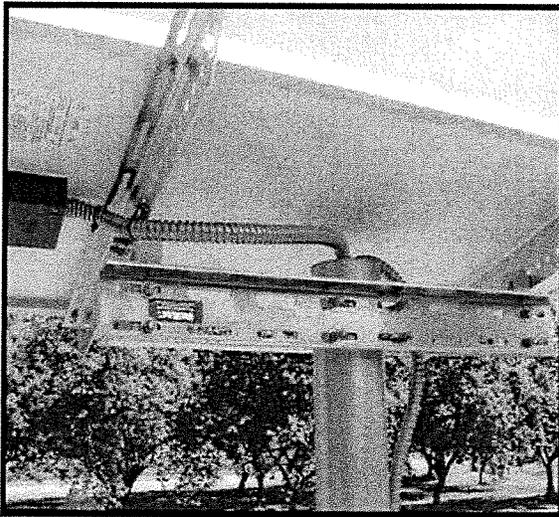
1. Ensure you have solar panel voltage at the panel cable terminals; if not, re-check the step above.
2. Connect the battery to the ASC Controller **before** connecting the solar panel.
3. The 16 gauge cable connects from the sign directly to the battery terminals. **DO NOT** yet connect the power cable from the sign to the solar controller.
4. Connect the 16 gauge cable from the solar panel to the solar controller.
Double check voltage polarity: Red = 12-17 volts positive, Black = negative
Red wire connects to the **ARRAY (+)**
Black wire connects to the **ARRAY (-)**
5. If included, place the temperature sensor against the battery, half-way up the side, and hold in place with supplied adhesive insulating foam.

Caution! If the cable is cut or the sensor damaged, the controller will not function.

The following photos show installation details and options. The top photos show an installation where the power cables are run inside the pole. The display conduit is run up to the top of the pole and down the inside.

On existing poles, or new installations of buried poles, external conduit strapped to the outside of the pole is the easiest method to route wiring.

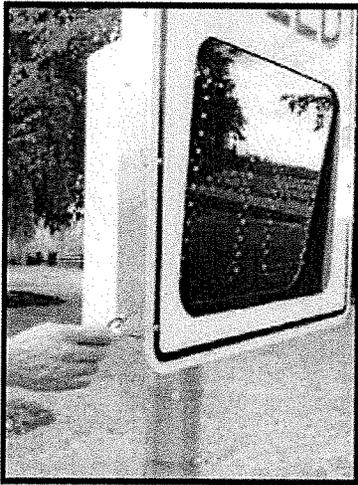
In areas that are well away from the reach of pedestrians, stainless steel hose clamps are a simple, quick, and reliable way to attach the conduit to the pole and brackets.



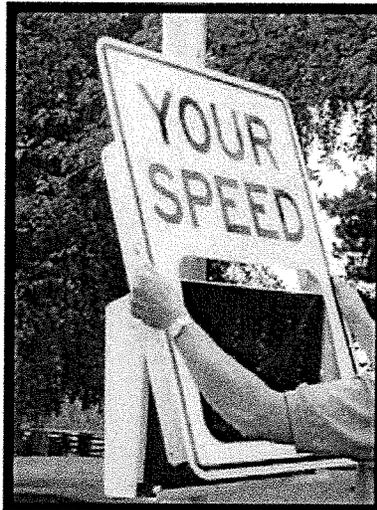
Accessing Internal Components

Before working on an AC-powered display, disconnect power at the source. On solar powered units, disconnect power at the battery box. Wait 30 seconds for the power capacitor to discharge before handling and removing the LED display boards.

Be very careful not to touch or move the LEDs, they have been factory aligned for optimal visibility.



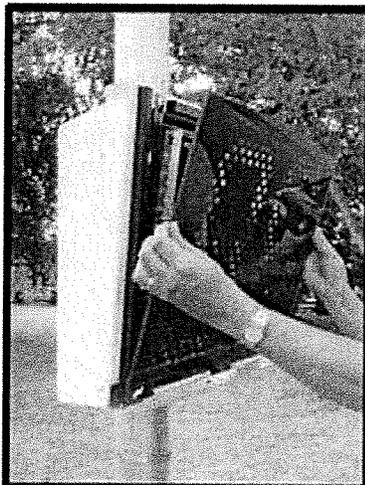
Remove the two fasteners, one on each side.



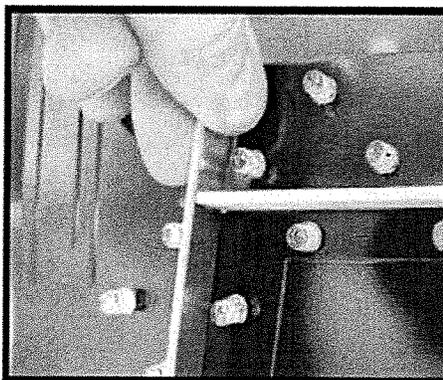
Tilt sign to rear and lift to remove.



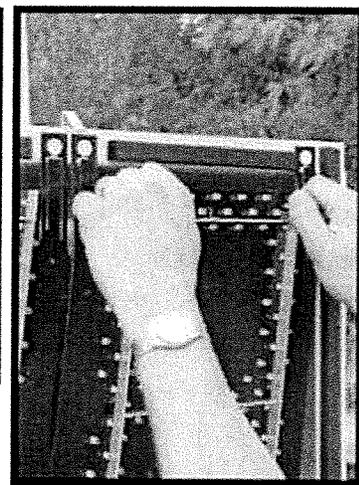
Lift window retainer clip.



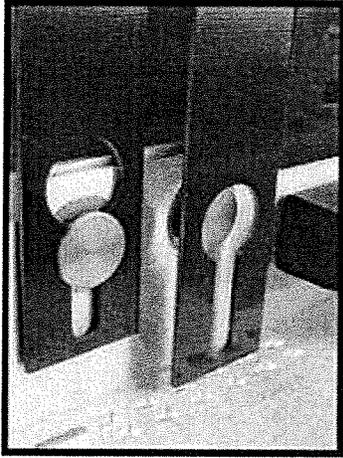
Tilt window forward & lift to remove.



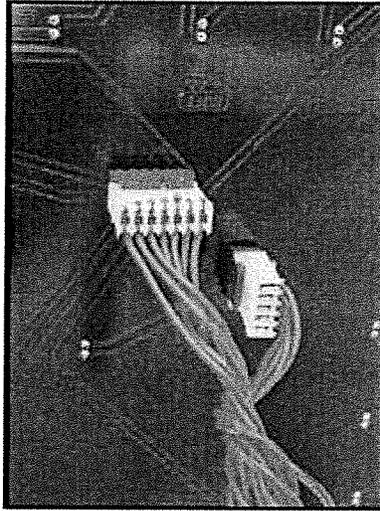
Being VERY careful not to touch the LED lamps... grasp the circuit board stiffeners at the top.



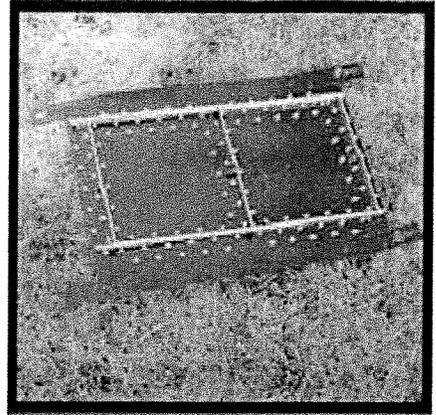
Pull the circuit board toward you about 1/4". When the retainer tabs clear the hanger pins, slide the circuit board upwards.



When the top part of the circuit board releases from the upper hanger pins, lower the board to where the cut-outs slip off the lower hanger pins.



Remove the connectors from the display board.



Place the display somewhere that it will not be in danger of damage. The LEDs are easily bent and misaligned. Nothing should be allowed to touch the individual LED's.

LED Boards can be left plugged into their cables and temporarily hung from the window tray, using the two 1/4-20 bolts removed from the side rails temporarily installed in the left half of the window tray.

15" Classic Board Display Cable Connections

If your display uses a non-programmable driver board (socketed processor chip and no coin cell battery holder), proceed as follows:

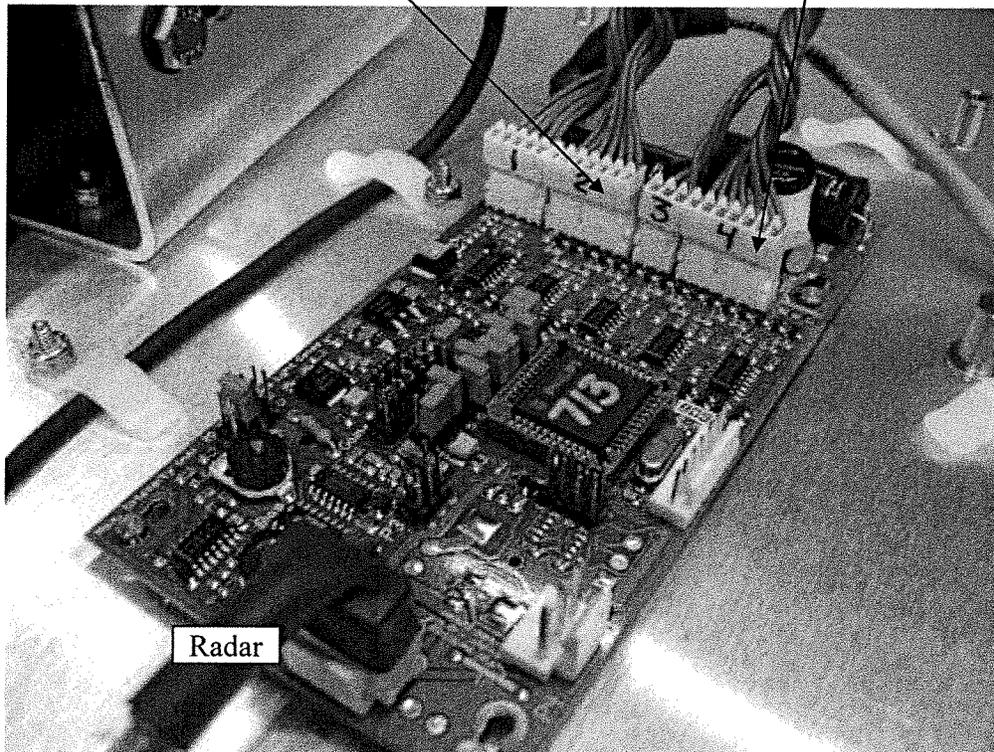
IMPORTANT! *Connect the display cables before connecting the power cable.*

The 5 pin & 7 pin (1 & 2) connectors go the right LED display.

The 3 pin & 7 (3 & 4) pin connector go to the left LED display.

Right LED Display

Left LED Display



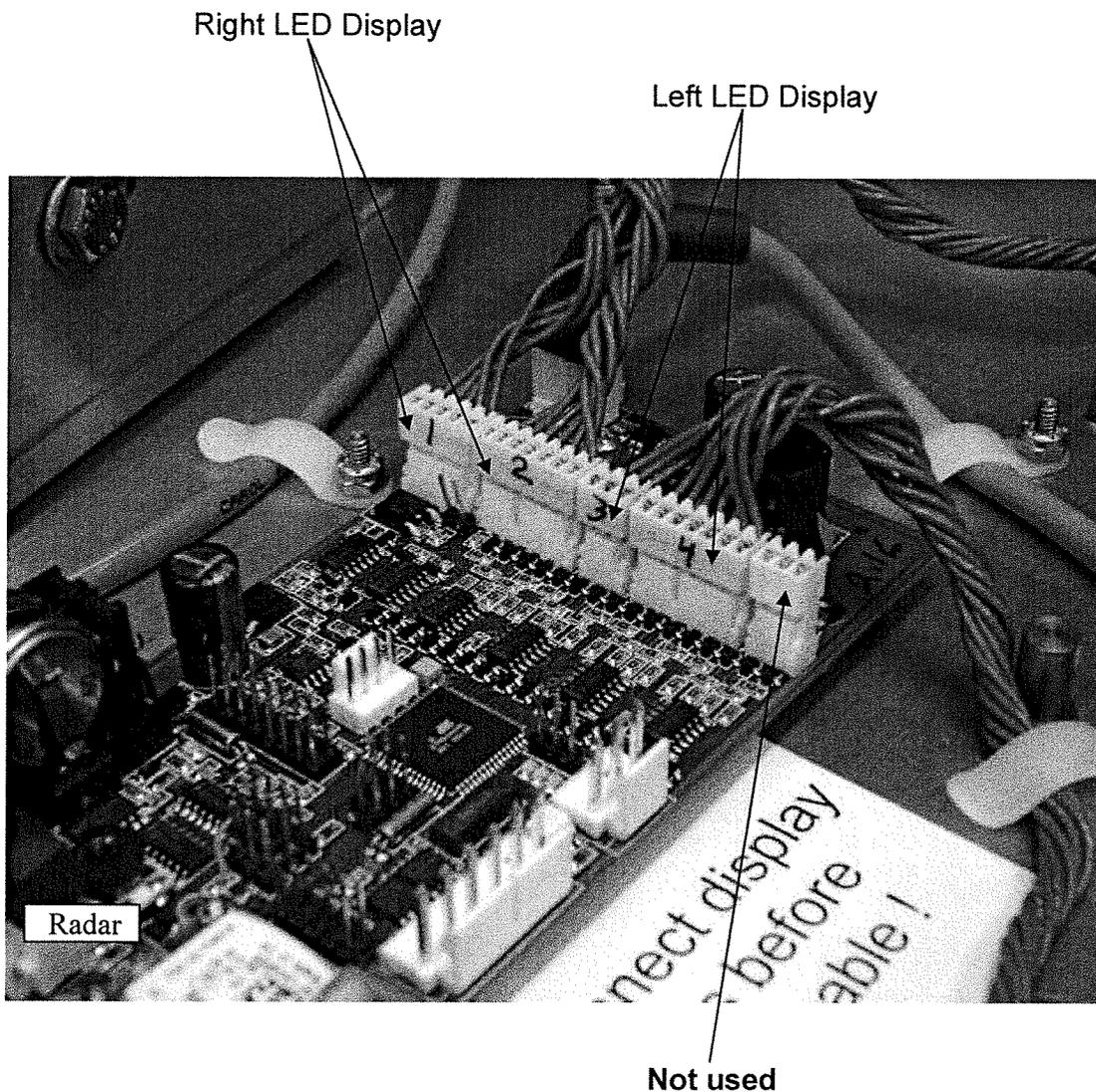
Caution! *Do not power up display with cables disconnected. This will damage the circuit board.*

15" Programmable Board Display Cable Connections (Without Slow Down Display)

If your display has the programmable driver board (with coin cell holder) note the following cable connections.

Connect the display cables before connecting the power cable.

- The 5 pin & 7 pin connectors (1 & 2) go the right LED display.
- The 3 pin & 7 pin connectors (3 & 4) go to the left LED display.



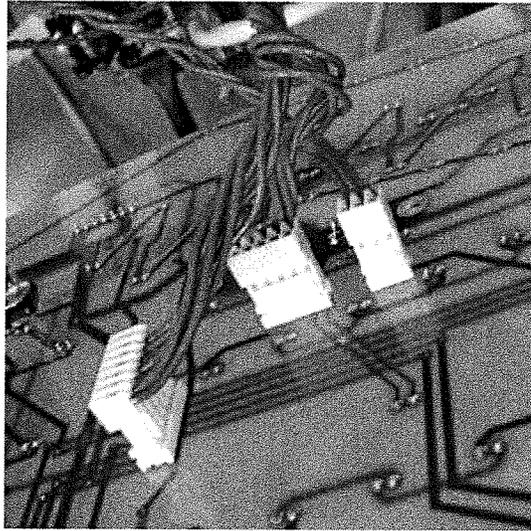
Caution! Do not power up the display with the cables disconnected. This will damage the circuit board.

Slow Down Cable Connections

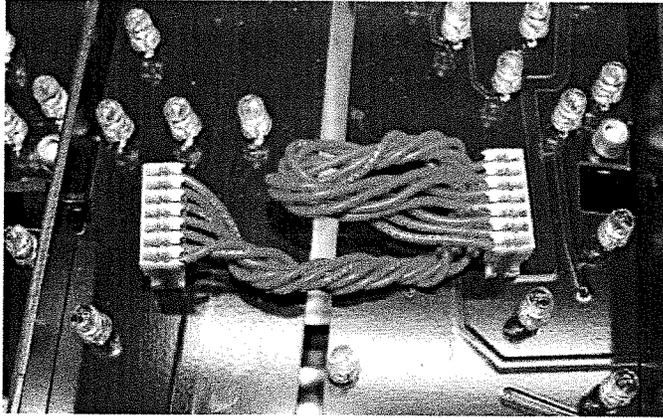
If your display includes the Slow Down Display option, note the following cable connections.

Important: *Connect Display Cables before connecting the Power Cable.*

1. The Right Side display connection cables are bundled together. Note the orientation of the wires – the index pins on the cable socket fit into notches in the board plug.

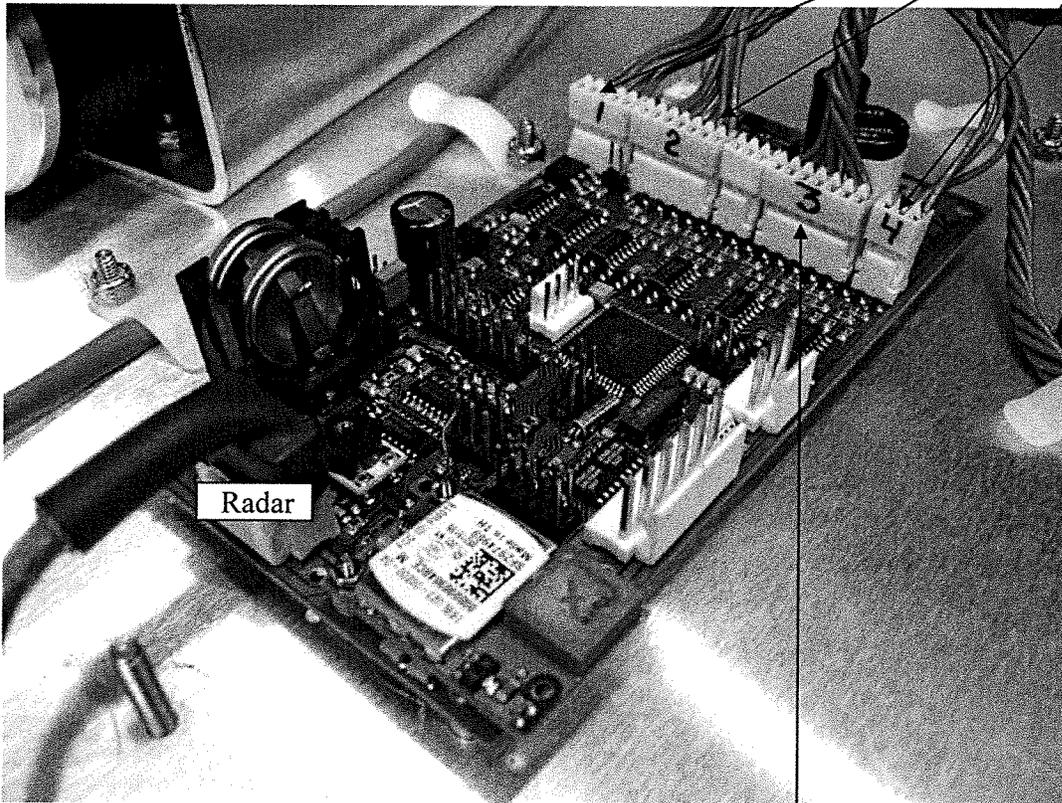


2. Left Side display connection is a single cable with a 7-pin connector. Note the orientation of the wire – the index pins on the cable socket fit into notches in the board plug.
3. Jumper connection between left & right display. The cables exit the connector towards the opposite display board. The board plug pins may be on either the front or the back, but the cable installs the same way.



4. Cable connections to the Driver Board consist of four cables connected as shown in the photo below:

Right LED Display (1, 2, & 4)



Left LED Display (3)

Caution! Do not power up the display with the cables disconnected. This will damage the circuit board.

Maintenance

Sign Face

Ensure that debris and soil are removed from the face of the display and sign, as you would with any road sign. Do NOT use oil based solvents on the polycarbonate window or the sign face, as this can cause permanent fogging. The securing bolts on the sign face should be checked for tightness, as well as the securing mounting (banding, clamps, or U-bolts) that attaches the display to the pole or other mounting structure.

Solar Panels

For solar applications, ensure that the solar panels are free from undue debris or obstructions that may reduce the sunlight available to the panel. Solar batteries typically will last five to ten years before replacement is necessary.

Internal Components

All internal components are replaceable at the module level except the display boards, which are generally provided in pairs to match the brightness and color batches of the high-output LEDs. On 18" displays, the display cabinet should be returned to SpeedCheck for servicing and proper alignment of the LED display boards. On 15" displays, the display boards are replaceable in the field.

Yearly Maintenance

Check the following items yearly, more often in harsher environments:

- Clean and check the radar and mount
- Clean and check the reflector (left edge should be approx. 4" from back of cabinet)
- Clean both sides of the window
- Blow out the LEDs, cabinet and internal components with compressed air
- Visually inspect LEDs for alignment
- Visually inspect for corrosion, rust or worn insulation
- As a preventive measure, if desired on programmable boards, replace the two 2032 coin cells for on-board clock backup.

Troubleshooting

No Operation, or Erratic Operation

- Verify voltage supply connections are correct and tight.
- Verify fuses in the fuse blocks and inline fuse holder are of the correct rating:
 - Solar battery fuse: 15A
 - Sign 12VDC supply fuse: 4A SB
 - Sign 110VAC supply fuse: 1/2A SB
 - Sign 220VAC supply fuse: 1/4A SB or 1/2A SB
- On programmable boards, ensure the coin cells show at least 2.7V each, are replaced, or the Battery Bypass pins are jumpered (see Page 23).

Not All Vehicle Speeds Displayed

- Verify the display has correct alignment with the roadway (see p. 7 above)
- Check high-speed blanking setting, which may be set too low for the prevailing traffic speed.
- Check minimum display speed setting. It may be set too high for the prevailing traffic speed.
- Note that SpeedCheck is designed to detect moving vehicles, including trucks and golf carts. It is designed to ignore people or small targets.
- The Radar unit can be factory-set for longer or shorter detection range, or the display may be angled slightly towards the centerline of the road to focus on vehicles closer to the display. The factory setting is a detection range between 400 to 600 feet from the display, depending somewhat upon target size (truck vs. compact car, etc.).

Sign Displays Test Sequence Only

- Timer or scheduler has been set to collect data but not display speeds. Set the program as desired.
- Radar is not sending data. Contact Information Display Company for further diagnostics.

No Test Sequence and No Speeds Displayed

- Key switch (if used) in the OFF position (fully CCW).
- Coin cell batteries are dead (on programmable boards). Below the batteries, and to the left of a shiny silver cylinder, is a very small LED indicator light that blinks continuously when power is disconnected or off. If the small LED is not blinking (when power is off), replace with 2 Lithium 2032 batteries. Remember to reset time and date and check all sign programming.
- Controller board may have a jumper on the power bypass pins just to the left of display cables 1 and 2 which enables operation without coin cells.
- Power to display is OFF.
- Test sequence is disabled.
- Operating Modes settings set for “Display OFF”
- Timer or scheduler has scheduled the sign to be off.
- GPS time synchronization is taking longer than normal due to display not being powered up for a few weeks. Allow up to 30 minutes in this case.

Numbers Displayed with No Vehicles Passing

- “06” or “08” displayed – display is picking up noise from such items as fluorescent light ballast or fan blower motors. Eliminate the source of the noise or insulate the radar head from the display cabinet. Call Information Display Company for further information.
- “88” displayed – display is programmed for the SLOW DOWN message but the SLOW DOWN message boards are not installed. Disable the SLOW DOWN message operation in the Setup menu using your laptop computer.

Too High a Number Displayed Relative to Traffic Speed

- Display may be set to read KM/Hr instead of MPH. Contact Information Display Company for a radar unit set to the appropriate units.

Sign Displays Speed for Vehicles Going Away From the Sign

- One of the radars we use will operate in bidirectional for about the first three minutes after power up. After about three minutes the unit should go into directional mode.

Detection Range Too Short

- Sign alignment is incorrect. See p. 7 above.
- Sign has metallic or plant obstructions between display and the vehicles.

- Sign is aligned properly but road curve or grade is affecting detection zone. Try aligning the sign face towards or away from center line, and/or more towards the grade of the road (up or down) as required.
- Internal metal radar reflector bent or missing. Check inside the display cabinet.
- Radar unit can be factory-set for longer or shorter detection range, or the display may be angled slightly towards the centerline of the road to focus on vehicles closer to the display. The factory setting is a detection range of 400 to 600 feet from the display. This range is affected by target size (truck vs. compact car, etc). Contact Information Display Company for more information.

Bluetooth™ Communications Erratic or Not Working

- Display not powered, or key switch set to OFF.
- PC laptop computer not fully charged. You may get a timeout error if there is insufficient power to maintain a wireless connection.
- PC laptop too far away. It must be located within 50 feet *in front of the sign*.
- Mismatched software and firmware is loaded on the laptop or controller board. Contact Information Display Company for the latest versions.

Speedcheck Application Not Downloading Data Properly

- Invalid display name. Make sure display name programmed with your laptop computer is valid and does not include special characters or punctuation.
- PC laptop computer not fully charged. You may get a timeout error if there is insufficient power to maintain a wireless connection.
- Make sure display date/time is set properly with the DisplayManager Setup menu.

Programmable Board Green LED's Indicator Functions

Standby Battery LED

Upper left corner to the lower right of the coin cell batteries. This LED should blink once per second indicating standby mode when no power is supplied to the board. (Coin cells must be in place with voltages above 2.5V each. When power is applied (the power LED will be lit), the Battery LED should light momentarily, then go off. If this light stays on solid, perform a hard reset to the board by momentarily shorting the **Reset Pins** (see below).

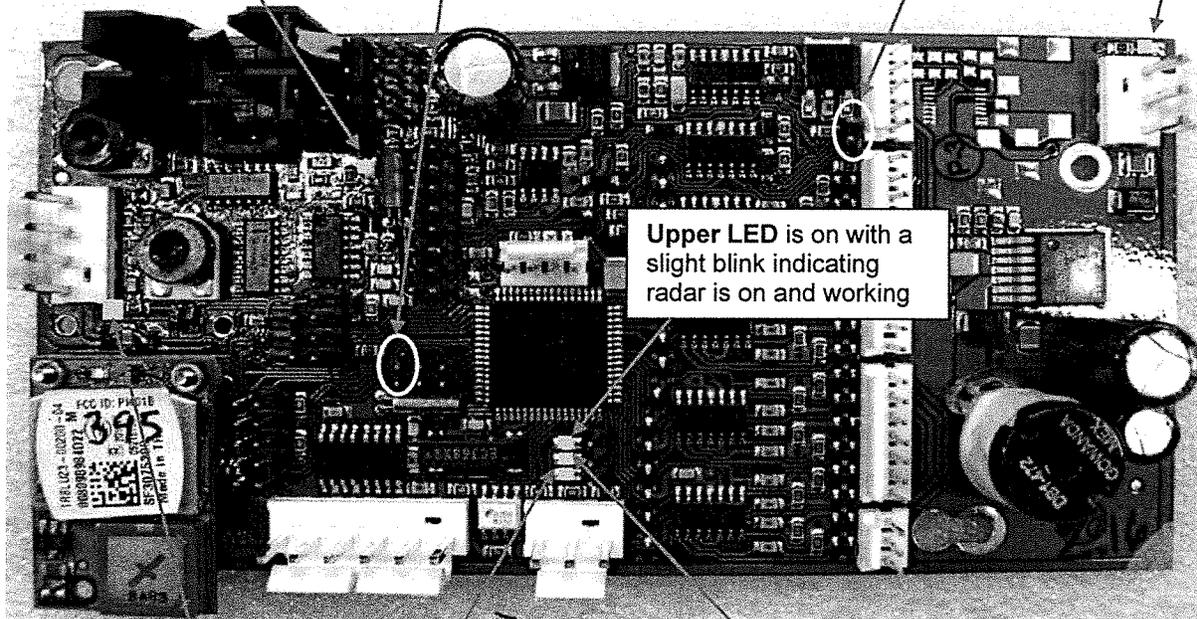
Power LED

Upper right hand corner next to power plug. This LED should be lit when voltage is present.

Battery Bypass –

These pins should have a jumper in place; this allows the board to run with depleted or missing coin cells.

Reset Pins – Momentarily short pins together to do a hard reset of the board when powered on.



Upper LED is on with a slight blink indicating radar is on and working

Bluetooth LED

On when connected via Bluetooth

Operational LED's

Vertical row of 3 LEDs.

Lower LED indicates the display is on and in operational mode, should remain solid

Center LED will blink whenever radar records vehicle detection. Or, if equipped with GPS, will come on when time is being updated.

If the display is on with power LED lit, and the lower Operational LED is lit, but the radar will not detect and display vehicles, unplug the radar for minimum 10 seconds, then plug back in. The upper radar LED should come on and start displaying vehicle speeds. If not, the radar is not functioning properly.

Sales, Service and Support

You can contact us via email, sales@informationdisplay.com at any time, or you can complete our online information request form. We try to answer all email inquiries within 24 to 48 hours. If you have a pressing question, please call us.

Web site: <http://www.informationdisplay.com/>

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Phone: 800-421-8325

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Email: Support@informationdisplay.com

THE BEST IN THE BUSINESS



INFORMATION DISPLAY
COMPANY

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Beaverton OR 97005

Revised December, 2014

15" Radar Speed Sign Specification

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1.0 General

- 1.1 Speed check display signs are typically used in neighborhoods, school zones, rural roadways, arterials, highways, construction and work zones, and other areas where there is a particularly high degree of concern for pedestrian safety or hazards roads which excessive vehicle speed are extremely dangerous.
- 1.2 Speed check display signs show the vehicle speeds on large LED numerals. It is intended that by making the inattentive driver aware of their speed, they are induced to slow down and focus more of their attention on driving at a safer speed.
- 1.3 Speed check displays have demonstrated a decrease in the 85th percentile speed anywhere from 5 to 10 mph.

2.0 Standards

- 2.1 Signs shall meet the FHWA MUTCD requirements for color, dimensions and layout.
- 2.2 The sign shall be 90 mph (144 km/h) wind load rated when installed to Information Display Company's specifications.
- 2.3 The sign cabinet and mounting for AC power shall be NCHRP 350 crash test approved.
- 2.4 Housing shall be of a non-sealed, ventilated NEMA 3R type design.
- 2.5 Signs shall be FCC approved with no operating license requirements.
- 2.6 The sign must meet the Buy America requirements set forth by the FHWA and other Federal agencies for use of federal-aid construction projects.

3.0 Compliance and Submittals

- 3.1 **Certification of Compliance.** The Contractor shall provide agency a Certification of Compliance from the manufacturer. The certificate shall certify that the radar speed sign, solar system, batteries and solar controller comply with the requirements of these specifications.
- 3.2 **Specification Verification.** Vendor/Contractor must demonstrate the following and show adherence to specifications:
 - 3.2.1 The ability to support unlimited schedules

- 3.2.2 Wireless programming of the sign – onsite and remotely
- 3.2.3 Programming sign speed thresholds, display on/off modes and schedules
- 3.2.4 Ability to install and verify firmware updates
- 3.2.5 Ability to store, download, and clear traffic speed data

3.3 Submittals. Submittals shall conform to “Equipment List and Drawings” of the Standard Specifications. The submittals shall include:

Maintenance Manuals (2 required), Operation Manuals (3 required), Shop drawings showing mechanical sign support for the solar power system and the radar speed sign, Radar speed sign and all electrical connections (2 required), and Warranty documentation

3.4 Testing. The radar speed sign shall be factory tested. In addition to factory testing, site functional testing will be done by the qualified representative of the sign vendor and shall be done in the presence of the engineer:

- 3.4.1 Run test sequence. A full roll up of all digits indicates the display is working.
- 3.4.2 Approach Only Radar. The sign shall be verified for approach-only radar, by displaying approach-only traffic, and not displaying traffic in front of the sign that is driving away from the sign.
- 3.4.3 Instant on: The display shall activate within an appropriate distance to allow motorists to see and react to the sign.
- 3.4.4 Minimum Display Speed. Display shall begin displaying the speed once the driver speed reaches this threshold.
- 3.4.5 ViolationAlert. The display shall optionally flash the driver’s speed once the radar detects the pre-set ViolationAlert speed threshold and increase flashing rate proportional to higher speed. The display shall blank out or display slow down message once the radar detects the pre-set high speed threshold.
- 3.4.6 Visibility. The display shall have high contrast and visibility in all lighting conditions.
- 3.4.7 Auto Dim. Cover the auto-dim light sensor to verify it is operational.

4.0 Reliability

4.1 Environmental

- 4.1.1 Operating temperature range -40°C to +75°C.
- 4.1.2 Sign material and enclosure shall be .09” (2.29mm) aluminum.

- 4.1.3 Sign mounting hardware shall be of brass and/or stainless steel.
- 4.1.4 Outer surfaces of enclosure shall be coated with white UV resistant coating to minimize solar heat absorption.
- 4.1.5 The electronic main board must have conformal coating.

4.2 Electronic Performance

- 4.2.1 Display control electronics shall maintain programmed settings and schedules indefinitely and shall incorporate a separate real-time clock backup power supply to maintain on-board clock settings through a power outage for up to two weeks and recharge itself when power is restored.

Optional: The clock backup power supply shall have an option that does not rely on batteries.

- 4.2.2 Power to the LEDs shall use DC display drive to provide continuous, non-pulsating current to LEDs when speeds are displayed, to maximize LED life.
- 4.2.3 Display shall operate on 12VDC nominal (10V – 18V) and display control electronics must automatically turn the display off when the voltage is below a lower threshold to prevent over-discharge damage to the solar power system.
- 4.2.4 Charging control system shall be a solar industry standard item with temperature-compensated charging voltage and battery temperature monitoring for long battery life of 5 to 10 years
- 4.2.5 In solar-powered systems, display control electronics shall monitor 12-volt supply to estimate the charge available and determine when the sign may be powered up for reliable operation.
- 4.2.6 The individual LEDs shall be wired such that a short failure of one LED will not result in the loss of more than 5 percent of that segment. – ensuring the digits will remain visible.

4.3 Vandalism Protection

- 4.3.1 Display cabinet shall be constructed to absorb impacts from thrown objects or vandalism attempts, by allowing the display boards to deflect inwards up to 2" (50mm) without damaging internal components.
- 4.3.2 Display window shall be made of ¼" (6.35mm) minimum thickness shatter-resistant polycarbonate.
- 4.3.3 The LEDs shall be protected so that LEDs are not impacted by the polycarbonate window upon deflection.

- 4.3.4 The vandalism-resistant design must not add significant weight or reduce the display contrast or visibility
- 4.3.5 Housing shall be provided with tamper proof (vandal resistant) fasteners that are compatible with existing agency tools.

5.0 Serviceability

- 5.1.1 Manufacturer's name, date of manufacture, model number, serial number, voltage requirement, and FCC approval number will be labeled on the back of the sign.
- 5.1.2 For field support, programmability, data downloads and diagnostics must be accessible via Bluetooth™ wireless link to a Windows-compatible notebook computer, and shall have the following display diagnostics:
 - 5.1.2.1 Test the real-time connection to the sign
 - 5.1.2.2 Run a test sequence that initiates a display digit roll-up test to verify the sign is operating properly.
 - 5.1.2.3 System voltage check, to validate the DC power source
 - 5.1.2.4 Validate real-time vehicle count to determine if data is being collected and radar is operational
 - 5.1.2.5 Ability to verify and update to new firmware version
- 5.1.3 Display alignment must be easily adjusted, without exchanging internal parts, to work on the center median, left, or right side of the roadway.
- 5.1.4 Internal components shall be easily accessible with removal of four or fewer external vandal-resistant fasteners.
- 5.1.5 Display shall be comprised of modular components that can be exchanged easily in the field without removal of the sign from the mounting post.
- 5.1.6 The following components shall be field replaceable: Radar unit, Controller board, Fuse block(s) and fuse(s), communication options such as modems or adapters, LED Display boards, optional TimeKeeper GPS unit, AC power supply

Solar Power Option: the solar controller and battery and solar panels

6.0 Dimensions, Weight and Color

- 6.1 Sign size adheres to MUTCD requirements of 6" increments and shall be 30" (76.2cm) wide by 42" (106.7cm) high with 15" (38.1cm) display digits.

- 6.2 Sign shall weigh no more than 37 lbs. (17.2 kg.) with internal AC power supply but without modem and GPS antenna.
- 6.3 The sign letters, "YOUR SPEED" shall be printed in two lines using approximately 6" high letters. The sign background surface shall be fluorescent yellow-green, yellow, or white high intensity sheeting or equivalent.
- 6.4 Display housing shall be 26.5" wide by 20" high by 6" deep (67x51x15CM).
- 6.5 An optional "SLOW DOWN" message shall be LED characters approximately 6" high, formed with amber or red LEDs.

7.0 Electronic Specification

7.1 Radar

- 7.1.1 RADAR device shall meet specifications for an FCC part 15 Low Power Device - 24.150 GHz (K-band) and shall not require an operating license.
- 7.1.2 The radar shall have a reporting accuracy of ± 1 MPH and shall be set to detect approaching vehicles only

7.2 AC Power

- 7.2.1 AC powered signs shall be capable of operation from 100-240 volts 47-63 Hz power.
- 7.2.2 At maximum power draw, display shall require no more than 20 watts of power if operated on AC.
- 7.2.3 Fluctuations in line voltage within normal limits shall not affect luminous intensity of the display.

7.3 Solar or DC Power

- 7.3.1 Solar powered signs shall be capable of fully autonomous operation 24 hours per day, 365 days per year if requested.
- 7.3.2 Solar system shall be designed to take into account the following factors:
 - 7.3.2.1 minimum solar radiation available in the geographic region
 - 7.3.2.2 total power draw for all devices connected to the sign as ordered
 - 7.3.2.3 local site conditions reviewed and calculated
- 7.3.3 Sign display at maximum brightness shall consume less than 6.5 watts maximum

of DC power.

7.3.4 Display Signs shall consume less than 1.75 watts in stealth mode (collecting data but no display)

7.3.5 Display shall consume less than 0.95 watts in standby

7.3.6 Solar Controller

7.3.6.1 The solar controller and panel system shall include: temperature compensation, constant voltage, allowing up to 100 percent capacity, reverse leakage current protection, ambient temperatures from - 40°C to at least +50°C, anodized casing or equivalent, and charging indicator.

7.3.6.2 The solar controller shall have short circuit, over current, high temperature, and over voltage protection.

7.3.6.3 The controller shall be capable of constant voltage low-frequency PWM battery charging.

7.3.6.4 The controller shall meet all requirements of Underwriters Laboratories UL 1741.

7.3.6.5 The solar controller shall be connected to the solar panels and batteries inside a weather proof (NEMA 3R or better) enclosure in natural aluminum or light color paint to reflect sunlight for increased battery life.

7.3.7 Gel Cell Batteries

7.3.7.1 The gel cell battery shall include a 55AH or greater, 12 VDC, deep cycle; solar rated, sealed valve regulated, gelled electrolyte lead acid battery, and rated as non-spillable.

7.3.7.2 Gel cells battery shall be located inside the NEMA 3R (or better) enclosure.

7.3.8 Solar Array Panel

7.3.8.1 Single solar panel with appropriate wattage for the application shall be supplied, as industry-standard 12 V dc design with tempered glass cover. Adding sign options may increase the number or size of solar panels on an individual basis.

7.3.8.2 Frames shall be anodized or equivalent, and rain tight, with industry-standard cable fittings.

7.3.8.3 The power output shall be designed for at least 15 years of usable output

and shall be free from defects in materials and workmanship for three years.

7.3.9 Solar Array Panel Mounts

7.3.9.1 Mounts may be fixed-angle and shall be manufactured from corrosion-resistant aluminum with all stainless steel fastening hardware.

7.3.9.2 Mounts, if adjustable, shall include similar materials for adjustable leg parts for the solar array pitch angle adjustment.

7.4 Display Functionality

7.4.1 Display shall be capable of displaying numbers from 1 to 99 with optional display in miles or kilometers per hour if requested.

7.4.2 Display shall be capable of displaying the numeric readout value within one second of detection of a vehicle, and shall hold the detected speed for approximately one second after the vehicle passes outside the detection area and then return to standby mode with a blank display when no vehicles are present.

7.4.3 Display must maximize viewing contrast by effectively managing stray light from outside sources.

7.4.4 Sign shall be designed to reduce driver distractions introduced by the radar speed display. SafetyMask™ limits the display view to the forward viewing angle which is approximately 30° from the roadside. This discourages the drivers from watching the display as they pass the sign to keep the driver's eyes on the road ahead.

7.4.5 Sign shall have the option of adding an integrated strobe which shall be powered and triggered from the display's controller, at a speed threshold from 5 to 99 MPH independent of any other speed-driven option.

7.5 Display Visibility

7.5.1 The permanently affixed words "YOUR SPEED" printed on two lines and the detected vehicle's speed displayed with two-LED digits shall be clearly visible to a person with normal vision at a minimum distance of 400 feet.

7.5.2 Display design shall have very high contrast between LEDs and their immediate background. Display window shall have clear LED windows and a black surround matrix, to maximize viewing contrast in all lighting conditions, direct sunlight, fog and LEDs will automatically dim during nighttime operation.

7.5.3 The maximum brightness shall be selectable to allow for special local lighting conditions.

- 7.5.4 Display must not use anti-glare sheeting that would reduce the display's visibility and contrast.
- 7.5.5 Display must not have visible ghosting characters when a mix of on and off segments is displayed.
- 7.5.6 Display shall be of modified seven-segment design for maximum digit recognition and shall not be a full matrix or a 13 segment design.
- 7.5.7 Each display segment shall consist of 16 discrete LEDs of approximately 15° to 17° viewing angle. LEDs shall be individually aimed to within +/- 2° of each other to concentrate light distribution within the drivers viewing area and to provide consistent cut-off of the display at the edge of the viewing cone.
- 7.5.8 LEDs shall be AlInGaP II technology or equivalent; rated for 100,000 hours or more continuous operation. Amber LEDs shall have a wavelength from 590 to 595nm and the light intensity of each LED shall be a minimum of 5,000 mcd at normal current setting, with a typical output of 10,000 mcd, within 15 degrees of the optical center axis.

8.0 Traffic Data Collection and Reporting

Optional: All displays shall have the capability of an add-on data collection and reporting option, with the following specification:

- 8.1.1 Separate data points for each target shall be stored, which shall include final speed and the date and time for each detected target; no pre-averaging, binning, consolidating, binning or totalizing shall be done on the raw data prior to downloading to the analysis program, as the original data values would then be lost
- 8.1.2 Capacity of over 200,000 individual target data date/time and speed points.
- 8.1.3 Capability of capturing vehicle speed data with the display is off (stealth mode) to support "before and after" studies.
- 8.2 Data shall be formatted as a .csv file providing access to the raw data and the ability to import into other traffic analysis tools.
- 8.3 **Reporting software.** Shall be easy to use and charts easy to modify. Automatic reports will be provided with graphical analysis of the following data using a personal computer with the Microsoft Windows™ operating system and DotNET4™. Reporting and graphing must run locally on a desktop PC without requiring the internet. The reports shall contain the following information:
 - 8.3.1 A reference posted speed limit.

- 8.3.2 Average vehicle speeds, 85th percentile vehicle speeds and three additional percentile speeds defined by the user
 - 8.3.3 Total number of vehicles and Percent of conforming vehicles
 - 8.3.4 Moving averages of vehicle speeds with the ability for the user to adjust the number of data points used in calculating the moving average.
 - 8.3.5 Analysis must be available on a subset of the entire time range of the downloaded data
 - 8.3.6 Must have the ability to select a range of dates and times that is less than the total time period for which data is collected. (data windowing) and automatically generate compliance and time-period reports with the subset of data.
 - 8.3.7 Data windowing capability shall enable data analysis by day of week and time of day, as well as by standard deviation (1 through 4 standard deviations) or firm limits for maximum and minimum target speed.
 - 8.3.8 Raw target data must be viewable in a table format, with the ability of sorting by speed or by date/time
 - 8.3.9 Must include the option to handle overlap in the time frames of multiple downloaded data files to eliminate duplicate entries when overlapping date/time ranges are present
 - 8.3.10 Compliance chart must be available, to show percentage of speed compliance based on posted speed and all data windowing and filtering parameters selected
 - 8.3.11 Data set with all analysis selections must be able to be saved in its entirety for future analysis
 - 8.3.12 Raw data files in all cases shall not be modified by the analysis process
 - 8.3.13 Data analysis chart shall have the capability of expanding the vertical axis for detail expansion, with no changes in the displayed statistical results
- 8.4 Windowing Software.** A software utility shall be provided to further window the raw data:
- 8.4.1 to include/exclude certain hours of the day (school hours), weekdays or weekends only,
 - 8.4.2 to remove statistical outliers, and optionally remove data points above or below a certain speed and
 - 8.4.3 to create a new .csv file for this data that can be used with the reporting software

9.0 Sign Scheduling

Optional: All displays shall have the capability of an add-on scheduling option, with the following specification:

- 9.1 Allow unlimited operating modes to support on/off functions and varying speed limits
Each mode determines the following:
 - 9.1.1 When the Display is on/off and Data collection is on/off
 - 9.1.2 Set the speed thresholds by a schedule for the following: minimum display speed, violation alert speed, Slow Down alert speed, and high speed blanking
- 9.2 Allow unlimited timetables that allow up to 16 operating mode changes per day based on time of day.
- 9.3 Allow unlimited weekly schedules to be defined that determine the timetable in use by day of the week.
- 9.4 Allow up to two years of schedule exceptions to be pre-programmed by date and time to support special events, construction zones, and in the case of school zones, non-school days.
- 9.5 Software shall allow schedules and schedule components (modes, timetables, and schedule exceptions) to be:
 - 9.5.1 Created while disconnected from the display sign.
 - 9.5.2 Copied and modified to easily create new schedules or schedule components.
- 9.6 An optional TimeKeeper time signal receiver shall be available to synchronize sign clock to global standard time on a daily basis, when Central Office communication is not used.

10.0 Wireless Notebook communication and programming (onsite)

- 10.1 Sign shall be programmable in the field; using a PC Notebook with a wireless Bluetooth™ connection, up to 50 feet in front of the sign. The programming interface must be easy to use, with minimal training required. The following functions shall be field programmable:
 - 10.1.1 **Sign set-up.**
 - 10.1.1.1 Date and time of day
 - 10.1.1.2 Real-time clock correction factor

10.1.1.3 User-selectable alphanumeric identification code of at least 22 characters to allow unique identification of each sign location

10.1.1.4 Ability to install new software updates and features as needed

10.1.2 Display Speed Thresholds

Optional: Main Board with jumper settings

10.1.2.1 Display shall have the capability of programming the minimum displayed speed.

10.1.2.2 The display shall have a ViolationAlert™ feature where the display digits will flash while displaying a speed which is in excess of a pre-set limit to assist in getting the attention of the speeding driver.

10.1.2.3 The display ViolationAlert™ flash rate shall increase with increasing speeds over the set threshold.

Optional: “Slow Down” message will display at a preset speed threshold that is separate from the ViolationAlert speed threshold. The display must switch between the driver’s speed and Slow Down until the High Speed Blanking threshold is met or until the driver’s speed is lower than the message threshold.

10.1.2.4 The display shall have the option of setting a high-speed threshold for blanking out the display when a driver’s speed reaches this limit to discourage drivers from racing the sign.

Optional: If the slow down message is enabled the display shall be set to show the slow down message instead of a blank display.

10.1.2.5 DeviceManager Output - The display shall have the option to trigger up to two external devices at different speed thresholds or be controlled by time of day to support integration of external flashers or other devices.

10.1.2.5.1 Powering of up to 2 external 12-volt devices or flashers upon speed threshold or schedule.

10.1.2.5.2 External contact-closure input to switch between two programmed speed thresholds if scheduling function is not used.

10.1.2.5.3 Enable external devices to operate either in unison, alternating with each other, or flashing in synchronization with the ViolationAlert signal.

10.1.3 Scheduler capability; set up and verify:

10.1.3.1 Schedule times of day for on and off control

10.1.3.2 Current schedule and speed settings mode

10.1.3.3 Exceptions by date and time

10.1.4 Data collection capability; set up:

10.1.4.1 Data collection ON/OFF independent of display

10.1.4.2 Download data to notebook PC

10.1.4.3 Erase data from sign or keep data in sign

11.0 Wireless Central Office communication and programming

11.1 All functionality described in section 10 shall be supported by the CentralOffice function. Wireless Notebook communication and programming (onsite) shall be available from the end users desktop or office computer using the Central Office software package.

11.2 All display communication and programming functions shall be available remotely from a central office location using Microsoft Windows-based Central Office software on a PC with Windows operating systems.

11.3 Software shall allow user-defined groups of displays that will upload schedules to all displays in the group with one command.

11.4 Central Office must support the following communication links:

11.4.1 The agency's TCP-IP LAN connection and router network, using an optional TCP/IP Adapter in the sign.

11.4.2 Cellular modem, using optional CDMA cellular modem in the sign and commercial cellular data service via internet-based device addressing.

11.4.3 RS-232 serial data connection using devices that may be in use or selected for use by the Agency, such as radio-frequency links and IP radios.

11.4.4 In addition to the above methods, the sign shall have the capability of local Bluetooth™ communications to enable field connection for analysis, repair, or programming without relying on remote connection methods.

12.0 CentralOffice Alert

- 12.1 The sign shall have an available Alert option to report sign conditions and speed violations, which shall sense and report the following:
- 12.2 Sense and report main buss power supply voltage
- 12.3 Determine main buss voltage drop to sense pre-failure marginal solar power conditions
- 12.4 Report LED failure by sensing segment drive current
- 12.5 Report speeding extremes in a user-selectable rolling time window
- 12.6 Provide three levels of contacts for email and texts for Administrative, Enforcement, and Maintenance contacts
- 12.7 Provide Network Time Protocol (NTP) web time synchronization for the on-board clock

13.0 Warranty

13.1 The manufacturer's warranty for the display and accessories shall be at least three years from the time of purchase.

Optional: Complete service and maintenance plans for 5-year timeframe and/or ongoing cellular service and support shall be available 5-year timeframe.

13.2 The manufacturer's warranty on the LEDs comprising the display segments shall be at least 10 years from the time of purchase.

13.3 The manufacturer at no charge shall provide replacement components for in-warranty repairs when provided in exchange for the part being replaced. Outbound shipping costs for warranty replacement parts shall be paid by the manufacturer.

13.4 Manufacturer will supply technical telephone support at no extra charge during the warranty period.

13.5 All control software and/or firmware updates will be available to the end user at no charge during the warranty period.

THE BEST IN THE BUSINESS

 INFORMATION DISPLAY
COMPANY

DeviceManager™ Guide

For Operation with Information Display Company Products:

SpeedCheck™
Flasher Systems
TrafficFlow™
FlashAlert™
VariableSpeed Limit™
VariableSpeed Limit Alert™
AdvisorySpeed™
AdvisorySpeed Alert™
TrafficInfo™
TravelTime™
SlowDown Alert™
StopAlert™
DeviceController™

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Software Installation

Introduction

DeviceManager is designed for use with Information Display Company traffic safety management devices manufactured after January of 2006. Field upgrades consisting of a new DeviceController™ board are available for all units manufactured before that date.

DeviceManager is compatible with the following Information Display Company products and systems:

SpeedCheck™	Flasher Systems	TrafficFlow™	FlashAlert™
VariableSpeed Limit™	AdvisorySpeed™	TrafficInfo™	TravelTime™
VariableSpeed Limit Alert™	AdvisorySpeed Alert™	SlowDown Alert™	StopAlert™

The installer is found on the enclosed CD.

Note before installing - previous DeviceManager users: the installer will preserve your previous data files and Scheduler settings. The installer will prompt you to make a backup copy of your files if you so desire. This is always recommended.

All files in the My Documents \ Speedcheck folder will be moved to the new directory location of:
XP systems - C:\Documents and Settings\All Users\Shared Documents\SpeedCheck\Data Files.
Later Windows versions – C:\Users\Public\Public Documents \ SpeedCheck \ Data Files

If you currently have an earlier version of DeviceManager (called DisplayManager), the Excel based TrafficAnalyzer has been replaced with a version which does not require Excel. The old Excel based Traffic Analyzer program and data has been saved in the Data Files folder in a folder named “Old Data files”.

Users without administrative privileges must have the computer’s Administrator install DeviceManager.

System Requirements:

1. PC running Windows XP or later operating system.
2. The installer will check for the presence of .NET Framework V2.0 or higher, required to run DeviceManager. .NET Framework V2.0 is a free upgrade available from the Microsoft website.
3. The installer will check for the presence of Microsoft .NET Framework 4, required to run the TrafficAnalyzer application. .NET Framework 4 is available from Microsoft as a free download.

DeviceManager Software Overview

1. DeviceManager: this software runs on a PC device enabling the user to set up the various functions of your Information Display Company device, set up and use SchedulePror and to download vehicle speed data and status information.
2. TrafficAnalyzer: this software is loaded on the PC to processes the raw speed data, providing visual aids for analysis of the traffic speed information.

How to Install

STEP 1: The person running the installer must have Administrative rights.

STEP 2: Insert the SpeedCheck Software installation CD.

Double Click the file "**DeviceManager Installer**", and follow the prompts on the screen to complete the install. If the installer does not detect .NET Framework 2 the installer will quit. If .NET Framework 4 is not detected, a warning will appear.

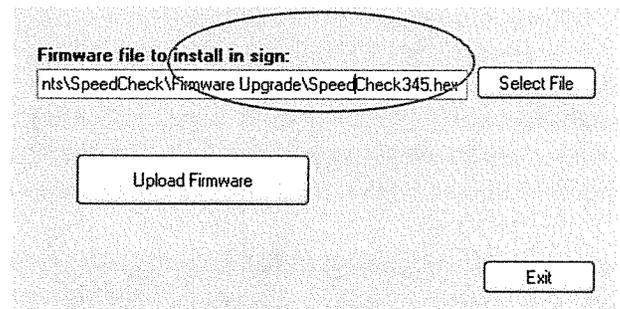
STEP 3: Confirm that each user has a desktop icon for DeviceManager and TrafficAnalyzer.

Upgrading Firmware in Previous SpeedCheck PC signs:

Previous SpeedCheck PC users – must install new firmware in the sign controller board to insure full compatibility. The installer program has loaded the latest firmware version ready for uploading to the sign. You must be connected with a sign to install the new firmware.

You must first connect to your sign with Bluetooth, cable or wireless modem. Then on the System tab choose "Update Firmware"

DeviceManager automatically looks in the Firmware Upgrade folder for the latest firmware file. Select the file and click on "Open". Firmware files have the extension ".hex".

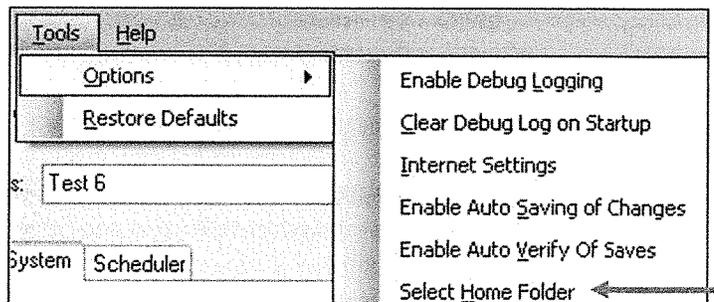


Click on "Upload Firmware". If more than one firmware file is located in the Firmware Upgrade folder, choose the file with the larger numeric value.

After a successful uploading of a firmware file, the sign resets and may perform a test rollup. You may be required to set the time and date again, following the firmware update. Before setting the time and date, you should download any vehicle speed data you want to keep (see the Data Collection tab paragraph in the TrafficAnalyzer section of this manual).

Note: if an operating schedule was active at the time of firmware uploading, that schedule will remain active. If the scheduler was not being used, the operating modes remain as they were set in the Operating Modes tab prior to firmware uploading.

NOTE: for security reasons some workplace networks move the My Documents folder to a location other than a local folder. DeviceManager saves and references files stored in the Speedcheck folder located in the My Documents folder. The My Documents folder must be available for the installer to work successfully. After installation, the My Documents folder can be moved (i.e. to a network location) – if you do this, change your Home Folder with the "Select Home Folder" in the Tools – Options menu to point to the new folder location.



Introduction to DeviceManager

Overview

The DeviceManager application is produced by Information Display Company and provides communication between a Windows-based personal computer and Information Display Company's traffic management devices. DeviceManager communicates with the DeviceController board inside the traffic management device.

The DeviceManager application is designed to communicate directly with a device via Bluetooth wireless, a direct cable connection, or a wired or wireless connection. A DeviceManager CentralOffice version is used with wireless cell modem or radio connections.

Requirements

The DeviceManager application will run on any Windows operating system version XP and later. DeviceManager requires that the NET Framework v2.0 or later is installed. The NET Framework V2.0 is a free upgrade available from the Microsoft® website and the newest version is included on all new PCs. The communication method must be one of the following: Bluetooth, RS232 cable, or Internet.

Cable connection requires that your laptop have a RS232 com port available. USB to RS232 adapters are available at most computer stores. The Cable option also requires custom installation of a cable port in the sign.

A compatible external Cirago Bluetooth device is shipped with all new software packages. Bluetooth communication hardware is built into many laptops and is also available as an external USB plug-in device. **Not all built in Bluetooth modules will communicate with SpeedCheck devices.** Laptops using the Motorola Bluetooth driver will not work with DeviceManager.

The external Cirago Bluetooth is a Class 1 Bluetooth device capable of communication distances of up to 100 feet. Laptop computers with internal Bluetooth usually use a Class 2 or 3 device with limited communication distances of 30 feet or less. **For best results always use the provided Cirago Bluetooth with DeviceManager.** See instructions included with the Cirago to choose between internal or external Bluetooth.

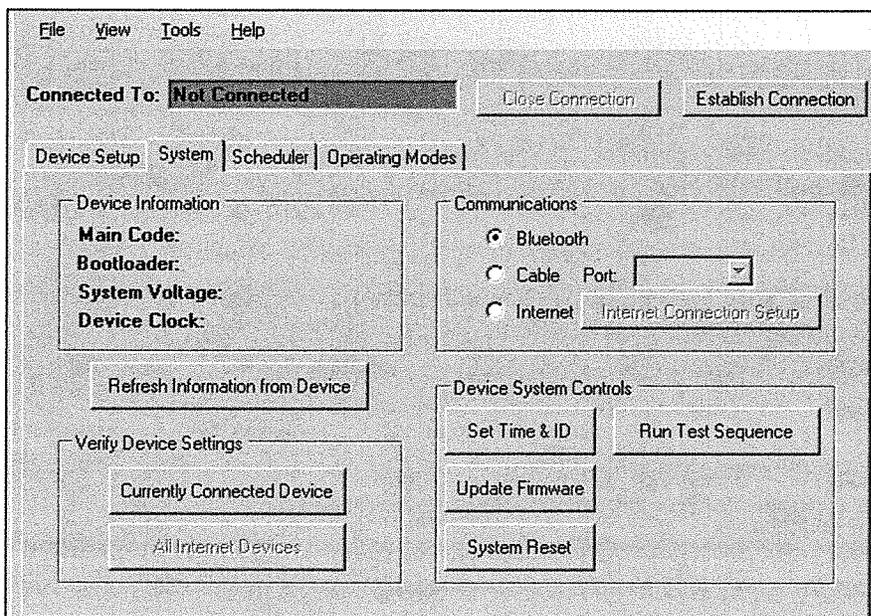
DeviceManager Operation

DeviceManager allows the setting of communication and operation parameters of the SpeedCheck system. There are six basic steps in using DeviceManager:

1. Select the communication method (Bluetooth, Cable, or Internet)
2. Establish communications with the SpeedCheck device
3. Set the device's internal clock-calendar and provide an alphanumeric name for the device
4. Select whether one set or two sets of speed settings will be used, or if the Scheduler is to be used
5. Enter the desired parameters for the choice selected in #4 above
6. Apply the settings to program the device. If the Scheduler is to be used, send the schedule to the device

Initial System Screen

Upon starting DeviceManager, the initial screen appears as shown below, before connecting with a particular device.

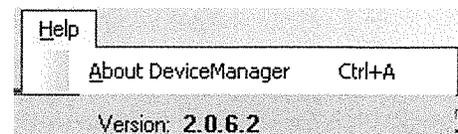


You will note that several tabs are displayed, which allow setting of the program options. The Scheduler tab is displayed to allow for creating and editing Schedules without being connected to a sign. Schedules are then sent to a sign when a connection is established. When connected to a sign that is not configured for Scheduler, the Scheduler tab will not display.

All other tabs require a connection be established before changes can be made.

DeviceManager Version

The version number of DeviceManager currently installed can be found by clicking on “**Help**” and choosing “**About DeviceManager**”.



Communications: Bluetooth, Cable, Internet

A communications method must be chosen before establishing a connection. Each communication method requires its own unique hardware setup.

- Bluetooth requires a PC laptop with internal or external Bluetooth capabilities (external preferred). You must be within range of the receiving device to send and receive information using Bluetooth technology. The maximum range is approximately 100 feet however, the shorter the range, the more quickly and accurately you can send information. For the best results position yourself in front of the sign using the external Bluetooth.
- Cable connection requires a RS-232 serial port connection. Most laptops manufactured today do not have a RS-232 com port. USB to RS232 adapters are available at most computer stores. The Cable option also requires custom installation of a cable port in the sign.
- Internet requires each sign be in an area with cell phone coverage, configured with an activated cell modem, and Internet access for the PC connecting with the sign.

Bluetooth Connection Setup

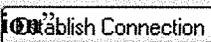
The Bluetooth choice allows you to “find” the Bluetooth communications module in the desired device, and connect with it. SpeedCheck devices will appear as “SpeedCheck ####” to distinguish the sign from cell phones and other Bluetooth devices, this number is assigned to the Bluetooth receiver and cannot be changed.

1. Insert the USB Bluetooth dongle provided in a USB port on your laptop. Wait for recognition, then a Bluetooth icon  will appear in the task bar icons at the bottom of the screen.

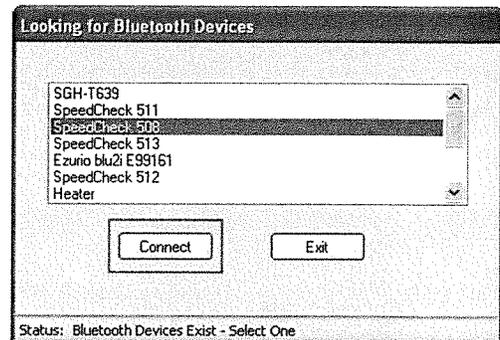
2. Open DeviceManger - window should show Not Connected, the background is red.

Connected To: Not Connected

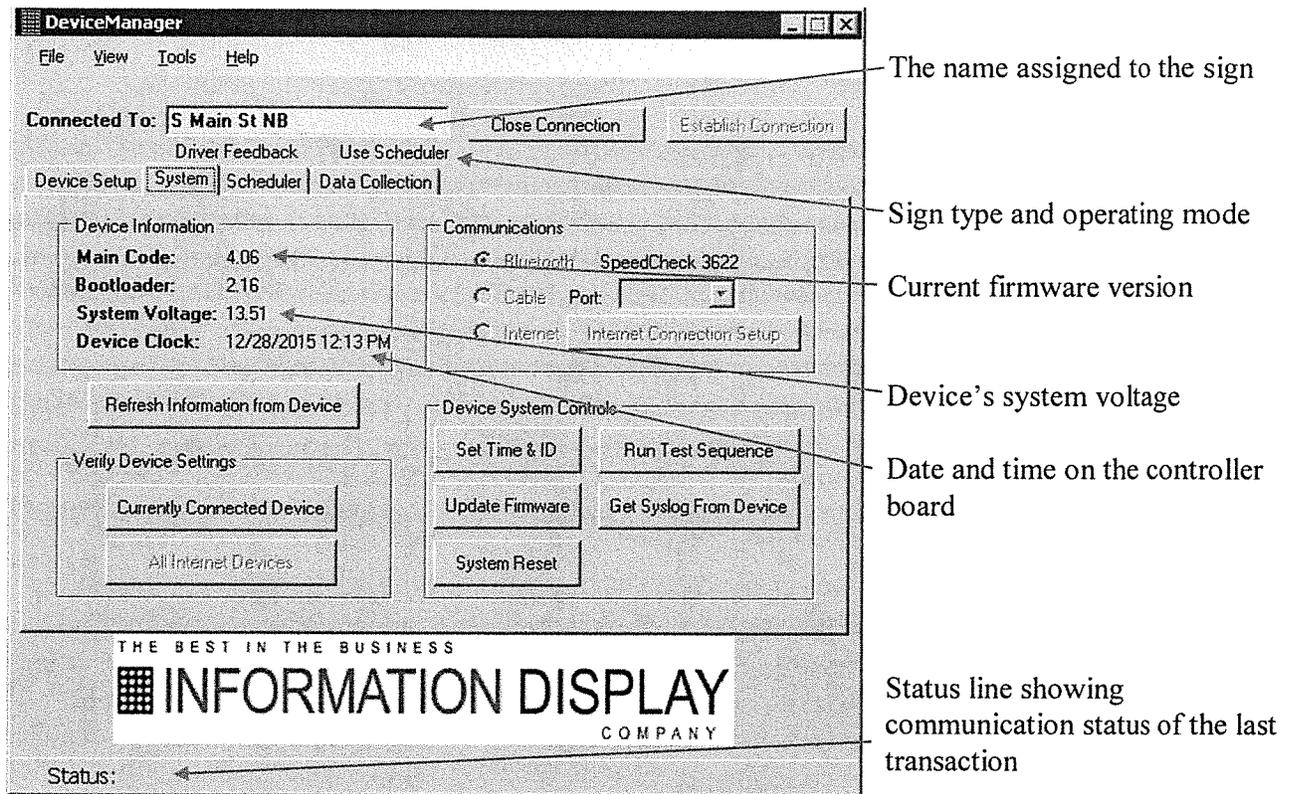
3. Click on the “Bluetooth” radio button  Bluetooth

4. Click on “Establish Connection” 

5. Bluetooth devices within range will appear in the window, choose the correct device and click on Connect.



When connected, the Connected To: window background is green, and DeviceManager will show:



Cable RS-232 Serial Connection Setup

A Cable connection requires a RS-232 cable at least 6 to 8 feet in length. Most laptops manufactured today do not have a RS-232 port. A USB to RS232 adapter would have to be purchased. The Cable option also requires installation of a cable port in the sign allowing you to connect to the device using the serial cable.

1. Connect the serial cable to the PC and sign
2. Window should show Not Connected
3. Click on the **"Cable"** radio button and choose the correct COM port number if your PC has multiple ports.

Connected To: **Not Connected**

4. Click on **"Establish Connection"**

Establish Connection



DeviceManager will connect immediately to the sign. The connection window is green when successfully connected.

Internet Connection Setup

Using the features of wireless modems and Internet access, each sign can be programmed, updated or changed and data downloaded without leaving your office or having to travel to the sign location.

Internet connection requires a cell modem or other internet-connected device connected to each sign, with a valid IP address and Internet access for the computer running DeviceManager.

Resources required:

- Sign, active wireless cell modem with IP address or DNS name, all properly configured
- PC with DeviceManager installed and Internet connectivity
- Knowledge of IP address and associated sign location

Each modem has a unique IP address which is already programmed in the wireless modem. The Device ID (Set Time & ID) must also be unique and descriptive enough for you to identify each sign – no two signs can have the same Device ID.

Initial connection of Internet enabled signs

1. The wireless modem must be activated and configured with a valid IP address. Make sure the sign is powered on for at least 2 minutes before trying to connect.
2. From the Communications screen choose the Internet button and select “Internet Connection Setup”.

Click on
“Add Entry”

The screenshot shows the 'Internet Connection Setup' window. At the top right, there are radio buttons for 'Bluetooth', 'Cable', and 'Internet'. The 'Internet' option is selected, and an 'Internet Connection Setup' button is visible. The main area contains a table titled 'Internet Connection Entries for Site Blank' with columns: Device ID, IP Address, Device Password, Port, Schedule, Power Source, and Comments. Below the table are buttons for 'Add Entry', 'Edit Entry', and 'Delete Entry'. There are also sections for 'Selected Device' (with 'Test Connection' and 'Connect' buttons) and 'All Signs' (with 'Display/Flasher Off' and 'Restore Previous' buttons). An 'Exit' button is at the bottom right. A 'Status:' label is at the bottom left.

4. Enter the IP address of the cell modem or device on your network.
5. If you know the password programmed in the controller board, type it in the field. When a password is used with a sign, it will show in this field.

6. Click on “Test Connection”.

A successful connection will respond with “Remote System has responded with *“name of the sign”*”.

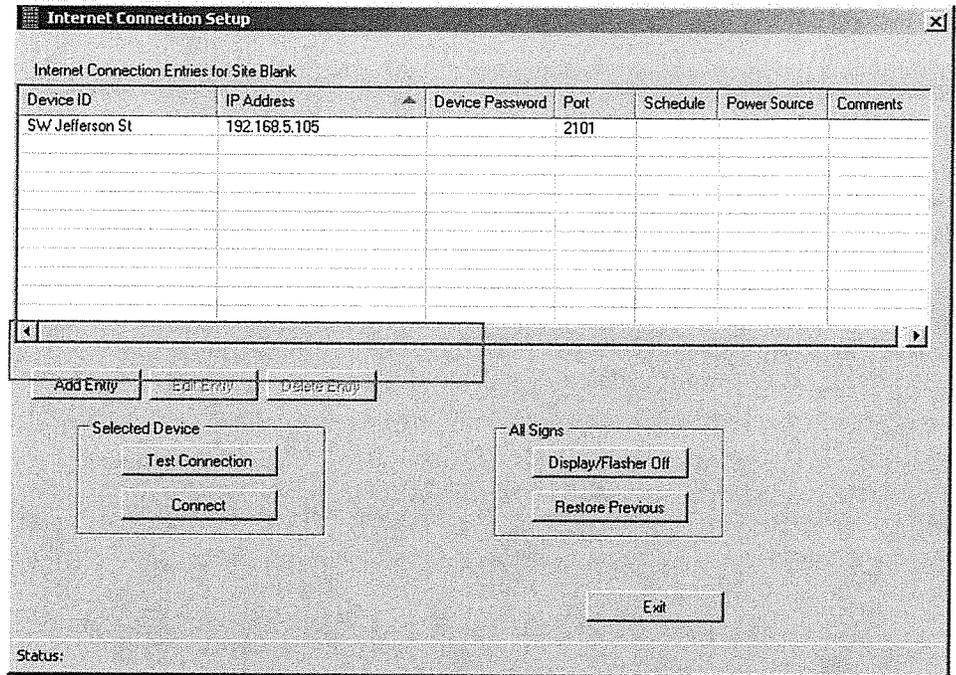
7. Click the “Add To List” button.
8. Repeat the process for each sign that has an IP address.

The screenshot shows the 'Add Remote Connection Entry' dialog box. It contains the following fields and buttons:

- IP Address: 192.168.5.105
- Buttons: Test Connection, Advanced Settings
- Sign Password: [Empty field]
- Remote System ID: SW Jefferson St
- Port: 2101
- Buttons: Add To List, Exit

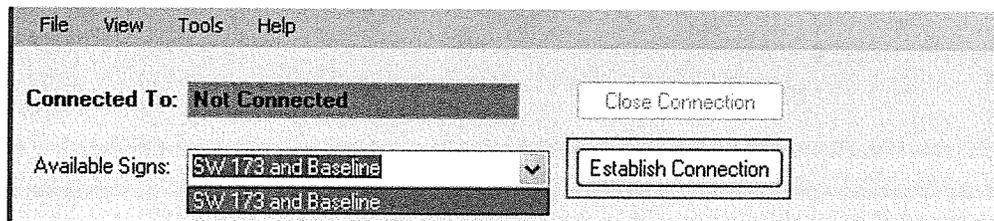
You can delete or change a connection setup at any time by choosing Internet Connection Setup. The columns in this window can be re-sized for easier viewing easier.

Note that you can pre-assign a password for each device, as well as store a schedule name associated with that device for later group scheduling. Optional fields are also provided for power source (AC or Solar) and free-style Comments for the device.



Connect to a single sign with a cell modem

Click on the “Internet” radio button in the Communications window. Choose which sign to connect to from the Available Signs drop down list – click on “Establish Connection”. Once connected, the sign name shows in green, you have remote access to all user enabled features of the DeviceManager software. Warning: do not click on “Internet Connection Setup” – this will break (disconnect) the current Internet connection.

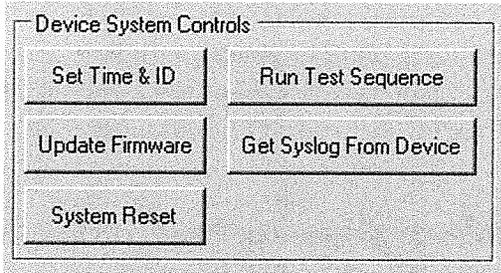


You may also choose a sign from the Internet Connection Entries, then click on “Connect with Selected Sign”. The bottom of the connection window will show if a successful connection has been made:

Remote System has responded with "SW 173 and Baseline"

Sign System Controls

The Device System Controls area allows you to control several device options.



Set Time & ID allows you to enter a name for the sign location in the sign firmware, and to set the internal time and date clock. The ID field allows up to 24 alphanumeric characters. Be as specific as possible when naming signs, this will help identify the sign when connecting with a wireless cell modem.

Update Firmware allows you to choose a new firmware file, typically provided by the Information Display Company support department, and install that new firmware into the device.

System Reset will reset the SpeedCheck device and re-run the power-on self test. Wait for complete roll up (@ 90seconds) - you will not be able to communicate with the sign until it has completed the reset and rollup.

Run Test Sequence, if connected to a display with digits, initiates a display digit roll-up test (displaying in succession the numbers 01, 12, 23, 34, 45, etc.) to test the operation, correct position and connection of both digits in the display.

Get Syslog from Device downloads the system logfile which contains various operating information in a file written to the Data Files folder, which contains date and time stamped even data, including:

- a. Connection via serial port
- b. Radar reset
- c. Clock time change request and new time
- d. Flasher mode changes
- e. Entering sleep mode, with voltage level reported
- f. Exiting sleep mode, with voltage level reported
- g. Board reset from brownout, with voltage level reported
- h. Firmware update, with date and version
- i. System startup, with firmware version
- j. Communications error
- k. Speed limit change and new speed limit now in effect

Set Time & ID Screen

The Set Time & ID screen allows naming of the device location (up to 24 characters), and setting the device's internal clock-calendar. Re-setting the time will erase the data collection memory, so if you have data you need to download first, you should do so before you re-set the time and date. We recommend setting the Device ID string to a recognizable name such as an intersection or landmark name for later identification. Examples are "Second and Main" or "Hobbs Elem Sch NB". Do not use (-, / \,) characters.

Device ID:
SW 5th Street test sign

Date
10/12/2011 Today's Date

Time
03:48 PM Current Time

Enable Daylight Savings

Send Changes to Sign Exit

Install New Firmware screen

DeviceManager automatically looks in the Firmware Upgrade folder for the latest firmware file, select the file (firmware files have the extension **.hex**) and click on "Open". This screen allows browsing your files to select the desired firmware file. Click on "Upload Firmware" to begin the process. After successful uploading of firmware, and the sign resets. Before installing new firmware, you should download any vehicle speed data you want to keep. After installing the firmware remember to check and update the time and date.

Firmware file to install in sign:
nts\SpeedCheck\Firmware Upgrade\SpeedCheck345.hex Select File

Upload Firmware

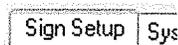
Exit

The default location of the firmware files is:

C:\Documents and Settings \ All Users \ Shared Documents\SpeedCheck\Firmware Upgrade\

Note that if an operating schedule was active at the time of firmware uploading, that schedule will remain active. If the Scheduler was not being used, the operating modes remain as they were set in the Operating Modes tab prior to firmware uploading.

Sign Setup Tab



The Sign Setup screen initially appears as shown on the right, requiring a password to access changing of the basic sign operating modes. After entering the password "unlock", the screen appears as shown below depending upon purchased options.

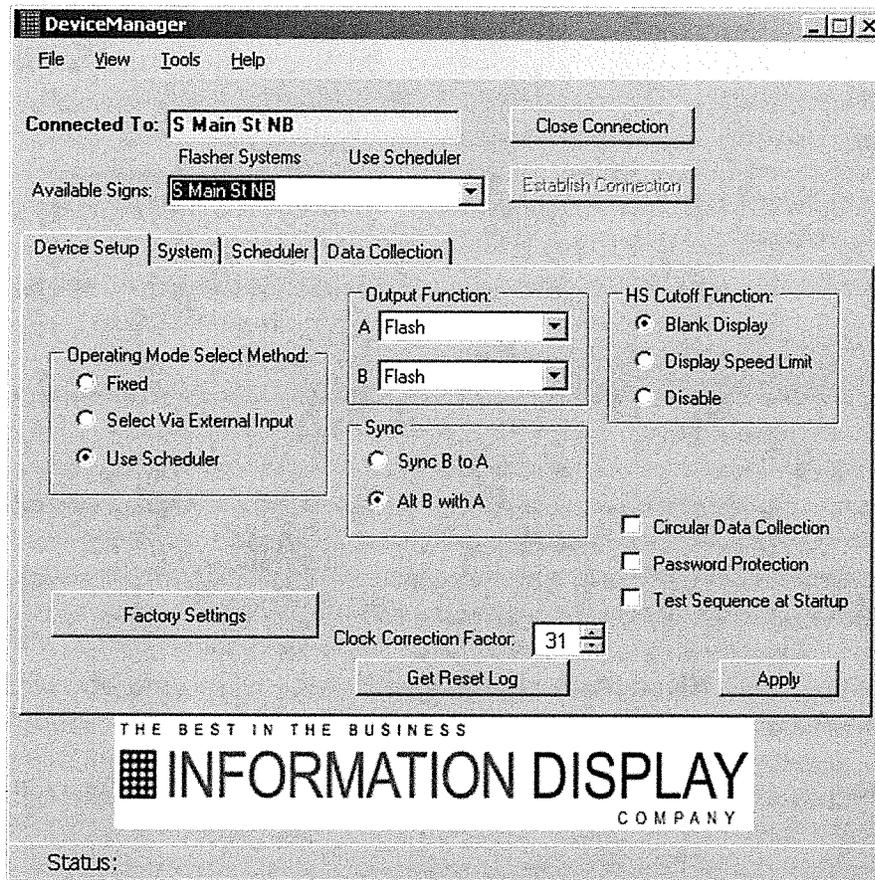
Connected To: 5th Street Station
Driver Feedback Use Scheduler

Sign Setup System Scheduler Data Collection

Password: unlock

Sign Setup Tab after “unlock” password is entered

Upon entering the correct password, the Sign Setup screen looks like this example.



Note that the Use Scheduler option only shows if that option was purchased with the device.

Time Zone only shows if the TimeKeeper function was purchased. Output B is not available if the TimeKeeper option is installed.

Press the **Apply** button when done making changes and the setup data will be sent to the connected device.

HS (High Speed) Cutoff Function selects between three different results upon sensing of a speed that is at or above the high-speed cutoff speed:

- **Blank Display** will stop displaying speeds at or above the high-speed cutoff value
- **Display Speed Limit** will display the speed limit at or above the high-speed cutoff value
- **Disable** will continue displaying speeds up to the maximum (99)

Circular Data Collection prevents the data memory from filling to a point where it stops collecting data. When nearly full (98% or about 240,000 data points), this option overwrites the oldest data records.

Test Sequence at Startup initiates the power-on rollup sequence when the sign is first powered on.

Clock Correction Factor

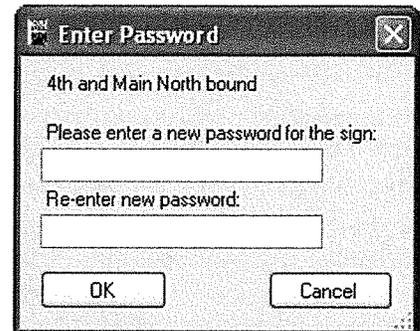
The clock correction factor is used to improve the accuracy of the internal clock. Once per week, at 12:05 am on Sunday, the sign will apply this correction factor. The clock will always have some error due to temperature and other external affects. To determine the correction to apply, determine the amount of time gained or lost over the course of a week and add / subtract that amount of time to the current correction factor.

System Reset allows you to reset the SpeedCheck device and re-run the power-on self test. Wait for complete roll up before making further changes. The Reset will take about 90 seconds. Status bar will show the progress.

Password Protection when activated for the sign currently connected, will immediately disconnect and require the password “speedcheck” to re-establish a connection with the sign. We recommend that each sign have a different password. Passwords are case sensitive, and can be up to 12 alphanumeric characters.

Setting a password: the default password programmed into every controller board is “speedcheck”. For security reasons we suggest that you create your own password.

1. ✓ Check password protection
2. Click on “Apply” – enter “speedcheck” password
3. Choose “Reset Password”
4. Enter a new password (12 alphanumeric characters);
blank is not allowed
5. Re-enter the new password – click on “OK”
6. Keep a record (log) of your sign/password combination



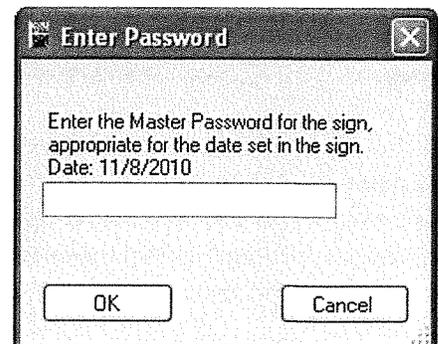
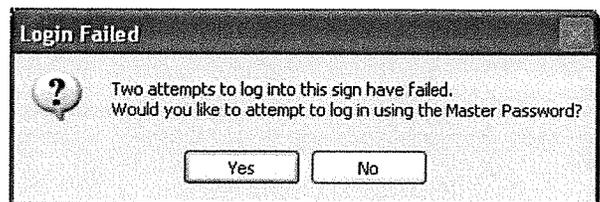
Once password protection is enabled, you will need to enter the password each time you connect using bluetooth to a sign so configured.

Passwords for Internet connected signs only need to be entered the first time a connection is made, if not previously entered on the Internet Connection Setup screen.

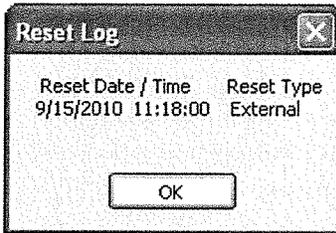
Forgotten Password – If the password is entered incorrectly two times, you will be asked if you want to use the Master Password.

To obtain the Master Password:

1. Call Information Display Support at
1.800.421.8325
2. Provide the date that is in the sign for the day you want to reconnect with it
3. IDC will email or give over the phone a unique code good for only that one date
4. Enter the code in the Master Password dialogue box – “OK”
5. Enter a new password, then re-enter it a second time – “OK”
6. Log in to the sign with the new password



Get Reset Log displays reset information stored on the controller board. This information might be requested by technical support at Information Display Company to assist with trouble shooting a problematic display.



Operating Mode Select Method settings allow selection between the following:

- Fixed** will provide one set of speeds on the Operating Modes page to control operation of the display

Display:	<input type="text" value="On"/>	High Speed Cutoff:	<input type="text" value="55"/>
Data Collection:	<input type="text" value="On"/>	Minimum Display Speed:	<input type="text" value="5"/>
Speed Limit:	<input type="text" value="35"/>		
Violation Alert Speed:	<input type="text" value="36"/>		

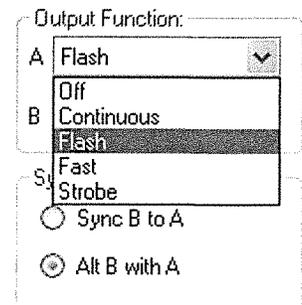
- Select via External Input** will provide two sets of speeds which control device operation, which set is dependent upon if the input and ground connections on the controller board are open or closed. **Mode 1** settings are selected if the connection is open, and **Mode 2** settings are selected if the Input and Ground are connected together (closed). Additional hardware is required for this feature.

	Mode 1	Mode 2		Mode 1	Mode 2
Display:	<input type="text" value="On"/>	<input type="text" value="On"/>	High Speed Cutoff:	<input type="text" value="40"/>	<input type="text" value="55"/>
Data Collection:	<input type="text" value="On"/>	<input type="text" value="On"/>	Minimum Display Speed:	<input type="text" value="5"/>	<input type="text" value="5"/>
Speed Limit:	<input type="text" value="20"/>	<input type="text" value="35"/>	Output A Speed:	<input type="text" value="0"/>	<input type="text" value="199"/>
Violation Alert Speed:	<input type="text" value="22"/>	<input type="text" value="37"/>	Output B Speed:	<input type="text" value="0"/>	<input type="text" value="199"/>
SLOW DOWN Speed:	<input type="text" value="23"/>	<input type="text" value="38"/>			

- Use Scheduler** will not display the Operating Modes tab, but will relinquish all such control to the modes set in the Scheduler tab.

Output Function for the A and B auxiliary outputs (flashing beacons, strobe, camera) allow selection between the following:

- Off** will turn off the selected output regardless of other parameters
- Continuous** will provide a 12VDC signal at the selected output when the corresponding output activation speed is reached or exceeded
- Flash** will provide a 50% duty cycle 12VDC signal at the selected output when the corresponding output activation speed is reached or exceeded



- **Fast** will provide a 12VDC signal which follows the display digit flashing, at the selected output when the corresponding output activation speed is reached or exceeded
- **Strobe** will provide a 12VDC pulse to activate an external strobe device when the corresponding output activation speed is reached or exceeded

Sync: alternate B with A is the default when both A & B flashers are used.

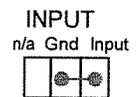
Output B cannot be used when the GPS “Time Keeper” option is installed in the sign.

Operating Modes Tab

em | Operating Modes | Scf

The Operating Modes screen shows the various parameters set for sign operation. A connection with a sign must be established to see and change settings. Some settings are visible only if the appropriate options are selected in the Sign Setup tab (see Sign Setup tab page 15).

The Operating Modes tab shows up to two columns of parameters. If you select “**Fixed**” in the Sign Setup tab, there will be only one column of parameters available. If the “**External Input**” is used, a second set of parameters are selected depending upon if the input and ground connections on the controller board are open or closed. **Mode 1** settings are selected if the connection is open, and **Mode 2** settings are selected if the Input and Ground are connected together (closed).



The Mode Settings include the following parameters that can be set: the parameters are allowed to be entered in the range of 0 – 99.

Display, you might choose to have the display set to OFF yet still collect vehicle speed data

Display: ▾

Data Collection, vehicle speed data collection can be turned off

Data Collection: ▾

Speed Limit, sets the speed limit entered into the speed sample data file for later reference – this needs to be set even if not using data collection

Speed Limit:

Violation Alert Speed, sets the speed at which the display digits begin flashing to advise drivers that they are exceeding the speed limit

Violation Alert Speed:

SLOW DOWN Speed, if installed, sets the speed at which the SLOW DOWN message is activated

SLOW DOWN Speed:

High Speed Cutoff, sets the maximum speed shown to drivers on the display, to discourage racing

High Speed Cutoff:

Minimum Display Speed, sets the lowest speed to be shown on the display

Minimum Display Speed:

Output A Speed:

Output B Speed:

Apply

Output A Speed sets the speed at which Auxiliary Output A is to provide 12VDC for external devices
 0 = always on
 199 = disabled

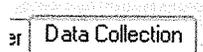
Output B Speed sets the speed at which Auxiliary Output B is to provide 12VDC for external devices.
 0 = always on
 199 = disabled

Output A & B - On or Off, are the only choices when DeviceManager is used to program a Flasher only system

Output A Speed:
 Output B Speed:

Note that after setting or changing these parameters you must click the “Apply” button to transfer these settings to the display.

Data Collection Tab

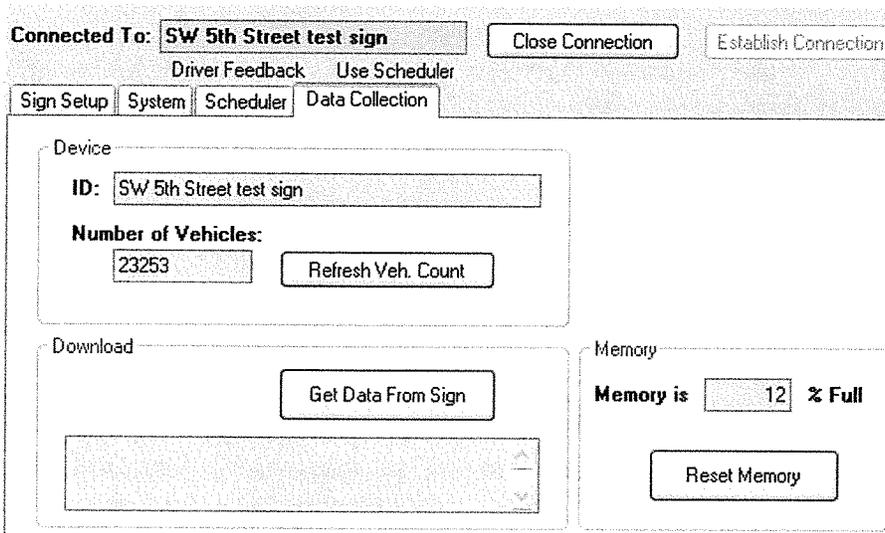


The **Data Collection** tab allows viewing of the current device ID, and the current number of vehicle speed data samples in the device’s internal memory. It also allows you to download the speed data to your PC and erase the data collection memory.

Speed data is placed on your PC hard drive, then subsequently used by the SpeedCheck **TrafficAnalyzer** to analyze and graph traffic speed trends.

Data Collection can be turned off in the Operating Modes tab, while the display remains on or data collection can be on while the display is off.

Display:
 Data Collection:



“Refresh Vehicle Count” will update the vehicle count while this screen is open.

“Get Data From Sign” initiates the download of stored speed data.

When the memory is full, no new vehicle speed data is recorded.

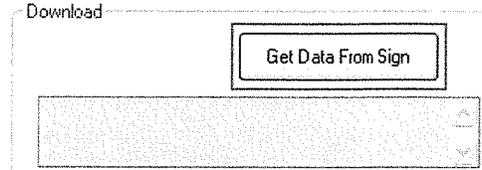
“Reset Memory” will reset the memory, erasing all vehicle speed data previously captured.

Circular Data Collection (Setup Tab page 15) when activated, prevents the data memory from filing to a point where it stops collecting data. When nearly full (98% @ 240,000 data points), circular data collection overwrites the oldest data records.

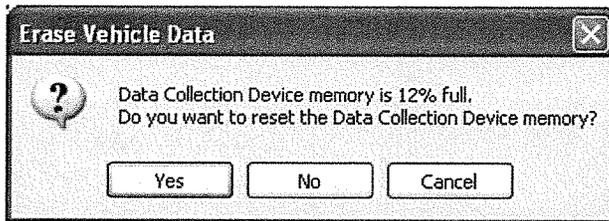
Downloading traffic data

The process for downloading stored traffic data from a sign is the same whether your connection is via Bluetooth, serial cable or Internet. TrafficAnalyzer can then be used to read and analyze the data.

Click on the Data Collection tab, and then click on the “Get Data From Sign” button.



After data download, choose whether to reset your data memory.



The downloaded data files can be found on the in:

XP systems - C:\Documents and Settings \ All Users \ Shared Documents \ SpeedCheck \ Data Files
Or

System 7 and Vista – C:\ Users \ Public \ Public Documents \ SpeedCheck \ Data Files

A NOTE ABOUT RADAR TRAFFIC COUNTING — It is important to note that while using speed radar devices to detect vehicle speeds can be quite accurate (+/- 1 MPH or KPH), the use of this method for absolute vehicle counting is not recommended. This is simply due to the fact that radar detection works by the reflection of high-frequency signals off of moving targets. Those targets (vehicles) each have unique size, shape, and reflection characteristics. Thus, a small car behind a truck will likely be missed in the count, and two like-sized cars traveling close together could be ‘dithered’ (the radar unit cannot tell which target it is measuring at that particular time). Occasional missed counts and multiple counts can result in errors in the total. However, the speed values will remain accurate, typically within +/- 1 mph. For this reason we recommend that the speed data can be used as presented, but the vehicle counts should be considered relative in nature and should be supplemented by a hard data collection method like a road tube system if vehicle count accuracy is absolutely critical.

Scheduler Tab

Item Scheduler Data

If you have purchased the SchedulePro option, the **Scheduler Tab** will be present and it allows selection and editing of the Scheduler's Operating Modes, Daily Timetables, and Schedules with Exceptions. Schedules are best created before connecting to a sign. Naming of the Modes, Timetables and Schedules for easy identification will assist you when choosing which schedule to send to a sign. A nearly unlimited number of different schedules can be created in advance without being connected to a sign. Each schedule should be saved with a unique identifying name.

Operating Modes are nearly an unlimited number of lists of speed thresholds at which various options are triggered.

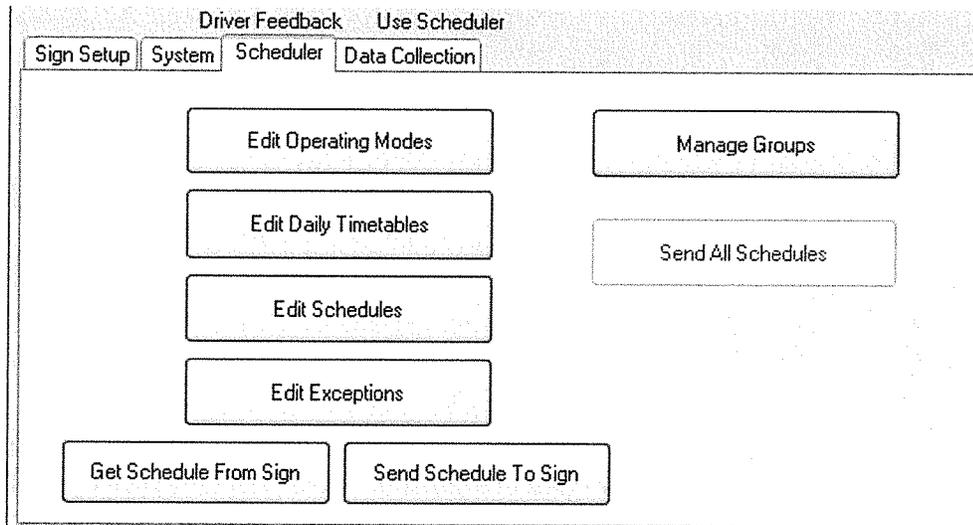
Timetables are selections of the Operating Modes to be used at predetermined times during the day.

Schedules are weekly programs of Daily Timetables.

Exceptions is a special calendar which allows selection of Timetables for holidays, special events, or a range of dates such as school closure for spring vacation.

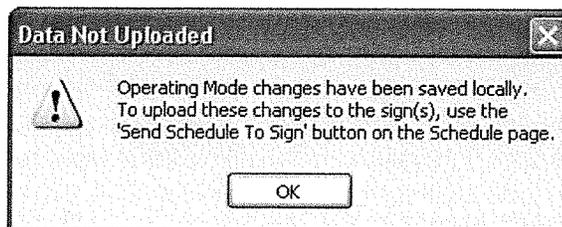
Get Schedule From Sign downloads the current schedule settings from the connected sign: modes, timetables schedules, and exceptions. See sample on page 34.

Manage Groups is a feature that allows for assigning schedules to a group of signs, and sending a saved schedule to a sign or a group of signs via an Internet connection.



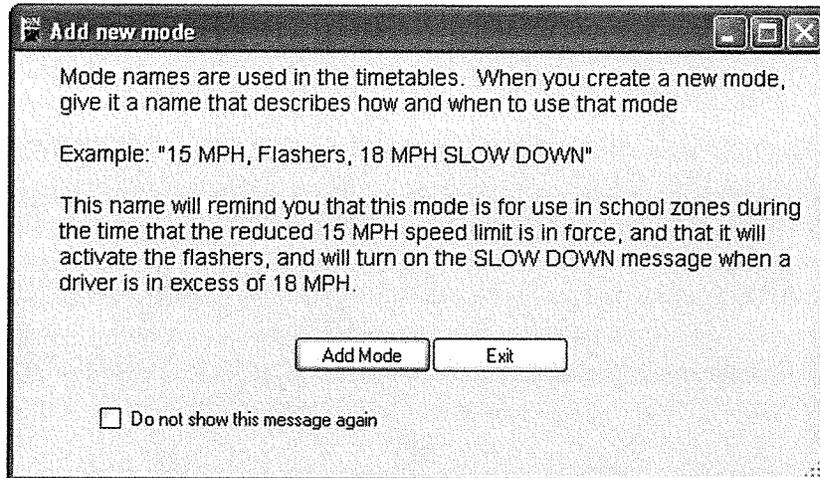
To send a schedule to a single sign, connect first, then return to this screen and click on the “**Send Schedule To Sign**” to choose the correct schedule from the list.

Making changes to the Operating Modes, Daily Timetables, or Schedules does not automatically send those saved changes to a sign. After saving changes you will see a message reminding you to connect to the sign then send the changed schedule.



Edit Operating Modes

You may configure nearly an unlimited number of operating modes. Each mode can be programmed with your choice of settings depending upon the options purchased or selected in the Sign Setup tab (if an option is not enabled, the corresponding operating mode selection is not shown). Click “Add Mode” to create a new mode.

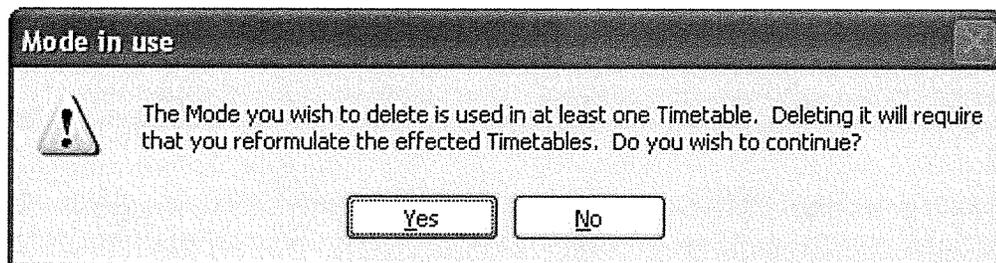


Right click on a mode name to rename, copy or delete the mode. The (ALL OFF) has been created for your convenience; it cannot be renamed, copied or deleted.

Each mode created must identify the **Sign Type** as: Your Speed, Speed Limit, Active Speed Limit, or Flasher.

Any selected mode can be duplicated to make entering similar modes easier. Remember to rename the duplicated mode with a unique name. Check all settings carefully.

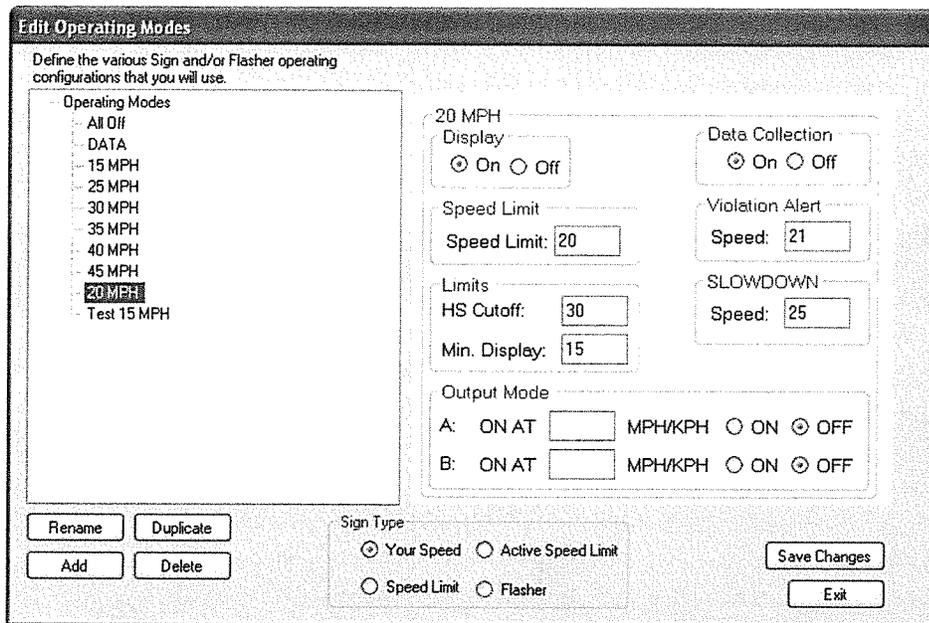
Since Modes, Timetables, and Schedules are all inter-related, deleting or renaming a Mode that is used in a timetable will cause that timetable to not work.



Note: If you installed DeviceManager over a previous version of PC SpeedCheck you can delete the unused Modes (i.e. Mode3, Mode4.....) to clean up the appearance of the Edit Operating Modes screen.

Do not delete the All Off mode.

The basic operating mode selections are shown below:



Display: ON / OFF

Data Collection: ON/OFF

Different **Sign Types** will display different mode options i.e. Speed Limit will only have 3 options; Speed Limit, Display ON or OFF, and Flashers.

The remaining threshold options include:

Speed Limit, sets the speed limit entered into the speed sample data file for later reference

Violation Alert, sets the speed at which the display digits begin flashing to advise drivers that they are exceeding the speed limit

High Speed Cutoff, sets the maximum speed shown to drivers on the display, to discourage racing

Minimum Display Speed, sets the lowest speed to be shown on the display

Slow Down, sets the speed at which the Slow Down message is displayed

The above parameters are allowed to be entered in the range of 0 – 99

Output A Speed, sets the speed at which Auxiliary Output A is to provide 12VDC for external devices - these parameters are allowed to be entered in the range of 1 – 99 ON with no speed entered = continuous

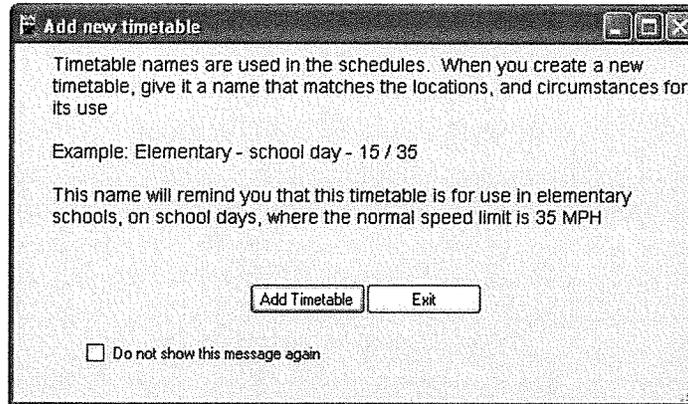
Output B Speed, sets the speed at which Auxiliary Output B is to provide 12VDC for external devices - these parameters are allowed to be entered in the range of 1 – 99 ON with no speed entered = continuous

Remember, you must click the “Save Changes” button before returning to the previous screen.

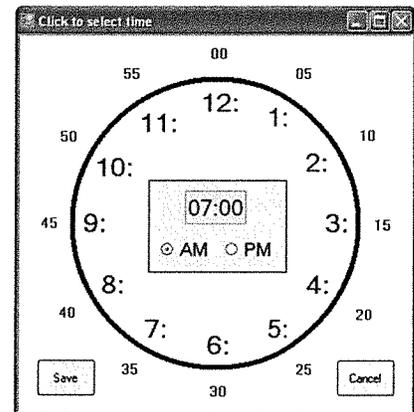
Daily Timetables

You may configure nearly an unlimited number **Daily Timetables** based on single or multiple start and stop times. Each of the timetables can be set to a previously defined Operating Mode to control operation of the device.

Timetables should be named to make them easily identifiable. To create a new timetable, click on the “Add” button.

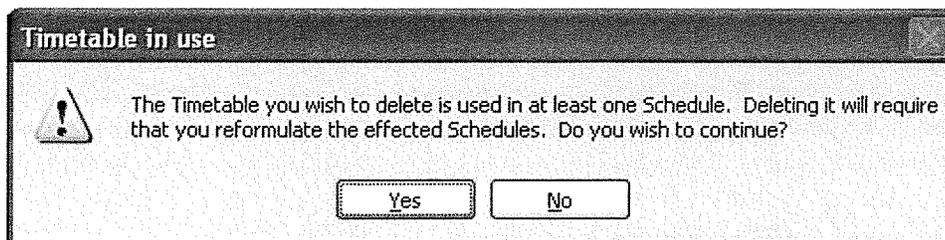


To enter or change a time, click on the numeric time or midnight and a clock window will pop up. Click on the hour and minutes, AM or PM then save. If you need a time such as 2:31 PM: click on the numeral 2, then type 31 in the text window, then click on PM.

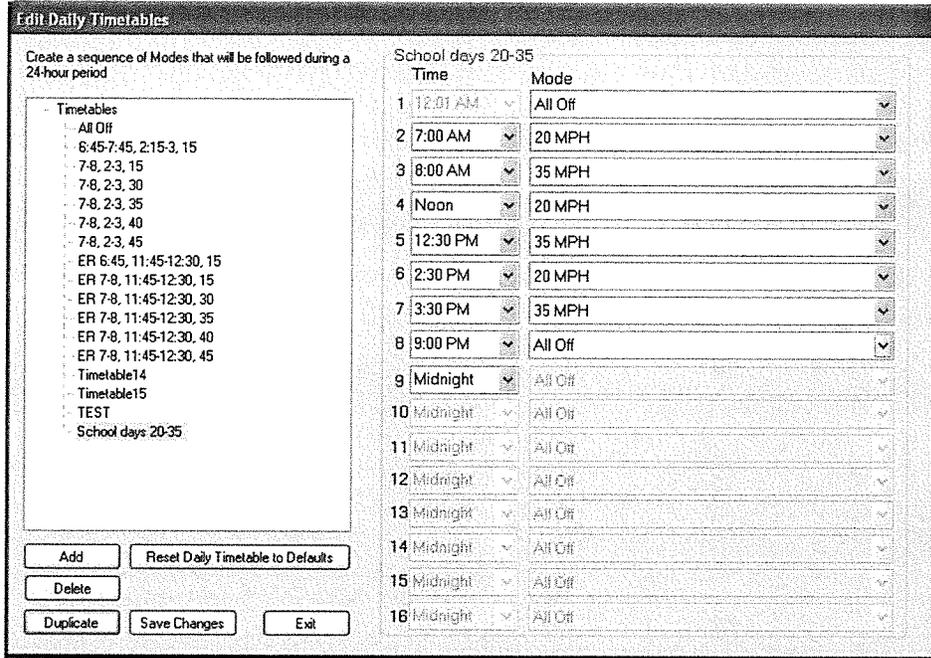


To rename, duplicate or delete a timetable, right-click on the name or choose the menu option. The **All Off** timetable may not be renamed, copied or deleted. Reset a selected timetable by clicking on the “Reset” button.

Since Modes, Timetables, and Schedules are all inter-related, deleting or renaming a Timetable that is used in a Schedule will cause that Schedule to not work.



This sample timetable illustrates mode changes.

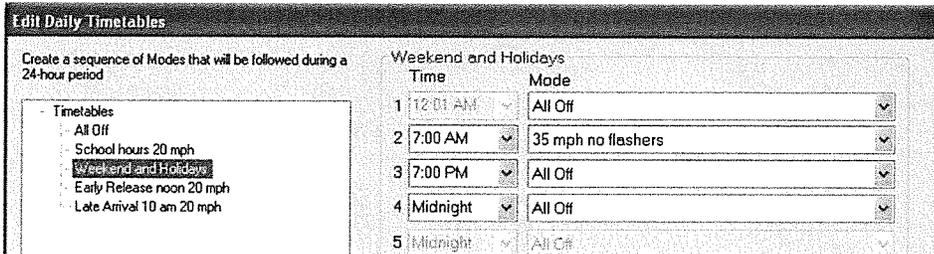


In the sample on the left, the sign uses the ALL OFF mode from 12:01 AM until 7 AM. - then follows the school day times with the chosen modes.

When students are arriving or leaving the school, the speed limit changes to 20 mph.

All Timetables automatically start with 12:01 AM and end with Midnight.

12:00 PM will display as "Noon".



This weekend and holiday timetable has the sign operate from 7 AM until 7 PM in the mode setting of 35 mph with no flashers. Then the sign will be ALL OFF from 7 PM until 7:00 AM, the next day.

Note: you must press the "Save Changes" button to save the changes you make to this screen.

Note: If you installed DeviceManager over a previous version of PC SpeedCheck you can delete the unused Timetables (i.e. Timetable3, Timetable4.....) to clean up the appearance of the Edit Daily Timetables screen.

Edit Schedules

You may create a nearly unlimited number of **Schedules**, and each can be set to run any of the previously defined Timetables on any of the 7 days of the week. **Exceptions** are an additional way to attach non-recurring events.

Each week is identical, and any of the predefined timetables may be selected to run on any day of the week.

To create a new Schedule, click on the “**Add Schedule**” button.

Enter a name that will clearly identify the schedule you are creating, as this is the name you will see when selecting a complete schedule to send to a sign. Right click on a schedule name to rename, copy, delete or use the menu options at the bottom of the screen.

Use the drop down menu to choose a timetable for each day of the week. The timetable chosen for Monday automatically applies to Monday thru Friday. You can select a different timetable for each day of the week.

The timetable table chosen for Saturday automatically applies to Sunday, but you can change the Sunday timetable manually.

Edit Schedules

Schedule Name: Assemble Daily Timetables into weekly Schedules with up to two years' worth of Exceptions for holidays and special events.

Schedule

Day	Use Daily Timetable
Monday	All Off
Tuesday	All Off
Wednesday	6:45-7:45, 2:15-3, 15
Thursday	7-8, 2-3, 15
Friday	7-8, 2-3, 30
Saturday	7-8, 2-3, 35
Sunday	7-8, 2-3, 40

Exceptions

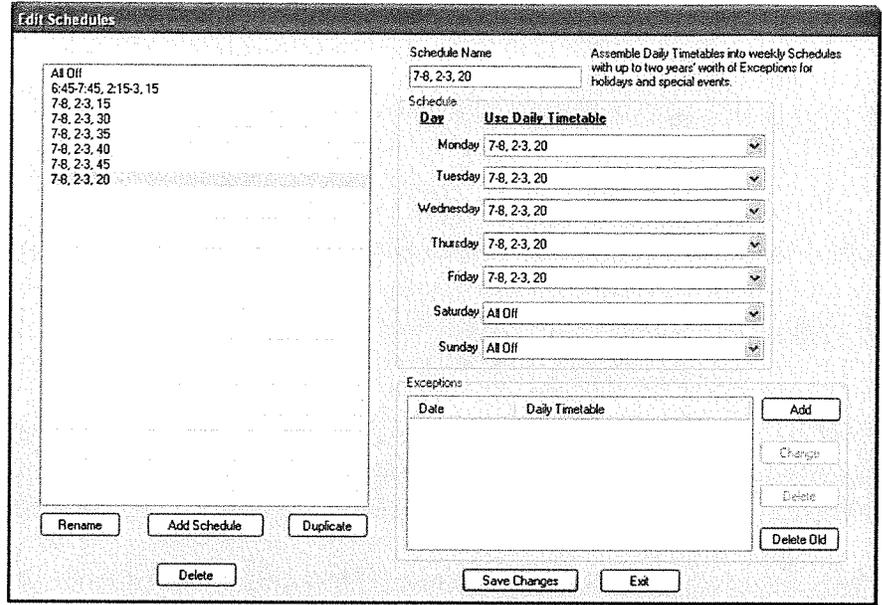
Date	Daily Timetable
------	-----------------

Buttons: Add, Change, Delete, Delete Old

Buttons: Rename, Add Schedule, Duplicate, Delete, Save Changes, Exit

In this sample, Monday through Friday uses the 7-8 2-3 20 mph timetable.

Saturday and Sunday use the All Off timetable.

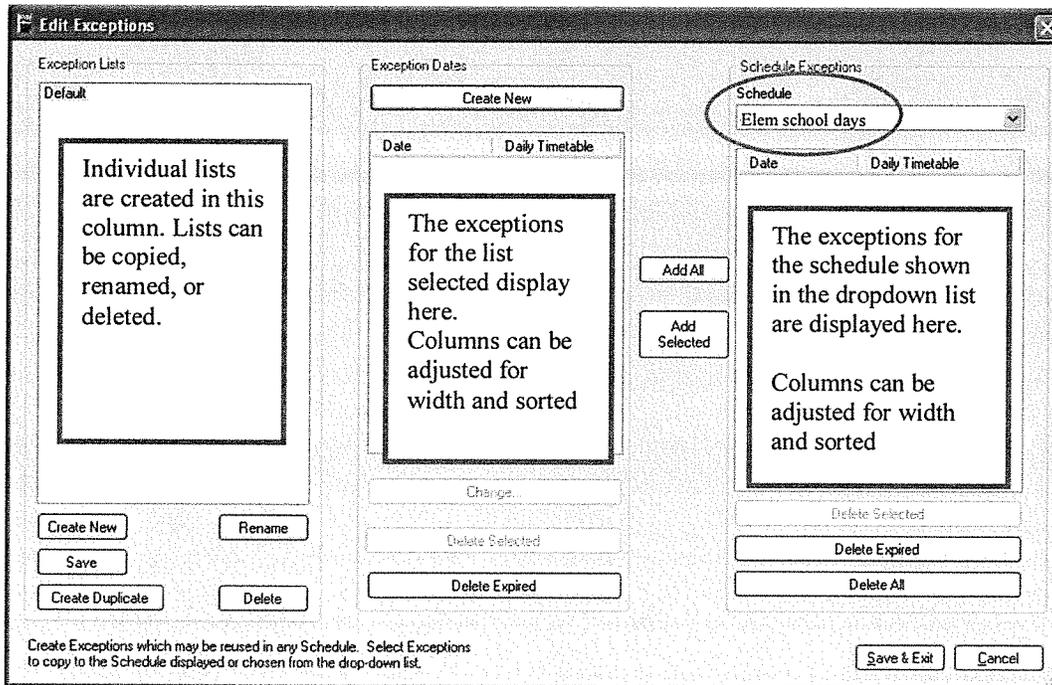


Adding Exceptions

The **Exceptions** list is an additional way to attach non-recurring event days, such as holidays, to selected schedules using a different operating mode or timetable. Since a single exception date will likely be used in multiple schedules (i.e. Veterans Day) exception lists can be created, and then added to the schedules they apply to.

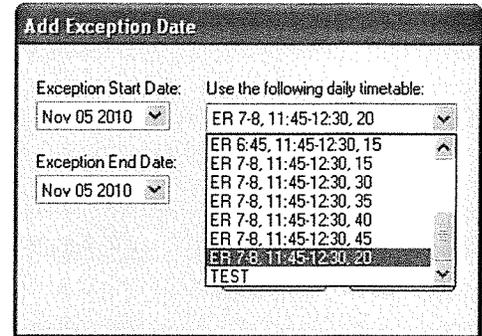
There are two ways to create or access exceptions:

1. When creating a schedule – click on the “Add” button in the Exceptions box. The exceptions created will apply to the current schedule.
2. From the Scheduler tab – choose Edit Exceptions



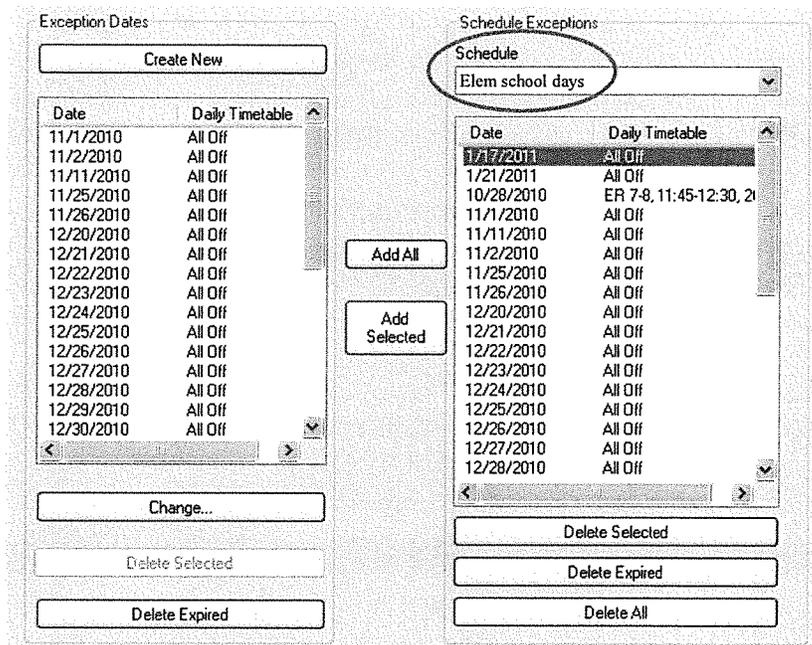
Create an Exception List with exception dates

1. Choose “Create New” name the list (i.e. Holiday & No School)
2. In the Exception Dates column, click on “Create New”. Use the calendar to enter a single date or date range, then choose a timetable from the dropdown list
3. Continue adding all exceptions (i.e. Holiday and No School) dates.
4. Create additional lists if needed (i.e. early release dates)
5. Any list can be copied to make new lists faster to create
6. Remember to save the list



Add Exceptions to a Schedule

1. Select the list of exceptions (click on column heading of date or Daily Timetable to sort). Column widths are adjustable by dragging
2. Choose the correct schedule from the dropdown list of available schedules
3. Add the exceptions by: “Add All”, or “Add Selected” (highlight one, control click or drag with the mouse)
4. Save when finished.



Delete Expired will delete any exception that has past (expired) as of the current date.

Deleted Selected will delete only the exceptions highlighted.

Change allows individual or multiple exceptions to be changed. *Individual* allows changes of date and daily timetable. *Multiple* only allows changes to the daily timetable.

Save & Exit to save the schedule and exception selections you make on this page.

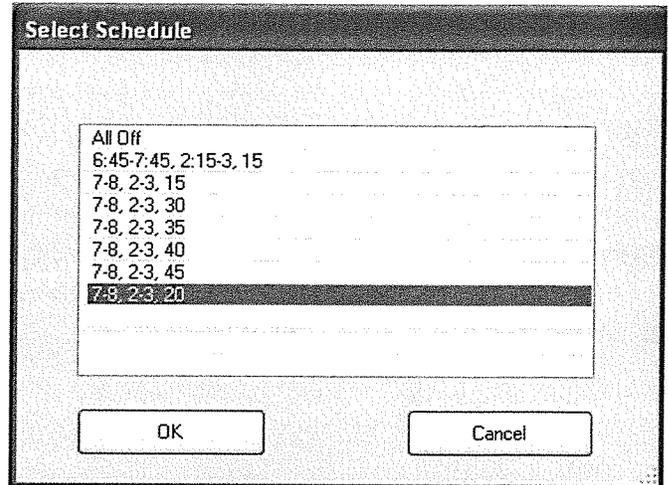
The **Operating Mode**, **Timetable**, and **Schedule** selections are saved in the SpeedCheck software for later uploading to your SpeedCheck devices.

Send Schedule to Sign

To send a saved schedule to a device:

1. Connect to the correct device
2. Select the Scheduler Tab
3. select **Send Schedule To Device**
4. Choose the correct schedule
5. Click on OK.

Because each schedule is composed of multiple components (modes, timetables, schedules) carefully plan, name and recheck before sending a schedule to a sign.



Check the bottom of the Scheduler tab to confirm the schedule was sent successfully.

Get Schedule From Sign

When connected to a sign running on Scheduler, you can download the schedule information from the sign. The downloaded schedule can be saved as a text file or webpage for later reference or printing.

```
SW 5th Street -- Downloaded Schedule

Modes:

      Name  Display  Speed  Violation  Minimum  Cutoff  Output  Output  Data  Slowdown
      All Off  OFF      0      OFF      ON      Speed  Speed  A    B    Collection  Speed
      20 MPH  ON      20      21      15      30     OFF  OFF  OFF  OFF  ON      25
      DATA  OFF      0      OFF      ON      ON     OFF  OFF  OFF  OFF  ON      OFF

Timetables:

7-8, 2-3, 20
  00:01 All Off  07:00 20 MPH  08:00 DATA  14:00 20 MPH  15:00 DATA  19:00 All Off  00:00 All Off

All Off
  00:01 All Off  00:00 All Off

ER 7-8, 11:45-12:30, 20
  00:01 All Off  07:00 20 MPH  08:00 DATA  11:45 20 MPH  12:30 DATA  19:00 All Off  00:00 All Off

Schedule:

Monday:  7-8, 2-3, 20
Tuesday: 7-8, 2-3, 20
Wednesday: 7-8, 2-3, 20
Thursday: 7-8, 2-3, 20
Friday:  7-8, 2-3, 20
Saturday: All Off
Sunday:  All Off
```

Manage Groups

This organizational tool requires Internet access or an active cell modem in each SpeedCheck sign.

Manage Groups is used to send Scheduler information to multiple signs. If you have a large number of signs with the same schedule, then using Manage Groups could be a convenience and save you time. Each sign must first be individually setup with an IP address, device ID, correct time and date, and other user controlled features. Depending on how many signs you have, it may be easier to send Schedules, one at a time, to each sign.

Before using Manage Groups you must do the following:

1. Connect to each sign and add them to the connection setup list. See page 12
2. Create the Modes, Timetables, and Schedules for the signs (name them for easy identification)
3. Organize on paper which signs can operate on the same schedule (this would be your group)

The process of Manage Groups is as follows

- Delete any unused groups (e.g.. flashers)
- Create Major groups by sign type
- Create sub groups -all signs in sub group use the same schedule- (displays as a folder)
- Add the Schedule which the group of signs will use
- Add the signs to the group
- Send All Schedules will automatically send the selected schedule to all signs

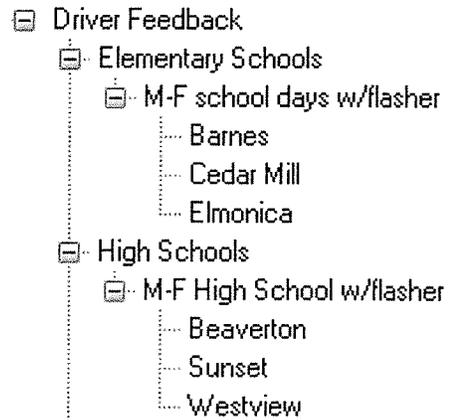
Click on Manage Groups. Group and Sign Manager will display the common sign types as groups: Driver Feedback, Flashers, and Speed Limit. Right Click on a sign type (Speed Limit, Driver Feedback, Flashers) that you are not using, and delete.

After you have deleted the sign type groups you are not using, right click on the sign group (Driver Feedback is our most common sign type) and rename the group e.g. "School Zones".

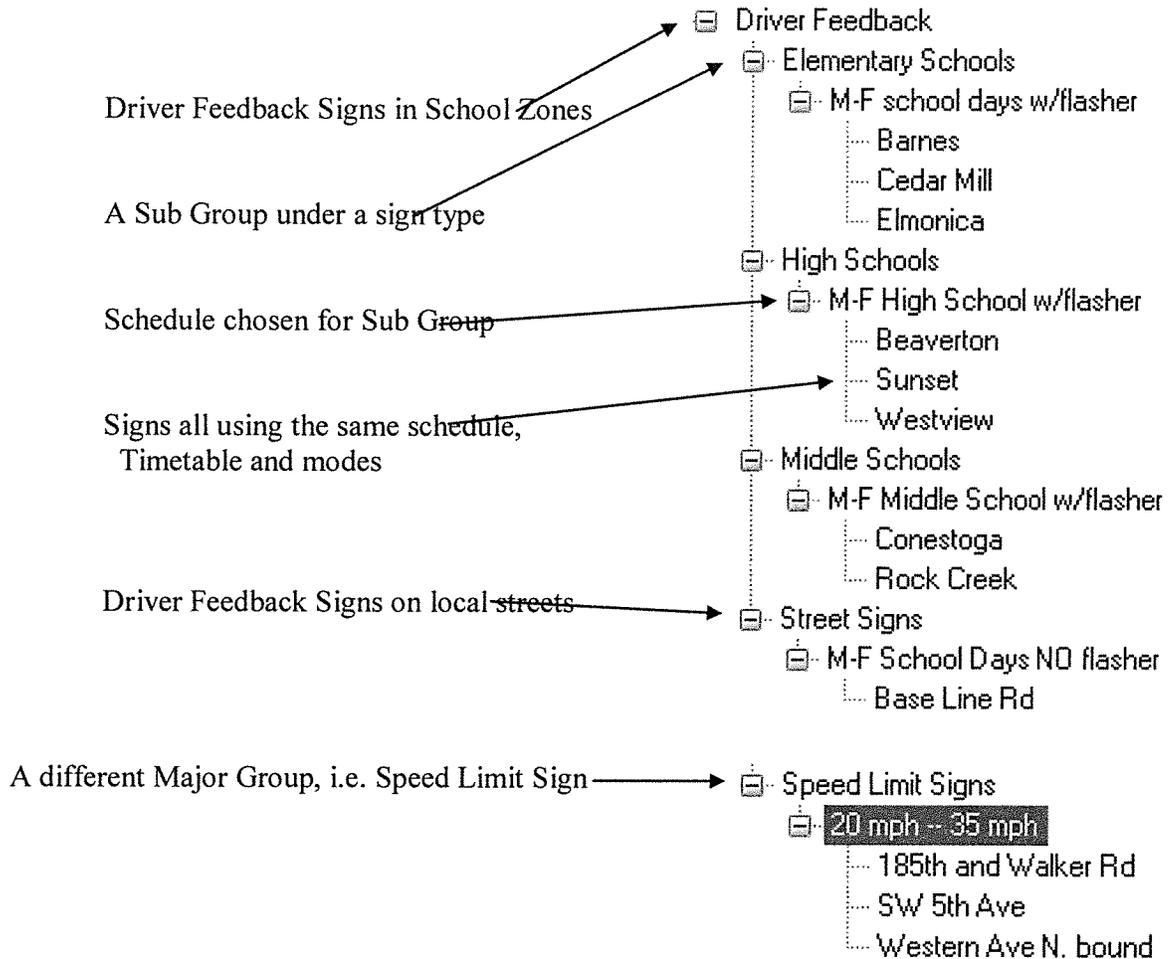
Another possible group might be "Arterial Road Sign". Right click and choose Add Group, select the sign type (Flasher, Speed Limit, etc) then assign the group a name. The best way to organize your signs is to group similar sign types together.

Sub groups can be used to organize signs into unique groups. All signs under a sub group will use the same schedule.

1. Right click on a major group and choose Add Group – Sub Group – assign a name.
2. Right click the sub group - select a schedule
3. Right click the schedule to add signs



Using schools as an example: many schools would most likely have the same time start and stop times so they could share the same scheduler timetable. All signs in a group must use the same schedule (timetable & modes). You can have multiple subgroups as this example illustrates. Rather than send schedules to signs one at a time, Manage Groups will send the selected schedule to all signs listed under that subgroup schedule.



Send All Schedules:

This command will send the Schedules selected in Manage Groups to each sign listed under the group or subgroup using that Schedule. Options for sending schedules are: Select All signs, Select by Schedule, or click on individual signs (or Ctrl click to select multiple signs).

Send All Schedules will automatically connect to each sign, send the appropriate schedule, disconnect, and then repeat the process until all signs configured in the Internet Connection Setup screen have received their schedule.

Passwords are not required for each sign when using send all schedules, since the passwords are stored in the Internet Connection Setup data.

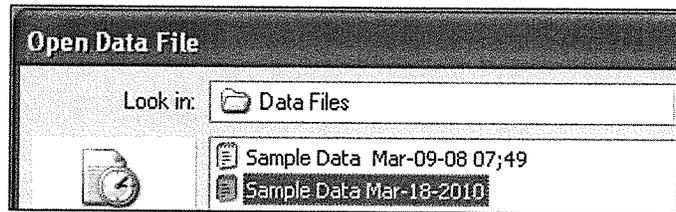
TrafficAnalyzer™

The SpeedCheck™ TrafficAnalyzer allows viewing, manipulation, charting and printing of speed data files to study speed problems, speed reduction programs, or speed trends over time. The TrafficAnalyzer is a stand-alone program that provides charting and statistical analysis, with windowing of data to particular days or hours of operation for detailed analysis.

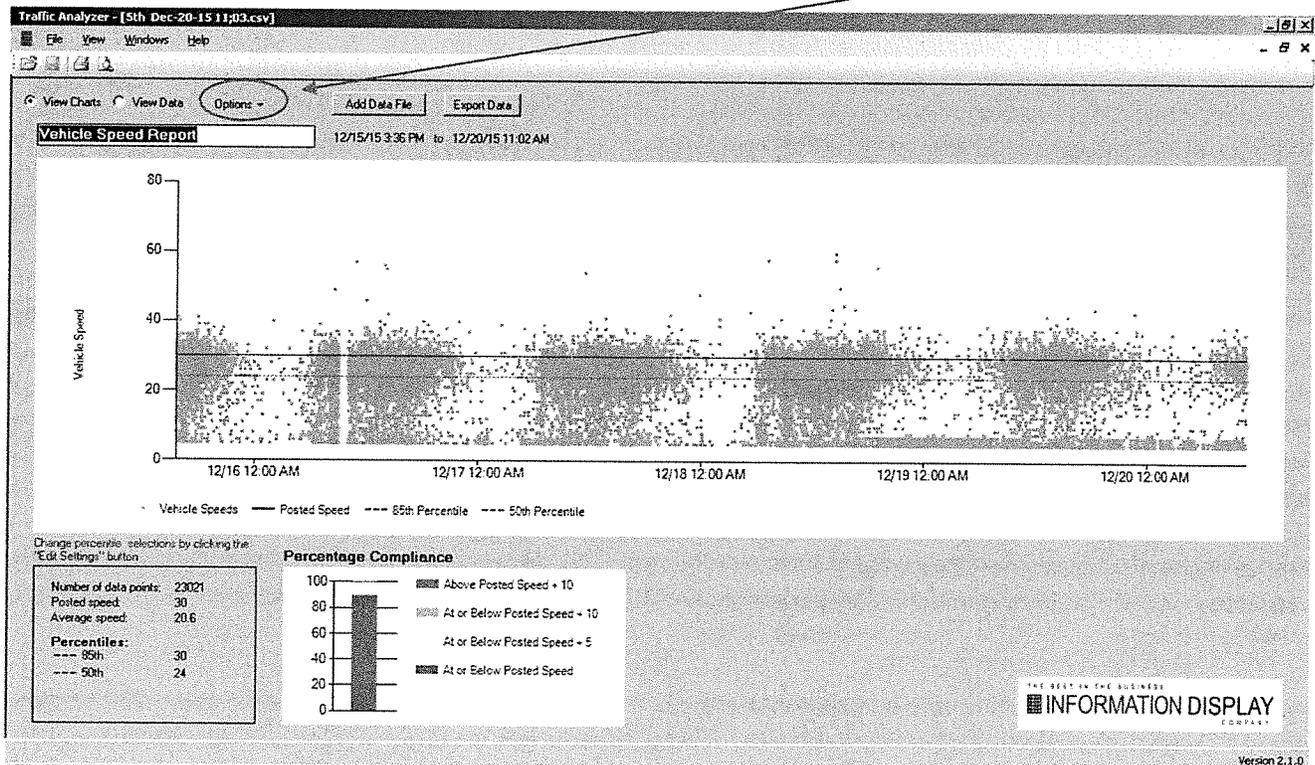
TrafficAnalyzer requires the installation of the Microsoft© .NET FRAMEWORK Version 4.0, available free from Microsoft. Recommended minimum computer configuration is 1 GHz with 1GB RAM or more, with minimum disk space of 850 MB. Visit <http://www.microsoft.com> and search for “dot net” to locate the latest version.

To view your data, double click on the “TrafficAnalyzer” icon shortcut found on the desktop. The application program resides in “My Computer \ Local Disk (C) \ Program Files \ DeviceManager \ TrafficAnalyzer”.

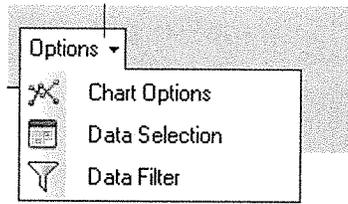
When TrafficAnalyzer opens, it will automatically look in the home folder for downloaded data files. Select the data file you wish to analyze and click the “Open” button. The data from the selected file will be displayed in the chart window.



The TrafficAnalyzer main screen will appear like below. Note the Options selection for chart changes:



Clicking the “Options



button opens the setup windows shown below.

These windows are left active with an Apply button so you may make changes to the chart, selected data, and filters and see the result on the chart without saving the option window permanently.

Chart Options Window

The “Chart Options” changes the data display graphic parameters. Parameters are pre-set by the program according to the speed range of your data, but can be changed manually.

Speed Axis Scale Parameters

Sets the parameters for the vertical scale of the graph.

Un-check “Use Default Scale” to input your own selections.

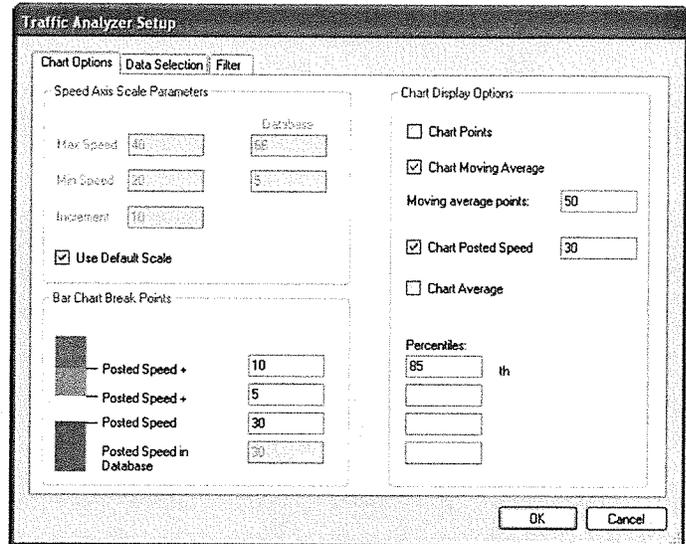
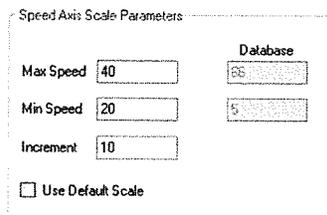
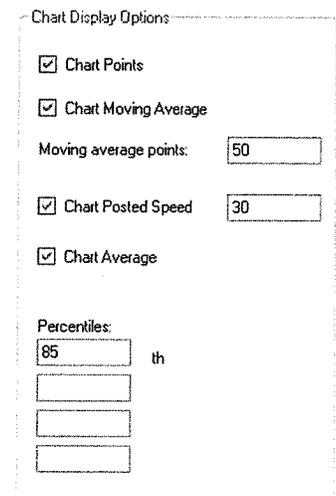


Chart Display Options

Chart Points is used to turn ON or OFF the display of individual data points. Leaving the default setting of chart points OFF results in faster screen drawing, faster viewing of only the moving average and statistical quantities without displaying the data.

Chart Moving Average enables the moving average¹ line, which, at any point, shows the average of the most recent XX data points. The number input here will set the number of data points used for the moving average. More points will provide an average over a longer time frame, whereas fewer points will provide a line that follows the individual data points more closely. If no number is input here, the chart will use a moving average of 10% of the displayed data.



¹ A Moving Average is an average of the preceding N-values in the data set. The default N is 50, meaning each point on the moving average line is the average of the preceding 50 points. The value of N can be changed in the Setup window “Chart Options” tab.

Chart Posted Speed is used to turn ON or OFF the display line that indicates the posted speed. The number entered here sets the Posted Speed line.

Chart Average is used to turn ON or OFF the display line that indicates the Average of all of the displayed points.

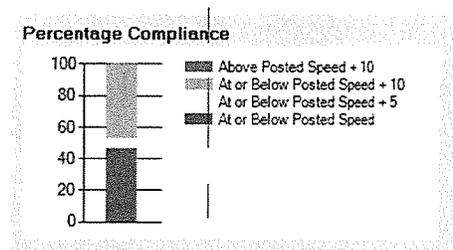
Percentile is used to set the display line that indicates the percentage of all of the displayed points (most commonly the 85th percentile). Addition percentile lines can be added by entering the number in the space provided. Leaving the entry blank will cause the line to not be displayed.

SPEED COMPLIANCE CHART

Bar Chart Breakpoints

The bar chart will show all vehicles that are:
Above Posted Speed + major over-speed (Red bar)
At or below Posted Speed + major over-speed (Orange bar)
At or below Posted Speed + minor over-speed (Yellow bar)
At or below the Posted Speed (Green bar)

Posted Speed, Minor over-speed, and Major over-speed thresholds can all be changed to suit your specific needs.



Data Selection Window

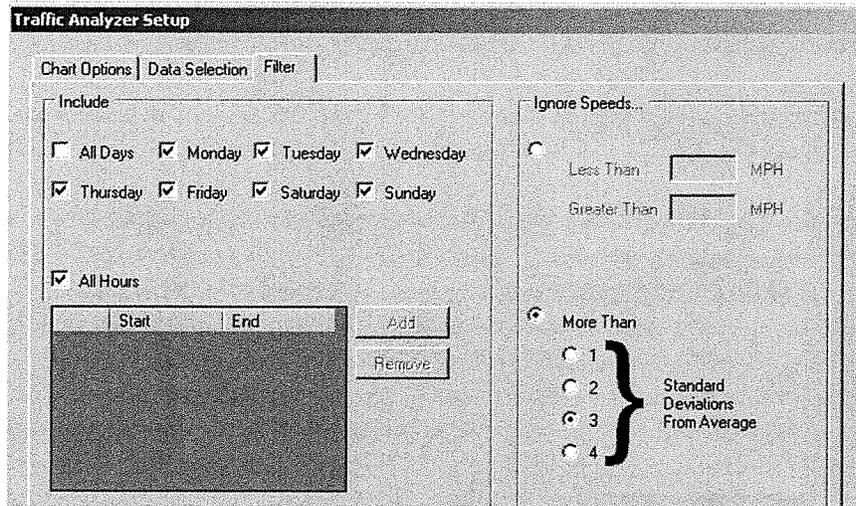
The "Data Selection" tab allows you to change the data start and ending points. Use the slide bars on the right side of the window to adjust the date and time, or manually enter the date and time. "Duration" shows the total number of days, hours and minutes of data selected.

The screenshot shows a software window with three tabs: "Chart Options", "Data Selection", and "Filter". The "Data Selection" tab is active. It is divided into two main sections: "Entire Database" and "Selected Data".

- Entire Database:**
 - Start Date and Time: 3/23/11 11:18 AM
 - End Date and Time: 4/5/11 9:43 AM
 - Duration: 12.22:25:00
- Selected Data:**
 - Start Date and Time: 3/23/11 11:18 AM (with a dropdown arrow and left/right navigation arrows)
 - End Date and Time: 4/ 5/11 9:42 AM (with a dropdown arrow and left/right navigation arrows)
 - Duration: 12.22:24:00
 - Below the duration field is a button labeled "Select Entire Database".

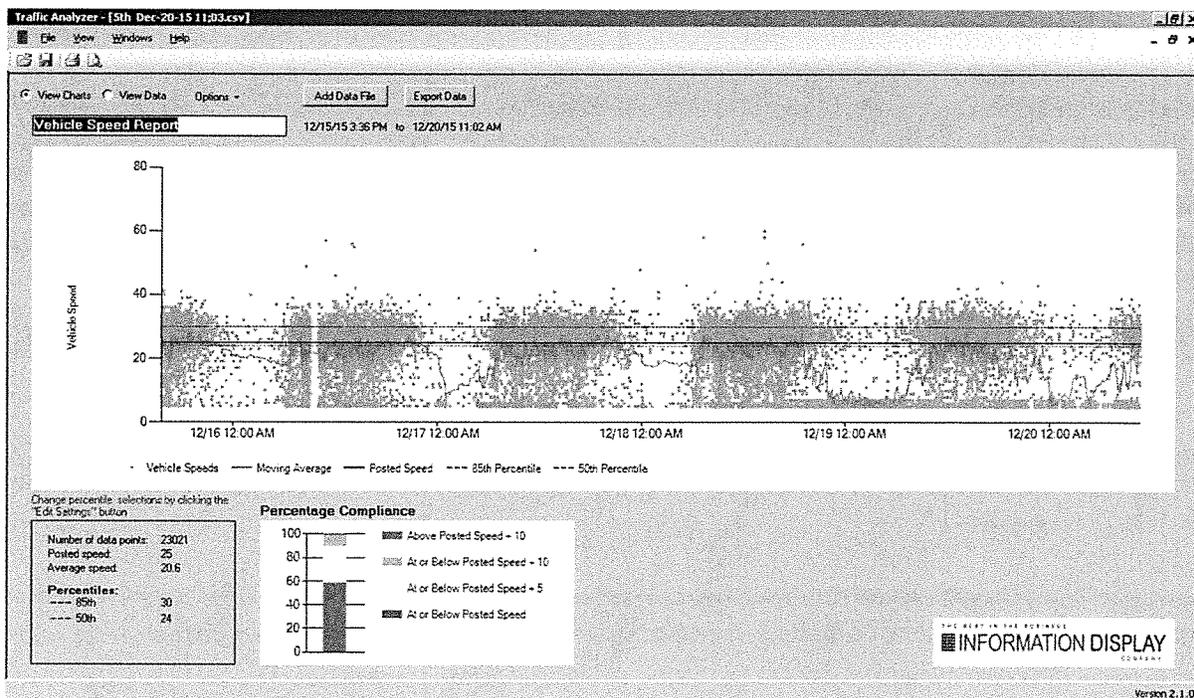
Filter Window

The “Filter” tab allows you to use the data filtering and windowing options. On this tab you may select which days of the week to include in the analysis, and which hours of the day to include. You may also exclude speeds greater than or less than speed thresholds outside your range of interest for the analysis, or exclude speeds that are more than 1 to 4 standard deviations from the average². The default setting is to remove data points greater than 3 standard deviations from the mean or average.



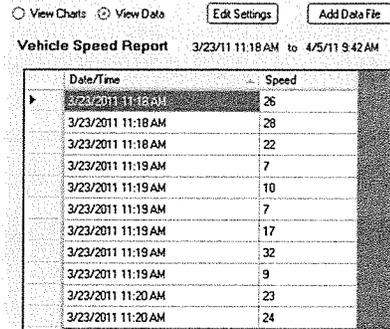
² If you are not familiar with it, the term Standard Deviation is a statistical term that indicates variability from an average (mean) data level in a particular data set. Assuming the data conforms to a bell curve distribution, one standard deviation on each side of the average will include 68% of all data in the set. Two standard deviations will include 95%, while three standard deviations will include 99.6% of all data in the set. See http://en.wikipedia.org/wiki/Standard_deviation for further explanation of this term and its usage.

Sample of charted data



View Data

Selecting “View Data” displays each saved data point with the date/time and vehicle speed. Columns can be sorted for ease of viewing and analysis. Data Selection and Filters will also control the data displayed.

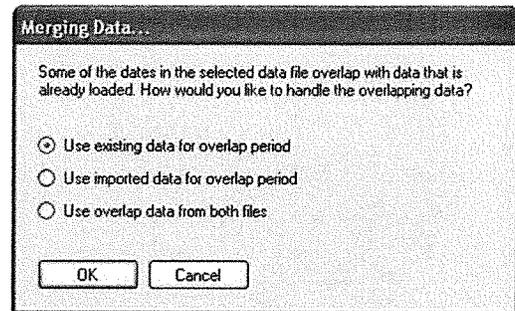


The screenshot shows a window titled "Vehicle Speed Report" with a date range of "3/23/11 11:18 AM to 4/5/11 9:42 AM". At the top, there are radio buttons for "View Charts" and "View Data" (which is selected), along with "Edit Settings" and "Add Data File" buttons. Below the title bar is a table with two columns: "Date/Time" and "Speed".

Date/Time	Speed
3/23/2011 11:18 AM	26
3/23/2011 11:18 AM	28
3/23/2011 11:18 AM	22
3/23/2011 11:19 AM	7
3/23/2011 11:19 AM	10
3/23/2011 11:19 AM	7
3/23/2011 11:19 AM	17
3/23/2011 11:19 AM	32
3/23/2011 11:19 AM	9
3/23/2011 11:20 AM	23
3/23/2011 11:20 AM	24

Add Data File Button

Selecting “Add Data File” brings up the “Add CSV Data File” window again to allow selection of an additional data file to merge with the one already loaded into TrafficAnalyzer. You will have three choices on how the data gets merged in the case of duplicated data (speed data points with the same timestamp) as those in the displayed file.



Exiting and Saving your Work

Data files brought into TrafficAnalyzer are not modified in the process. However, after you make parameter, setup, and filter changes to the displayed data, you can save those changes and settings, and the associated traffic data, with the “Save As” menu item. If you try to exit the program without saving, you will be given the choice to save or discard changes, to ensure none of your work is lost.

Troubleshooting

Bluetooth™ communications not working or erratic

- Incompatible Bluetooth adapter used with PC – Information Display Company supports Cirago (BTA6210) and Ezurio (BRBLU03) USB Bluetooth radios.
- Incompatible drivers loaded for Bluetooth radio. Cirago & Ezurio do not require installation of drivers, when first inserted they will automatically install the correct drivers (Plug & Play).
- Attempting to “Pair” Bluetooth devices will result in asking for a password. **Do Not attempt to pair Bluetooth devices – it is not needed for DeviceManager to communicate.**
- Device is not powered, or key switch set to OFF.
- PC computer with Bluetooth too far away – must be located within 50 feet *in front of the sign*.
- Mismatched SpeedCheck software is loaded on the PC and/or device controller board. Contact Information Display Company for the latest versions.

Not All Vehicle Speeds Displayed

- Verify the display has correct alignment with the roadway
- Check high-speed cutoff setting, which may be set too low for the prevailing traffic speed.
- Check minimum display speed setting, may be set too high for the prevailing traffic speed.
- Note that SpeedCheck is designed to detect moving vehicles, including trucks and golf carts. It is designed to ignore people or small targets.
- Radar unit can be factory-set for longer or shorter detection range, or the display may be angled slightly towards the centerline of the road to focus on vehicles closer to the display; the factory setting is a detection range between 400 to 600 feet from the display, depending somewhat upon target size (truck vs. compact car, etc.).

Sign Displays Test Sequence Only

- Operating Mode has been set to collect data but not display speeds. Set the program as desired.
- Radar is not sending data. Contact Information Display Company for further diagnostics.

No Test Sequence and No Speeds Displayed:

- Key switch (if used) in OFF position (fully CCW).
- Power to device is OFF.
- Test sequence disabled.
- Operating Modes settings set for “Display OFF”
- Scheduler (timer in older units) has scheduled the sign to be off.
- GPS time synchronization is taking longer than normal due to device not being powered up for a few weeks. Allow up to 30 minutes in this case.

Numbers Displayed with No Vehicles Passing

- “06” or “08” displayed – display is picking up noise from such items as fluorescent light ballast or fan blower motors. Eliminate the source of the noise or insulate the radar head from the display cabinet (call Information Display Company for info).
- “88” displayed – display is programmed for the SLOW DOWN message but the SLOW DOWN message boards are not installed. Disable the SLOW DOWN message operation in the Sign Setup menu.

Too high a number displayed relative to traffic speed

- Radar may be set to read Kilometers instead of MPH. Contact Information Display Company for a radar unit set to the appropriate units.

Detection Range Too Short

- Sign alignment is incorrect.
- Sign has metallic or plant obstructions between display and the vehicles.
- Sign is aligned properly but road curve or grade is affecting detection zone. Try aligning the sign face towards or away from center line, and/or more towards the grade of the road (up or down) as required.
- Internal metal radar reflector bent or missing. Check inside the display cabinet.
- Radar unit can be factory-set for longer or shorter detection range, or the display may be angled slightly towards the centerline of the road to focus on vehicles closer to the display; the factory setting is a detection range 400 to 600 feet from the display, which is affected by target size (truck vs. compact car, etc). Contact Information Display Company for more information.

Unable to set or re-set parameters using the PC computer

- Outdated or mismatched SpeedCheck software is loaded on the PC and/or device controller board. Contact Information Display Company for the latest versions.

SpeedCheck application not downloading data properly

- Invalid device name. Make sure device name programmed with the PC is valid and does not include special characters or punctuation.
- Make sure device date/time is set properly with the Set Time & ID menu.
- If using bluetooth, be in front of the sign, move closer to the sign

Communication Interrupted

- Distance between Bluetooth device and sign is too great – move closer
- If using Internet – many variables come in to play with cell phone signal strength, try to re-establish the connection
- Internet connection lost – make sure you have an active internet connection

File Names

Software and firmware files used by the *DeviceManager* system include the following:

SpeedCheck<xxxx>.hex is the SpeedCheck firmware program that resides in the device, controlling all functions of the device and any options purchased with it. This file can be updated through your DeviceManager application.

<sign_name> <mm-dd-yy> <hh:mm>[_nn].csv is the SpeedCheck vehicle speed data file as it appears on your PC after downloading.

The data file name will have a trailing two-digit file number representing the time of day the data files was downloaded. For example, “Fifth & Main Sep-26-08 15;44.csv”.

Sales, Service and Support

You can contact us via email, at sales@informationdisplay.com at any time, or you can complete our online information request form. We try to answer all email inquiries within 24 to 48 hours so if you have a pressing question, please call us.

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ss

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