



radarsignTM
MAKING ROADS SAFER

TC-400 Radar Speed Sign Installation Manual



Certified Quality System
ISO 9001:2015



MUTCD Compliant
Radar Speed Signs



Proudly Engineered &
Manufactured in the USA



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SAFETY WARNINGS

Warning indicates a potentially hazardous situation which if not avoided will result in death or serious injury, and/or property damage.

ELECTRICAL SAFETY

To reduce the risk associated with electric shock resulting from contacting high voltage AC:

Turn power OFF before connecting wiring from our AC powered radar speed signs to the AC source.

To reduce the risk of electric shock related injury resulting from hazardous AC voltage:

Portions of this equipment derive power from sources that have high voltage levels. These must be serviced by qualified personnel who have previous training or certification to safely work on high voltage equipment. Consult a qualified electrician.

BATTERY SAFETY

Battery acid may cause skin irritation and eye injury. To reduce the risk of burns or other acid related injury resulting from handling lead-acid batteries:

Wear gloves, goggles, and an apron when handling batteries.

Beware of cracked battery cases.

Handle batteries with care.

Batteries may produce explosive gas under some conditions. This gas may be ignited by a spark or flame as you work near the battery. To reduce this risk of explosion:

Disconnect the battery.

Work in a well-ventilated area.

Avoid the use of devices that create sparks or use open flames.

Use appropriate personal safety clothing and equipment.

To reduce the risk of burns or other acid-related injury resulting from exploding batteries:

Always use the recommended charging systems with this product.

To reduce the risk associated with contamination of water supplies resulting from improper disposal of batteries containing lead and acid:

Please dispose of batteries in accordance with all local government laws and regulations.

An accidental short circuit may instantly heat conductive jewelry, tools, and surrounding objects to skin-searing temperatures. To reduce this risk when working around batteries:

Keep tools, jewelry and other conductive objects away from the battery terminals.

RADAR SAFETY

This product uses devices that radiate RF energy in the course of normal operation. Radar RF energy can be harmful to the eyes. To reduce exposure to the risk of RF energy:

Do not stare into the radar antenna.

Keep a minimum safe distance of 8 inches (20 cm) from the display face.

PERSONAL SAFETY

To reduce the risk of impact hazards resulting from falls, accident with passing vehicle, and/or from use of unstable equipment:

Use appropriate work zone traffic control procedures, methods and equipment.

Strain or back injury may result from lifting equipment improperly. To reduce the risk of strain or back injury:

Use proper lifting techniques and have adequate help when lifting.

To avoid the possibility of injury due to falling or unstable equipment:

Be certain the radar speed sign is mounted to an appropriately rated pole or equivalent mounting surface.

Use appropriately rated mounting hardware.

BEST PRACTICES PRIOR TO RADAR SPEED SIGN INSTALLATION

- Our signs are designed to be water resistant when vertically installed and mounted properly on an appropriate pole or mounting surface.
- Prior to installation the sign should be stored inside in a cool, dry place.
- Do not store the sign outside.
- Do not store the sign in a horizontal position. Storing the radar speed sign horizontally outside where it is exposed to the weather voids the warranty.
- Do not leave the sign in a truck bed or laying on the ground.
- Do not drop the sign.
- Do not leave the sign in storage for months. The batteries will naturally discharge and will damage the batteries.
- Do not leave solar signs plugged in for more than 24 hours without being connected to a solar panel.

BEST PRACTICES FOR RADAR SPEED SIGN INSTALLATION

These guidelines and recommendations provide the best practices for radar speed sign installation to assure successful, accurate and effective traffic calming.

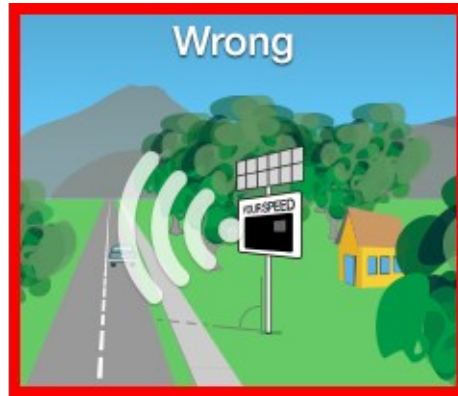
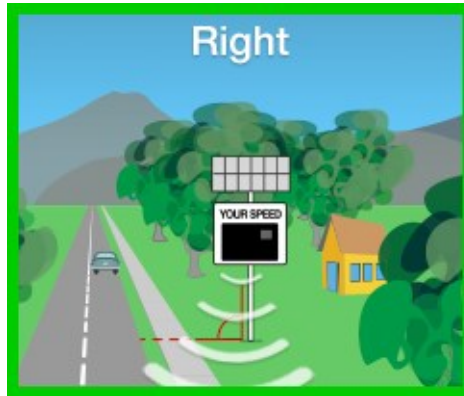
- Prior to the radar speed sign installation, look for any obstructions that might interfere with proper operation of the sign (telephone poles, large tree limbs, other signage, etc.).
- The radar speed sign should be installed no more than 5 feet from the road curb. Signs placed more than 5 feet from the road will result in displayed speeds that are LOWER than the actual speed.



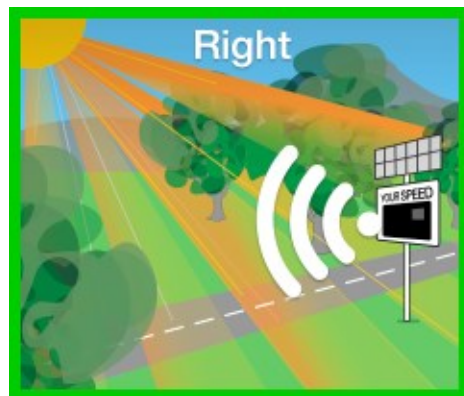
- Do not install the radar speed sign in a curve or after a curve. The sign should be installed in a straight section of road. A radar speed signal cannot “curve” with the road, and will not display speeds with enough time for drivers to see the alert and adjust their speed.



- For maximum vehicle detection the radar speed sign should be positioned perpendicular to the road with the radar pointing directly at the curb in the direction of oncoming traffic, not at the center of the road. Signs rotated toward the center of the road will not perform as well.



- SOLAR MODELS** | Do not install a solar powered radar speed sign under a tree. Summer leaves on the tree could impact solar recharging. Make sure the solar panel is installed facing as close to South as possible at a 45° angle.



- The radar speed sign should be installed on the same side of the street as oncoming traffic. If installed on the opposite side of the road, the angle of the sign could result in poor detection of the oncoming traffic.
- The bottom of the radar speed sign should be installed 7-10 feet off the ground. Installing lower than 7 feet will reduce the detection range resulting in much of the radar speed signal being absorbed by the road.
- For streets with street parking: To prevent the radar signal from being blocked by parked vehicles, the radar speed sign should be installed high enough off the ground to detect oncoming traffic over the parked vehicles.
- If the radar speed sign is installed more than 12 feet above the roadway, the sign should not be tilted more than 3°- 4° downward to detect vehicles. Doing so will greatly reduce the length of time vehicles are detected and will display speeds that are LOWER than the actual speed.

BEST PRACTICES FOR USE OF THE TC-400

These guidelines and recommendations provide the best practices for the use of the TC-400.

INSTALLATION (TC-400 BATTERY POWER MODEL ONLY)

- **Utilize multiple universal mounting brackets:** Install universal mounting brackets at various locations on existing poles to establish a traffic calming circuit. This allows easy and efficient relocation of the TC-400 to different areas in need of traffic calming on a regular basis. The signs can be moved effortlessly with just a key, requiring no additional tools.

BATTERIES (TC-400 BATTERY POWER MODEL ONLY)

- **Initial charge:** Ensure your batteries are fully charged by using the provided charger before deploying the radar speed sign. NOTE: It is recommended to charge each battery pack for an initial period of 12 hours at room temperature.
- **Order extra batteries:** One set can be charging, ready to replace a depleted set at a moment's notice. One set of backup batteries can serve multiple Radarsign devices.
- **Preserve battery power:** To extend the lifespan of your batteries, configure the radar speed sign to deactivate during overnight hours if traffic is minimal in that location. Additionally, set the minimum display speed at or slightly below the road's speed limit. For instance, if the speed limit is 30 mph, ensure the minimum display speed is no lower than 25 mph. Avoid setting the speed limit too low, such as at 10 mph, to prevent unnecessary activation for non-speeding vehicles, conserving battery power.
- **Preserve battery life:** To maximize battery life, it is crucial to store and charge batteries in a temperature-controlled environment. Charging and storing batteries in extreme cold or hot temperatures can significantly reduce the overall life and performance of the battery packs.
- **Maintenance:** For optimal battery lifespan, it is recommended to recharge regularly. Batteries typically last 5-7 years with regular charging. Avoid waiting until batteries are completely exhausted before recharging to ensure longevity.



IMPLEMENTATION

- **Define Clear Goals and Criteria:** Before deploying Radarsign TC-400 devices, establish predetermined goals and criteria for their usage. Whether intended for sub-arterial roadways, school zones, or neighborhood streets, proactively decide on the specific areas and conditions where the devices will be employed.

Given the potential popularity of these devices among citizens and business owners, anticipate a notable demand for their use. To ensure fair and consistent usage, establish community guidelines that clearly outline the criteria for deploying the devices. By setting transparent standards in advance, you can maintain consistency and address the demand for deployment of the radar speed sign in a structured and equitable manner.

BEST PRACTICES FOR USE OF THE TC-400

IMPLEMENTATION

- **When establishing usage parameters, consider the following factors:**
 - **Speeding Violations and Accidents:** Analyze the history of speeding violations or accidents in the targeted area. This data will help determine the severity of the speeding issue and the potential impact on road safety.
 - **Pedestrian Activity:** Take into account the volume of pedestrians in the area. High pedestrian activity may warrant increased vigilance in controlling vehicle speeds to enhance safety.
 - **Traffic Volume:** Evaluate the number of vehicles regularly traveling on the street. Understanding traffic patterns will assist in determining the necessity and effectiveness of deploying the radar speed sign in that particular location.
 - **Maximum Speed Cutoff:** Utilize the Maximum Speed Cutoff option to discourage "sign racing" or any competitive behavior among drivers. Setting an appropriate maximum speed threshold helps maintain the effectiveness of the radar speed sign in promoting safer driving practices.

DATA COLLECTION AND REPORTING (OPTIONAL)

- **Operate in stealth mode first:** Consider initiating the TC-400 deployment in stealth mode (feedback display off) for an initial week, followed by activating the feedback display for the subsequent week. Utilize the optional Streetsmart traffic data reporting program to gather information from the sign during both periods. This approach allows for a comprehensive analysis, establishing a baseline for the speeding issue during the first week.

The collected data will reveal the overall impact of the radar sign alert display on driver speeds, highlighting specific times and days of the week when speeding is most prevalent. Detailed insights, such as the number of drivers exceeding 5 mph, 10 mph, and 15 mph over the speed limit, will be available. This valuable information can then be strategically utilized to deploy law enforcement resources effectively and intelligently based on observed patterns.

- **Promote Transparency and Community Engagement:** In cases where radar speed signs are deployed in response to resident complaints about speeding, it's important to acknowledge that citizens' perceptions of vehicle speed may not always align with reality. To address concerns about the safety of pedestrians, children, and pets, and to foster goodwill within the community, consider sharing the insights gathered from Streetsmart data.

Whether through social media platforms or direct person-to-person visits, communicate the findings to the residents. If the data indicates that drivers are complying with the speed limit, this information can help alleviate fears and reassure the community. On the other hand, if the data reveals a legitimate speeding issue, transparently share this information along with the agency's plan for addressing the problem. This open communication approach not only builds trust but also involves the community in the process of addressing traffic-related concerns.

TC-400 BATTERY POWER MODEL

TC-400 Battery Power Radar Speed Sign Includes:

- 1 radar speed sign with YOUR SPEED faceplate
- 1 battery housing
- 2 lithium iron battery packs
- 1 AC battery charger
- 2 keys are provided on a keychain and are essential for locking the radar speed sign to the battery housing.
- 1 durable stainless steel universal mounting bracket designed for installing your radar speed sign to existing poles
- 1 set of hardware accompanies the universal mounting bracket, containing 2 stainless steel carriage bolts (3" long) with lock washers and nuts

TC-400 Battery Power Model Installation Instructions

1. Detach the keys from the housing handle and open the TC-400 cabinet.
2. Lift the radar speed sign off the battery housing hinges.
3. Remove the packaging, the battery charger, and the batteries from the battery housing.
4. Utilize the enclosed charger to ensure both battery packs are fully charged before deploying the radar speed. *MAINTENANCE NOTE: Batteries will generally last for 5-7 years if regularly charged. Do not wait until your batteries are completely exhausted to recharge.*

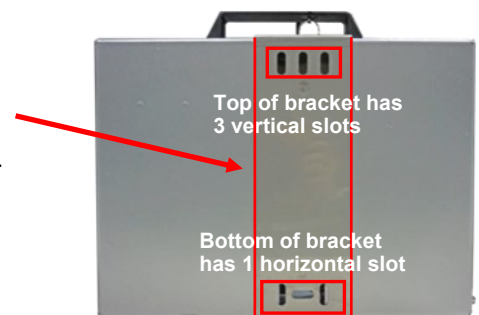


Per transportation requirements batteries must be shipped with a low state of charge. It is critical to the operation of the sign that the batteries be charged overnight (12 hours minimum) PRIOR to installation. Download the Power Sonic free app that uses Bluetooth® communication to monitor the status and charge level of your battery.



5. Detach the universal mounting bracket from the back of the battery housing and mount it to your existing pole. Utilize the included hardware for mounting.

The hardware is designed to accommodate a 2" x 2" square post, or a U-channel post, but if your pole is different, you may need to use longer bolts or use additional clamps, banding, or strapping (customer supplied).



Whatever method you choose, be sure to secure the bracket with the hardware as shown in the photo to the right. This will provide you the maximum theft protection. Note that the universal mounting bracket is labeled TOP and BOTTOM. When installing, mount the bracket with the top side facing upward.



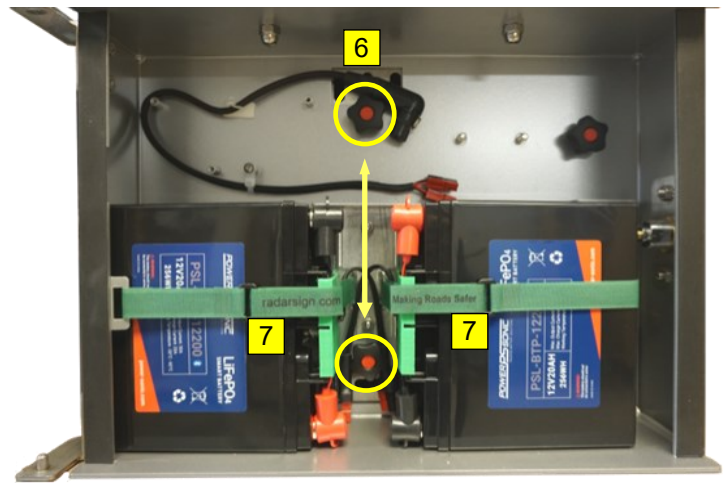
TC-400 BATTERY POWER MODEL

- Place the battery housing on the universal mounting bracket. Use two of the provided screw knobs (black handle with red center) to secure the battery housing to the universal bracket.

Tighten them securely to ensure a stable attachment. A third spare is included with your housing.

If using banding clamps, ensure that the driver cam of the banding clamp is positioned inside the battery housing.

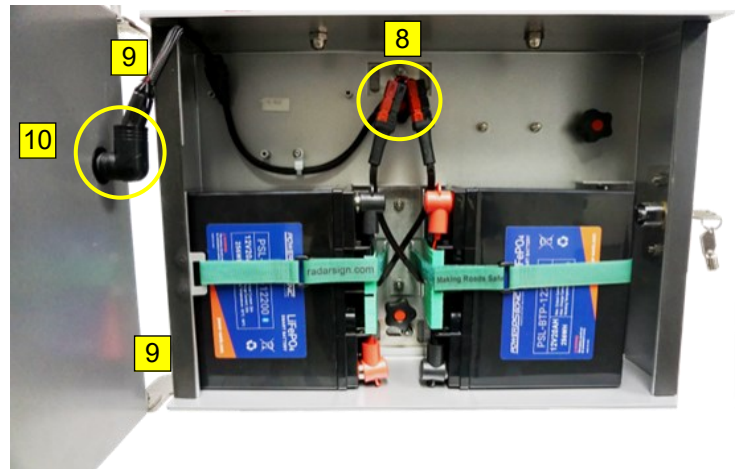
- Place the battery packs into the battery housing and secure with the Velcro strapping as shown.



- Connect the battery pack wiring harnesses to the radar speed sign power cord.

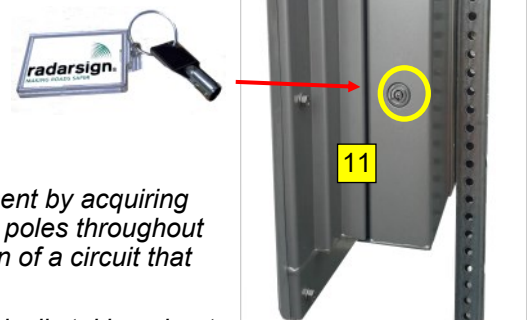
- Mount the radar speed sign on the top and bottom battery housing hinges.

- Connect the battery power cord to the back of the radar speed sign housing. One (1) battery pack should provide approximately 5-7 days of operation of the radar speed sign. With two battery packs, the radar speed sign should provide approximately 10-14 days of operation. It's important to note that in colder temperatures, the operation time may decrease proportionately.



Each battery pack requires 12 hours to fully recharge. To ensure continuous operation, especially during recharging periods, you may find it beneficial to purchase an additional battery pack. This way, the radar speed sign can continue operating while the other battery packs are being recharged.

- Lock the front of the radar speed sign to the battery housing by pushing in the lock mechanism until you hear a click and the lock is flush with the side of the housing.



Note: Many users choose to enhance the flexibility and value of their investment by acquiring additional universal mounting brackets, strategically placing them on existing poles throughout town. These brackets are compact and inconspicuous, facilitating the creation of a circuit that allows the radar speed sign to be rotated regularly.

The mounting and un-mounting process for the radar speed sign is quick, typically taking about 1 minute, and requires no tools. This approach maximizes the impact of the radar speed sign across different locations without the need for a complex setup or prolonged installation procedures.

TC-400 AC POWER MODEL

TC-400 AC Power Radar Speed Sign Includes:

- 1 radar speed sign with YOUR SPEED faceplate
- 1 universal pivot mounting bracket and hardware

TC-400 AC Power Radar Speed Sign Installation Instructions

Step 1: When choosing a location for the radar speed sign, ensure that it can support a pole, column, or wall mount. It's crucial to position the sign so that it always faces oncoming traffic. This orientation maximizes the effectiveness of the radar speed sign by providing clear visibility to approaching drivers, promoting awareness, and encouraging adherence to speed limits.

Step 2: Secure the universal pivot mounting bracket to the mounting structure using the hardware provided. Ensure that the attachment is secure and the sign is properly aligned to face oncoming traffic. If necessary, adjust the universal pivot mounting bracket to achieve the desired angle and visibility for the radar speed sign.

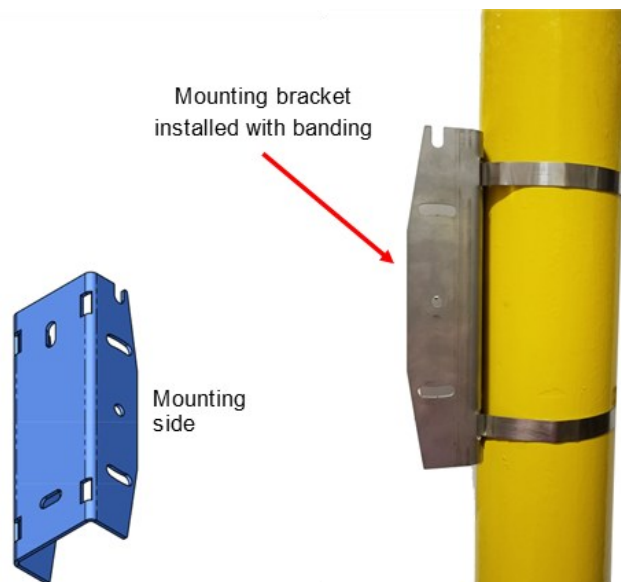
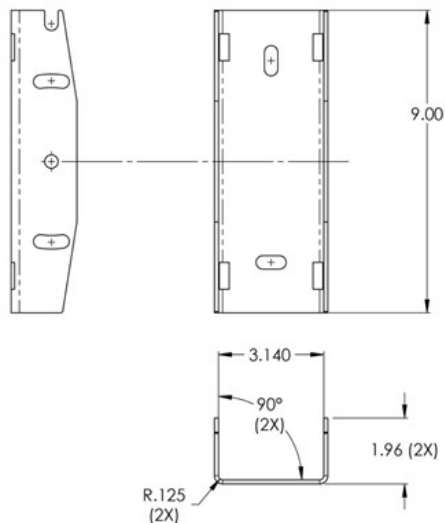
Features of the Universal Pivot Mounting Bracket:

- Allows the installation of the radar speed sign using bolts or banding solutions
- Provides up to eight degrees of pivot, allowing the radar speed sign to be positioned up or down. This accommodates placement on uphill or downhill slopes, ensuring optimal visibility.
- Allows adjustment of the radar speed sign position for poles that have a slight side to side tilt after installation.
- Ease of installation: The design of the bracket allows you to attach the mounting side bracket first, and then utilize the U-shape slot on the top of the bracket to hang the sign while you finish the installation.



Tool and Materials Required (customer supplied):

- 7/16" wrench
- Nuts, bolts or banding clamps for pole mounting

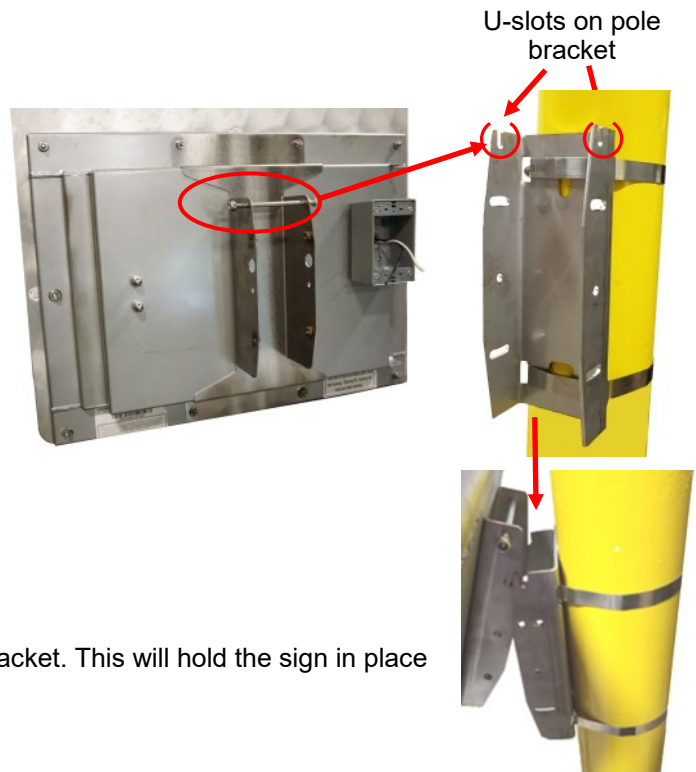


Installation

- Use a pencil or tape to mark the minimum height level for the bottom of the sign on the pole, column, or wall. Ensure that the top of the sign will be at least 4 feet from the ground level. .
- Securely attach the mounting side of the universal pivot mounting bracket to the marked height on the pole, column, or wall. Depending on the type of installation, use bolts or banding (customer supplied) to secure the bracket in place.

TC-400 AC POWER MODEL

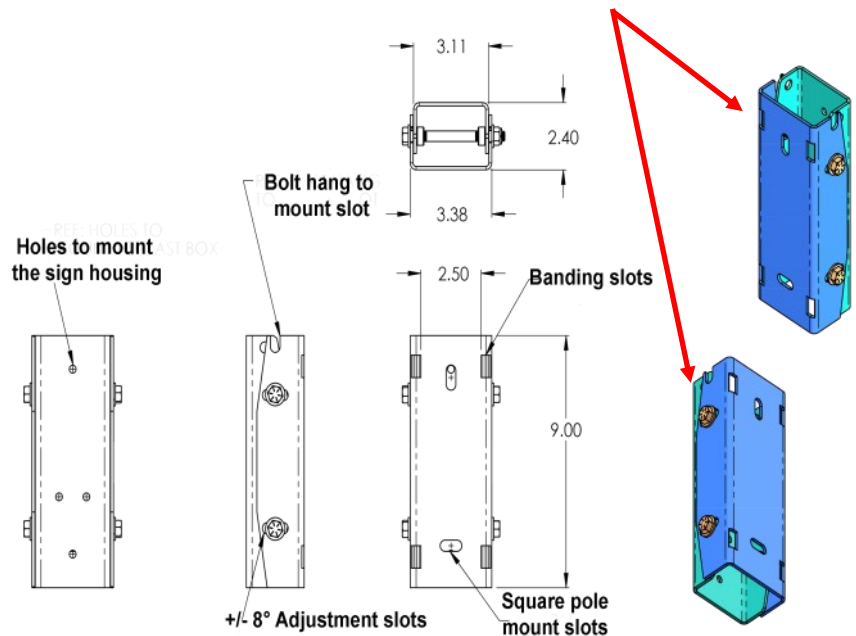
- When ready to hang the sign onto the pole, insert the 1/4" x 4" bolt (supplied) into the top hole of the housing bracket.



- Lift the sign and place the bolt into the U-slot on the pole bracket. This will hold the sign in place so that the side bolts (supplied) can be installed.

- Install the (4) 1/4" bolts x 5/8" length hex head bolt, lock washers, and flat washers (supplied). Install 2 on each side of bracket.

- Once the radar speed sign is securely installed and the angle has been adjusted to accommodate road conditions, the 4" bolt from the top hole can be removed.



Optional Sign Mounting Lock

An optional sign mounting lock is available to use with the universal mounting bracket to add an extra layer of security to safeguard the radar speed sign.

- Unlock the larger black end of the lock set and remove lock.
- Slide the lock set bar through the hole at the bottom of the sign mounting bracket.
- Re-attach lock to the end of the lock set bar and lock to secure the sign.



TC-400 | AC POWER MODEL

Power Connections for the AC Model

The signs will accept direct connection to a power supply between 100v and 240v. Higher voltage supplies will require a customer supplied step-down transformer. Branch circuits should have a 5 amp circuit breaker installed for protection and power cycle convenience

- Locate the outlet box on the back of radar speed sign
- Remove outlet cover plug and run the incoming AC power wires through a flexible non-metallic conduit connector (customer supplied)
- Connect the exposed black and white wires from the power supply to the corresponding terminals on the radar speed sign.
- When wiring is complete and has been inspected, cycle the AC power on and observe the sign display. Allow the sign to run through a power-on test, typically lasting 15-20 seconds. Testing is complete when the Blue Blinky™, the blue LED light in the center of the sign display, changes from solid to blinking, indicating that the sign is operational with factory settings.

RADAR SPEED SIGN SETTINGS:

The radar speed sign is shipped with the following factory settings:

Speed Limit: 25

Minimum Display Speed: 5

Maximum Display Speed: 99

IMPORTANT NOTE: The factory settings of the radar speed sign will need to be adjusted for your specific installation.

RECOMMENDED SETTINGS:

Minimum Display Speed: 5 MPH below the posted speed limit

Maximum Display Speed: no more than 20 MPH higher than the speed limit

Using a Wi-Fi browser set up sign with correct time and date; then set initial parameters for sign operation.

(See Operation Manual available in the [Customer Resource Center](#))

CUSTOMER RESOURCE CENTER

Access Radarsign's software downloads, manuals, troubleshooting/repair/upgrade information, forms, product sheets, spec sheets, and more through the Customer Resource Center on our website.

<https://www.radarsign.com/customer-resource-center/> Password: [safety](#)

For additional assistance please call [678-965-4814](tel:678-965-4814) and ask for technical support or email: customerservice@radarsign.com



Customer Support: Call 678-965-4814 or email customerservice@radarsign.com

Shipping Address: 1220 Kennestone Circle, Suite 130 Marietta, GA 30066

Sales Information: Call 678-965-4814 or email info@radarsign.com

RMA Instructions: Please make sure to fill out and submit an [RMA Request form](#) with all returns.



Radarsign, LLC provides the following warranty for its traffic calming systems whether sold directly by Radarsign or by an authorized Radarsign distributor.

LIMITED PRODUCT WARRANTY Radarsign, LLC (“we” or “us” or “our”) warrants that our traffic calming system (“Product”) is new and free from defects in materials and workmanship to the original purchaser (end user) (“Purchaser”) (the “Product Warranty”) for a period of two (2) years from the date of shipment (“Warranty Period”), regardless of whether such Product was purchased from us or by one of our authorized distributors. Our responsibility for defective Product is limited to repair, replacement or refund as described below in this Product Warranty statement. The above-referenced Warranty Period is inapplicable to TC-400 batteries which we warrant for a period of one (1) year.

Purchaser acknowledges this Product Warranty does not cover damage to a Product resulting from (a) accident, malicious abuse, theft, vandalism, impact with a foreign object or act of God; (b) unauthorized modification of the Product, (c) failure to comply with the site selection, installation, operation, maintenance, transportation and/or storage instructions and recommendations, as published in the Product Installation Manual made available at the Customer Resource Center* (<https://www.radarsign.com/customer-resource-center/>); (d) removal or relocation of the Product; (e) external electrical work to the Product, virus/hacker activity, and external computer errors; and (f) improper solar panel installation or improper use of battery charging equipment.

To obtain warranty service, the Purchaser must first call us for a Return Material Authorization (“RMA”) number; then return the Product to us for repair or replacement. Claims made under this Product Warranty will only be honored if we are notified of failure within the Warranty Period, Purchaser provides information reasonably requested by us, and we are permitted to verify the cause of the Product failure.

Purchaser shall prepay shipping charges for Products returned to us. We will pay for return of the Products to Purchasers located in countries in North America. Purchasers of Products from countries outside of North America shall pay all shipping charges, duties, and taxes for Products returned to us for warranty repair or replacement and return of such repaired or replaced Products to Purchaser.

The Warranty Period for replacement parts is the longer of 90 days or the remainder of the initial warranty period.

Within ninety (90) days of receipt, should the Product fail for any reason other than damage due to Purchaser negligence, acts of God or vandalism, we will bear shipping costs for depot service both to and from the repair facility for Products sold with a United States shipping address. After 90 days, the Purchaser is responsible for inbound shipping. We will pay for return shipping to the customer for the entire Warranty Period if Purchaser is located within North America.

EXCEPT FOR THE WARRANTY SET FORTH IN THIS LIMITED WARRANTY AGREEMENT, NEITHER WE NOR ANY PERSON ON OUR BEHALF HAS MADE OR MAKES ANY EXPRESS OR IMPLIED REPRESENTATION OR WARRANTY WHATSOEVER, EITHER ORAL OR WRITTEN, INCLUDING ANY WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, TITLE, NON-INFRINGEMENT OR PERFORMANCE OF GOODS OR PRODUCTS TO STANDARDS SPECIFIC IN THE COUNTRY OF IMPORT, WHETHER ARISING BY LAW, COURSE OF DEALING, COURSE OF PERFORMANCE, USAGE OF TRADE OR OTHERWISE, ALL OF WHICH ARE EXPRESSLY DISCLAIMED; WE ASSUME NO RESPONSIBILITY OR LIABILITY WHATSOEVER FOR THE PERFORMANCE OF THE PRODUCT OR THE ADEQUACY OF ANY SPECIFICATION OR DESIGN PROVIDED TO US BY OR ON BEHALF OF PURCHASERS; PURCHASER ACKNOWLEDGES THAT IT HAS NOT RELIED UPON ANY REPRESENTATION OR WARRANTY MADE BY US, OR ANY OTHER PERSON ON OUR BEHALF, EXCEPT AS EXPRESSLY PROVIDED IN THIS LIMITED WARRANTY AGREEMENT. Some states or provinces do not allow limitations on how long an implied warranty lasts, so the above limitation or exclusion may not apply to you.

PURCHASER’S EXCLUSIVE REMEDY UNDER THIS PRODUCT WARRANTY IS, AT OUR ELECTION, (I) CREDIT OF THE PURCHASE PRICE OF THE PRODUCT TO PURCHASER, OR (II) REPAIR OR REPLACEMENT OF THE DEFECTIVE PRODUCT BY US. IN NO EVENT SHALL WE BE LIABLE FOR ANY LOST PROFITS, INDIRECT, INCIDENTAL, SPECIAL, PUNITIVE, EXEMPLARY OR CONSEQUENTIAL DAMAGES, INCLUDING LOST BUSINESS, EARNINGS, PROFITS OR, GOODWILL, WHETHER BASED ON CONTRACT, TORT, OR ANY OTHER LEGAL THEORY, IN CONNECTION WITH THE FURNISHING, PERFORMANCE OF USE OF THE PRODUCT.

IN NO EVENT SHALL OUR AGGREGATE LIABILITY FOR ANY CLAIM RELATED IN ANY WAY TO A PRODUCT EXCEED THE PURCHASE PRICE OF THE PRODUCT.

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