



**TCmini**<sup>TM</sup>

## Quick Start Guide Found On Page 5

### Contents

General Safety Information .....	5
Intended Use.....	5
Safety Guide.....	5
Personal Safety and Clothing .....	7
Electric Shock Warnings.....	7
RF Exposure Warnings.....	10
TC Mini Profile .....	13
Quick Set-Up Guide .....	14
TC mini dimensions .....	16
Trailer Specs.....	17
Technical Support.....	19
Troubleshooting .....	18
Warranty.....	19

REVISION BLOCK

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	Original Release	02/15/2016	
1	Changed to reflect new static sign mounting location	04/11/15	<b>John H</b>

*TraffiCalm Systems products are built in an ISO9001 certified facility.*



ISO 9001

## **Liability Statement**

**Important Note: The TC Mini Trailer is not a safety device when deployed. TrafficCalm, its parent company, MOR Manufacturing, and its holding company, Arizona Transformer, along with their employees or owners shall be held harmless and will not be liable for any indirect, special, consequential, or punitive damages arising out of or relating to any traffic or other incident resulting in damage, injury, or death. This includes any type of TC Mini equipment malfunction whatsoever.**

## GENERAL SAFETY INFORMATION

This Owner's Manual provides general trailer information only and cannot cover all of the specific details necessary for the proper combination of trailer, tow vehicle and hitch. Therefore you must read, understand and follow the instructions given by the tow vehicle and trailer hitch manufacturers as well as the instructions in this manual.

We provide important safety information and warnings to assist you in understanding and avoiding potential harm to yourself, and possible damage to equipment during the transport and deployment of the TC Mini Display Trailer. Although we have included many potential hazards you may encounter during the assembly, transport or deployment of this equipment, we cannot predict all of the possible hazards and this list should not be a substitute for your judgment and experience.

**Please read and observe all safety information and instructions in this manual before assembling this trailer.**

If you are unsure about any part of this installation or of the potential hazards which are discussed, please contact TrafficCalm Technical Service immediately.

### Intended Use

The TC Mini is intended to provide the end user a mobile, cost effective traffic calming device deployment system.

### Safety Considerations

Please consider the following safety issues before servicing the TC Mini Display Trailer.

Although we have compiled this list of common safety considerations, it should not be considered as complete. It is not intended to take the place of your good judgment, training, and experience. Choose the right equipment for the job. If you are unsure of which safety equipment is recommended or appropriate for the job, ask your supervisor or contact TrafficCalm Technical Service Department.

 **DANGER** Use of a Tow Vehicle with a towing capacity less than the Gross Vehicle Weight Rating of the trailer can result in loss of control and may lead to death or serious injury. Be sure your hitch and tow vehicle are rated for the Gross Vehicle Weight Rating of this trailer.

 **WARNING** Driving too fast for conditions can result in loss of control and cause death or serious injury. Decrease your speed when going downhill or as road, weather, or lighting conditions deteriorate.

 **WARNING** Do not move the trailer until: The coupler is secured and locked to the hitch ball; the safety chains are secured to the tow vehicle and the trailer jacks are fully retracted.

Do not tow the trailer on the road until: The tires and wheels are checked; the trailer lights are connected and checked: all locking pins are in place on the mast and all movable and removable components are secured.

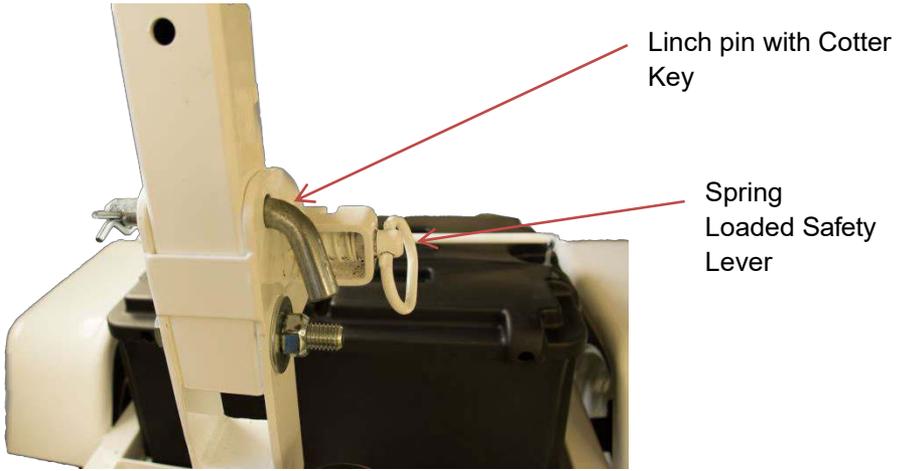
 **WARNING** Improper rigging of the safety chains can result in loss of control of the trailer and tow vehicle if the trailer uncouples from the tow vehicle. Fasten chains to frame of tow vehicle. Do not fasten chains to any part of the hitch unless the hitch has holes or loops specifically for that purpose. Cross chains underneath hitch and coupler with enough slack to permit turning and to hold tongue up, if the trailer comes loose.

 **WARNING** Improper tire pressure can result in a blowout and loss of control. Be sure tires are inflated to pressure indicated on the tire. Lug nuts are also prone to loosen after initial installation. Check lug nuts for tightness on a new trailer or when wheel(s) have been remounted.

 **WARNING** Improper electrical connection between the tow vehicle and the trailer will result in inoperable lights and electric brakes, and can lead to collision. Before each tow, check that the tail lights, brake lights and turn signals work.

 **WARNING** Wheel chocks must be used to prevent roll-away of the trailer during deployment.

 **WARNING** Linch pin and Cotter Key must be secured during deployment and during transport of the TC Mini trailer. The Spring Loaded Safety Lever must be engaged during transport, deployment and Assembly. If the Spring Loaded Safety Lever is not engaged, a collapse of the Articulating Mast may occur resulting in injury. **(See Figure 6.0)**



**(Figure 6.0) Solar Mast Locking Devices**

## **Personal Safety Equipment and Clothing**

Personal safety equipment and clothing including high visibility vests, hard hats, gloves, electrical shock or electrocution protection clothing and equipment, safety shoes, safety glasses, face shields, goggles, and hearing protection devices are just some of the items available to you.

## **Electrical Shock Warnings**

As a trained installer of electrical equipment you are aware of the dangers associated with servicing electrical devices. Always be sure the power to the equipment, and all associated equipment, is turned off before beginning any procedure. Use the equipment, techniques, and procedures you learned during your training or apprenticeship or other electrical industry recognized safety procedures.

### **WARNING**

To reduce the risk associated with electric shock injury resulting from contacting high-voltage AC.

**-Turn OFF power before connecting wiring to the AC source.**

 **WARNING**

Batteries may produce an explosive gas under some conditions. This gas may easily 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 equipment and clothing**

 **WARNING**

To reduce the risk associated with electric shock injury resulting from contacting high-voltage AC.

- Turn OFF power before connecting wiring to the AC source.**

**Warning**

To reduce the risk of electric shock related injury resulting from contacting 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 certification to safely work on high voltage equipment.

Consult a Qualified Electrician.



## WARNING

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

**-Always use the recommended charging systems with this product.**



## WARNING

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.**



## CAUTION

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.**

## RF Exposure

This product uses devices that radiate RF energy in the course of normal operation. Always maintain a safe working distance from the display face of 20cm (8-inches) minimum, when display is powered.



## WARNING

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.**



## CAUTION

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 20cm (8-inches) from display face.**



## CAUTION

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.**



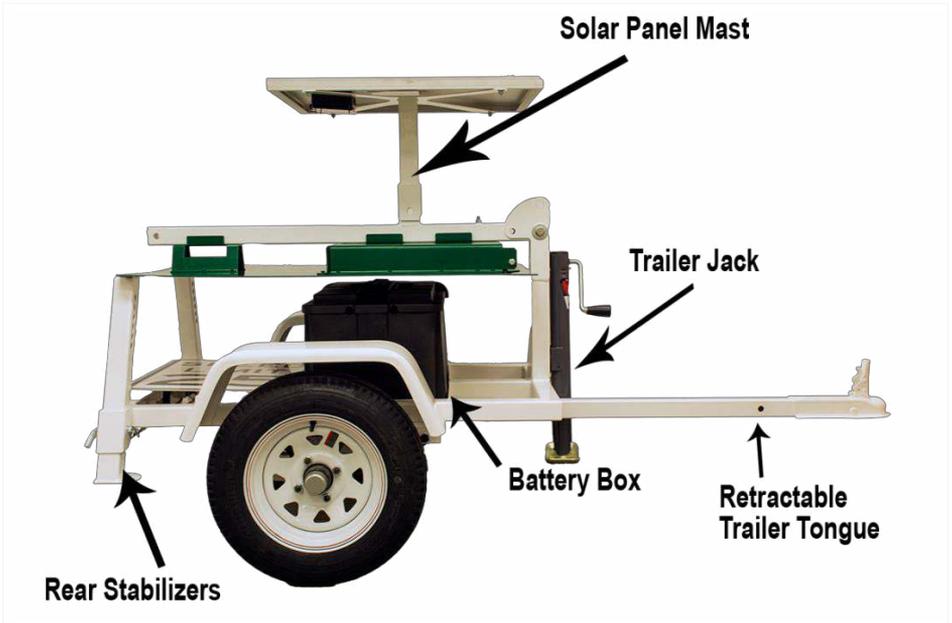
## WARNING

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

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

 **CAUTION**

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.**



**(Figure 1) TC Mini Profile**

## Quick Set-Up Guide

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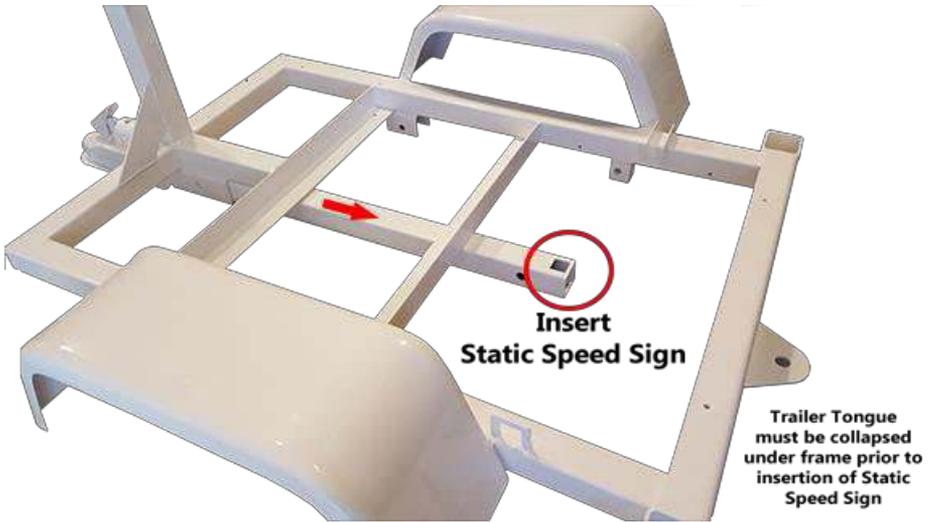
**Note:** Consideration should be given to mounting the TrafficCalm Driver Feedback Sign and making necessary connections **prior** to transport and deployment so as to minimize personal exposure to traffic.

Locate all of the listed parts for one kit:

- Articulating Mast
- Chains
- Solar Panel Mounting Bracket (If Ordered with Solar Kit)
- Trailer Tongue
- Battery Box
- Static Speed Limit Support
- Battery Box Locking Bar

### Trailer Set Up

1. Inspect trailer components.
2. Set wheel chocks.
3. Extend rear stabilizers
4. Raise trailer jack to desired height.
5. Collapse or remove Trailer Tongue.  
Trailer Tongue must be fully retracted under frame if Static Speed Sign is to be displayed. *(See Figure 2)*
6. Carefully extend Articulating Mast and secure with linch pin and cotter key. Ensure Spring Loaded Safety Lever snaps into locked position. *(See figure 6.0)*  
***Make sure Articulating Mast is completely secure prior to leaving unattended.***



**(Figure 2) Static Speed Sign Location**

### **3 Description**

TraffiCalm's Driver Feedback (DFB) signs are an effective tool in decreasing speeds in urban communities, on highways, in school zones, construction sites or special events. Now, with TraffiCalm's new **TC Mini Display Trailer**, traffic calming is even easier. A portable sign operating on solar power or batteries can be moved from place to place, collecting data about traffic that can be downloaded through a wireless Bluetooth connection. The trailer allows for DFB's to be quickly and easily deployed wherever needed.

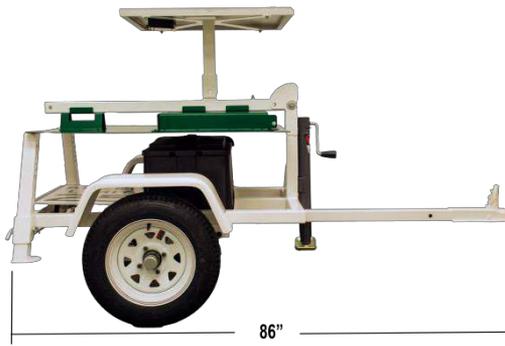
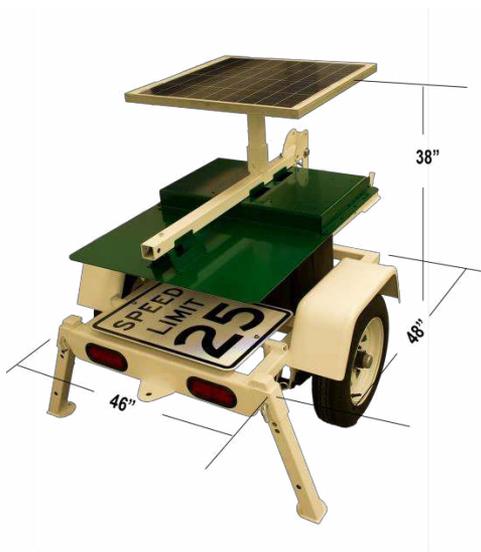


Figure 3: Trailer Dimensions

### 3.1 Trailer Specifications

#### General Dimensions

Weight: 328 lbs. With 150Ah Batteries (353 lbs. with Solar Option)

Size: Transport Mode: 46" X 48" X 38" tall (86" with tongue extended)

Deployed: 46" X 48" X 86" tall with solar mast extended

Tire Size: 14"

Finish: Powder Coat

### **Materials and Construction**

Basic Features: Steel Frame Chassis

Trailer Lights

Metal fenders

2" class II Ball Mount

Safety / Security: Meets DOT Regulations and requirements for safety and road worthiness.

Safety Chains

Ball hitch is stowed and secured when not towing. Hitch beam collapses and locks into trailer body or can be completely removed.

Stabilizers: 2 drop-down stabilizers that drop to the level of grade and are secured by pins.

1 hand crank stabilizer

### **Electrical**

Batteries: (2) 75Ah batteries

Each battery individually fused

Negative terminal of each battery is electrically common to the trailer chassis.

Cushioned battery mount.

Battery Box: Batteries are housed in a weatherproof battery box

Wiring: Wire is properly sized, rated 90 degree C minimum for wet locations and sunlight resistant.

Interconnecting cable and wires are routed through the frame or in conduit.

Installed Sign: Sign folds over battery box and rests on cushioned supports.

**Table 3-3. Solar Panel Specification**

<b>Rated Power (Watts)</b>	<b>60</b>
<b>Operating Voltage (Volts)</b>	<b>17.2V</b>
<b>Operating Current (Amps)</b>	<b>1.16A</b>
<b>Open Circuit Voltage (Volts)</b>	<b>21.6V</b>
<b>Short Circuit Current (Amps)</b>	<b>1.31A</b>
<b>Minimum blocking diode (Amps)</b>	<b>6A</b>
<b>Dimensions (Inches) Width, Height, Depth</b>	<b>14.06, 22.68, 1.18</b>
<b>Weight (lbs.)</b>	<b>6.17</b>

### **Troubleshooting**

The right knowledge combined with a systematic approach to the problem will result in an efficient and timely repair. Once the problem is identified, analyze why the failure occurred. If a maintenance issue led to the failure, include it in the next preventive maintenance trip to all of the systems. If a fuse blew, find out why instead of just replacing fuse after fuse. One small problem may be an indication of a larger problem about to happen. Fix problems before they happen whenever you can.

If needed, technical assistance is available by contacting your local partner or TrafficCalm Technical Service department at 1-855-738-2722. Technical service hours: 7:00 A.M. – 5:00 P.M. Pacific Standard Time, Monday through Thursday and 7:00AM to 12:00PM PST on Friday.



TrafficCalm Systems, a division of MOR Manufacturing, provides the following warranty for its traffic calming solutions whether sold directly by TrafficCalm or by an authorized TrafficCalm distribution partner.

## Warranty

- TrafficCalm Systems warrants the product, excluding batteries, will be free of defect in materials and workmanship for a period of three (3) years beginning on the day the end user receives the product. Warranty is only valid if the product is ineffective for its intended purpose due to defects in materials or workmanship.
- Warranty is only valid if the product is installed, operated and maintained in accordance with the manufacturer's instructions and recommendations (available upon request).
- TrafficCalm's sole responsibility, and the purchaser's and users' exclusive remedy, shall be that TrafficCalm will furnish replacements for defective parts.
- Replacement parts will carry the unexpired warranty of the parts they replace. Non warranty repairs are guaranteed for a period of 90 days.
- Claims made under this warranty will be honored only if TrafficCalm is notified of a failure within the warranty period, reasonable information requested by TrafficCalm is provided, and TrafficCalm is permitted to verify the cause of the failure.
- TrafficCalm assumes no liability for any incidental or consequential damages, in any way related to the product regardless of the legal theory on which the claim is based.

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.

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