

ATS 5 FLEX Mobile Power Trailer Quick Start



Thank you for purchasing an **ATS 5 FLEX Mobile Power Trailer**. This guide will show you how to set up your new trailer. Please follow all of the steps in order. The trailer is typically outfitted with an ATS SpeedAlert 24 Radar Message Sign or InstAlert 24 Variable Message Sign. Onboard equipment is powered by maintenance-free AGM lead acid batteries and either the 190W or 380W solar panel assist option. For TrafficCloud documentation, subscribers should refer to the *TrafficCloud User Guide*. On the TrafficCloud **Help** menu, click the **Getting Started Guides** link. Local Bluetooth access only customers with data-enabled signs should refer to the configuration sections of the *Quick Start Guides* for your signs, which include details about using TrafficCloud Sign Manager for Windows.

Initial ATS 5 FLEX Mobile Power Trailer setup

IMPORTANT: Review the *Safe Trailering Guidelines* on the next page and then perform the following setup steps:

Step 1: Inspecting and charging the trailer's batteries on page 4

Step 2: Hooking up the trailer on page 5

Step 3: Setting up at the roadside on page 6

Step 4: Powering the sign and third party devices on page 7

Step 5: Securing the trailer on page 8

After deployment, see *Packing up the trailer for redeployment* on page 8.



Check over the trailer

Upon receiving your new ATS 5 FLEX Mobile Power Trailer, check to ensure that you have all of the items ordered. If you notice any damaged or missing items, contact ATS [Customer Support](#) immediately.

Here's a summary of what's typically included with your trailer. Check your packing slip for precise order details.

What's included	What you'll need
<p>The ATS 5 FLEX Mobile Power Trailer includes the following:</p> <ul style="list-style-type: none">» The trailer, with four pairs of maintenance-free AGM lead acid batteries and either the 190W or 380W solar panel assist option,» Depending on the solar panel options selected, it will also include either a solar controller, and low-voltage disconnect to prevent deep discharging, running on a lower voltage than intended, or overcharging,» An additional locking battery box for expanded battery capacity, including third-party system equipment area with access panel and optional recessed camera compartment,» A SpeedAlert 18 or 24 Radar Message Sign or InstAlert 18 or 24 Variable Message Sign, or Shield 15 Radar Sign (sold separately).» A 12-VDC AC smart charger,» This <i>ATS 5 FLEX Mobile Power Trailer Quick Start Guide</i>. All setup and quick start (installation) guides are also posted to the ATS Customer Support page.	<ul style="list-style-type: none">» A vehicle equipped with a trailer hitch for towing a load of up to 1,500 lbs. (680 kg), including a standard hitch-mount with bracket for the safety chain, 2-inch (5-cm) ball, and flat, 4-way wiring socket. Other connection options are also available.» A heavy duty three-pronged outdoor-rated extension cord.» A partner for trailer hookup.» Legal licensing or registration as required for your <i>jurisdiction</i>.

For more details, consult the latest [ATS Trailers page](#) on our website.

Safe Trailering Guidelines

IMPORTANT: Carefully read and follow all instructions marked with warnings and cautions and read and follow all of the instructions in the quick start guides for your sign and trailer **BEFORE** you take your trailer on the road.

Warning symbols



WARNING: Warning symbols draw your attention to serious safety hazards, which can lead to injury, death, or damage to equipment.

Caution symbols



CAUTION: Cautions advise users of specific actions that could result in damage to equipment or loss of data.

Swaying



WARNING: Swaying is a moderate back and forth movement of a trailer behind a tow vehicle and can lead to dangerous whipping unless you slow down.

Whipping



WARNING: Whipping is the violent back and forth movement of a trailer behind a tow vehicle. Whipping can be caused by excessive speed for the driving conditions, turbulence, over-steering, passing vehicles, uneven roadways, or other issues. There is very little time to recover should whipping occur.



Combination disturbance



WARNING: A combination disturbance is swaying or whipping of a trailer AND the tow vehicle (the combination), caused by issues such as excessive speed for the driving conditions or load, turbulence, over-steering, passing vehicles, uneven roadways, or other issues.

Flat tire



WARNING: In the event of a flat tire, DO NOT BRAKE. Take your foot off the gas pedal, slow down to below 25 mph (40 kph), and drive to a safe location where you can stop and change the tire. If necessary, you may need to drive on the flat tire until you can stop safely.

Wheel off the roadway




WARNING: If a wheel goes off the roadway, DO NOT BRAKE. Take your foot off the gas pedal, turn on your hazard lights, and slow down to below 25 mph (40 kph). Then slowly steer back onto the roadway when it's safe to do so.

Towing checklist

Go over the following checklist before you go on the road:

Checklist item	What to do
Your tow vehicle	<p>Ensure the following:</p> <ul style="list-style-type: none"> » the tow vehicle is equipped with a suitable trailer hitch and the vehicle is properly maintained. Consult your vehicle manufacturer, an authorized repair facility, or hitch installation company. » The vehicle has adequate towing capacity for the trailer, with a load capacity of up to 1,000 lbs. (454 kg) for ATS-3 and ATS-5 trailers or 1,500 lbs (680 kg) for ALPR Camera-Ready Trailers and ATS 5 FLEX Mobile Power Trailers.
	<ul style="list-style-type: none"> » Consult the vehicle owner's manual for vehicle capacity and any other instructions. » Any modifications to the vehicle are approved for towing by an authorized dealer or inspector.

Checklist item	What to do
Trailer hitch	Ensure that the trailer hitch and ball are securely installed and suited to the tow vehicle. Ensure that the coupler and ball are fastened together securely.
Safety chains	Ensure that the safety chains are <ul style="list-style-type: none"> » crossed over under the tongue and hitch, » securely hooked to the tow vehicle, and » not dragging on the pavement.
	WARNING: Pay close attention to safety chain hookup and do not tow the trailer without the safety chains attached. If the trailer tongue becomes detached from the hitch ball while you are driving, properly attached safety chains can prevent a serious accident by supporting the tongue and keeping the trailer attached to your vehicle temporarily until you can come to an emergency stop.
Electrical harnesses	Ensure that the electrical harnesses are properly connected and the signal, tail, and brake lights are working.
Tires	Ensure that all tires on the tow vehicle and trailer are properly inflated. Consult the information on the tire sidewalls and your vehicle's door decal for inflation pressures.
Sign	Ensure that the upper frame (or mast in the case of ATS 3 Trailers), sign, and solar panel assembly are in the travel position, and secured with locking pins and tie downs (ATS 5 series trailers) parallel to the road (in the case of ATS 3 Trailers).
Loading	Never load cargo on the bed of the trailer.

Safe driving practices

Use the following checklist for safe driving practices with a trailer:

Checklist item	Best practice
Speed	<p>Slow down to avoid accidents and drive defensively. Drive slower than you would without a trailer. The maximum recommended speed with a trailer is 55 mph (90 kph).</p> <p>Anticipate slowdowns in traffic and stops and apply your brakes well in advance.</p> <p>Slow down for curves, road hazards, roadwork, and difficult weather conditions.</p> <p>Don't speed with the trailer. Driving at high speeds can result in sway and whipping if hazards are present. See Whipping on the previous page.</p> <p>Your towing vehicle and trailer combination has much higher mass and length than your vehicle by itself. Allow extra distance between your vehicle and vehicles ahead and allow extra distance for braking.</p>
Assisted driving	Avoid using cruise control, overdrive, and other assisted driving technologies while towing a trailer.
What to avoid	<p>Never drink or take drugs affecting alertness or sobriety and drive.</p> <p>Never text and drive or allow mobile devices to become distractions while you are driving. Pull over or wait for stops as needed to use them.</p>

Checklist item	Best practice
Passing and turning	Remember, your car and trailer combination is longer than your vehicle alone. Allow adequate extra space when passing vehicles or making sharp turns, such as in parking lots or gas stations. Be vigilant when passing or being passed by other vehicles. Passing vehicles can cause turbulence, leading to a combination disturbance.
For longer trips	Inspect the vehicle and trailer connections at each stop.
Difficult weather conditions	In difficult weather, adjust your driving for the conditions, allowing additional time and space between vehicles.
Backing up	If you need to back the trailer into position, practice beforehand, and have a partner assist you if necessary. Backing up with a trailer is a skill that can take time to learn.

Step 1: Inspecting and charging the trailer's batteries



CAUTION: Before deployment, use the smart AC charger to fully charge the batteries. Charging may take 24 to 48 hours with the extra battery option. The smart charger indicates the battery charge status during charging.

The batteries are one of the most important parts of the trailer. They consist of four pairs of maintenance-free AGM 6V deep cycle batteries wired together to deliver 12V. Each battery pair adds more power and capacity to the trailer. The batteries are wired in series and parallel, which doubles both capacity and voltage. A slow-blow fuse is installed between the batteries and the load to protect your devices.

Solar assist panels will extend your sign's run time. Assuming adequate sunlight conditions, trailers with solar assist that are equipped with ATS products will typically have an indefinite run time. Trailers equipped with third party products such as cameras or other equipment, however, will require AC recharging periodically. Running time will vary depending on the products installed.



CAUTION: Using batteries, cables, chargers or other components that do not meet All Traffic Solutions specifications may render the product warranty null and void.

To check battery charge levels:

Check the power level displayed using any of the following:

- » The TrafficCloud Equipment page or Dashboard,
- » The TrafficCloud Mobile app for Android,
- » On message signs, during the sign start up display sequence.
- » Once the smart charger is hooked up, check the charge indicator.

To charge the batteries:

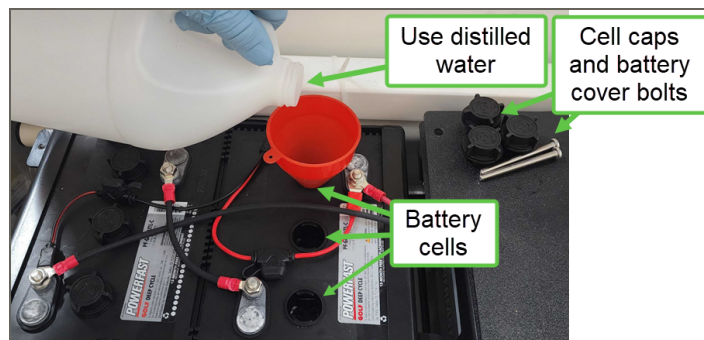
- A. Make sure the trailer is in a well-ventilated area and powered off. See [Step 4: Powering the sign and third party devices on page 7](#).
- B. Plug a heavy duty three-pronged outdoor-rated extension cord into the external AC plug on the battery enclosure and plug the other end into a power outlet.



To maintain flooded batteries:

For any ATS 5-series trailer with flooded batteries, battery electrolyte levels will need to be periodically monitored and added to if they get low. To do this:

- A. Make sure the trailer is powered off.
- B. Remove the battery storage box covers.
 - The second box has support bars at the top. Unlock the latches, lift the top of the box off, and set it aside. If the trailer is equipped with a round black cellular antenna on the battery box lid (as shown above), be sure to disconnect the three SMA (coaxial) connectors before removing the lid completely.
- C. Wearing PPE (gloves and protective glasses), remove the battery covers and cell caps.
- D. Inspect the electrolyte levels in each battery for any cells that are low or dry.
 - If any of the levels are low, add only enough distilled water to cover the internal plates. Then charge the batteries. Charging can take between 24 to 48 hours with the extra battery option. See [To check battery charge levels: on the previous page.](#)
- E. After charging, recheck the battery cells and add distilled water if necessary, but only to within 1/8-in. (25 mm) of the bottom rim.



Step 2: Hooking up the trailer

Use the instructions in this step for help with hooking up the trailer.

To move the trailer and vehicle into position for hookup:

- A. Move the trailer into position on a flat surface so that you can back your vehicle up to it.
- B. Lower all four jacks to securely support the trailer. Pull the locking pins and rotate the jacks to the deployed (vertical) position.
- C. Remove the locking pin from the tongue receiver tube (see photo on [page 8, top](#)).
- D. Remove the trailer tongue from storage inside the battery box and slide it into the receiver tube.
- E. Secure the trailer tongue in the receiver tube using the locking pin.
- F. Crank the front jack handle to lift the trailer until the coupler (1) is above the height of the hitch ball (2).
- G. Back the vehicle up to the trailer so that the hitch ball (2) is just in front of the coupler (1). If necessary, have a partner guide you or use a backup camera if it provides a clear view. When your vehicle is in position, shift into park, apply the parking brake, and turn off the engine.

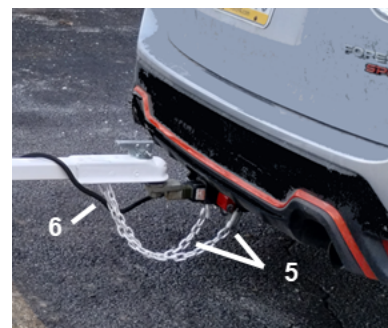


To lower the trailer onto the hitch:

- A. Crank the front jack down to lower the coupler (1) onto the hitch ball.
- B. Close the tongue latch (3) to secure the ball clamp (4) around the ball.

CAUTION: Ensure that the ball clamp is securely wrapped around the ball. If necessary, release the tongue latch and reposition the tongue on the hitch ball, or adjust the ball clamp with a wrench.

- C. Optionally, lock the tongue latch with a padlock (not included).
- D. Crank all four jacks back up, then pull the locking pins, rotate them up to the travel position (horizontal), and secure them in place.
- E. Attach the trailer safety chains (5) to the hitch frame, crossing them under the tongue and looping the S-hooks back onto the chain. Leave enough slack in the chains to allow for cornering, but make sure they don't drag on the roadway.
- F. Connect the wiring harnesses (6).
- G. Test to ensure that the trailer signal lights, taillights, and brake lights are functioning properly. Work with a partner if necessary.
- H. Inspect the hitch connections to ensure that the trailer hookup is complete, and then proceed to the next step. Once all preparations are completed, you're ready to take to the road.



WARNING: Pay close attention to safety chain hookup and do not tow the trailer without the safety chains attached.

If the trailer tongue becomes detached from the hitch ball while you are driving, the safety chains can prevent a serious accident by supporting the tongue and keeping the trailer attached to your vehicle temporarily until you can come to an emergency stop.

Step 3: Setting up at the roadside

Use the instructions in this step for roadside trailer setup and aiming of the sign.

To set up the trailer at the roadside:

WARNING: RISK OF ACCIDENT, INJURY OR DEATH. Do not obstruct the roadway: Always choose a location for the trailer that is far enough away from moving vehicles so as not to interfere with passing traffic or put personnel at risk. When possible, the trailer should be placed off the shoulder, behind barriers or traffic cones. Before you start towing, remember to read [Safe Trailing Guidelines on page 2](#).

- A. **Tow the trailer to your chosen location:** Ensure that the surface is stable. To enhance accuracy and visibility, position the trailer so that the sign will be visible to motorists, yet the trailer is off the shoulder.
- B. **If you need to back up:** Hold one hand on the bottom of the steering wheel and move your hand left to turn the trailer to the left. To turn the trailer right, move your hand to the right. If the trailer turns the wrong way, pull ahead until the vehicle and trailer are in a straight line and start again.
- C. **Aim the sign:** Point the sign as directly as possible towards the traffic lanes you want to monitor, making sure there are no obstructions.

For setup instructions for third party equipment, please refer to the documentation included with your devices.

- D. **Deploy all four jacks:** Park the trailer, then stabilize it with the jacks. Rotate all four jacks down from the travel position and crank them up until the trailer wheels lift off the ground, as shown in [Step 2: Hooking up the trailer on the previous page](#).



To unhitch the trailer:

- A. Disconnect the wiring harness.
- B. Unhook the safety chains, and hook them back on the trailer.
- C. Open the tongue latch.
- D. Using the front jacks or by hand, lift the trailer off the hitch ball.
- E. Move the tow vehicle away from the trailer.

Positioning the solar panel or panels

Use these steps to position the solar panel (or panels) **before you raise the trailer's upper frame**. Remember to avoid installations in the shade.

To unfold the solar panels:

- Pull out the locking pins on either side of the solar panel(s).
- Slide out the second panel.
- Rotate the panel(s) to the ready-to-raise position as shown at right, and replace the locking pins.



Raising the trailer's upper frame

Follow the steps below to raise the trailer's upper frame. On trailers with the 380-watt panels, the lift assist shocks under the panels will help to raise them.

WARNING: RISK OF CAPSIZING. As mentioned above, before you raise the trailer's upper frame, make sure that all four jacks are down at least far enough to prevent capsizing.



- Remove the lifting handle from its storage position inside the battery box.
- Slide the lifting handle into the lifting mount, and secure the handle into the mount using the supplied locking pin.
- Open the rubber tie-down (see page 9), and pull the two locking pins holding the upper frame in the down position.
- Pull down on the lifting handle, raising the trailer's upper frame until the solar panels lift fully into position, parallel to the ground, as shown on page 1. This is the recommended position for solar charging in any location.
- Replace the locking pins to secure the frame in place.

Step 4: Powering the sign and third party devices

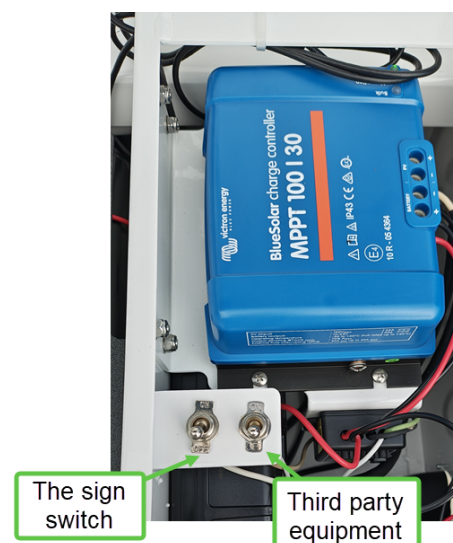
Here's how to power the sign and your third party devices on or off.



NOTE: Make sure you charge the sign batteries before initial deployment. See [Step 1: Inspecting and charging the trailer's batteries](#) on page 4. For details about sign setup, refer to the *Quick Start Guide* included with your sign and available on the [Customer Support](#) page or visit the [Training Hub](#).

To power the sign and third party devices:

- Unlock and open the main battery box compartment to access the power switches.
- Flip the sign power switch on the left inside the battery box to the ON or OFF position, as required.
- To power on or off your third party devices, flip the second toggle switch to the ON or OFF position.

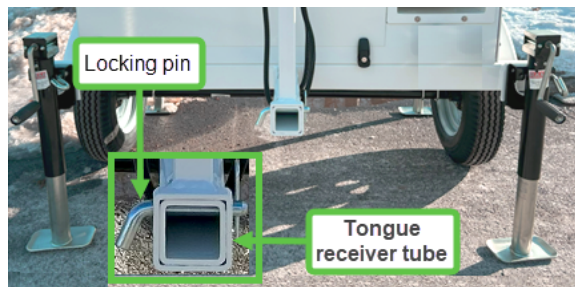


Step 5: Securing the trailer

Use the steps in this section for help with securing the trailer. The trailer wheels come with pre-installed locking lug nuts (wheel locks). The key should be in the battery box.

To secure the trailer:

- A. Make sure the trailer wheels are off the ground and the four jacks in position, as shown in [Step 2: Hooking up the trailer on page 5](#).
- B. Pull the locking pin from the lifting handle and remove the handle from the trailer.
- C. Secure the lift handle inside the battery box.
- D. Remove the locking pin securing the trailer tongue inside the tongue receiver tube.
- E. Remove the trailer tongue from the tongue receiver and secure the locking pin back in place.
- F. Secure the trailer tongue inside the battery box.
- G. Close and lock the battery boxes to prevent tampering and the trailer will be ready for use.



Packing up the trailer for redeployment

Use the steps in this section for help with packing up the trailer to move it to another location.

 **WARNING: RISK OF CAPSIZING.** Leave all four jacks down at least far enough to prevent capsizing until you complete this procedure.

- A. Power down the sign and onboard equipment. See [Step 4: Powering the sign and third party devices on the previous page](#).
- B. Unlock the battery box where the trailer tongue and lift handle are stored and open the lid.
- C. Place the trailer's upper frame and solar panels in the folded travel position as follows:
 - i. Remove the lifting handle from storage inside the battery box.
 - ii. Slide the lifting handle into the lifting mount.
 - iii. Secure the handle in the mount using the locking pin.
 - iv. Pull the two locking pins holding the upper frame in the upright position.
 - v. Next, lower the upper frame.
 - vi. Once the upper frame is folded down to the travel position, replace the locking pins to secure the frame in place and attach the rubber tie down (as shown next page) on the front.
 - vii. Rotate the solar panel into the travel position.
 - viii. If you have a 380W trailer, slide the second solar panel back into the travel position and secure it with the locking pins.



- D. Remove the locking pin from the tongue receiver tube (see photo [on the previous page](#))
- E. Remove the trailer tongue from the battery box and slide it into the receiver tube.
- F. Secure the tongue in the tongue mount using the locking pin.
- G. Secure or remove any third party equipment as needed for safe transportation.
- H. Hook up the trailer to your tow vehicle for transport, as shown with an ATS 5 Trailer below, and detailed in [Step 2: Hooking up the trailer on page 5](#). Make sure you follow all of the steps in order.
- I. **REMINDER:** Before you tow the trailer to its next location, crank the four jacks up, rotate them to the horizontal, stowed position (as shown), secure them in place, and make sure all connections are safe.



Contacting Customer Support

For support for your All Traffic Solutions products,

- visit the Customer Support page at <https://www.alltrafficsolutions.com/support/>,
- send email to support@alltrafficsolutions.com, or
- call 1-866-366-6602, Option 2 anytime between 8:00 a.m. and 6:00 p.m. Eastern Time, Monday to Friday.



Technical documentation and training

Contact Customer Support to discuss your TrafficCloud training options. For online training resources, please visit our **TrafficCloud Training Videos Hub** at <https://flow.alltrafficsolutions.com/hub-training-video-trafficcloud-0-0-0-0->, or scan the QR code:



Appendix A: Wiring diagrams

Use the diagrams below if you need additional information about component design.

