

WT2250 Locator Install Guide

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Introducing the WT2250 Locator

The WT2250 locator is BSM Technologies' premier trailer tracking solution. It is an IP66 rated device (rainproof) that can be installed on the exterior of the trailer, and can be connected to accessories that monitor telemetry, trailer temperature, or more complex trailer systems. The WT2250 has an internal battery but operates primarily off of trailer power.

Features

The WT2250 locator is a relatively simple locator meant to track the location of the trailer and can be used to record data from the trailer, such as the status of door lights, or (with the correct accessories) the trailer's internal temperature. It is IP66 rated, so it can be installed on the exterior of the trailer.

- The housing is rainproof, so the locator can be mounted on the exterior of the trailer
- All antennas are internal, meaning there are no connections to break and no antenna wiring is required.
- Flexible and configurable monitoring options enable the locator to connect to accessories that monitor door status, temperature, and more.

Safety Precautions

General Safety Precautions

- Do not install or operate a locator in areas where explosive atmospheres may be present.
- Do not install a locator in any vehicle that is powered by liquefied petroleum gas or governed by petrochemical regulations without additional operational safety precautions being taken.
- Do not install a locator near life support or other sensitive equipment that may be affected by radio transmissions. If required, consult the equipment manufacturer for guidance.
- Consult vehicle manufacturer guidelines regarding disconnecting the vehicle battery or when making supplementary electrical connections.
- Remove or cover any jewelry when working on live electrical systems.

Secure Your Equipment

Installers must follow OSHA regulations for working on equipment (vehicle, trailers, or containers), suspended slings, hoists, or jacks.

Whenever the equipment is parked, the parking brake must be engaged. In addition, if the equipment is parked on an incline, the wheels must be chocked as well.

Equipment which is suspended or held aloft by slings, hoists, or jacks must be blocked or cribbed to minimize the risk of falling or shifting while employees work underneath.

Electrical Wiring Safety Precautions

- Do not test electrical circuits using a test lamp. Instead, use a high impedance multimeter with both voltage and resistance ranges.
- Be sure to crimp the connectors properly using a correctly sized crimp tool. Confirm that the physical connection is solid.
- Solder the wire to the crimped connection.

- Check for accidentally cut wires. These can damage vehicle wiring or devices, and can also cause a fire.
- Tape or heat-shrink all wire cuts so there is no risk of shorting or corrosion.
- If a splice is needed, strip away a small portion of the insulation, solder the wires, and reinsulate them using electrical tape. Secure the electrical tape with a zip tie.

Installing the WT2250

The WT2250 is an IP66 rated device that is designed to be mounted on the exterior of a trailer. The complexity of the installation depends on whether any accessories need to be connected to the device, but at its most basic, the installation is a short process that requires you to drill one hole and make a few electrical connections.

NOTE: Please read the [Safety Precautions](#) section of this guide before installing the WT2250.

WT2250 Kit Contents

IMPORTANT NOTES: DO NOT disassemble the WT2250 in the field, as this will void your warranty. The unit must be returned for ALL repairs, including SIM card replacement. For more information, see the [Returning the Locator](#) section of this guide.

DO NOT pressure wash the WT2250. It is only IP66 rated, so pressure washing can cause water ingress.

The WT2250 kit includes:

- WT2250 locator with attached cable:



- Two mounting bolts



TIP: Using your own self-tapping screws instead of the supplied mounting bolts can make the installation faster when installing to the exterior of a trailer.

Installation without a Temperature Probe

The following procedure describes a basic WT2250 installation on a trailer.

Tools and Materials

You will require the following tools and materials to install the locator:

- Wire cutters and wire strippers
- Socket set
- Soldering iron and solder
- Power drill with ½" drill bit and driver bits
- 10A fuse and fuse holder
- Grommets
- [Optional but recommended] Self-tapping screws, #12, ¾"
- Heat shrink
- Electrical tape
- Silicone sealant
- Tie wraps
- Ring terminals
- Dielectric grease

Procedure

1. Record all pertinent trailer and locator information before starting the installation, such as the locator's serial number, trailer type, and so on.
2. The WT2250 is rainproof, so it can be installed virtually anywhere on the exterior of the trailer. However, to simplify the wiring procedure and reduce the risk of damage, we recommend mounting the locator beside the trailer nose cone. Find a suitable location beside the nose cone, close enough that the locator cable can easily reach it. Note that you can cut the locator cable to length as needed. Clean the selected location of dirt and grease.



3. Secure the locator to the trailer using either your own self-tapping screws (recommended), or drill holes in the side of the trailer and use the supplied mounting bolts. Note that the locator sheds water

best when mounted with the cable facing downward.

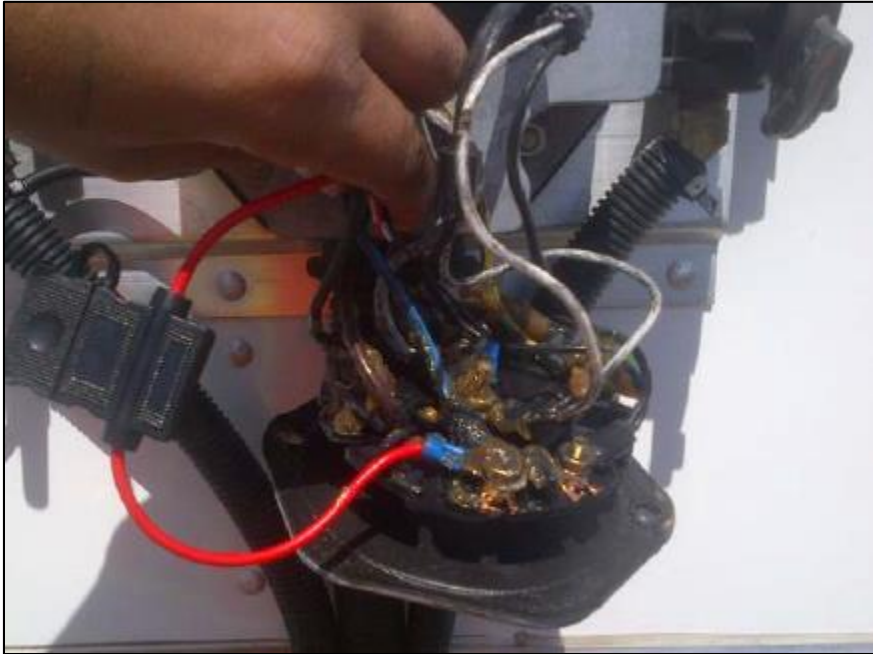


4. Remove the face plate from the trailer nose cone to access the wiring inside the J560 connector.
5. The WT2250 cable must pass through the nose cone housing in order to connect to the trailer wiring. Drill a hole in the nose cone housing, either through the bottom or side nearest to the mounting location. Do not drill through the top, as this increases the likelihood that water will enter the nose cone.
6. Insert a grommet into the hole.



7. Pass the WT2250 cable through the hole from the outside.
8. In order to protect the locator and the vehicle systems, the WT2250 power wires should be fused. Solder the locator cable's **red** (primary power) and **white** (ignition) wires together, and solder this connection to the fuse holder. Insulate the connection.
9. Add a ring terminal to the other end of the fuse holder.
10. Insert a 10A fuse into the fuse holder. Secure the fuse holder cover with a tie wrap.
11. Add a ring terminal to the end of the locator cable's **black** (ground) wire.
12. Secure the fused ring terminal to the back of J560 connector PIN 7.
13. Secure the **black** wire ring terminal to the back of J560 connector PIN 1.

14. Apply dielectric grease to the connections to reduce possible corrosion.



15. Clip or tie back loose locator wires. Insulate the ends to prevent unintended connections and potential damage to locator electronics.
16. Stuff the wiring into the nose cone and replace the nose cone face plate.
17. If possible, use tie wraps to tie the locator cable to any available holds. Create drip loops to reduce the chance of water intrusion.
18. Seal the hole you drilled with silicone sealant. Apply sealant from the inside of the hole for the cleanest appearance.



Verification

Once the locator is installed, you must verify that it is working. Part of this process requires you to call technical support and have them perform some checks, as only they have the tools to determine if the locator is functioning at certain levels.

1. Supply power to the trailer. Connect the trailer to a vehicle and turn on vehicle ignition.
2. Once power is supplied to the trailer, check the LEDs on the locator. When first powering up, the **orange** and **yellow** LEDs should blink. Wait a minute or two for the **orange** and **yellow** LEDs to go solid.



- If neither LED lights up, it is most likely that the locator is not receiving power. Check the trailer power and locator wiring.
 - If the **orange** LED will not go solid, you may be outside of cellular network coverage. Confirm that you have network coverage at the install location.
 - If the **yellow** LED will not go solid, you may be out of GPS coverage. Move the vehicle into an area with better coverage, ideally with a clear view of the sky.
3. Upon seeing both LEDs solid, call technical support for an install check. Do not remove trailer power. Technical support will confirm if the locator is operating correctly. Note that the name of the trailer within the BSM system will be the locator serial number; you can request that technical support change the trailer name while on the call, if desired.
 - The trailer can be renamed at a later date as needed, but if you choose to rename later, it will be your responsibility to record which locator serial number is associated with each trailer.
 4. Once the install check is complete, turn off the vehicle ignition, replace any vehicle panels that were removed, and clean up the installation area.

Installation with a Temperature Probe

The WT2250's integrated 1-wire feature supports the installation of a temperature probe to monitor the trailer's internal temperature.

Tools and Materials

You will require the following tools and materials to install the locator:

- Temperature monitoring kit
- Wire cutters and wire strippers
- Socket set
- Soldering iron and solder
- Power drill with ½" drill bit and driver bits
- Two 10A fuses and fuse holders
- Extension wires
- Grommets
- [Optional but recommended] Self-tapping screws, #12, ¾" for mounting the locator, smaller for eye-straps
- Heat shrink
- Electrical tape
- Silicone sealant
- Tie wraps
- Ring terminals
- Eye-straps
- Dielectric grease

Mounting the locator

1. Record all pertinent trailer and locator information before starting the installation, such as the locator's serial number, trailer type, and so on.
2. Remove the refrigeration unit shell and locate the refrigeration unit battery.
3. The WT2250 is rainproof, so it can be installed virtually anywhere on the exterior of the trailer. However, some locations are better than others. The refrigeration unit on the front of the trailer offers new opportunities and restrictions.
 - Do not mount the locator directly below the refrigeration unit, as its bulk may interfere with the locator's GPS reception.
 - If the refrigeration unit has a fiberglass shell, you can mount the locator on the trailer wall inside the refrigeration unit, as the shell will protect the locator from weather and damage. However, **do not** mount the locator inside a metal-shelled refrigeration unit as this will interfere with GPS reception.
 - If there is no space inside the refrigeration unit, or if the unit has a metal shell, mount the locator on the trailer front wall to the side of the refrigeration unit nearest to the refrigeration unit's battery. Note that you can cut the locator cable to length as needed.
 - In any case, clear the selected location of dirt and grease.

4. Secure the locator to the trailer using either your own self-tapping screws (recommended), or drill holes in the side of the trailer and use the supplied mounting bolts. Note that the locator sheds water best when mounted with the cable facing downward.

Wiring the locator power

1. Remove the face plate from the trailer nose cone to access the wiring inside the J560 connector.
2. An extension wire from the locator must pass through the nose cone housing in order to connect to the trailer wiring. Drill a hole in the nose cone housing, either through the bottom or the side nearest to the mounting location. Do not drill through the top, as this increases the likelihood and water will enter the nose cone.
3. Insert a grommet into the hole.



4. Run the WT2250 cable to the refrigeration unit battery.
5. In order to protect the locator and the vehicle systems, the WT2250 power wires should be fused. Solder a fuse holder to the WT2250 cable's **white** (ignition) wire, and then solder an extension wire to the other end of the fuse holder. Insulate the connections.
6. Solder a fuse holder to the locator cable's **red** (primary power) wire. Insulate the connection.
7. Add a ring terminal to the other end of the **red** (primary power) wire fuse holder.
8. Inserts 10A fuses into both fuse holders. Secure the fuse holder covers with tie wraps.
9. Add a ring terminal to the end of the locator cable's **black** (ground) wire.
10. Secure the **red** (primary power) ring terminal to the refrigeration unit battery positive terminal.
11. Secure the **black** (ground) ring terminal to the refrigeration unit battery negative terminal.
12. Run the **white** (ignition) extension wire out and along the bottom of the refrigeration unit, and drop it to the nose cone. Ensure that the fuse remains inside the refrigeration unit shell. Secure the extension wire with tie wraps wherever possible.
13. Run the extension wire into the nose cone through the hole you drilled.
14. Add a ring terminal to the end of the extension wire.
15. Secure the extension wire to the back of J560 connector PIN 7.
16. Use eye-straps and self-tapping screws to secure the dropped extension wire to the trailer wall between the refrigeration unit and nose cone.
17. Apply dielectric grease to all ring terminal connections to reduce possible corrosion.

Wiring the temperature sensor

1. On the inside of the trailer, locate the factory temperature sensor (the sensor used by the refrigeration unit).
2. Use eye-straps to mount the temperature probe to the trailer interior wall as close to the factory temperature sensor as possible (to minimize temperature discrepancies).
3. Run the temperature probe wires through the trailer wall to the locator cable.
 - You can run the wires through the refrigeration unit cable pass, or drill a new hole. If you drill a new hole, add a grommet to the hole.
 - Secure the wires with tie wraps or eye-straps wherever possible. You may find it useful to run the wires along the factory temperature sensor cable.
 - Add extension wires as necessary. Solder and insulate connections.
4. Connect the **blue** wire from the temperature probe to the **white/black** (1BB) wire of the WT2250 cable. Solder and insulate the connection.
5. Connect the **brown** wire from the temperature probe to the **black** (ground) wire of the WT2250 cable. Solder and insulate the connection. Alternatively, add a ring terminal and secure the wire to the refrigeration unit battery negative terminal.

Cleanup

1. Clip or tie back loose locator wires. Insulate the ends to prevent unintended connections and potential damage to the locator electronics.
2. Stuff the wiring into the nose cone and replace the nose cone face plate.
3. Wherever possible, use tie wraps to tie the locator cable and any other wires to any available holds. Create drip loops to reduce the chance of water intrusion.
4. Seal any holes you drilled with silicone sealant. For the nose cone hole, apply sealant from the inside for the cleanest appearance.

Verification

Once the locator is installed, you must verify that it is working. Part of this process requires you to call technical support and have them perform some checks, as only they have the tools to determine if the locator is functioning at certain levels.

1. Supply power to the trailer. Connect the trailer to a vehicle and turn on vehicle ignition.

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3. Upon seeing both LEDs solid, call technical support for an install check. Do not remove trailer power. Technical support will confirm if the locator is operating correctly. Note that the name of the trailer within the BSM system will be the locator serial number; you can request that technical support change the trailer name while on the call, if desired.
 - The trailer can be renamed at a later date as needed, but if you choose to rename later, it will be your responsibility to record which locator serial number is associated with each trailer.
 4. Once the install check is complete, turn off the vehicle ignition, replace the refrigeration unit shell and any panels that were removed, and then clean up the installation area.

Appendix

Locator Wiring Specifications

| Color | Label | General Description | Usage | V _L (ensure off) | V _H (ensure on) | V _{max} | I _{max} |
|-------------|---------|--|---------------------------------------|-----------------------------|----------------------------|------------------|------------------|
| Black | GND | Ground | Ground | n/a | n/a | n/a | n/a |
| Red | Vcc | Primary power | Vehicle battery constant | <9V | >9V | 30V | 500mA/130mA** |
| White | IN-0 | Ignition | Vehicle battery ignition switched | <1.5V | >3V | 30V | 1.5mA |
| Green | OUT-0 | Output 0: starter disable relay driver | Unsupported | - | - | - | - |
| Blue | IN-1 | Digital input 1 | Input to detect ground (Io) condition | <3V | >5V (or open circuit) | 30V | 1.5mA |
| Orange | IN-2 | Digital input 2 | Input to detect ground (Io) condition | <3V | >5V (or open circuit) | 30V | 1.5mA |
| Brown | OUT-1 | Digital output 2 | Unsupported | - | - | - | - |
| Yellow | OUT-2 | Digital output 2 | Unsupported | - | - | - | - |
| Green/Black | SER_OUT | Serial output | Unsupported | - | - | - | - |
| Blue/Black | SER_IN | Serial input | Unsupported | - | - | - | - |
| White/Black | 1BB | 1-bit bus data line | Temp probe installations only | Per probe | Per probe | Per probe | Per probe |
| Pink | ADC | Analog to digital converter input | Unsupported | - | - | - | - |

Status LEDs

Comm (Orange)

| Orange LED status | Meaning |
|-------------------------------------|--|
| Off | Modem is off |
| Blinking slowly | Modem is on and searching |
| Blinking quickly | Network found |
| Alternating slow and quick blinking | Registered but waiting inbound acknowledgement |
| Solid | Connected |

GPS (Green)

| Yellow LED status | Meaning |
|-------------------|-------------------|
| Off | GPS off |
| Blinking slowly | GPS on but no fix |
| Blinking quickly | Syncing with GPS |
| Solid | GPS fix obtained |

Support Information

Contacting Technical Support

If you have any questions, please contact the BSM technical support team at:

- **Email:** support@webtechwireless.com
- **Phone:** +1-604-419-8163
- **Toll Free (US/Canada):** +1-866-945-4568

Technical support hours of operation:

- Monday – Friday: 6:00 am – 5:00 pm PST
- Saturday: 8:00 am – 4:30 pm PST

Returning the Locator

IMPORTANT NOTE: DO NOT disassemble the WT2250 in the field, as this will void your warranty. The unit must be returned for ALL repairs, including SIM card replacement.

If you have a non-functional locator, contact technical support. They will guide you through the process of returning it. Ideally, return the locator in its original box. If the original box is not available, ensure that whatever packaging you use is robust enough to keep the locator safe in transit.

Technical support will provide an RMA number, which is critical for returning the locator. Be sure to print the RMA number prominently on the return packaging. Locators returned without an RMA number cannot be processed as returns.