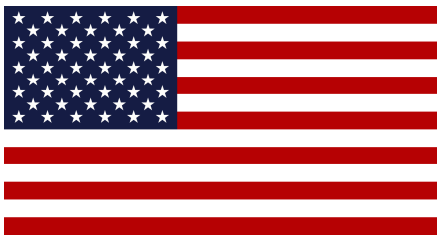
MTN LITEbar

mtnlitebar.com

Owner's Manual

6/12/18/30/50 Inch LITEbar Series

Designed, assembled, and tested in the USA



Patent Pending

Rev. 01d

Introduction

Thank you for choosing the **MTN** LITEbar! We have invested thousands of hours in developing and testing the revolutionary Patent Pending **MTN** LITEbar system. At **MTN**, we personally use all the products we sell, so we are confident in their performance and value.
If you have any issues with our products, please contact us. We want you to have a great experience!
Sincerely,
The **MTN** LITEbar / **MTN** Electronics Team
mtnlitebar.com —- support@mtnlitebar.com

Table of Contents—By Page

Packing List

The following should be present in your package:

- 1x **MTN** LITEbar Body
- 1x **MTN** LITEbar Converter w/ (4) 5/8"x 1/4-20 Screws Pre-Installed
- 1x 7-Wire Extension Cable, Pre-Terminated (unless not selected)
- 1x Waterproof Switch Assembly
- 1x Battery Cable w/ Inline Fuse
- 2x M6x30mm Bolts w/ 2x Flat Washers (Threadlock Pre-Applied)
- 2x M8x50mm Bolts w/ Nuts (Threadlock Pre-Applied)
- 2x Mounting Brackets
- 2x Rubber Mount Insulators
- 10x Zip-Ties
- 1x Owner's Manual
- 4x **MTN** LITEbar Stickers

Tools Required

- 3mm Allen Wrench
- 13mm End Wrench or Socket
- #1 / #2 Philips Screwdriver
- 5/16", 15/32", and 1/2" Drill Bits & Drill
- Wire Stripper
- Wire Crimper
- Lighter / Hot Air
- Marking Tool (permanent marker, paint stick, etc.)

Before You Begin / Important Safeguards

Before You Begin

Before you begin, please ensure that you have read and understand all of the instructions contained in this manual, and that you have all of the required parts and tools (see "Packing List" and "Required Tools" on Page 1). **You will want to first mount the components, *then* route and hook up the wires.**

Important Safeguards

Because you will be working on your vehicle's electrical system and drilling holes, it is absolutely necessary to observe the following precautions:

- **ALWAYS** wear safety glasses, especially when drilling holes.
- **ALWAYS** disconnect your vehicle's battery before beginning any work. Start by disconnecting the *positive* cable first, followed by the negative cable. When reconnecting the cables, connect the positive cable first, followed by the negative.
- **MAKE SURE** that all wires and cables are free and clear of moving parts, and that no cables rub against sharp surfaces that will potentially abrade the cable/wire insulation, causing a short circuit. A short circuit may lead to fire or other damage.
- **MAKE SURE** that all of the connections are correct before applying power to the unit (see instructions on pp.4-5).

1. Mounting the LITEbar, Switch, and Converter

Properly mounting the LITEbar and converter is essential for proper function and longevity. The majority of damage to vehicle mounted light bars in general is caused by excessive vibration due to loose or incorrect mounting. We have pre-applied a dry friction threadlocking compound to all of the fasteners, so once they are installed correctly they will stay tight. This threadlocking compound will allow the fasteners to be removed 3-5 times before more compound needs to be applied; *if you remove or loosen the fasteners more than 3-5 times it may be necessary to apply additional threadlocker.*

Threadlocker Pre-Applied

i. Picking a Suitable Mounting Location

When picking a suitable mounting location for the LITEbar and converter, it is important to consider the following factors:

1. LITEbar:
   - Is the location *strong enough* to support the LITEbar and free of *excessive vibration*? **Excessive vibration will destroy the LITEbar.**
   - Does the location give a good viewing angle? Generally, a higher viewing angle (farther from the ground) is preferable to a lower viewing angle because at a higher viewing angle you get less road glare.
   - Does the location provide adequate airflow? Although the LITEbar has built-in temperature protection, more airflow is always better.

2. Converter
   - Is the location *strong enough* to support the converter and free of *excessive vibration?* **Excessive vibration will destroy the Converter.**
   - Is the location away from heat sources such as the engine exhaust system and rear of the radiator (within the direct stream of airflow)? **Excessive environmental heat may lead to early failure.**

2. Mounting the LITEbar, Switch and Converter (continued)

ii Mounting the LITEbar

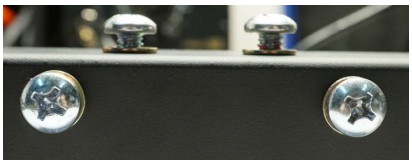
1. Pick a suitable mounting location (see p.2).
2. Mark and drill the holes.

- **2a.** Mark your two mounting holes. The best way to do this is to mount the brackets on the LITEbar, position it in place, then mark the holes. You should fully tighten the bracket mounting screws on the LITEbar before making your measurement.
- **2b.** Using a 5/16" drill bit, drill the two mounting holes. **WEAR SAFETY GLASSES!**

3. Install the fasteners.

- **3a.** Place the rubber isolation pad between the mounting bracket and mounting surface. The isolation pad's hole is drilled offset, so ensure that it is in the correct orientation.
- **3b.** Using a 13mm wrench or socket, install and tighten the included bolt and nut. The correct tightness is achieved when the rubber begins to slightly squish and is snug, but not so much that the rubber begins to deform excessively (see picture, below). *Over tightening the fasters may distort or destroy the rubber isolators.*

Side Mount—~1.2" Spacing



Bottom Mount—~2.4" Spacing

iii. Mounting the Converter

1. Pick a suitable mounting location and orientation (see p.2). The converter has two possible mounting orientations: side or bottom. Pick the one that suits your location best. You may either drill and mount the converter to a fender or existing bracket, or you may have to fabricate your own bracket. Either way, you must ensure that the converter is securely mounted.
2. Mark and drill the holes.

- **2a.** Mark your two mounting holes. There are two different hole center distances depending on whether you mount the converter using side or bottom threads. For the bottom threads, the spacing is approximately 1.2"; for the side threads the spacing is approximately 2.4".
- **2b.** Using a 3/8" drill bit, drill the mounting holes. **WEAR SAFETY GLASSES!**

3. Install the screws. The screws should be tight.

- The included 1/4-20 screws are 7/8" in length, and can be used safely to mount through materials from 1/16" (with washer) to 3/8" thickness.
- For mounting through a thicker material, you may need to use a slightly longer screw. In that case, be sure not to use a screw that is too long, as excessive insertion depth may damage internal electronic components.
- If mounting on thinner material, such as body sheet metal, a large fender washer may be necessary, both for spacing and to prevent pull through.

iv. Mounting the Switch

1. Pick a suitable mounting location. You want to mount the switch in a convenient location.
2. Mark and drill the holes.

- **2a.** Mark your mounting hole.
- **2b.** Using a 1/2" drill bit, drill the mounting hole. **WEAR SAFETY GLASSES!**

3. *DO NOT* mount the switch yet; you will not want to fully install the switch retaining nut until the wires have been connected and you are sure it is working correctly.

3. Wiring the LITEbar

Wiring the LITEbar is relatively simple, yet it is extremely important because if the LITEbar is wired incorrectly, damage may occur to the LITEbar. Additionally, if the wires are not routed or secured correctly and are then rubbed through, a short may occur, which may lead to vehicle damage or fire; therefore, it is *absolutely necessary* to take the time to properly route, shield, and secure all wiring. Use some zip ties, etc. to secure and protect the wires.

i. Routing the Wires / Cables

When picking a suitable wire route, it is important to consider the following factors:

1. Switch & Switch Cable

- Is the route far away from any heat sources? **Heat sources will melt the wire insulation, causing malfunction or short-circuit.**
- Is the route kept clear of any sharp edges? **Sharp edges will cut the wire insulation, causing malfunction or short-circuit.**

2. Battery Wires & Converter Extension Cable

- Is the route far away from any heat sources? **Heat sources will melt the wire insulation, causing malfunction or short-circuit.**
- Is the route kept clear of any sharp edges? **Sharp edges will cut the wire insulation, causing malfunction or short-circuit.**
- Is the route clear of sensitive devices, such as radio / audio antennas or power lines? While the converter is shielded by the aluminum box, the power wires may couple some interference if routed close to sensitive electronics or wires.

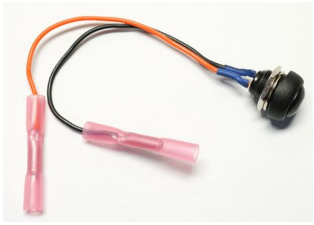
ii. Hook up Switch Wires

1. Strip the wires.

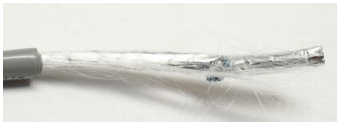
- **1a.** Pull the wires through the hole, then cut and strip back the insulation on the grey switch wire. Do not cut too deep and cut into inner the red or black wire insulation. You will want to remove approximately 1.5" of the outer grey insulation.
- **1b.** Cut and remove the excess silver insulating lining.
- **1c.** Strip approximately 1/8" of insulation from the ends of the black and red wires. Twist the silver wire together with the black wire.

2. Crimp the Wires and Shrink the Connectors.

- **2a.** Insert a wire end into the butt connector until it bottoms out, then crimp it securely using a quality crimping tool (pliers will not create a quality crimp due to spring back). Repeat until all wires are crimped.
- **2b.** Using a heat source, such as a hot air gun or lighter, shrink the butt connector ends to provide strain relief and some moisture resistance for the wires.



Switch Assembly



Outer Insulation Removed

Black/Silver Wires Twisted & Insulation Removed

Wires Inserted & One Side Crimped

3. Wiring the LITEbar (continued)

iii. Install Battery Cable

2-pin Connector

3-pin Connector

1. Unhook Vehicle Battery Cable Connections

- **1a.** If you haven't done so yet, start by disconnecting your vehicle's battery connections (see 1b).
- **1b.** Disconnect the *negative* battery cable first, followed by the positive cable.

2. Install LITEbar Battery Cable

- **2a.** Hook up the LITEbar Battery Cable, being especially careful to observe the correct polarity (**RED= + or POS.; BLACK= - or NEG**.).
- **2b.** Reconnect your vehicle's battery cables. Connect the *positive* cable first, followed by the negative.

iv. Hook up Converter Cables

Now that the bar is mounted and the wires safely and securely routed, it is a simple process to finish hooking up the LITEbar. You're almost there!

1. Battery Wires to Converter

Simply plug in the single 2-pin male connector on the converter box to the female connector that is connected to the battery. *The connector is keyed and can only be connected in one direction; do not force the connector.*

2. Converter to LITEbar

The LITEbar may be connected to the converter either directly, or through an extension cable.

- **2a.** If the converter is connected directly with no extension cable, then simply plug the two (2-pin & 3-pin) male connectors directly to the matching female connectors on the converter. You may skip step 2b.
- **2b.** If the converter is connected through an extension cable, then simply plug the two (2-pin & 3-pin) male connectors of the extension cable into the matching two connectors on the converter, then repeat with the other end of the cable and LITEbar. *The connectors are keyed and can only be connected in one direction; do not force the connectors.*

4. Using the LITEbar

Now that the bar is mounted, the wires safely and securely routed and connected, you are now ready to use the LITEbar!

1. Button Function

- **1a.** All LITEbars are now shipping with a user programmable interface. By default, the LITEbar is set to 2 main modes, with a hidden "indicator" mode. You may program the LITEbar to have 1, 2, or 3 main modes.
- **1b.** Single mode operation:
  - A short or long click turns the light on or off.
- **1c.** Multiple mode operation:
  - A short click cycles the modes HIGH—>LOW
  - A longer click cycles the modes LOW—>HIGH
  - You can start on the highest or lowest mode, then cycle through them in either direction.

4. Using the LITEbar (continued)

- **1d.** Hidden "Indicator" Mode: To enter this mode, simply hold down the switch button for 2 seconds.
- **1e.** Programming Mode: To select the number of modes (1, 2, or 3):
    - Hold the button for approximately 4 seconds. The light will give a quick flash.
    - Within the 5 second programming time, click the switch to indicate the number of modes desired: 1 mode = 1 click; 2 modes = 2 clicks; 3 modes = 3 clicks.

2. Low Voltage Protection

The LITEbar has integrated low voltage protection which protects the battery from being run too low and also protects the LITEbar from a potential over-current condition. Once the LITEbar sees approximately 11.4V under load it will lower the output level. At approximately 11V under load it will turn off completely.

If the LITEbar constantly steps down output or turns off, double check your battery charge level, alternator output voltage, and battery connections for loose or corroded connectors.

3. Thermal Protection

The LITEbar has an integrated thermal protection / thermal throttling system. Once the designated safe operating temperature threshold has been exceeded, the LITEbar will smoothly decrease output until the temperature falls back within safe operating limits. Once the temperature falls below the lower threshold, the LITEbar will automatically increase output back to the set output level.

5. Troubleshooting

If you are having trouble with your LITEbar, here are some frequently asked questions and answers. *If after following these steps your problems are not resolved, please feel free to contact us via e-mail at* support@mtnlitebar.com

1. Light Doesn't Turn On

If the light doesn't turn on, check the following:

1. Battery cables are connected securely to the vehicle and in the correct polarity (RED goes to POSITIVE; BLACK goes to NEGATIVE). There is voltage at the cable connections.
2. Battery cable is connected to the converter's input.
3. Switch is connected and operational. You may need to probe the switch wires for continuity; the switch is normally open and should be closed only while the switch is being pressed.
4. All LITEbar to converter cables are securely connected.
5. The inline fuse has not been blown. Check for continuity through the RED/POSITIVE battery cable from end-to-end.
6. There is no visible damage to any of the cables, wires, or connectors.

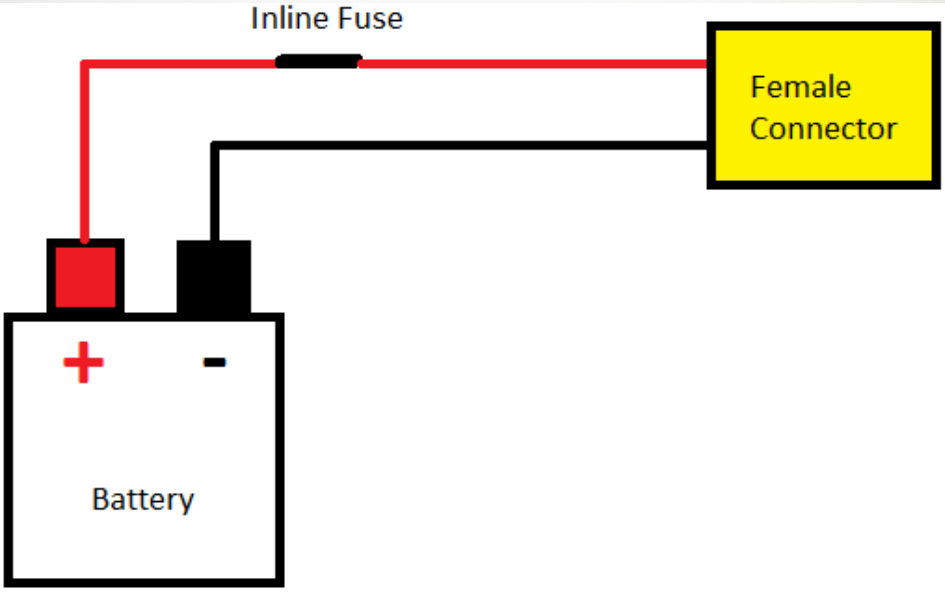
2. Light Constantly Steps Down Output or Turns Off

This condition is usually caused by a weak battery, corroded or loose connections, or a weak or insufficient charging system. Please check the following:

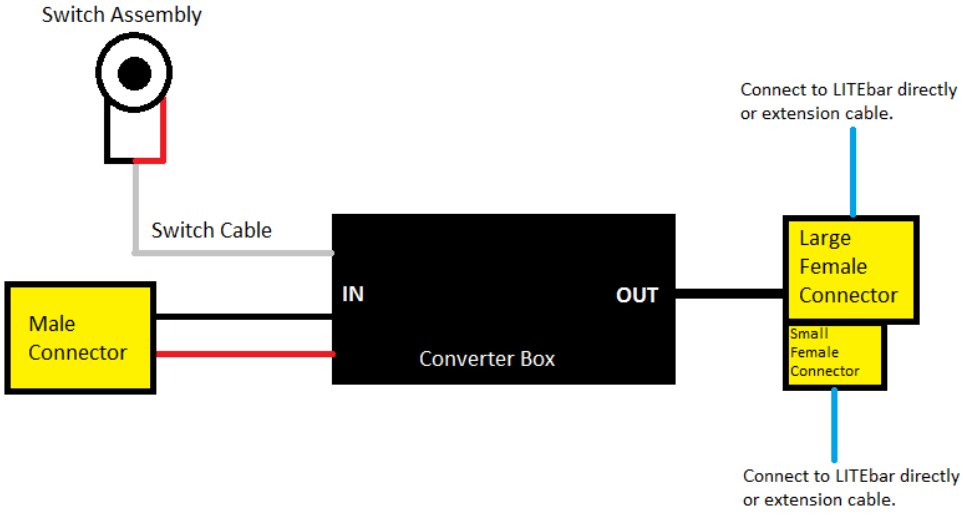
1. Battery cables have a good, tight, corrosion-free connection to the battery.
2. The battery is maintaining at least 12V *under load.* If there is less than 12V present at the battery connections, there will be insufficient voltage to operate the LITEbar at full output. If this is the case, check and your battery and charging system. Some smaller vehicles may not be able to keep up with the LITEbar's current requirements, especially if lots of other accessories are being used at the same time.
3. There is no visible damage to any of the cables, wires, or connectors.

6. Wiring Diagrams / Pictures

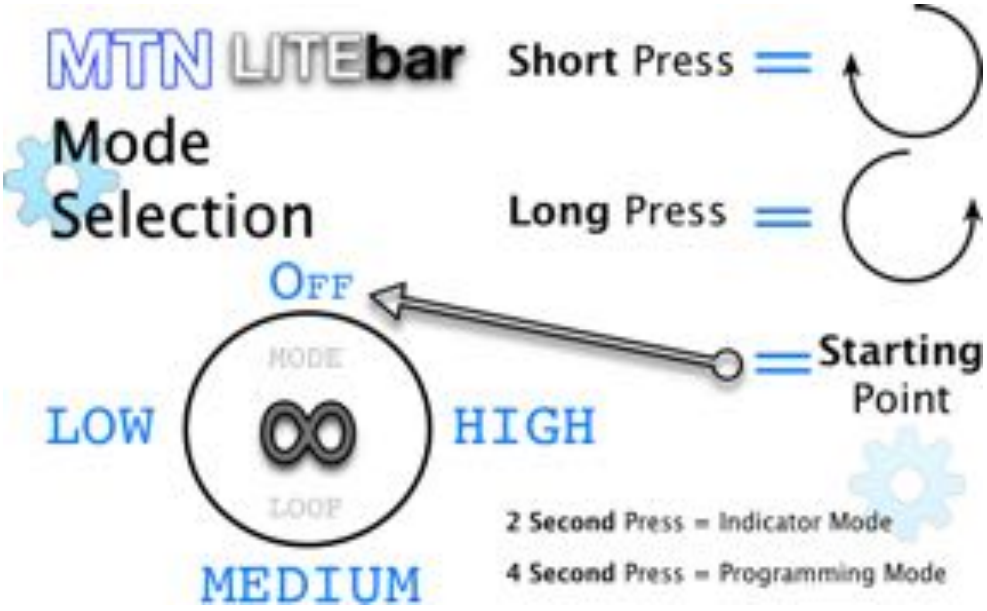
Battery Cable



Converter



7. User Interface Graphic



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Specifications

- LEDs: Nichia 219c 70+ / 80+ CRI 5000K (neutral white)
- Maximum Input Current:
  - 6": 15A @ 12V
  - 12": 20A @ 12V
  - 18": 20 or 30A @ 12V
  - 30": 30A @ 12V
  - 50": 30A @ 12V
- Input Voltage Range: 11-18V (reduced power below 12V)
- Body Width/Height/Depth/Weight:
  - 6": 7.3" / 3.1"/ 3.5" / 2.2 lbs.
  - 12": 13.3"/ 3.1" / 3.5" / 3.5 lbs.
  - 18": 19.3" / 3.1" / 3.5" / 4 lbs.
  - 30": 31.3" / 3.1" / 3.5" / 6.4 lbs.
  - 50": 51.125" / 3.1" / 3.5" / 10.6 lbs.
- Converter Length/Width/Height/Weight:
  - 6" Length / 3.5" Width / 2" Height / 2 lbs.
- Mounting Hole Distance (center/center):
  - Converter: 1.2" (side mount); 2.4" (bottom mount)
  - Light Bar:
    - 6": 9.75"
    - 12": 16.75"
    - 18": 21.75"
    - 30": 33.75"

Limited Warranty

Each MTN LITEbar 6/12/18/30/50" Series LITEbar + Converter is covered by a Limited Warranty. This warranty covers all defects in manufacture and workmanship for a period of 1 year from the date of purchase, during which time the manufacturer will cover all labor, parts, and shipping costs related to the repair or replacement of the LITEbar assembly. After the initial 1 year period has passed, for an additional period of 4 years (5 years after date of purchase), the manufacturer will cover the cost of parts only, with the costs of shipping and labor not being covered under the Limited Warranty.

This Limited Warranty does not cover any accidental damage caused by excessive heat, vibration, sun damage, collision, road debris, etc. This Limited Warranty does not cover any damage caused by incorrect installation. Additionally, this warranty does not cover paint fading or glass yellowing or damage.

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