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## MTM500 SERIES - INSTALLATION GUIDE

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The installation of the MTM500 can have a major impact on the device performance. Care should be given to physical placement of the device as well as the connections made during installation.

### Plan the installation:

Locate and verify a constant (un-switched) +12 VDC or +24 VDC power supply, the chassis ground, and the vehicle ignition line or other key operated line.

### Place the MTM500 in the vehicle:

The MTM500 features dual internal cellular and GPS antenna. The device needs to be placed inside the vehicle with the **label facing away from the sky**. Ideal device location is to mount the unit horizontally, as high under the dashboard as physically possible, close to the front windshield. Ensure that the device is kept free from direct exposure to the elements and not directly ON or too close to the Heat/AC ducting.

### Connect POWER, GROUND, and IGNITION:

The power input (red wire) must be connected to a constant (un-switched) +12 VDC or +24 VDC supply; preferably, connected directly to the vehicle battery terminal or as close to it as possible.

All voltage measurements should be taken with a Digital Voltmeter and not a "test light".

The ignition input (white\* wire) must be connected to the vehicle ignition or another appropriate key operated line, ensuring that power to the ignition wire is available only when the vehicle ignition is truly in the ON position.

**NOTE:** This voltage should be at +12v when ON and "0 volts" ( or as close to zero as possible) when OFF. Make sure if the vehicle has an ACCY Key Position, that the ignition wire you chose for the WHITE wire is at "zero volts" when the key is in the ACCY position.

The ground line (black wire) must be connected to chassis ground. Please verify with a continuity check with the Digital Voltmeter to ensure that it is truly a chassis ground.

Please verify that your power, ground and ignition wires are connected correctly, then plug the harness connector into the MTM500.

### Verify:

Powering on the Device - Once you have connected and verified the Constant Power (RED), Ground (chassis ground) and Ignition signal.

- 1 Start the vehicle and the unit will start booting up.
2. Red LED will illuminate when the system starts.

You may see the device progress through a series of start-up steps, indicated by different LEDs as detailed below. This process typically takes 2 minutes but can take up to 20 minutes on first power-up. Depending on GPS and cellular signal, a typical sequence may proceed as follows:



# MTM500



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## A typical sequence may proceed as follows:

1. Power LED - Power on (~30s).
2. GPS LED slow flashing - Device GPS Receiver is on and attempting to get the device location.
3. Data LED medium flashing - Retrieving network time. (only if there was no GPS signal)
4. GPS LED rapid flashing - GPS receiver has acquired a fix but is waiting for location within target accuracy.
5. GPS LED off.
6. GPS LED slow flashing - Device GPS Receiver is on and attempting to get the device location.
7. GPS LED rapid flashing - GPS receiver has acquired a fix but is waiting for location within target accuracy.
8. Data LED medium flashing - Device is searching for a cellular network.
9. Data LED rapid flashing - Device is connected to a cellular network and transmitting/receiving data.
10. Data LED off (device has finished start-up sequence and is operational).

Cable Wiring definitions	Wire Color	WHAT TO LOOK FOR
12/24V Out (20W) – Software controlled	Black	not used
Digital Output #1 (Close to Ground)	Brown	SID
Digital Input #2 (Programmable Bias)	Red	Input 2
RS-232 TxD	Green	not used
CANH (2.0B) / ISO-15765 or J1939	Yellow	not used
Digital Input #3 (Programmable Bias)	Orange	Input 3
Digital Output #2 (Close to Ground)	Yellow	Door unlock
Ignition / ignition tamper input	White	Ignition *
Digital Input #4 (Programmable Bias)	Green	Input 4
Digital Output #3 (Close to Ground)	Blue	not used
J1708-	Orange	not used
J1708+	Yellow/White	not used
RS-232 RxD	Yellow	not used
12/24/48V Power In	Red	Constant Power
Ground	Black	Chassis Ground
Ground	Black	Chassis Ground
1-Wire	Purple	not used
ISO-9141 K Line	Gray	not used
CANL (2.0B) / ISO-15765 or J1939	Green	not used
ISO-9141 L Line	Pink	not used

\* Note: There are only 3 inputs that can be used for PTO's on an MTM500. They are labeled #2, 3 & 4. Ignition uses the devices #1 input. So make sure you use the PIN 2, 3 and 4 when setting up Inputs with an MTM500 on the UI.

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