



Fleet Management Solutions

MLT-400i/300i Installation Guide

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MLT-400i/300i Installation Manual

Introduction

This installation manual covers the installation of the MLT-400i and MLT-300i (old part number). This manual is for the professional and novice installer and should be used to ensure a safe and functional install of the MLT product.

IT IS IMPORTANT THAT THE ANTENNA BE ATTACHED TO THE MODEM PRIOR TO POWERING THE MLT-400i FOR THE FIRST TIME!

SAFETY STATEMENT

ALWAYS DISCONNECT THE VEHICLE BATTERY WHILE INSTALLING THIS OR ANY OTHER AUTOMOTIVE ELECTRONIC PRODUCT.

BEFORE MOUNTING ANY OF THE COMPONENTS, THINK OF A DESIRED ANTENNA LOCATION AND MAKE SURE YOU HAVE ENOUGH CABLE TO REACH THE MODEM (MLT UNIT).

This product is connected directly to the vehicle's 12/24-volt system. There is no on-off switch on the unit. The installed unit operates 24 hours a day and must be energized to log vehicle events or send data as required by anyone using the service.

The MLT is shipped with one in-line 2-amp fuse attached to the power cable. This fuse must be installed as close as possible to the primary 12 or 24 volt source connection. The fuse protects unit and the power cable should there be a short in the cable between the fuse and the MLT. This fuse must be installed properly. If the fuse is replaced, it should be of the same type as originally supplied from the factory. The original fuses supplied is one (2 Amp ATC BUSS fuse).

Failure to use the proper fuse or to install the fuse in the recommended location could cause a vehicle fire hazard. The fuse provides overload protection for the power cable and MLT. The wiring installed between the fuse and primary vehicle power is not protected from overheating if a short should occur. Use care when routing the power cable and fuse. Route the cables where they will be protected and use commonly accepted install practices for after market automotive electronic devices.

There are two acceptable methods of making a wire connection:

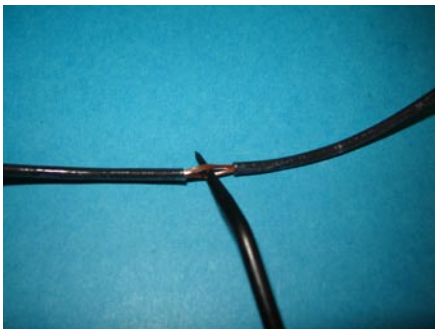
- Soldering your connections (recommended)
- Crimp connectors (with the use of the proper crimping tool)

Regardless of the method you choose, ensure that connection is mechanically sound and properly insulated. Use high quality electrical tape or shrink tubing, cheap tape will unravel in hot weather making it a poor insulator. Never use "t-tap" connectors (poor quality mechanical type connection) Never "twist and tape" without soldering your connection

Methods for utilizing the vehicles voltage source

1. Expose approx. 1/4"

2. Wrap your wire with the existing automotive wire



Always solder your connections when using the poke and wrap method.

WHEN LOCATING A VOLTAGE SOURCE ALWAYS VERIFY THAT IT DOES NOT DROP WHEN STARTING THE VEHICLE. THIS IS CRITICAL IF NOT DONE PROPERLY THE UNIT MAY BECOME DAMAGED OR UNREPAIRABLE!

Locating the Modems Serial Number/ESN:

You will need to locate the Electronic Serial Number. This identifies the vehicle number/ID to The modem (ESN):

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Serial Number

MLT-400i/300i Wire Harness Description

Primary Power		Operating Range
RED	*	Constant 12/24 volt source – 9V+ through 24V+
BLACK	*	Chassis Ground - Ground
GREEN	*	True Ignition Source – 3V+ through 30V+
PURPLE	*	Signal Ground

Analog Sensors		Use	Operating Range
ORANGE	*	Analog IN # 0	0-5V+
BROWN	*	Analog IN # 1	0-5V+
GREY	*	Analog IN # 2	0-5V+

Digital Sensors		Use	Operating Range
BLUE	*	Digital IN # 0	INPUT 3V+ To 30V+
YELLOW	*	Digital OUT # 1	12V+ OUT // 50mA
WHITE		Digital OUT # 2	12V+ OUT // 50mA
Notes:		Cap Off any sensors not being used	

Notes:

It is critical that the voltages applied to the wires are within specified range.

If more voltage than specified is applied to the Input/Output sensors the unit will Get damaged.

Cap-off/terminate any sensors not being used to avoid sparks, or damage to the modem!

Wire Connections:

RED: 9V+ through 24V+ DC (constant voltage) MUST not drop below 9volts when starting vehicle.

BLACK: Chassis Ground

GREEN: True Ignition Source Minimal of 3V+ Max 30V+ Must not drop below 3volts when starting vehicle.

Antenna Description and Mounting

The MLT-400i/300i requires two antenna elements. One antenna is for receiving GPS signals from The GPS satellites. The second antenna is a transceiver antenna that communicates with the Iridium Satellite network.

There are two antenna cables 4 meters (12 feet) in length in addition to the main cable harness that must be connected to the MLT-400i/300i, so be sure there is room to access the connectors for installation and service.

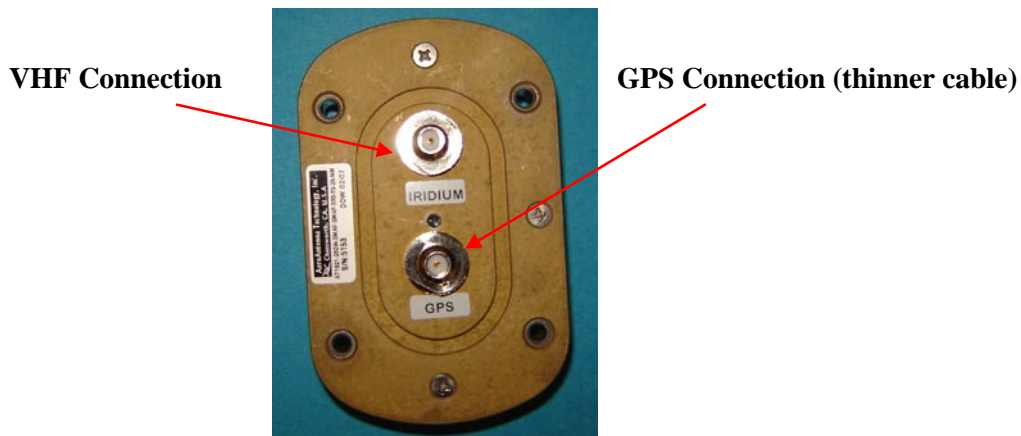
The Iridium Satellites orbit at 485 miles above the earth. There are 66 satellites in the system and generally there are at least 5 satellites orbiting overhead at any one time. The antenna location must be selected carefully so that the antenna can receive these satellite signals.

Antenna Types and Mounting Suggestions

Caution: Install the antenna at minimal two feet in Distance from all other antennae.

MLT-400i/300i Permanent Mount Antenna

- * Find a location on the roof of the vehicle where you can mount the antenna.
- * Route the wires into the vehicle. Make sure the location Your routing the wires doesn't cut into them.



Mount the antenna in a location where it is not going to be blocked by other objects, such as: ladders, truck bed canopies, etc...



Permanent Mount Side View



Permanent Mount Top View

INSTALLATION VERIFICATION

Please take the vehicle outside where the antenna has a clear view of the sky in all directions and follow these instructions to verify the installation.

OBSERVE LED LIGHTS

Power: Indicates Modem has power – Must be emitting GREEN blinks every 8 seconds.

Signal: Indicates modem can see satellite – Must be emitting Green

TEST IGNITION ON/OFF

Once outside, start the vehicle, let it run for several minutes, and then turn it off.

you chose. Verify the power led turns yellow & blinks blue every 8 seconds.

LET THE MODEM TRANSMIT THE DATA

Leave the vehicle outside and give it 5-10 minutes to transmit the data.

VERIFY DATA TRANSMISSION

- *If you don't have access to the FMS backend web application (Third-party Installers)* Please call FMS Technical Support at (800) 999-2169 Monday through Friday, 6:00 am to 6:00 pm Pacific Standard Time. Our friendly and knowledgeable support staff will take the ESN Number of your unit, and will verify data transmission.

- *If you have access to the FMS backend web app (password and user id required)* The following conditions must be completed before the information about your unit can be displayed on FMS website:

1. The ESN of your unit must be registered on FMS backend.
2. Your unit must be activated on the IRIDIUM network.

If these items have not been completed, please contact your sales representative.

To view information about your unit, log on to www.fmsgps.com with user id and password. Send your unit a “**Request Location**” command (for more information on using the website, please see ‘FMS Web Guide’ that is located on the *FMS* website under *Products & Services*→*Downloads*). Run a “**History Report**” for the current date to see if the data from your unit has been transmitted. The first messages you should see from your unit are these:

- *Host Synchronization*: the message the unit sends out when it reboots and receives a GPS lock.
- *Ignition ON*: the message the unit sends out when the vehicle is started.
- *Ignition OFF*: the message the unit sends out when the vehicle is turned off.
- *Poll Reply*: the message the unit sends in reply to the “Request Location” command, containing the address of the unit.
- **(IF PDA-PRO INSTALLED)** *Quick Message*: the message you sent using PDA-PRO.

If you gave the unit 30 minutes to transmit the data and still don't see the messages, it is possible the installation was not done properly (see Troubleshooting Section below).

TROUBLESHOOTING

#	Case	Possible Cause	Action
1	There are no Ignition On/Off messages	Green wire is not connected correctly	Verify that the Green Wire receives 3volts when starting vehicle
2	There is no Host Synchronization message	Unit can not get a GPS lock – GPS antenna does not function properly	Verify antenna installation Verify no objects obstructing antenna's view of sky
3	There are no messages at all	Unit is not activated or antenna does not function properly	Verify that the unit is activated Verify antenna installation
4	There is no quick message	PDA-PRO is not installed correctly	Verify PDA-PRO installation

NOTE: If both LED's are RED at all times please try another antenna, if this is unsuccessful please call or e-mail the technical support team.

Verify Antenna Installation:

- Check that antenna has a clear view of the sky in all directions.
- Inspect VHF antenna connector, both the cable and MLT, for damage.
- Inspect GPS antenna connector, both the cable and MLT, for damage.
- Make sure both VHF and GPS connections are tight.
- Check the antenna cables for damage: any crimps or cuts.

SIGNAL LED

POWER LED

COLOR	INDICATION	COLOR	INDICATION
Red Blinking	Initial Power-up	Solid Blue	GPS Searching
Yellow/Off	Modem initiating	Solid Green	Power with Ignition off
Yellow/Orange Blink	RF/Modem satellite search	Solid Yellow	Power W/ Ignition signal Present
Purple/Green Blink	Message Tx	Blue/Green	GPS Fix
Orange/Green Blink	Message Rx	Red/Off	GPS Failure
Solid green dim/Bright	Signal Strength & Idle		
Red/Off Blinking	Modem Failure		
Blue/Off Blink	Blinks when loading code		

Notes: If both POWER & SIGNAL are Orange – Antenna connections are backwards

If you have any questions, please contact FMS Technical Support at (800) 999-2169 or at techsupport@fmsgps.com.
Technical support is available Monday through Friday, 6:00AM to 6:00PM Pacific Standard Time. Our friendly and knowledgeable support staff can answer all of your FMS related questions.