

# Thuraya MCD Voyager



## CONTENTS

---

MCD VOYAGER OWNER IDENTIFIERS .....	4
MCD VOYAGER OVERVIEW .....	5
MCD VOYAGER FEATURES.....	5
MCD VOYAGER SYSTEM CONTENTS.....	7
INSIDE THE MCD VOYAGER .....	8
SYSTEM OPERATION .....	10
WIFI SECURITY .....	12
ACCESSING THE MCD VOYAGER WEB INTERFACE .....	13
USING THE LAN PORT .....	13
MONITORING USAGE.....	14
CHARGING FACTS .....	15
MCD VOYAGER ACCESSORIES .....	16
MCD VOYAGER TECHNICAL SPECIFICATIONS .....	20
TROUBLESHOOTING SYSTEM OVERHEATING .....	22

## SAFETY INFORMATION



### IMPORTANT SAFETY INFORMATION FOR THE GROUND CONTROL MCD VOYAGER SYSTEM

*Like all Thuraya IP systems, the MCD VOYAGER is a transmitting satellite device. All persons should stay at least 1 meter from the case when it is operational.*

If you have additional questions regarding connecting or operating your system beyond the simple operations of the MCD VOYAGER, please review the User Manual for the Thuraya Voyager included USB flash drive or contact your Thuraya IP service provider for more information.



## MCD VOYAGER OWNER IDENTIFIERS

Please fill out the information on this page with the account information supplied to you from Ground Control and keep this manual available in the field.

Thuraya IP Service Provider: \_\_\_\_\_

MCD VOYAGER Web Interface: 192.168.128.200

Voyager Web Interface: 192.168.128.100

Thuraya Static IP Address: (if any) \_\_\_\_\_

SSID Wireless Broadcast MCD-VOY [Serial Number]

Wireless WEP Security Password: \_\_\_\_\_

### MCD VOYAGER OVERVIEW

The MCD VOYAGER “Mobile Communications Device”, is an auto-pointing Thuraya IP satellite terminal that requires no user training to operate. Simply place the weather-tight case on the ground, or on a boat deck, or on any surface with a clear view of the sky, rain or shine, anywhere in the world and turn it on - no pointing necessary. Within a minute, the MCD VOYAGER becomes a wireless hotspot for any wireless device up to 100 meters from the case for up to 5 hours on the internal battery. The auto-pointing case uses the auto-acquire in-motion Thuraya terminal integrated with our proprietary mobile electronics for a ruggedized self-contained, in-field, user-friendly solution.

### MCD VOYAGER FEATURES

- **No Aiming Required.** Simply turn the unit on under an open sky.
- **Does Not Require User Interaction.** No software to run. Establishes WiFi hotspot automatically.
- Up to 100 meter range wireless access point for laptops, smartphones or other wireless devices.
- Internet speeds up to 444Kbps down and 404 Kbps up.
- Two external all weather RJ-45 ports (Ethernet) that are PoE capable (Power over Ethernet)
- Up to 5 hour battery life for normal use.
- May be plugged into a vehicle 12V power port for continuous operation.
- Operates from -25° C to +70° C (-13°F to 158°F). Auto-shutoff at 70°C/158°F Internal temperature.
- Operates on top of moving vehicle roof, or boat, or any moving object.
- Works well in heavy rain and will operate with 20mm of ice before transmission issues.
- Watertight, crushproof, dustproof reinforced plastic case.
- The MCD VOYAGER operates in all locations supported by Thuraya IP service
- Portable - Ships UPS, FedEx, DHL, carry-on luggage anywhere.
- Full IP compatibility - Internet, Email, FTP, VPN.
- The MCD VOYAGER case is a Ground Control manufactured solution.

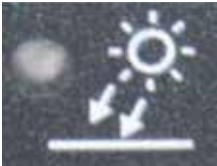




**LAN PORT 1** – RJ-45 port for Ethernet connection. It is sealed covered with a quick-disconnect water cap. This Ethernet port is PoE capable (Power Over Ethernet). Optional accessory cable adapters are available to keep a watertight seal for Ethernet cables.



**LAN PORT 2** – The MCD Voyager front panel has a 2nd RJ-45 port for Ethernet connection that is also PoE capable. (Both PoE Ethernet ports are rated PoE-IEEE 802.3af standard).



**Light Sensor** – This sensor will backlight the display in darkness so the display can be read. From the MCD VOYAGER control panel, the sensitivity of this sensor can be set, including always off.



**Display** – Shows power up status and battery level.



**Charge / Power Port** – This port is used to connect the Power Supply. The supply will power, recharge and maintain the MCD VOYAGER. Charging is automatic and based on the state of the batteries. The charge system will work as necessary with the unit on or off. Higher outside air temperatures may increase charge time if the unit is on while charging. Always install the Port Cap when Power Supply is not connected to maintain its weatherproof integrity.

## MCD VOYAGER SYSTEM CONTENTS

# MCD-VOYAGER



MCD VOYAGER Terminal



Accessory Bag



Charger



Flash Drive



Compass



Mini Inverter



International AC Plugs

The MCD VOYAGER includes the MCD VOYAGER terminal, a USB flash drive with software and user manuals, a miniature compass, a mini-inverter, an AC/DC power supply/charger, an international plug kit that allows the MCD VOYAGER to be charged from any country's wall power, and an accessory bag to hold all loose accessories.



## INSIDE THE MCD VOYAGER



Inside the case (from left side moving right) is the WiFi antenna, the domed Thuraya satellite antenna, the SIM cover, fan, and the LED power button. There is also an internal fan used to vent electronics. We recommend having the case lid opened slightly in hot locations.



**WiFi Antenna** – When raised, the WiFi antenna adds extra range to the MCD VOYAGER wireless connection. This antenna is a standard RP-SMA type antenna and larger higher gain antennas can easily be mounted. Note the antenna needs to be folded down in order to close the case lid.



**SIM Card Tray** – Rotate the SIM cover to expose the SIM tray. Insert the SIM with the notch side down, and to the right. To insert a SIM, push it into the SIM slot until it “clicks”. To remove SIM card, simply push it in until it clicks, and it will self-eject when finger is removed.





**Fan & Fan Cover** – The fan inside of the MCD VOYAGER will automatically start if the internal temperature becomes too hot. It is advisable to run the case lid cracked open in hot weather. The terminal will auto-shutoff when the internal temperature reaches 70° Celsius (158° Fahrenheit).



**Power – On/Off** – When pressed, the power button will light up when the terminal is turned on. To power the system off, simply press the button again.



The MCD VOYAGER may be used on a moving vessel, even during heavy seas.

## SYSTEM OPERATION

### STEP 1 – FIND AN OPEN AREA



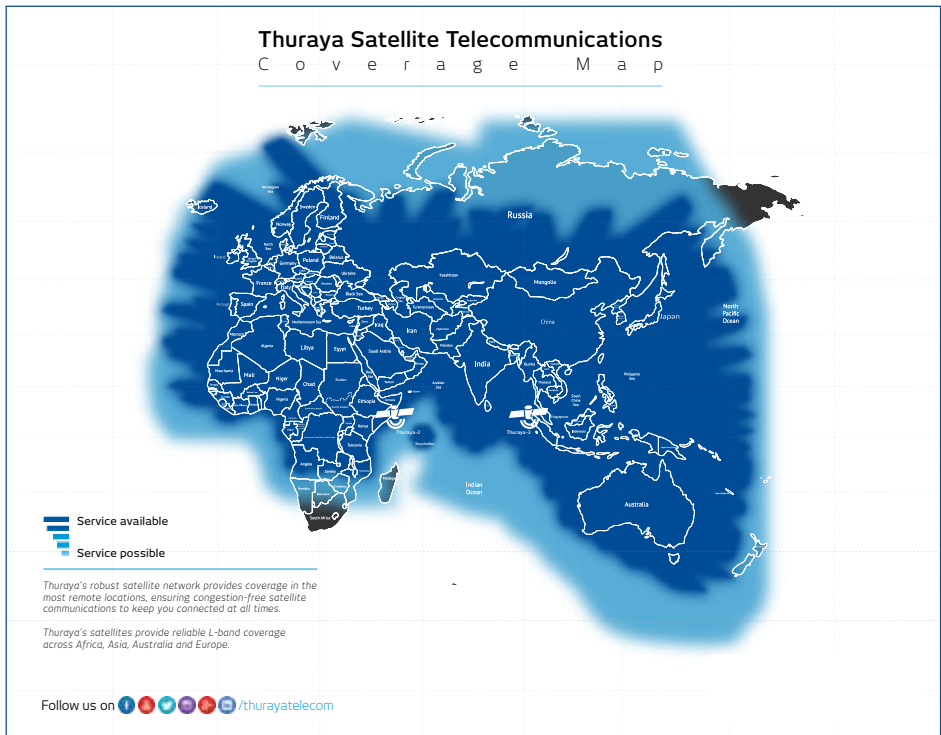
Lay the MCD VOYAGER flat (top side up, as if to open the case), under an open sky.

The terminal needs to have line-of-sight with one of the two Thuraya satellites.

These satellites connect with stationary satellites in the sky, so as long as line-of-sight is possible, the terminal can be located next to a wall or tree.

The map below is very helpful to find what direction the closest Thuraya satellite is. Use the included compass to help you quickly discern where a good location would be to place the terminal to avoid visual obstacles like trees and buildings.

The MCD VOYAGER may also work through glass from inside a building or through a tent wall. If possible, it is good to place the terminal on an elevated area, such as a vehicle roof, so that the satellite signal is not interfered with when people walk by.



## STEP 2 – TURN POWER ON

Open the MCD VOYAGER to access the power button of the terminal.



Simply press the power button to turn it on. The button itself will light up to show the system is active. The external display will show the system status and current battery level.

Close the lid for a watertight seal. The MCD VOYAGER operates just as well with the lid open or closed. During hot weather, it is advised to keep the lid slightly open to vent internal heat.

Note, as with all Thuraya IP systems, all personnel should stay at least 1 meter from this device while it is transmitting.

The MCD VOYAGER will begin to search for a satellite, as well as attain a GPS location. A GPS signal will be quickly acquired if there is a wide sky above the terminal, otherwise it may take up to 3 minutes for GPS to be found.

In about 1 minute, the system will be online (3 minutes if GPS hasn't been found). If it is not online in that time, simply reboot the system. You may need to move the MCD VOYAGER to a new location if it has not found a satellite.

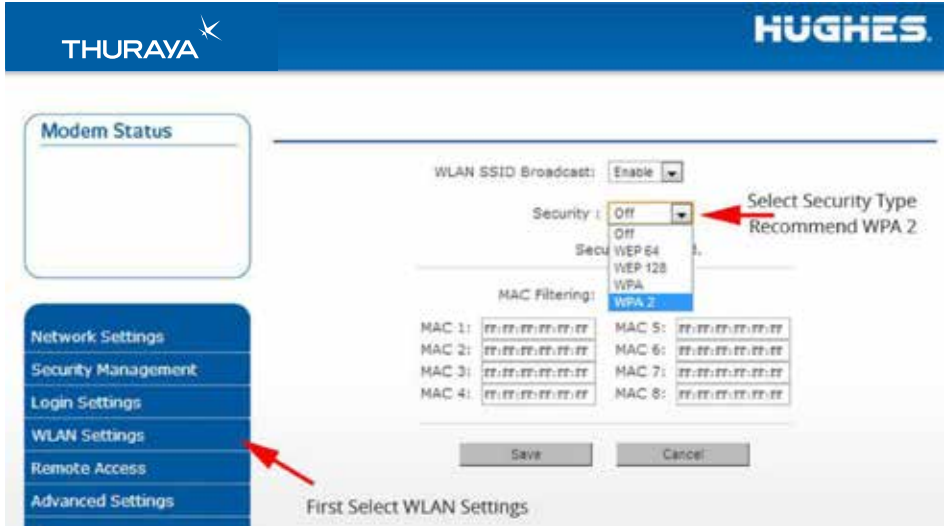
## STEP 3 – CONNECTING TO THE MCD-4000 WiFi HOTSPOT

The MCD VOYAGER establishes a standard WiFi hotspot with the name of "MCD-VOY". You may connect a laptop or smart device to the MCD VOYAGER using that device's wireless access screen. Up to 11 devices may connect to the WiFi hotspot. Once connected there is nothing else to configure. Use the MCD Voyager like any Internet hotspot connection.

That's it... you are online!

## WIFI SECURITY

By default, wireless security is NOT enabled when the terminal is shipped. We recommend enabling WiFi security as soon as possible to keep the terminal from being used by unauthorized devices. To access the WiFi security screens, type in **192.168.128.100** into any connected browser window. Next, select the “**Settings**” menu listing, and choose “**WLAN Settings**”.



Select the type of security you wish to use from the pull down window (WPA2 is recommended). Once selected, the below screen will appear.



Detailed wireless security information can be found on page 15 of the Thuraya Voyager User Manual.

## ACCESSING THE MCD VOYAGER WEB INTERFACE



From any connected browser, type in **192.168.128.200** and press Enter. The MCD VOYAGER main interface screen will appear. This screen will show you the state of the battery and give you access to changes settings of the system as well as access usage totals.

Click on the **Settings** Button to be taken to the main interface window of the Thuraya Voyager. Here you can set any parameter of the system.

Click on **Usage** to see how much data has been transferred. You may reset totals so that you can track your current session.

Bookmark **192.168.128.200** from any connected browser so that you can monitor battery levels quickly at any time.



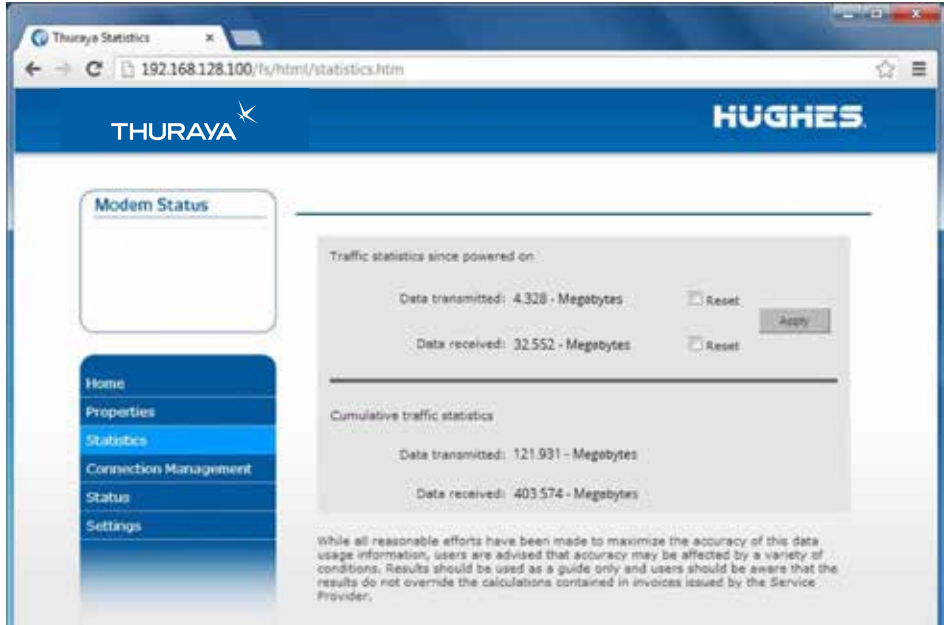
From any connected browser, type in **192.168.128.100** and press Enter. The Voyager web interface screen becomes available. These screens will allow a number of parameter changes such as SSID broadcast name, enabling/disabling WiFi, MAC filtering, usage totals, along with a number of other status and parameter screens. For more information regarding the terminal, please refer to the Voyager User Manual.

### Using the LAN Port

An Ethernet cable may connect to the waterproof jack on the external LAN port of the MCD VOYAGER. Twist off the weather cap and connect a standard Ethernet cable. The MCD VOYAGER is normally set to DHCP (Dynamic Routing), which means it will automatically issue an IP address to any computer that connects to it. The LAN Port does provide PoE (Power Over Ethernet) for devices that require this feature. A standard Ethernet cable is all that is needed. A crossover cable is not required.

## MONITORING USAGE

The amount of Megabytes transferred is shown on the Usage Statistics screen of the Voyager Web Interface. This screen is reached by entering 192.168.128.100 into any connected browser and selecting “**Statistics**” from the side menu.



The usage screen is divided into two parts, “Traffic statistics since powered on” are similar to the trip counter on a vehicle, but this trip counter is reset each time the system is powered on. You can also reset this counter at any time by selecting the “Reset” checkbox and pressing “Apply”.

The other part is the “Cumulative traffic statistics” which shows all Megabytes transferred over the life of the terminal. This counter is much like a vehicle odometer and cannot be reset unless the terminal is factory reset (and upgraded to the most recent firmware).

Note these totals are estimates and should only be used as a general idea of usage.

## CHARGING FACTS

### Recharging the MCD VOYAGER Internal Batteries

The MCD VOYAGER will operate about 5 hours on a single battery charge. To charge the system, simply connect the charger to the system. Charge time will take less than four hours if fully discharged.

### Long Term Storage Charging

The charger may be left connected to the MCD VOYAGER during storage to keep the MCD VOYAGER's batteries in a state of readiness.

If you choose not to keep the system plugged in during storage, we recommend recharging every month, and no less than every 6 months to avoid complete battery depletion.

### Vehicle Power for Continuous Use & Charging



Plug the Mini-Inverter into any vehicle power port to provide power for the MCD VOYAGER charger. Keep the vehicle running if the MCD VOYAGER will be online for any significant period of time to avoid depleting the car battery.

### Solar Charging for Continuous Use and Charging



The optional foldable solar panel for the MCD VOYAGER will provide up to 75% of the power for operation, increasing run time by 300 to 400%. It will also recharge the internal batteries in no power locations when power is off. Kit includes a universal 12 volt vehicle charge port to recharge other equipment.



## MCD VOYAGER ACCESSORIES

	<p><b>MCD VOYAGER Replacement AC/DC Charger</b></p> <p>The power supply for the MCD VOYAGER works for both fast charging and maintenance charging for long term storage. Charge time is just under 4 hours if the terminal is complete discharged. Keep the power supply plugged in for long term storage to maintain battery at 100%.</p> <p>MPN: MCDVOYCHARGER</p>
	<p><b>Replacement Universal Power Connectors</b></p> <p>International plugs including U.S., U.K., European, Australian, China, N. Europe.</p> <p>MPN: MCDVOYCON</p>
	<p><b>Watertight RJ-45 Connectors</b></p> <p>Make your own watertight cables with these connectors. While standard Ethernet cables may connect to the MCD VOYAGER front panel, these RJ-45 Ethernet connectors will make your Cat5e Ethernet cable have a watertight connection to the MCD VOYAGER case. Requires standard RJ-45 crimper tool to make.</p> <p>MPN: MCDVOYRJ45</p>
	<p><b>60+ Watt Foldable Solar Panel</b> <b>For MCD VOYAGER &amp; Universal Use</b></p> <p>This lightweight 60+ watt solar panel will connect directly to the MCD VOYAGER for both power assist and recharging. Recharge time is 10-12 hours in full sunlight. If the MCD VOYAGER is turned on, the solar panel will power assist up to 75% of the power needed, extending the 5 hour battery life 300% to 400%. This panel also includes a "universal" cable kit such as a vehicle power port to charge other devices that can power from a vehicle port.</p> <p>MPN: MCDVOYSOLAR</p>

	<p><b>DC Vehicle / Battery Power Cable</b></p> <p>3 meters (10' feet) DC power cable - Power or recharge the MCD VOYAGER from any vehicle power port or battery or any DC power source. Includes quick-connecting alligator clips &amp; vehicle power port connector. Input - 12VDC (vehicle battery) Output 24VDC. This accessory is essential for charging the MCD VOYAGER in no-power locations.</p> <p>MPN: MCDVOYDCVEHICLE</p>
	<p><b>KIT - BB-2590 Rechargeable Lithium-Ion External Battery, and Cables</b></p> <p>Kit includes the rechargeable BB-2590 external battery to power the MCD VOYAGER for an additional 3 hours (per battery). Kit also includes "Battery Connector Cable" (MPN: ThurayaAMCD06) that connects battery to MCD VOYAGER, and the "Battery Recharger" (MPN: BTC-70791-LR) for recharging the BB-2590 battery.</p> <p>MPN: BB-2590KIT</p>
	<p><b>BB-2590 Rechargeable Lithium-Ion External Battery</b></p> <p>Extra BB-2590 batteries. Allows the MCD VOYAGER to operate for an additional 3 hours. 6.8 Amp hours. <b>Requires Battery Connector Cable</b> (MPN-ThurayaAMCD06) for battery connection to MCD VOYAGER. <b>Also Requires Battery Recharger for BB-2590</b> (MPN: BTC-70791-LR) for recharging the battery.</p> <p>MPN: BB-2590 (aka BB-2590/U)</p>
	<p><b>Battery Recharger for BB-2590 External Battery</b></p> <p>AC-DC Battery Recharger (110 to 240 VAC). May use international power plug adapters for recharging from any AC power source from any country. (Plug adapters are shipped with MCD VOYAGER). Will recharge BB-2590 within 10 hours.</p> <p>MPN: BTC-70791-LR</p>
	<p><b>Non-Rechargeable BA-5590 External Battery</b></p> <p>Single-Use lithium sulfur dioxide battery. Allows the MCD VOYAGER to operate for an additional 3 hours. 7.2 Amp hour. Meets MIL-B-49471/3A for voltage, leakage, mechanical or thermal shock, vibration, insulation. This battery will <b>Require Battery Connector Cable</b> (MPN: ThurayaAMCD06) below to connect battery to MCD VOYAGER.</p> <p>MPN: BA-5590/U</p>

	<p><b>Battery Connector Cable</b></p> <p>36" (3 feet) connector cable between an external battery (type BB-2590 or BB-5590) and the MCD VOYAGER. Includes voltage regulator for smooth operation.</p> <p>MPN: MCDVOYBATCAB</p>
	<p><b>Directional 8 dBi Wireless Antenna</b></p> <p>This directional antenna extends the wireless range of the MCD VOYAGER in one direction (a focused angle 66 degree wide by 16 degrees vertical from the face of the antenna).</p> <p>MPN: MCDVOYANT01</p>
	<p><b>Gen 2 - MCD VOYAGER Internal Batteries (Includes 2 battery packs)</b></p> <p>Each MCD VOYAGER includes two high-capacity NiMh (Nickel-Metal Hydride) battery packs inside of the case. Kit includes instructions for replacing packs with existing batteries.</p> <p>MPN: MCDVOYBAT</p>
	<p><b>MCD VOYAGER 3 Year Extended Warranty</b></p> <p>This is a 24 month extension on the standard 12 month warranty. Standard &amp; extended warranties include replacement parts &amp; labor.</p> <p>SKW: MCDVOY3YWAR</p>
	<p><b>MCD VOYAGER 5 Year Extended Warranty</b></p> <p>This is a 48 month extension on the standard 12 month warranty. Standard &amp; Extended warranties include replacement parts &amp; labor.</p> <p>SKW: MCDVOY5YWAR</p>



The MCD VOYAGER is watertight, and operates with the case lid closed.

## MCD VOYAGER TECHNICAL SPECIFICATIONS

MCD VOYAGER Contents	The MCD VOYAGER integrates with Thuraya Voyager terminal enclosed in a hardened Pelican 1450 case (Flyaway Case) with our proprietary electronics and software. System components include an AC/DC power-supply / charger with international plug adapters (US, UK, AU, EU, China, N. Europe), 12V vehicle mini-inverter, compass, laminated Quickstart Guide (affixed to case lid), users manuals, software, an MCD VOYAGER gadget App on a USB flash drive, and a small ruggedized bag to hold all accessories.
Terminal Capability	Open TCP-IP connection: Internet, Email, FTP, VPN, video streaming.
Internet Speeds	Rated up to 444 Kbps down x 404 Kbps up with standard Thuraya IP service.
Streaming	Dedicated (unshared) streaming speeds of 384 Kbps.
Static Public IP	Available from most Thuraya IP providers.
Wireless LAN	802.11b/g/n - Up to 100 meters WiFi range. Up to 11 concurrent wireless connections.
Wireless Security	WEP, WPA, WPA 2 encryption. SSID broadcast control, MAC address filtering.
External Port - LAN	RJ45 Ethernet (PoE capable - Power Over Ethernet).
External Port - Power	Power & charge port for AC/DC charger or foldable solar option.
Exterior Case Dimension	432mm x 349mm x 171 mm (17"L x 13.75"W x 6.75 "H)
Weight – MCD Voyager	11.46 kg (25 lbs 4.3 oz)
Internal battery life	Up to 5 hours normal use
Recharge Time	Less than 4 hours (from fully discharged) using 110 to 240 VAC (worldwide)
Onboard Battery Type	NiMH (Nickel-Metal Hydride).
Regional Power Compatibility	Includes international plug kit for U.S., U.K., European, Australian, China, N. Europe
Power Supply - Charger	Input 110 to 240 Volts AC. Output 28 Volts DC @ 8 Amps
External Batteries	Optional military grade BB-2590 & BA-5590 - adds up to 3 hour runtime
Humidity	95% RH at +40°C
Operating Temperatures	-25° C to +70° C (-13° F to 158° F ) operating
Rain / Water / Dust:	IP66 when closed (withstands powerful water jets from any direction)

## Thuraya MCD VOYAGER User Manual

Wind	If case is secure, it is not affected by wind
Ice	20mm buildup before signal loss
Turning Rate (Azimuth)	40° per second
Turning Acceleration	50°/s <sup>2</sup>
Case Colors Available	Desert tan (default color), yellow, black, silver, orange OD green
Manufacturer Support	The MCD VOYAGER is integrated satellite technology manufactured by Ground Control
Warranty	1 year standard warranty. Extended 3 year and 5 year extended warranties available.
Made In The USA	The Thuraya Voyager transceiver and the MCD VOYAGER case are U.S. manufactured
Compliance & Certification	CE, EMC 301 444, 301 489, IEC 60950, FCC ID: U9R-W2CBW0015



## TROUBLESHOOTING

### SYSTEM OVERHEATING

The MCD VOYAGER has an internal fan that will activate when internal temperatures increase. When the temperature reaches 130° Fahrenheit (54° Celsius), the terminal will shut off automatically. To avoid this, move the MCD VOYAGER to shade and open up the case lid for venting.

### WIRELESS ACCESS ISSUES

If you are unable to connect to the wireless access point, use an Ethernet cable to directly connect to the system, and access the web interface screen (192.168.128.100). Click on WLAN Settings to access the wireless access parameters and configure to your required specifications (including WEP Security).

### UNABLE TO CONNECT TO THE INTERNET

If you are able to connect to the wireless access point, but unable to connect to the Internet, it could be:

1. The system has not yet acquired GPS. If this is the case, turn the system off, and then back on. Access the Web Interface screen to see the current status of the Thuraya connection.
2. A Thuraya satellite has not been found, normally because there is a line-of-sight obstacle like a tree or building. Simply move the case to a new location and try again. Make sure to turn it off, and back on when a new location is found. Make sure there are no items stored inside or on top of the case that may be blocking the signal.

### LOCATION AND LINE-OF-SIGHT

When choosing a place to set up your satellite equipment, please keep the following in mind:

**First**, all satellite systems require constant line-of-sight access to the stationary satellite in the sky, which means that you must choose your location with care. Small obstructions may sometimes be ignored, but that is never guarantee of connectivity. Large obstructions – such as trees, buildings, etc – must be avoided. The case requires a clear view of either of the two Thuraya satellites for operation.

**Second**, there are other things that can obstruct your signal through radio-spectrum interference. High voltage power lines may cause interference with the satellite signal, reducing performance or preventing access altogether. Radar emitters, such as those found at airports, in police vehicles, and in certain areas as part of speed enforcement measures, may also prevent the satellite system from obtaining a signal lock. Further, radar installations can shut off an already established satellite link by causing harmful interference.



**Third**, it is wise to place the system high enough so that people who walk around the system will not interfere with the signal. We recommend placing the case on top of a vehicle, or other high location.

Remember, use good judgment when choosing a set-up location. Choose an area with no obstructions to the south (if in the United States), and clear of other sources of radio or radar interference.

### **Copyright © 2016 Ground Control Systems, Inc.**

All rights reserved. This publication and its contents are proprietary to Ground Control Systems, Inc. (aka Ground Control). No part of this publication may be reproduced in any form or by any means without the written permission of Ground Control, 3100 El Camino Real, Atascadero, CA 93422.

Ground Control has made every effort to ensure the correctness and completeness of the material in this document. Ground Control shall not be liable for errors contained herein. The information in this document is subject to change without notice. Ground Control makes no warranty of any kind with regard to this material, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose.

### **Trademarks**

Ground Control and Ground Control Systems are trademarks of Ground Control Systems, Inc. All other trademarks are the property of their respective owners.