GROUNDCONTROL

MCD-4800

The Football

User Manual

MCD-4800 USER MANUAL
Ground Control
v.2.2

Contents

Safety Information

Important Safety Information for the Ground Control BGAN MCD-4800 System

Like all BGAN systems, the MCD-4800 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 operation set of the MCD-4800, please review the Hughes 9450 Users Guide on the included USB key, or contact the Ground Control Technical Support Team for assistance.

GROUND CONTROL SUPPORT
USA Toll Free: 1-800-931-5559
International: +1-805-783-4633
Email: support@groundcontrol.com

MCD-4800 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.

Ground Control Account Number:GC_____

MCD-4800 Web Interface: 192.168.128.200

Hughes 9450 Web Interface: 192.168.128.100

BGAN Phone Number _____

BGAN FAX Number _____

BGAN Static IP Address: (if any) _____

SSID Wireless Broadcast Football [Serial Number]

Wireless WEP Security Password: _____

Contacting Ground Control Technical Support

Ground Control technical support representatives are available 24 hours per day for your convenience. Please note that our standard hours of operation are Monday – Friday, 8AM to 5PM Pacific Standard Time. If you call outside of these hours, support response may be delayed and certain resources may not be available to the support agent.

For Technical Support, please call **1-800-931-5559** from the U.S. or **+1-805-783-4633** from abroad. You may also email **support@groundcontrol.com** from a computer connected to working Internet connection.

MCD-4800 “The Football” Overview

The MCD-4800 "Mobile Communications Device", also known as "The Football", is an auto-pointing BGAN 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-4800 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 high performance Hughes 9450 in-motion BGAN terminal integrated with our proprietary mobile electronics for a ruggedized self-contained, in-field, user-friendly solution.

MCD-4800 Features

Features are subject to change. Please refer to the Ground Control website for current features.

- **No Aiming Required**. Simply turn the unit on under an open sky.
- **Does Not Require User Interaction.** No software to run. Establishes AP automatically.
- Up to 100 meter range wireless access point for laptop, smartphone, or other wireless device.
- Internet speeds up to 460Kbps in both directions.
- External all weather RJ-45 (Ethernet) and RJ-11 (Phone) connection ports.
- Up to 5 hour battery life for normal use.
- May be plugged into a vehicle 12V power port for continuous operation (through included inverter).
- Operates from -22°F to 130°F (-25˚ C to +55˚ C) temperatures. Auto-shutoff at 130°F (internal temp)
- 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-4800 operates globally (except for the poles).
- Portable - Ships UPS, FedEx, carry-on luggage anywhere.
- Full IP compatibility - Internet, SMTP email, file transfer (FTP, and VPN).
- Cost effect "always-on" access, charged for only what is transferred.
- The MCD-4800 case is a Ground Control manufactured solution, supported by us 24/7.

LAN PORT – 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). Special Ethernet cable ends that maintain a watertight connection to the MCD-4800 are available as an accessory item.

Light Sensor – This sensor will backlight the display in darkness so the display can be read. From the MCD-4800 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-4800. 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.

Phone Port – This sealed port allows any standard phone to be plugged in. Provides standard dial-tone and accepts standard RJ-11 phone cable.

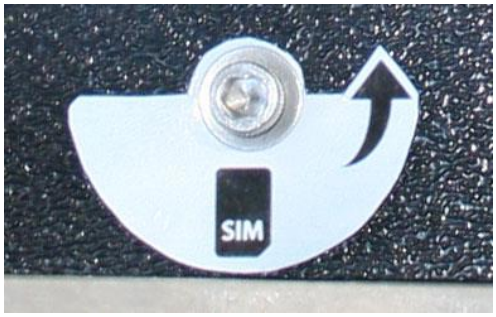
MCD-4800 System Contents

The MCD-4800 includes (from left to right) the MCD-4800 terminal, a flash drive with manuals and software, a miniature compass, an accessory bag to hold all loose contents, an analog phone (runs of 3 AA batteries), a mini-inverter, an AC/DC charger, and an international plug kit that allows the MCD-4800 to be charged from any countries wall power

Inside the MCD-4800

Inside the case (from left side moving right) is the WiFi antenna, the domed class 11 BGAN 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-4800 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-4800 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 130º Fahrenheit (54º Celsius).

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

The MCD-4800 may be used on a moving vessel, even during heavy seas.

System Operation

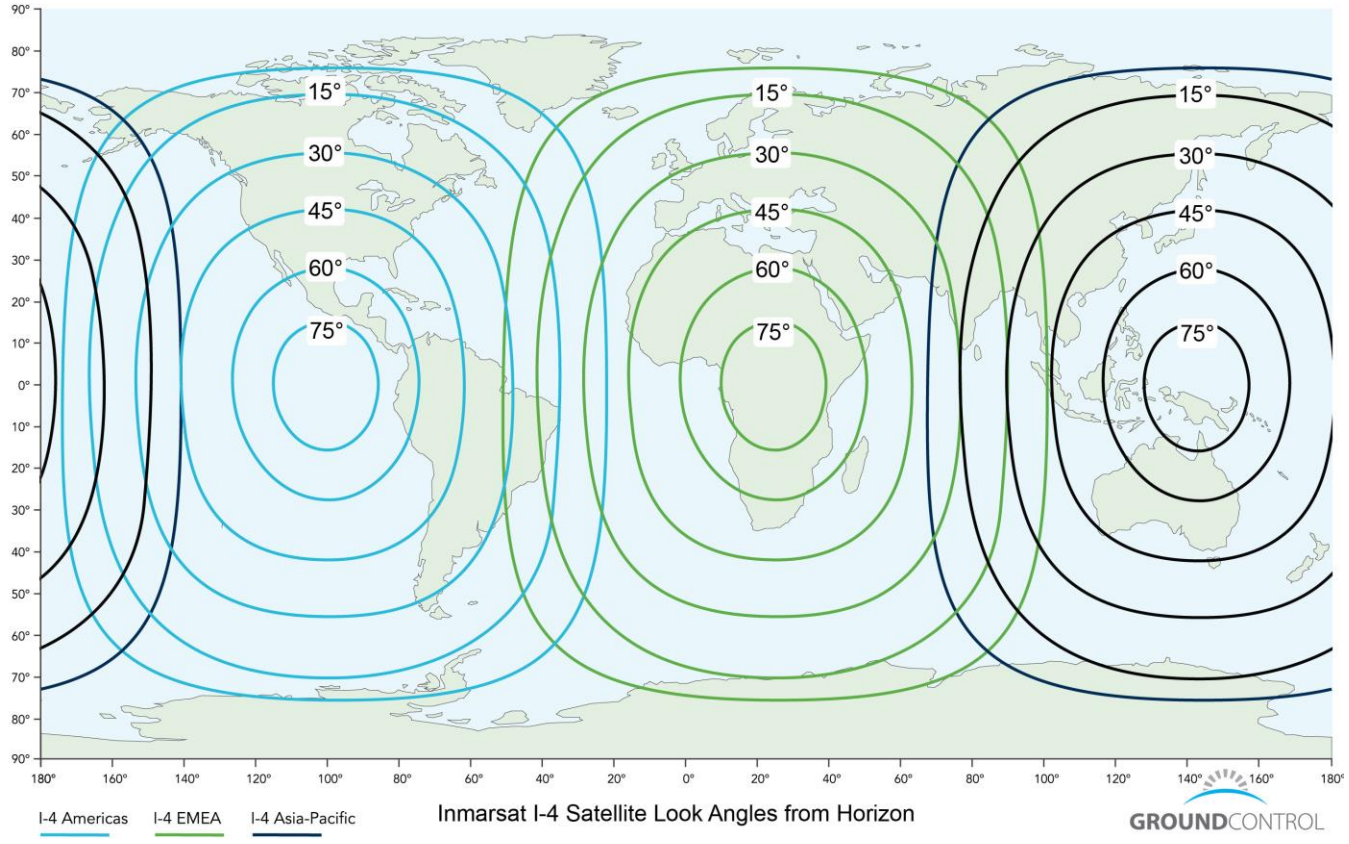
STEP 1 – FIND AN OPEN AREA

Lay the MCD-4800 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 three BGAN Inmarsat satellites.

These satellites are stationary in the sky, so as long as line-of-sight is maintained, the terminal may be placed up against a wall or tree.

The map below is very helpful to find what direction, and how high up from the horizon an available BGAN satellite is. Use the included compass to help you quickly discern where a good location would be to place the terminal to avoid things like trees and buildings.



The MCD-4800 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-4800 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-4800 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 BGAN systems, everyone should stay at least 1 meter from this device while it is transmitting.

The MCD-4800 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 make 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-4800 to a new location if it has not found a satellite.

STEP 3 – CONNECTING TO THE MCD-4000 WiFi HOTSPOT

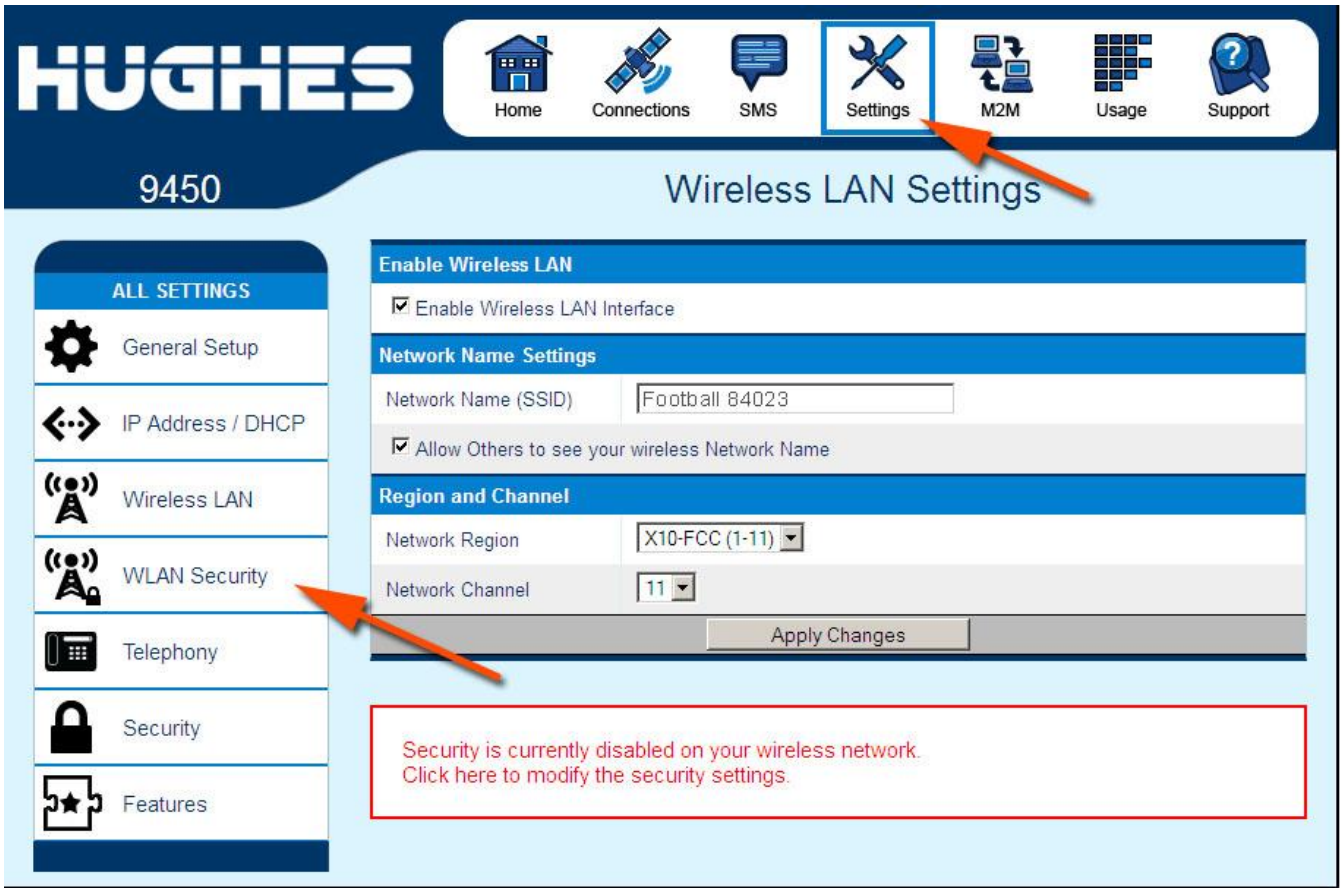
The MCD-4800 establishes a standard WiFi hotspot with the name of "Football". You may connect a laptop or smart device to the MCD-4800 using that device's wireless access screen. Once connected, you are online, and may use the connection like any other Internet connection.

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” tab, and choose “WLAN Security”



Select the type of security you wish to use from the pull down window (WPA2 is recommended).

Detailed wireless security information can be found on page 37 of the Hughes 9450 User Manual.

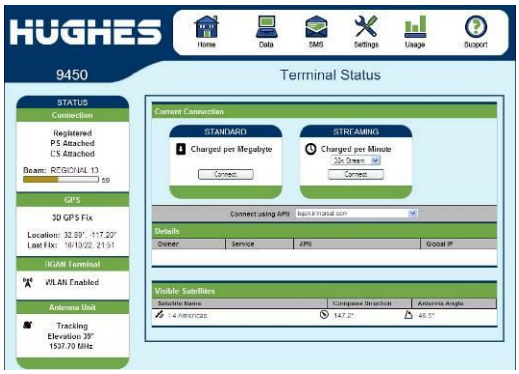
Accessing the MCD-4800 Web Interface

From any connected browser, type in **192.168.128.200** and press Enter. The MCD-4800 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 Hughes 9450. 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.



From any connected browser, type in **192.168.128.100** and press Enter. The Hughes 9450 web interface screen becomes available. These screens will allow a number of parameter changes such as SSID, enabling/disabling WiFi, Static IP configuration, MAC filtering, usage totals, along with a number of other status and parameter screens. For more information regarding the Hughes 9450, please refer to the Hughes 9450 User Manual.

Using the LAN Port

An Ethernet cable may connect to the waterproof jack on the external LAN port of the MCD-4800. Twist off the weather cap and connect a standard Ethernet cable. The MCD-4800 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.

Using a Phone with the MCD-4800

Any phone (wired or wireless) may plug into the phone port of the terminal. Each system includes a no-power corded analog phone that plugs into the RJ-11 phone jack on the front of the case. When plugged in, and online, the phone will act like any phone including dial-tone. The only difference is you must press the # key on the phone after entering any number to "send" the phone number to Inmarsat. More information on making or receiving calls follows.

How to Make Calls using a BGAN Telephone

All calls made from the BGAN phone are considered "International" calls. This tutorial will help you make your first call, as well as how to call a BGAN phone from anywhere.

Every BGAN systems is assigned a 9 digit telephone number and a 3 digit International calling code number. Many BGAN systems that support faxing are also assigned similar number. These numbers are unique and can be called from any phone on the planet. If you do not know your BGAN phone number, please contact your BGAN service provider or Ground Control.

Making a call FROM a BGAN phone

To make a call from a BGAN phone **into the United States,** dial the United States country code (001), and then the area code, and then the phone number. Also, you may need to finish the number by pressing the # (pound) key on the phone if the phone does not begin to dial.

Example - (Calling a U.S. Phone Number from a BGAN Phone): **001 805 783 4600 #**
In this example, 805 is an area code in the U.S., and the # key on the phone is used to tell Inmarsat you have finished entering the phone number.

For calling into another country:
Dial the country code then the full phone or fax number. To locate the country code that you are calling into, please visit:
http://www.itu.int/ITU-T/inr/nnp/index.html

Making a call TO a BGAN phone

To call a BGAN phone from the United States, dial **011** and then Inmarsat's country code of **870** then the 9 digit BGAN phone number. Note that 870 is the Country Code for all Inmarsat phones.

Example 1 - (Calling a BGAN Phone from the U.S): **011 870 772520732**

From outside United States please use www.countrycallingcodes.com/ to help you find the correct number sequence.

Example 2 - (Calling a BGAN Phone From Afghanistan): **00 870 772520732**

Each country is different, so we recommend using countrycallingcodes.com to help you find the correct number sequence. If this doesn't work, you may always ask for assistance from an operator to help connect. You only need to know the 870 country code and the 9 digit BGAN phone number for the operator to connect you.

Note - While the BGAN account will not be charged for any incoming calls placed to it, the calling party WILL pay for satellite BGAN phone rates. Charges vary widely between phone providers from $1 to $10 U.S. per minute, and some phone providers simply block international calling. The calling party can ask their phone provider for their international plan rate to "Inmarsat" which has its own Country Code of 870. Phone providers often have small international plans that can be added to avoid paying any exorbitant per-minute fees.

BGAN to BGAN - Making a call FROM a BGAN phone TO a BGAN phone

To place calls between BGAN phones, dial **00-870-?????????#**

Example - Dial **00-870-772520732#** ... Note the # Pound Key at the end is sometimes used to tell Inmarsat you have finished entering the phone number on a standard analog phone.

Accessing BGAN Voice Mail

BGAN voice mail be accessed by calling **00-870-772001899** from a BGAN phone or **011-870-772001899** from any other phone. When prompted, you will be asked for your BGAN phone number when prompted, as well as the Voicemail PIN number supplied by Ground Control. Please read the **BGAN Voicemail Document** for detailed BGAN voicemail information.

One button operation,
Global connectivity,
High-speed Internet & phone,
No training or certification required,

A Global, Portable WiFi Hotspot.

Charging Facts

Recharging the MCD-4800 Internal Batteries

The MCD-4800 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-4800 during storage to keep the MCD-4800'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-4800 charger. Keep the vehicle running if the MCD-4800 will be online for any significant period of time to avoid depleting the car battery.

MCD-4800 Accessories

Note: All prices are subject to change. Please visit www.groundcontrol.com/football for current pricing on all system accessories. All prices are in U.S. Dollars

	**Gen 2 MCD-4800 Replacement AC/DC Charger** The new "Gen 2" charger for the MCD-4800 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 it plugged in for long term storage to maintain battery at 100%. This charger is not compatible with Gen 1 MCD-4800 terminals. MPN: BGANAMCDCHARGER	Price $169 USD
	**Replacement Universal Power Connectors** International plugs including U.S., U.K., European, Australian, China, N. Europe. MPN: BGANAMCD03	Price $19 USD
	**Ethernet Cables with Watertight RJ-45 Connector** While standard Ethernet cables may connect to the MCD-4800 front panel, these gray Cat5e Ethernet cables have one end with a quick connect adapter that makes a watertight seal to the MCD-4800 front panel. 5 Meter MPN: BGANAMCD10 10 Meter MPN: BGANAMCD11 25 Meter MPN: BGANAMCD12	5m Price $75 /each 10m Price $85 /each 25m Price $105 /each
	**Watertight RJ-45 Connectors** Make your own watertight cables with these connectors. While standard Ethernet cables may connect to the MCD-4800 front panel, these RJ-45 Ethernet connectors will make your Cat5e Ethernet cable have a watertight connection to the MCD-4800 case. Requires standard RJ-45 crimper tool to make. MPN: BGANAMCD08	Price $14 /each

Click for larger image

60+ Watt Foldable Solar Panel
For MCD-4800 & Universal Use

This lightweight 60+ watt solar panel will connect directly to the MCD-4800 for both power assist and recharging. Recharge time is 10-12 hours in full sunlight. If the MCD-4800 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. Click for larger image

MPN: BGANAMCD04

Price $1,199 USD

Click for larger image

DC Vehicle / Battery Power Cable

3 meters (10' feet) DC power cable - Power or recharge the MCD-4800 from any vehicle power port or battery or any DC power source. Includes quick-connecting alligator clips & vehicle power port connector. Input - 12VDC (vehicle battery) Output 24VDC. This accessory is essential for charging the MCD-4800 in no-power locations. Click for larger image.

MPN: BGANAMCD05

Price $249 USD

KIT - BB-2590 Rechargeable Lithium-Ion External Battery, and Cables

Kit includes the rechargeable BB-2590 external battery to power the MCD-4800 for an additional 3 hours (per battery). Kit also includes "Battery Connector Cable" (MPN: BGANAMCD06) that connects battery to MCD-4800, and the "Battery Recharger" (MPN: BTC-70791-LR) for recharging the BB-2590 battery.

Battery Technical Information
Battery Recharger Information

MPN: BB-2590KIT

Price $909 USD

BB-2590 Rechargeable Lithium-Ion External Battery

Extra BB-2590 batteries. Allows the MCD-4800 to operate for an additional 3 hours. 6.8 Amp hours. Requires Battery Connector Cable (MPN-BGANAMCD06) for battery connection to MCD-4800. Also Requires Battery Recharger for BB-2590 (MPN: BTC-70791-LR) for recharging the battery.

BB-2590 Battery Technical Information

MPN: BB-2590 (aka BB-2590/U)

Price $465 USD

	**Battery Recharger for BB-2590 External Battery** 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-4800). Will recharge BB-2590 within 10 hours. Battery Recharger Information MPN: BTC-70791-LR	Price $317 USD
	**Non-Rechargeable BA-5590 External Battery** Single-Use lithium sulfur dioxide battery. Allows the MCD-4800 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 Require Battery Connector Cable (MPN: BGANAMCD06) below to connect battery to MCD-4800. BA-5590 Battery Technical Information MPN: BA-5590/U	Price $155 USD
 Click for larger image	**Battery Connector Cable** 36" (3 feet) connector cable between an external battery (type BB-2590 or BB-5590) and the MCD-4800. Includes voltage regulator for smooth operation. Click for larger image. MPN: BGANAMCD06	Price $195 USD
	**Directional 8 dBi Wireless Antenna** This directional antenna extends the wireless range of the MCD-4800 in one direction (a focused angle 66 degree wide by 16 degrees vertical from the face of the antenna). MPN: BGANAMCDANT01	Price $49 USD
	**Gen 2 - MCD-4800 Internal Batteries (Includes 2 battery packs)** Each MCD-4800 includes two high-capacity NiMh (Nickel-Metal Hydride) battery packs inside of the case. Kit includes instructions for replacing packs with existing batteries. MPN: BGANAMCDBAT	Price $256 USD

	**Handset Phone from Cobham** (formally Thrane & Thrane) This phone does not require a cradle (the MCD-4800 ships with a standard 2-wire analog phone, which uses a cradle). MPN: 403625B SKW: BGANAE004 Handset Phone Brochure	Price $154 USD
	**MCD-4800 3 Year Extended Warranty** This is a 24 month extension on the standard 12 month warranty. Standard & extended warranties include replacement parts & labor. SKW: BGANAMCD3YWAR	Price $1,495 USD
	**MCD-4800 5 Year Extended Warranty** This is a 48 month extension on the standard 12 month warranty. Standard & Extended warranties include replacement parts & labor. SKW: BGANAMCD5YWAR	Price $2,677 USD

The MCD-4800 is watertight, and operates with the case lid closed.

MCD-4800 Technical Specifications

MCD-4800 Contents	The MCD-4800 uses a Hughes 9450 BGAN terminal enclosed in a hardened Pelican case with proprietary electronics. Other items include an AC/DC Charger with International plug adapters (US, UK, AU, EU, China, N. Europe), 12V vehicle mini-inverter, standard analog phone, laminated Quickstart guide, mini compass, users manuals, software, and MCD-4800 gadget on USB flash drive, and a rugged carry case for accessories.
Terminal Capability	Internet, Email, Phone & Fax, VoIP, ISDN (64Kbps), FTP, SMS messaging, video streaming, VPN, private networking options available
Internet Speeds	Class 2 BGAN - 464 Kbps down x 448 Kbps up with standard IP connection
Antenna Type	Class 11
Global Service	Inmarsat BGAN I4 network - Operates with any BGAN service provider
BGAN Rx/Tx Frequencies	L-band, Rx @ 1525.0-1559.0 MHz, Tx @ 1626.5-1660.5 MHz
Network	DHCP, NAT, Public IP's available
Firewall	At teleport - Whitelist and blacklist supported free - More information
Wireless LAN	802.11b - Up to 100 meters WiFi range. Up to 11 concurrent wireless connections.
Wireless Security	WEP 64 & 128 bit, MAC filtering options for up to 10 devices
External Port - LAN	RJ45 Ethernet (POE - Power Over Ethernet)
External Port - Voice	RJ11 - Circuit switched (4kbps 3.1 Khz Audio) Issued international phone number (Inmarsat 870 country code)
External Port - Power	Power & charge port for AC/DC charger or foldable solar option.
Optional External Ports	ISDN 64Kbps (RJ-45), & FAX group 3 RJ-11 (with compatible group 3 fax machine)
Internal Ports (Inside Case)	ISDN 64Kbps (RJ-45), & FAX group 3 RJ-11 (with compatible group 3 fax machine)
Streaming Services 1:1CIR	32Kbps, 64Kbps, 128Kbps
Exterior Case Dimensions	17"L x 13.75"W x 6.75 "H (432 x 349 x 171 mm)
Weight (case only)	25 lbs. 4.3 oz. (11.46 kg)
Onboard 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 - Info
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	-15° F to 131° F (-26˚ C to +55˚ C) operating
Rain / Water / Dust:	IP66 when closed (withstands powerful water jets from any direction)
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°/s2
Case Colors Available	Desert Tan (default color), Yellow, Black, Silver, Orange, OD Green
Manufacturer Support	The MCD-4800 is integrated satellite technology manufactured by Ground Control and support by us 24 x 7
Warranty	1 year standard warranty. Extended 3 year and 5 year extended warranties available
Made In The USA	The Hughes 9450 transceiver and the MCD-4800 case are U.S. manufactured
Inmarsat Type Approval	The Hughes 9450 has been type approved by Inmarsat
PDF Brochure & Specs	The MCD-4800 Brochure & Specifications

Troubleshooting

SYSTEM OVERHEATING

The MCD-4800 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-4800 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** 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 BGAN connection.

2. A BGAN 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 any of 3 BGAN 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 he 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.

Contacting Ground Control Support

Ground Control technical support representatives are available 24 hours per day for your convenience. Please note that our standard hours of operation are Monday – Friday, 8AM to 5PM Pacific Standard Time. If you call outside of these hours, support response may be delayed and certain resources may not be available to the support agent.

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GROUNDCONTROL
www.groundcontrol.com