



- Introduction
- Configuration
- SIM Card
- Antenna
- Installation
- Testing
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Introduction

The ASE Citadel (Safe-Room) Solution is a powerful telephony and positioning reporting solution that operates over the Iridium network, which enables it to provide truly global coverage.

Within the safe room, the ASE Citadel Solution features voice communications and GPS-position reporting. This solution may also be remotely polled securely from the ship's offices or company headquarters. Furthermore, configuration may be performed remotely as well.

The safe-room solution solves antenna run problems by combining the transceiver and the antenna into one small, discreet enclosure that may be concealed when mounted since antenna distance is not an issue. A corded phone, mounted in a lockable wall-mounted cabinet, may be easily installed in the Citadel with only one cable running to the outdoor unit. An additional phone can be installed on the bridge from the same system to ensure a complete emergency communications system.



NOTE

The Citadel Solution may be referred to as the "Citadel", the "Antenna", or the "ComCenter" interchangeably as the antenna, transceiver, and receiver are all contained within the same enclosure. You may also refer to the ComCenter Outdoor User's manual for more detailed information.

QUESTIONS

If at any time, you have questions or concerns about either the installation or operation of your Citadel, please visit www.ase-corp.com or contact us using the information located on the cover of this manual.



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PRECAUTIONS

Please read and understand this User's Manual before installing your Citadel Solution. Careless or incorrect installation can degrade performance, damage both new and existing equipment, and incur unexpected network airtime charges.

OVERVIEW

The following table contains the steps required to configure, install, test, and maintain the ASE Citadel Solution. Additionally, descriptions of the persons who might be involved in placing the solution in service as well as solution maintenance may be included.

STEPS	PERSONS RESPONSIBLE	NOTES
Configuration	Ship's IT personnel	Configures email alerts, reporting, etc., prior to deployment
SIM activation	Ship's IT personnel	Ensures that activation occurs with the Iridium network
Antenna installation survey	Ship's owners/engineers	Optimizes satellite coverage while addressing thermal concerns
Solution installation survey	Ship's owners/engineers	Identifies cable run length(s) and the location of the junction boxes and phone cabinet
Physical installation	Ship's engineers and other installers	Instructions for mounting and installation
Testing after installation	Crew/ship's engineers	Verifies whether solution is operating correctly
In-service testing	Crew and/or IT personnel	Ensures solution is operating properly while in service
Maintenance	Crew/ship's engineers	Proper maintenance ensures functionality and extends life

LIFE CYCLE

Cabling Distance Assessment

Conducting a site survey reveals the cable length(s) required for installation.

Antenna Site Survey

The antenna site survey evaluates where the antenna should optimally be located. This involves considering the following tradeoffs:

- The antenna is often "hidden", which might bring inherent blockages.

- Tradeoffs between the visibility to the satellites and the line-of-sight to the satellites.

Verify Usage of Current Firmware

Ensure that Citadel Solution is using the most current firmware version.



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Life Cycle (Continued)

Upgrade If Needed

If the firmware version of Citadel Solution currently being used is not the most current one, upgrade it.

Configure Settings

The Citadel requires configuration prior to its deployment. This is done via the embedded webpage, as explained in CONFIGURATION.

Activate SIM Card

Activate the phone's SIM card. Follow the directions included in SIM CARD ACTIVATION.

Test Outgoing Call/Outgoing GPS

After installation, the solution requires testing. This includes an outgoing voice call. It may also include a test-GPS report sent via the Handset. ASE recommends testing at least one in-bound call as well as trying the remote polling feature if the user plans to rely on this aspect of its design.

Install Antenna (ComCenter)

The antenna is installed using the V-Bolts.

Route Cable

The antenna's associated cabling is routed throughout the ship.

Mount/Install Phone Cabinet

The phone cabinet must be mounted and connected appropriately. An optional Uninterrupted Power Supply (UPS) or battery backup may be installed for emergencies.

Test Voice Out/Voice in GPS Reporting

Weekly Voice Call Test

To ensure continuing viability of the Citadel Solution, it should be tested weekly.

Test Daily in HRA

In addition to testing daily while in High-Risk Areas (HRAs), it is recommended that testing be performed just prior to entering these zones.

Maintenance

Limited maintenance is required to keep the Citadel operating at peak performance.



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INTRODUCTION

The ASE ComCenter II Firmware v2.25 update brings powerful new GPS- and SMS-based features to the ComCenter Outdoor and ComCenter Citadel applications, including:

- GPS View for Real-Time Viewing of Position, Heading, Speed, and GPS Accuracy
- Remotely Polled GPS Position Reports (Report on Demand)
- TCP/IP acquisition of NMEA Sentences
- Automatic Periodic GPS Position Reports

This section informs the user as to the usage and configuration of the GPS Features and SMS Features in the Citadel Solution.

IMPORTANT

If you are in doubt about the mounting steps or the connectivity at any stage of this installation, please contact an ASE representative for assistance. They will be able to guide you through your specific installation options more clearly.

QUICK-START

Pick up the phone receiver.

Press ON/OFF to turn on.

Key in this sequence:

* 6 1 2

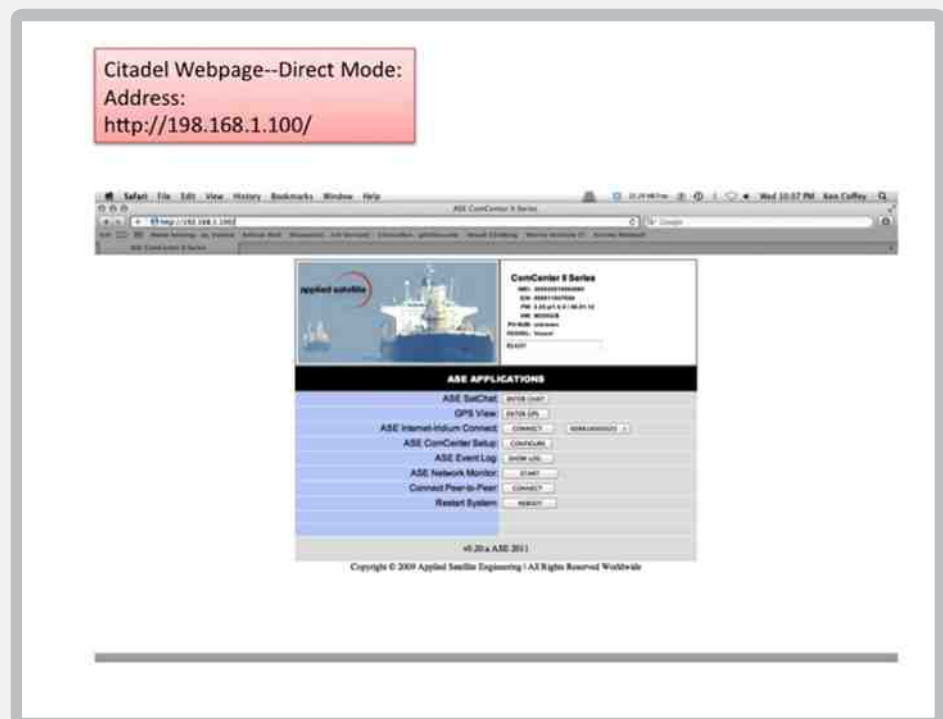
You should receive a confirmation sequence of 2 beeps. This sets NETWORK MODE to DHCP SERVER.

Press ON/OFF again to turn the phone off.

Connect a computer directly to the Citadel (ComCenter II) via an Ethernet cable (not included).

NOTE: To ensure more robust communication it is strongly recommend that you set the Speed and Duplex setting for the PC Ethernet Adapter to 10Mbps Half Duplex.

This is particularly helpful when communicating over long cable lengths.



Open a Web browser. If the following screen does not appear automatically, type this into the address bar to reach the Citadel Direct Mode:

<http://198.168.1.100>

REMOTE QUERY FOR FIRMWARE VERSION

ase#password#VERSION:??#

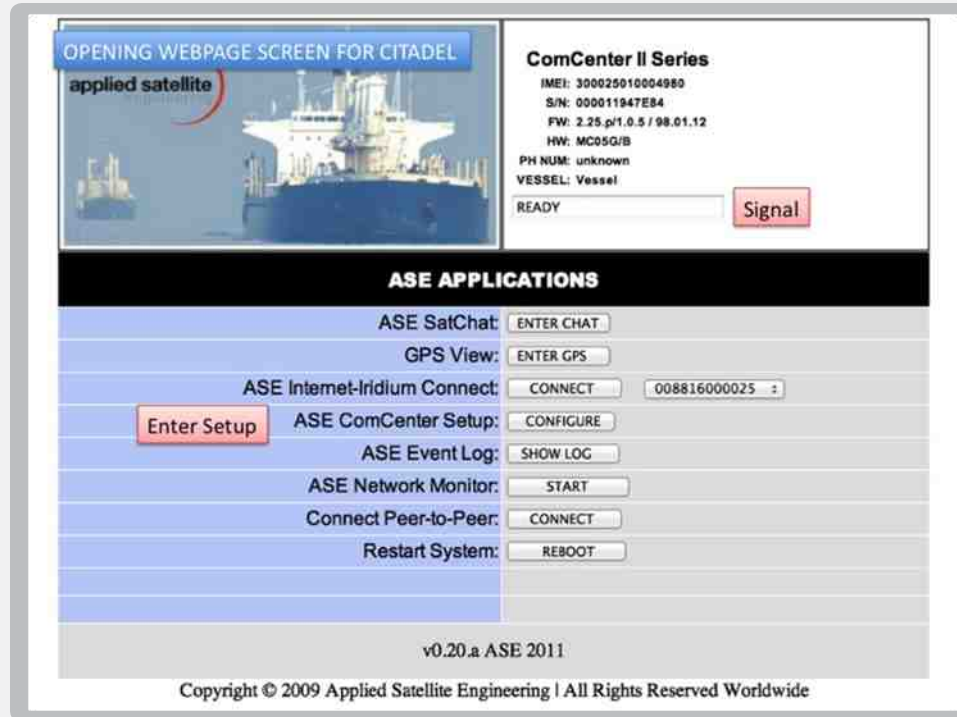


Opening Screen

When connected to a Web browser, the local is displayed as shown at the default IP address or at a custom IP address selected by the user.

Within this document, this IP address will be indicated by <ipadd>.

Click on CONFIGURE to begin setting up the system.

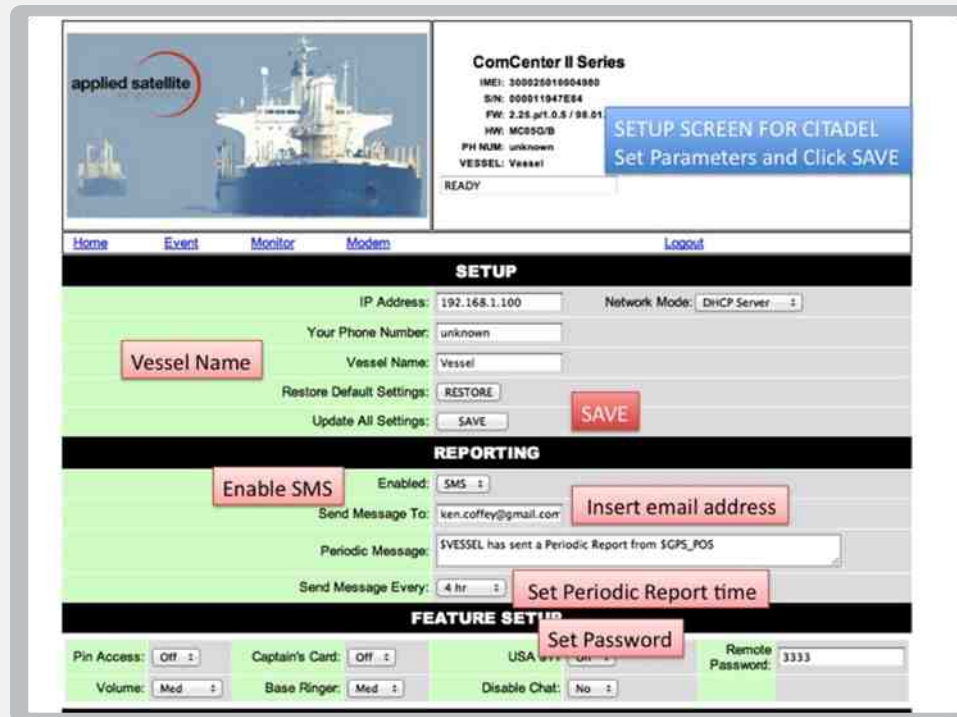


You should then see the following screen:

Follow these steps:

1. Enter Vessel Name
2. Enable SMS
3. Insert email address
4. Set Periodic Reporting to OFF (or some other time)
5. Choose a Password
6. Click SAVE

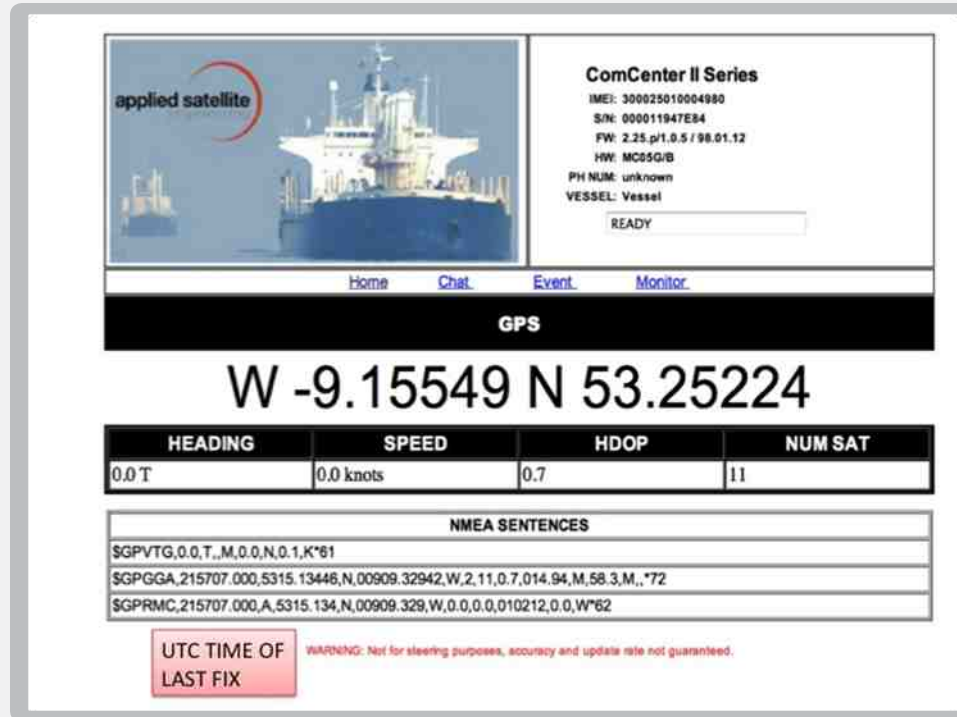
The phone is now ready to send reports and receive remote commands.





GPS View for Real-Time Viewing of Position, Heading, Speed, and GPS Accuracy

When connected to a Web browser, the GPS information is displayed as shown at the GPS page of the user-created IP address, or <ipadd>/gps.htm:



The screenshot shows a web interface for a GPS device. At the top left is the 'applied satellite' logo. The main content area is divided into two sections. The left section features a photograph of a large blue and white ship at sea. The right section displays the following information:

- ComCenter II Series**
- IMEI: 300025010004980
- S/N: 000011947E84
- FW: 2.25.pl1.0.5 / 98.01.12
- HW: MC05G/B
- PH NUM: unknown
- VESSEL: Vessel
- READY

Below this information are navigation links: Home, Chat, Event, Monitor. A black bar with the text 'GPS' is positioned below the links. The coordinates **W -9.15549 N 53.25224** are displayed in large font. Below the coordinates is a table with the following data:

HEADING	SPEED	HDOP	NUM SAT
0.0 T	0.0 knots	0.7	11

Below the table is a section titled 'NMEA SENTENCES' containing three lines of text:

```
SGPVTG,0.0,T,,M,0.0,N,0.1,K*61
SGPGGA,215707.000,5315.13446,N,00909.32942,W,2,11,0.7,014.94,M,58.3,M,,*72
SGPRMC,215707.000,A,5315.134,N,00909.329,W,0.0,0.0,010212,0.0,W*62
```

At the bottom left, there is a red box with the text 'UTC TIME OF LAST FIX'. To its right, a small red warning message reads: 'WARNING: Not for steering purposes, accuracy and update rate not guaranteed.'

PARAMETERS	DESCRIPTION
Latitude	Degrees and Decimal Minutes
Latitude	Degrees and Decimal Minutes
Heading	True Track in Degrees
Speed	Nautical Miles
HDOP	Horizontal Dilution of Precision provides information about the accuracy of the position report >3.0 Error > +/- 10 meters, Invalid Position report <2.0 Error +/- 5 meters <1.0 Error +/- 2 meters
Num Sat	Number of Satellites in view
UTC Date, Time	Date, Time of Displayed Fix



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TCP/IP acquisition of NMEA Sentences

In addition to having the MEA Sentences viewable in the GPS View, they are also accessible at any time using AT commands over the TCP/IP socket.

Connect to socket at <ip addr>:23 and execute the following AT commands:

AT+INMEA_GPGGA?	returns the GPGGA sentence
AT+iNMEA_GPVGTG?	returns the GPVTG sentence
AT+iNMEA_GPRMC?	returns the GPRMC sentence

Emergency Reporting (*911)

An emergency alert can be transmitted by pressing *911 on the connected Analogue/RJ11 Phone. A triple-beep tone on the Analogue/RJ11 phone provides an indication that the message was transmitted. The following instructions must be followed for an emergency report to be transmitted successfully:

- The emergency alert will be sent as an SMS email to the email address entered into the "Send Message To" field.
- The "from" field in the received email will include the phone number of the device.
- The "body" in the received email will have the message:
 - "Emergency Alert sent from <vessel_name> at location <gps position>"
- Vessel Name and Send Message To email address must be configured by the user.
- The alert will NOT be sent if:
 - an email address has not been configured.
 - the ComCenter link to the satellites is not available.

Automatic Periodic Reporting

An automatic periodic report can be transmitted at pre-configured intervals.

The following instructions must be followed for an automatic periodic report to be transmitted successfully:

- The report must be sent as an SMS email to the email address entered into the "Send Message To" field.
- The "from" field in the received email will include the phone number of the device.
- The "body" in the received email will have the message as entered by the user.
- The keyword "\$GPS_POS" in the message will be replaced with the current location.
- The keyword "\$VESSEL" in the message will be replaced with the vessel name.
- Vessel Name and Send Message To email address must be configured by the user.



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Report On-Demand

A position report can be sent on demand from a remote site. The request must be an (SMS) email message with a valid password and valid message format. The replied report will be to the requester email address.

For details on request format and methodology, see Remote Configuration and Query below.

REMOTE CONFIGURATION AND QUERY

Some configuration parameters can be set from a remote site. The request must be an SMS email message with a valid password and valid message format. The replied query or configuration update status will be to the requester email address.

To execute the remote configuration successfully, the email fields must be formatted in accordance with the following parameters:

From: Returned email
To: The Iridium Phone number@msg.iridium.com
Subject: Can be anything
Body: ASE Commands only

Other points that must be considered include:

- ase#password#field:data#field2:data# #
- password must match and must be >= 4 characters
- For parameters also configurable via Web page, Web should be updated with new information upon browser REFRESH
- password is CASE SENSITIVE
- all others are NOT case sensitive
- “:?” sends the value of the field as a report
- responses and reports are only sent if a valid email address has been set up previously

ASE COMMANDS

Remotely Enable/Disable Automatic Reporting

ASE#<password>#PSMS:<value># ON | OFF

Remotely Setting New Email For Reports

ase#password#PSMSTO<email>: ?#

Remotely Request Current Position

ASE#<password>#POSITION: ?#

Returns the current location information. See Example 1.



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Remotely Set Automatic Reporting Rate: OFF To 1 Week Interval

ASE#<password>#PSMSRATE:<value># 0:8

VALUE for Periodic Reporting	RATE of Periodic Report
0	OFF
1	30 minutes
2	1 hour
3	4 hours
4	8 hours
5	12 hours
6	24 hours
7	48 hours
8	1 week

Sets the Automatic Reporting Rate. See Example 2.

Remotely Set Reporting Email Destination

ASE#<password>#PSMSTO:<value># emailaddr

Sets the Automatic Reporting Destination. See Example 3.

Remotely Setting Vessel Name

ase#password#VESSEL:name#

See Example 4.

Remotely Changing Password

ase#password#PASSWORD:newpassword#

See Example 5.



COMMAND EXAMPLES

EXAMPLE 1: Request for position

REMOTE POLLING AND SETUP/CHANGE
Email (SMS) format

From
From: Ken Coffey <ken.coffey@ase-corp.com>

To
To: 88163101XXXX@msg.iridium.com,
Iridium Phone number@msg.iridium.com

Subject
Subject: Request for Position (Subject can be anything)

Attach a file Insert: Invitation

B I U T - T - A - T - ☺

ase#password#POSITION:?#

Body of email only ASE Commands
ase#password#Command#

EXAMPLE 2: Remotely setting the remote periodic reporting to “once per hour”

From
From: Ken Coffey <ken.coffey@ase-corp.com>

To
To: 88163101XXXX@msg.iridium.com,
Add Cc Add Bcc

Subject
Subject: Remotely setting remote periodic reporting to once per hour

Attach a file Insert: Invitation

B I U T - T - A - T - ☺

ase#password#PSMSRATE:2#



RJ-11 (PHONE) COMMANDS

The ASE Citadel (Comcenter II) Solution has powerful control over the system's settings through the use of the phone. For parameters also configurable via the Web page, these parameters should be updated upon browser REFRESH. By pressing the ON/OFF button until the green light is illuminated, then entering "*" and keypad numbers, the user can change many settings.

The RJ11 Command Sequence is:

OFF HOOK

['*']

command

HANG UP

What follows is a list of these commands:

COMMAND	DESCRIPTION	CONFIRMATION
12345	restores defaults	3 beeps
1111	unlocks SIM PIN	3 beeps
201 - 205	sets volume level	NONE
500 501	sets USA911 feature to OFF ON	3 beeps
510 511	sets NET ALERT feature to OFF ON	3 beeps
520 - 523	Not Applicable	Verifies whether solution is operating correctly
530 531	sets CAPTAIN CARD SmartDial to OFF ON	3 beeps
540 541	sets PBX SIGNALING feature to OFF ON	3 beeps
610	sets NETWORK MODE to FIXED	1 beep
611	sets NETWORK MODE to DHCP Client	2 beeps
612	sets NETWORK MODE to DHCP Server	3 beeps
640 - 648	sets PSMS RATE to OFF or rate 1 to 7 must have valid email address already set up	3 beeps
650	sets REMOTE ACCESS to OFF sets password to NULL	3 beeps
651xxxx	sets REMOTE ACCESS to ON sets password to xxxx	3 beeps
666	reboots system	NONE
7xxx	dials from phone book entry xxx does not work with Capt Card	dialing tones
911	sends EMERGENCY MESSAGE must have SEND_VIA_SMS enabled must have a valid email address	3 beeps
994	query network mode	1 to 3 beeps

Refer to Testing Section related to *8 (Star-8) Installation commands.



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Warnings and Limitations

Both GPS and SMS technologies have tremendous capabilities, but are not without limitations. Included below are indications that advise the user of these technology limitations.

- The accuracy and update rate of the GPS webpage is not guaranteed. Do not use this product for navigational guidance purposes.
- SMS messaging is NOT a guaranteed delivery service. Successful SMS transmission results in 3 beeps for confirmation. Failure to transmit yields no notification beeps.



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Service Providers (SP) offer a choice of two varieties of SIM cards for the Iridium network:

1. A STANDARD SIM card
2. A CAPTAIN'S SIM card

Accessing the Iridium network requires working with the service provider to obtain and register the SIM card. It is a good idea to keep a copy of the registration email since it may contain PIN numbers and other important information.

STANDARD SIM CARD

Activating a Standard SIM Card

Determine Whether the Phone is Working Correctly

Mount the Citadel with excellent visibility of the sky.

Open the phone cabinet to access the white Citadel phone.

Press the ON/OFF button so that the green light appears.

Listen for a tone. What is heard should be the following sequence repeating:
HI-LO HI-LO HI-LO beep beep beep

Hearing this indicates that:

- the phone is working correctly.
- the SIM card needs to be unlocked.

Unlocking the SIM Card

Dial the following sequence:

* 1111

Press the ON/OFF button to extinguish the green light.

The phone is now unlocked.

Dialing with a Standard SIM Card

Making an Outward Call

Press the ON/OFF button so that the green light appears.

Listen until a constant tone begins.

To dial out, press this sequence:

00 (Country Code) (Area Code) (No.) #



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Dialing with a Standard SIM Card (continued)

EXAMPLE 1: Dialing a number in the U.S.

00 1 XXX XXX XXXX #

EXAMPLE 2: Dialing a number in the U.K.

00 44 XX XXX XXX #

Iridium provides a free test number for dialing without charges, tariffs, or duties.

EXAMPLE 3: Dialing the Iridium Free Test Number

00 1 480 752 5105 #



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CAPTAIN'S SIM CARD

Activating a Captain's SIM Card

Determine Whether the Phone is Working Correctly

Mount the Citadel with excellent visibility of the sky.

Open the phone cabinet to access the white Citadel phone.

Press the ON/OFF button so that the green light appears.

Listen for a tone. What is heard should be the following sequence repeating:
HI-LO HI-LO HI-LO beep beep beep

Hearing this indicates that:

- the phone is working correctly.
- the SIM card needs to be unlocked.

Unlocking the SIM Card

Dial the following sequence:

* 1111

Press the ON/OFF button to extinguish the green light.

The phone is now unlocked.

Disabling the Captain's PIN

Open the phone cabinet to access the white Citadel phone.

Press the ON/OFF button so that the green light appears.

Dial the following sequence:

698 698 #

What is heard will be an automated operator requesting that the CAPTAIN'S PIN be entered. This is found in the registration email. A typical PIN is 4 numeric characters.

Press Option 4 to disable the PIN.

A message indicating that the SIM card is now unlocked should appear.

The PIN code is no longer required.

Press the ON/OFF button to extinguish the green light.



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Dialing with a Captain's SIM Card

Making an Outward Call

Press the ON/OFF button so that the green light appears.

To dial out, press this sequence:

698 (Country Code) (Area Code) (No.) #

EXAMPLE 1: Dialing a number in the U.S.

698 1 XXX XXX XXXX #

EXAMPLE 2: Dialing a number in the U.K.

698 44 XX XXX XXX #

Iridium provides a free test number for dialing without charges, tariffs, or duties.

EXAMPLE 3: Dialing the Iridium Free Test Number

698 1 480 752 5105 #



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INTRODUCTION

The ASE Citadel Solution is a powerful communications device that serves as a vital safety tool for ships on the high seas.

One of the most crucial aspects of installation is determining where to place the antenna on the ship. In this sense, locating the antenna does not refer to finding the antenna so much as it means placing the antenna. Since not all ships are designed the same way, ASE has developed several Citadel installation options along with some installation accessories that are available for purchase.

ComCenter Mounting

The ComCenter II Outdoor with GPS can be mounted easily and is small enough to keep hidden from view. The unit has a configuration where the antenna and transceiver are contained together. This design eliminates typical antenna cabling distance limitations. The ComCenter II Includes a Vibration-Dampening Universal Mount.

The Vibration-Dampening Universal Mount fits flat-face beams as well as vertical and horizontal railings between 1 in. and 2 in. in diameter.

An alternative mounting option is the Vibration-Dampening Pole Mount. See Optional Accessories for more details.

Cabling

Routing a single cable from the hidden ComCenter II unit to the Citadel Safe Room achieves secure voice and data communications for the system.

ComCenter II Cable has a length of 47 m (150 ft) and combines RJ-11, RJ-45, and power in a single cable. It includes a breakout cable as well as a power adapter.

The extended version has a 100 m cable with a junction box.

Cabinet

The system's latching wall cabinet is easy to install on any ship. This cabinet houses a corded phone and features the option for hooking up additional phones.

The Wall Mount RJ-11/POTS Phone in Latching Cabinet features a placard inside that has dialing/emergency instructions. This cabinet includes an RJ-11/POTS phone, as well as 15 m (50 ft) of 2-wire RJ-11 cable and a splitter for additional phones.

The extended version has a 100 m cable with a junction box.



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Optional Accessories

- If needed, ASE recommends adding a battery backup to the system. Our recommended Uninterrupted Power Supply (UPS) automatically turns on when power is lost or intentionally shut down. A well-maintained battery backup has the capability of powering the system for 100 hours in standby mode, or 55 hours of talk time. Designed specifically for maritime use, this backup is housed within a steel wall-mounted case with replaceable 10 year batteries.
- For installations requiring more cable than what is included with the required system products, Cable Extensions are available.
- The Vibration-Dampening Pole Mount Bracket fits standard 1 in. NPT pipe threads.

INSTALLATION TIPS/TROUBLESHOOTING

Mounting

The Citadel can be mounted on a “rail” as shown below. An alternative mounting configuration rotates the V-bolts by 90 deg so that the Citadel can be mounted on a vertical structure, such as a pipe.





Antenna Placement

Antenna placement is very important for maintaining proper Iridium Satellite Service operation. The ideal installation should have a 360 deg view of the sky with no obstructions 8 deg off the horizon.

Many ship's engineers make the decision to hide the antenna. The choice of location with regard to blockage and satellite visibility trade-offs are the ultimate decision of each ship's owner.

180°

The ideal installation should have 180° view of the sky with no obstructions 8° of the horizon.

i

The installer and user must be aware of important installation information, limitations and compromises.

For Citadel Installations, it is desired that the antenna be located hidden from unauthorized access

Satellite Visibility

If this visibility must be compromised, satellite accessibility will be reduced some percentage of the time.

1 2 3 4 5 6 7 8

min

2cm

2m

If possible mount center line of antenna 2cm above mounting wall or other obstruction.

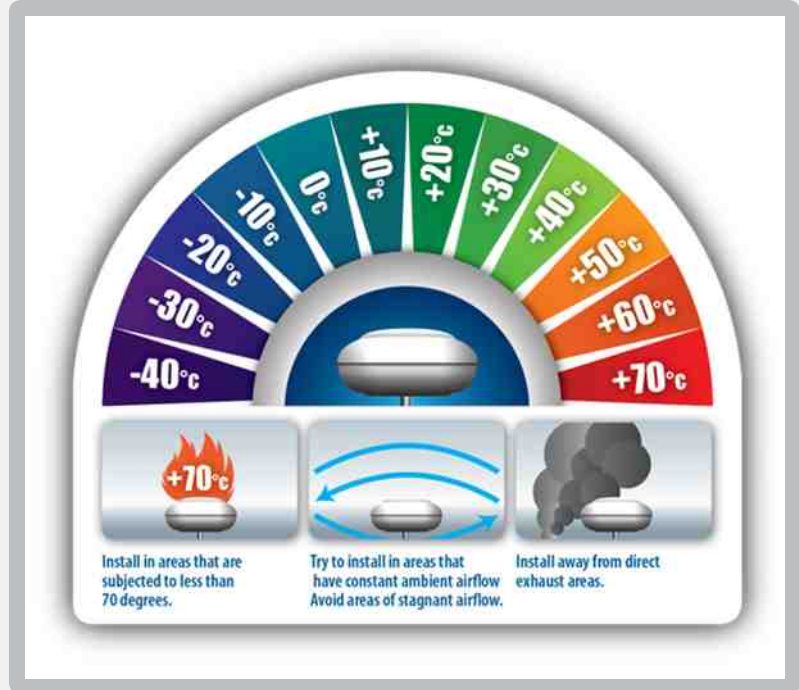
If choosing blockage make certain in only one direction and minimum distance of 2 meters.

Test weekly under normal conditions. Test daily prior to, or upon entering high risk areas!



Temperature Restrictions

The antenna is often installed hidden from view near the ship's funnel. Since the exposed antenna is rated for a temperature range of -40°C to 70°C , it must be placed away from heat vents or other heat sources. If not, permanent damage may occur from exposing the antenna to temperatures above the operating specification.





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Prior to beginning the installation of the Citadel, take a quick inventory to ensure that you have all the necessary components.

Standard components of the Citadel include:

- Citadel antenna
- Cable
- Junction panel or junction box
- Power adaptor
- Latchable phone cabinet with handset
- 15 m (50 feet) of RJ11 telephone cable

Optional component(s):

- Uninterrupted Power Supply (UPS) battery backup

Once you have identified your preferred location of antenna installation, adjust the V-Bolts to accommodate either a vertical or horizontal placement. A horizontal orientation is shown in the image above.

Antenna Mounting

Mount the antenna with the “seam” parallel with the horizon and keep blockage to a minimum. For more information about placement, see “Locating the Antenna” to review placement if needed.

Cable Routing and Attachment to the Antenna

Choose the best pathway and route the cable from the antenna to the Citadel location. If extensions are used, connect these as needed.

Connect the end opposite the antenna to the junction panel (or junction box).

Phone Cabinet Installation

Install the phone cabinet wherever it is desired. It is easiest to use the four mounting “bosses” on the back of the phone cabinet. Install using best judgment based upon the installed location.



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CONNECTING POWER, RJ11 (PHONE) AND RJ45 (ETHERNET)

Case 1:

When the Optional Harland Simon Battery Backup (UPS) Is Not Installed/Used

Connect the AC power cord to the ship's power (100-240 VAC). Then connect the AC-DC Power adaptor to the junction panel (or junction box) using the plug. Be certain to tighten the screw portion of the jack to secure.

Connect the RJ11 from the phone cabinet to the junction panel or junction box.

If using a laptop (or other computer), connect a CAT-5 ethernet cable (not included) from the laptop to the junction panel (or junction box).

Case 2:

When the Harland Simon Battery Backup (UPS) Is Being Used

To prepare the UPS, please follow the instructions that came with the unit. Additionally, ASE recommends following these steps as well:

- Install the conductor strap between the NEG (-) Terminal on the left battery to the POS (+) terminal of the left battery. The two batteries will then be in series to provide +24 VDC.
- Connect main power to the correct terminals inside the UPS.
- You may use the jack and cord from the power adaptor to the +24 V terminals to connect to the junction panel or junction box.
- Consult the UPS manual for testing and troubleshooting guidelines.



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INTRODUCTION

ASE recommends frequent testing of the Citadel Solution. At a minimum, this means testing the Citadel on a weekly basis. This testing should be made a part of the Ship's Security Assessment and Ship's Security Plan (SSA and SSP).

The first testing procedure should begin shortly after the Citadel is installed on the ship. Consult the Installation Check Sheet for details on the procedure.



INSTALLATION CHECK SHEET

Ship Name or ID:		Date:	
IMEI:		Tested by:	
Test	Pass	Fail	Notes
Check for dial tone 10 minutes after system power up			
Place outgoing call			
Place outgoing call 2 minutes later			
Place outgoing call 4 minutes later			
Place outgoing call 6 minutes later			
Place outgoing call 8 minutes later			
Place incoming call			



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TESTS

System Test

Once installation is complete, the system can be powered up and tested. What follows is the recommended initial testing procedure:

Install a SIM card in the antenna (if one has not already been installed).

Apply power to the system.

Wait 5 -10 minutes to allow for the system to initialize. This enables the Citadel to locate the satellites and then register on the Iridium network.

Retrieve the RJ-11/POTS phone from inside the lockable cabinet.

Press the ON/OFF key so that the light turns green and the dial tone may be heard.

Consult the following dialing procedures to place an outgoing test call:

- For a Standard SIM card: 00(country code)(area code)(number)#
- For a Captain's SIM: 698(country code)(area code)(number)#

Place an outgoing test call.

Placing an incoming test call involves arranging for land-based personnel to call the ship. When receiving an incoming call, the RJ-11/POTS phone rings. Answer by pressing the ON/OFF button until it turns green.

If this procedure cannot be completed, please refer to the Troubleshooting section.

Voice Tests

Voice Testing encompasses the following types:

- Outbound Voice Call
- Inbound Voice Call

Testing an Outbound Voice Call can be accomplished by dialing the ship's offices, etc. Another method is by choosing to make a tariff-free Iridium call by dialing:

00 1 480 752 5105 # (when using a Standard SIM Card)
698 1 480 752 5105 # (when using a Captain's SIM Card)

For an inbound call, it is recommended that you coordinate with land-based personnel.



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Safety Preparation

Increase the frequency of testing to once per day when preparing to enter the High Risk Areas (HRAs).

Since this requires voice dialing, please revisit pp. 15-18 in the SIM Card section for voice dialing procedures.

In the event that a ship comes under attack, NATO forces request that the crew of the distressed ship dial a central number to coordinate a response. Because of this, it is strongly recommended that the phone number for NATO forces be prominently displayed near the phone.

The UKMTO office in Dubai serves as the primary point of contact between merchant shipping and the naval forces patrolling the waters off the Somali coast. Iridium's calling plan allows users to use UKMTO +971 to connect to the Iridium network free of charge.

Please review these procedures with your ship's security officer to ensure the number is correct.

GPS Positioning

ASE recommends the testing of GPS positioning frequently. This is done by pressing the following sequence:

* 9 1 1

Remote Polling

It is recommended that the remote polling features be tested to ensure that the Citadel Solution is operating properly.

Please see the Configuration section to review remote polling features and procedures.



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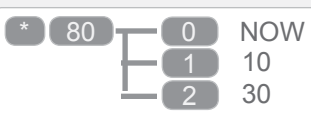

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INSTALLATION ("STAR-8") DIAGNOSTICS

Accessing Star-8 Diagnostics

ASE's *Star-8*™ features can perform a signal strength assessment that accounts for cabling distance, connector quality, and antenna placement. This evaluation may detect the presence of a structure or object that obstructs the signal's path to the satellite. These powerful diagnostic features can be performed during installation or utilized as a part of scheduled maintenance to ensure that the system is working at peak performance.

OPTION	SEQUENCE	DESCRIPTION
Signal Strength Tests		<p>Reports Iridium signal strength on the display, or as a series of audible beeps. The number of beeps (0 to 5) represents signal strength (none to excellent)*.</p> <p>Options NOW: current signal strength 10: 10 minute average taken every minute** 30: 30 minute average taken every minute**</p> <p>*zero, or no beeps indicates antenna not connected **error tone given if not enough time has elapsed to compute the average</p>
Antenna Blockage Tests		<p>Reports potential Iridium antenna blockage on the display, or as a series of audible beeps. The number of beeps (0 to 5) represents the percentage of blockage (none to severe)*.</p> <p>Options 10: percentage of bad signal strength over 10 minute period** 30: percentage of bad signal strength over 30 minute period**</p> <p>*zero, or no beeps indicates no antenna blockage detected **error tone given if not enough time has elapsed to compute the percentage</p>

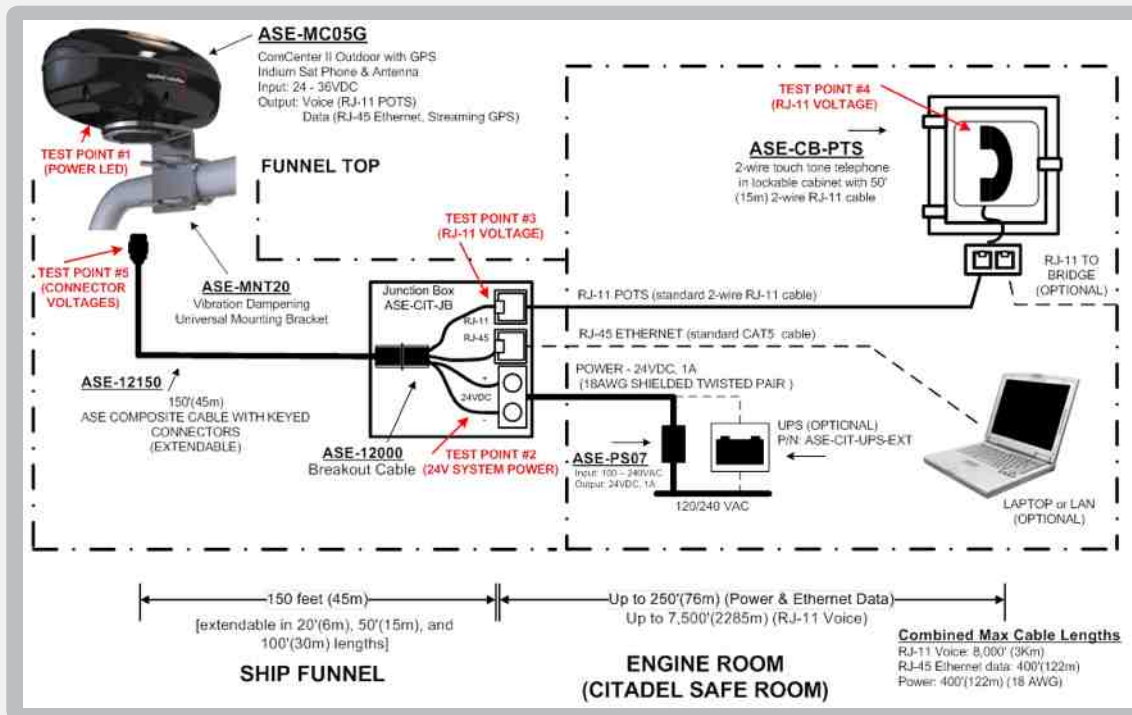
MAINTENANCE

Clean the antenna portion periodically. Conduct a physical inspection to verify that the antenna remains horizontal and that the mounts remain tight.



CABLE DIAGRAM

The diagram below shows typical wiring between the antenna and a Citadel safe room. Voltages may be checked at indicated locations to confirm wiring or troubleshoot.





RJ-11/POTS PHONE BUTTONS AND FEATURES

ON/OFF Key

This is used to initiate a call or to answer an incoming call.

Initiate a call by pressing this button. The button will turn green and a dial tone will be heard. Enter the dialing sequence on the numbered keypad and press the # key to place the call. The Iridium 'bleeps' will be heard followed by ringing of the party being called.

Answer an incoming call by pressing the ON/OFF key until it turns green.

Ringer Volume Switch

Set this switch to turn off the incoming ringer or to set to the desired incoming ring volume. Settings are: OFF – LOW – HI.

Volume Control

This button toggles the volume level of the phones speaker in three steps: LOW – MED – HI. Pressing this button repeatedly cycles through these settings.

Star / Asterisk Key (*)

ComCenter II setup commands are initiated with this key. See the User's Manual for a complete list of setup commands.

Pound / Hash Key (#)

This key must be pressed to initiate an entered dialing sequence.



RJ-11/POTS ERROR TONES

When the ON/OFF key is pressed and turns green, one or more of the following tones may be heard:

Dial Tone

Continuous tone that indicates the system is ready and a call can be placed.

IMPORTANT: If the phone is left on (green light) for an extended period, the Dial Tone will change to a rapid stutter tone to alert the user that the phone is active but not in use. The phone needs to be turned off to receive incoming calls.

Stutter Tone

This is an alert tone indicating that the phone is active but not in use, and should be turned off to allow the system to receive calls.

Error Tones

The table on the next page shows additional error tones to help identify the status or indicate problems with the system.



Status and Error Tones

Description	Tone Name	Tone Pattern
Powering UP Initialization	NOT READY TONE	<long time><bleep>...repeat
Searching for Network	NOT READY TONE	<long time><bleep>...repeat
Ready to Dial	DIAL TONE	<continuous dial tone>
Enter ASE Access PIN CODE	PIN CODE BEFORE DIAL	<pause><bleep>...repeat
Device on Data Call	BUSY TONE	<continuous busy tone>
Poor Signal during Call	POOR SIGNAL	<bleep><bleep>
Missing SIM Card	ALERT TONE + BEEP COUNT	Alert Tone + 2 beeps
Locked SIM Card	ALERT TONE + BEEP COUNT	Alert Tone + 3 beeps
Registration Denied	ALERT TONE + BEEP COUNT	Alert Tone + 4 beeps
Bad SIM Card	ALERT TONE + BEEP COUNT	Alert Tone + 5 beeps

We understand that describing tones is difficult with words. Therefore, we have made available "wave" files that play the actual tones. Please contact us to gain access to these files.



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WIRING TEST POINTS

Please refer to the wiring diagram on P. 29 when checking and correcting the following Test Points:

Test Point 1

The GREEN LED on the bottom of the antenna should be lit when power is applied.

This LED will be steady (not blinking) if the system has initialized and registered with the Iridium satellites.

A blinking LED can mean one of two scenarios is unfolding:

- A slow blink (once per second) indicates that the system is searching for the satellites.
- A fast blink (twice per second) indicates that the system is in firmware upload mode.



Test Point 2

Verify that the source power (24 VDC) is present in either the junction box or some other connection point in your system.



Test Point 3

RJ-11/POTS voltages can be checked and confirmed at this location.

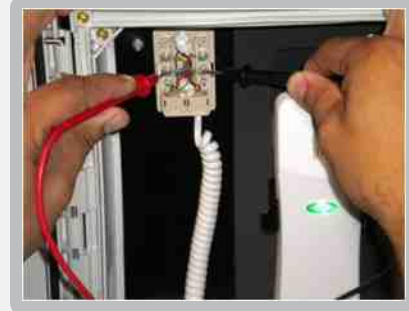
Approximately 48 VDC should be present when the ON/OFF button of the RJ-11/POTS phone is pressed and does not exhibit the green light. Checking polarity is not important as it will reverse between calls.

Approximately 10 VDC should be present when the ON/OFF button of the RJ-11/POTS is pressed and does exhibit the green light and the dial tone may be heard. Again, here, polarity is not important.



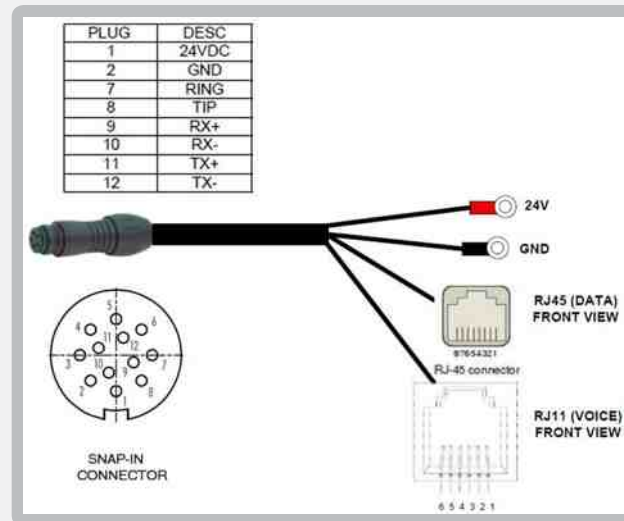
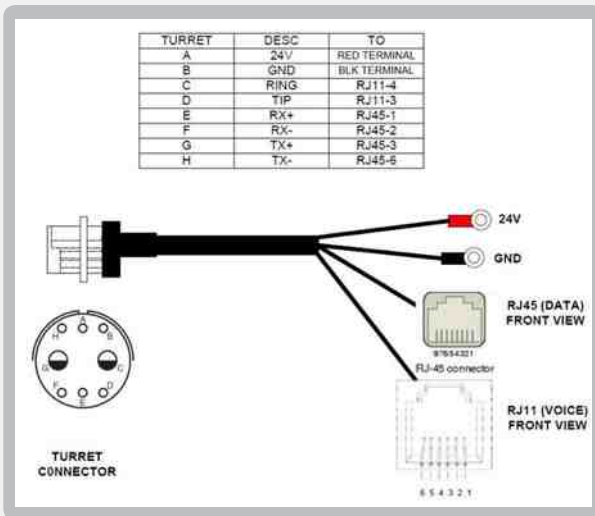
Test Point 4

These same RJ-11/POTS voltages can be checked inside the lockable cabinet at the splitter. Polarity is not important.



Test Point 5

If some or all of the above test points are invalid, the antenna may not be receiving power, or the wiring is incorrect somewhere within the system. To test for power to the antenna, the antenna mating connector can be temporarily disconnected and checked according to the following diagrams.





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FIRMWARE UPGRADE

ASE Device Manager

Since the ASE Device Manger provides the firmware upgrade functionality, this program must be installed and opened for the firmware upgrade to begin.

Start by selecting Tools, then Upgrade from the ASE Device Manager.

NOTE: To ensure more robust communication it is strongly recommend that you set the Speed and Duplex setting for the PC Ethernet Adapter to 10Mbps Half Duplex.

This is particularly helpful when communicating over long cable lengths.



Other ASE Device Manager Functions

Other functions (not needed for firmware upgrade) include:

Viewing the Embedded Webpage

If you click this button, you can open the ComCenter II embedded webpage. This button opens the page located at the IP address listed in Profile.

Setting Network to Profile

If you click this button, your computer will be reconfigured with the ComCenter II as your default PC default gateway. This button uses the IP address listed in Profile. (Not recommended unless you are familiar with PC Network settings)

Finding the ComCenter on your LAN

This is a useful method to find the IP address of the ComCenter if the ComCenter is being used as a DHCP Client on a LAN.



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Upgrade

There are two files required for most upgrades:

- the firmware (ending in “.ase”)
- the embedded Web pages (ending in “.img”)

To begin, go to Tools then Upgrade.

Make sure you have the correct file and then begin to upgrade the firmware by following these four steps:

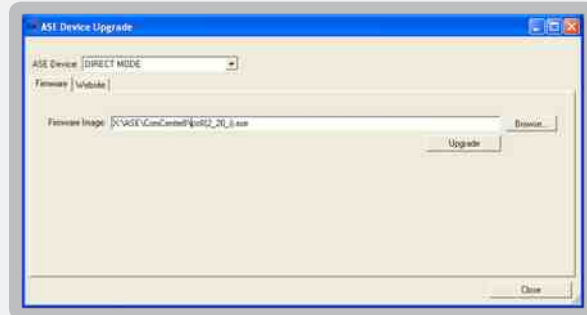
Make sure that the Firmware tab is selected. Please verify by comparing your screen to the dialog box below.

Browse and select the new firmware file (ending in “.ase”).

Click Upgrade.

Wait for the progress bar to complete and then click OK.

(Some systems will not “find” the Comcenter on the first attempt. This is normal. Click the OK button once more and try again.)



Upgrading the Embedded Webpage

Select the Website tab.

Compare what you see to the screenshot on this page to verify that you are in the correct location.

Browse and select the new Website file. It features an .img extension.

Click Submit.

Wait approximately 20 seconds for the upgrade to be completed.

Please verify that both the new firmware and the new Web page versions have been successfully loaded by checking the Web page to ensure that the proper versions are displayed.





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INTERNET CONNECTION

The PC needs to be configured with the IP address of your device, the IP address of your gateway, and a DNS server address. If you are using the ComCenter II in DHCP server mode, then these parameters will be updated in your PC automatically.

If you are NOT using the ComCenter II in DHCP Server mode, then you will need to configure your PC manually. The IP address of your ComCenter II should be your gateway.

NOTE

The Iridium data rate is very slow: 2400 baud. Therefore, "Web surfing" is not recommended as most Web pages will time out. The data service is useful for peer-to-peer communication and checking email using a third party email compression tool.

You may use any DNS server. ASE uses DNS 12.127.17.72.

We recommend you put the ComCenter in DHCP Server mode (*612 command from the RJ11) and connect the ethernet cable directly between the ComCenter and your laptop. Be sure to turn OFF your wireless network on laptop.

In Windows, go to RUN and type CMD to get a DOS shell.

Enter "ipconfig".

Verify that your computer has been assigned an IP address in the 192.168.1.xxx network, that the gateway is 192.168.1.100, and that the DNS is 12.127.17.72.

Using a browser, go to 192.168.1.100 to access the ComCenter embedded webpages.

Click on the CONNECT button. It will take 30 seconds (or more) to go ONLINE.

Once ONLINE, return to your DOS shell and try to ping www.google.com (74.125.227.17) to verify operation.

Click DISCONNECT to hang up.



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Connecting via Ethernet

The easiest way to connect is directly to a laptop. Put the ComCenter II Series in DHCP Server mode:

- Key in *612 from an RJ11 phone or Privacy handset
- Connect directly to laptop

The ComCenter II will be at address 192.168.1.100. Please note that this address is also referenced as Direct Mode when using the ASE Device Manager.

On a full network, put the ComCenter II Series in DHCP client mode using *611 or RJ11.

Use the ASE Device Manager to “FIND” the IP address. The factory default setting for ComCenter II Series products is DHCP Client mode.

NOTE: To ensure more robust communication it is strongly recommend that you set the Speed and Duplex setting for the PC Ethernet Adapter to 10Mbps Half Duplex.

This is particularly helpful when communicating over long cable lengths.