



Blue Sky Network

D1000 (A)

IRIDIUM SATCOM DATA SOLUTION

Installation Guide

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INTRODUCTION

Application

This guide is applicable to the following components:

Part Number	Component Description
100140 (A)	D1000 (A) Modem Unit
100160	D1000 Control Unit
100184	D1000 (A) Power Harness Kit
100185	D1000 (A) Interconnect Harness Kit
S67-1575-109	Single-channel Antenna (Iridium & GPS)
S67-1575-165	Dual-channel Antenna (Iridium & Iridium/GPS)
Notes The D1000A is an upgraded version of the D1000 Modem and it allows users to connect the ACH1000 Control Head . Most parts of this installation guide are applicable to both D1000 and D1000A , unless otherwise stated.	

Overview

The information contained in this manual describes the features, functions, technical characteristics, components, approval procedures, installation considerations, setup procedures, checkout procedures and instructions for continued airworthiness for a BLUE SKY NETWORK D1000(A) IRIDIUM SATCOM DATA SOLUTION.

Information, drawings and wiring diagrams contained in this manual are intended as a reference for engineering planning only. Drawings and wiring diagrams contained herein do not represent any specific aircraft installation. It is the installer's responsibility to create installation drawings specific to the aircraft. This manual, and drawings and wiring diagrams, contained herein may not be used as a substitute for any drawing package.

SYSTEM DESCRIPTION & OPERATION

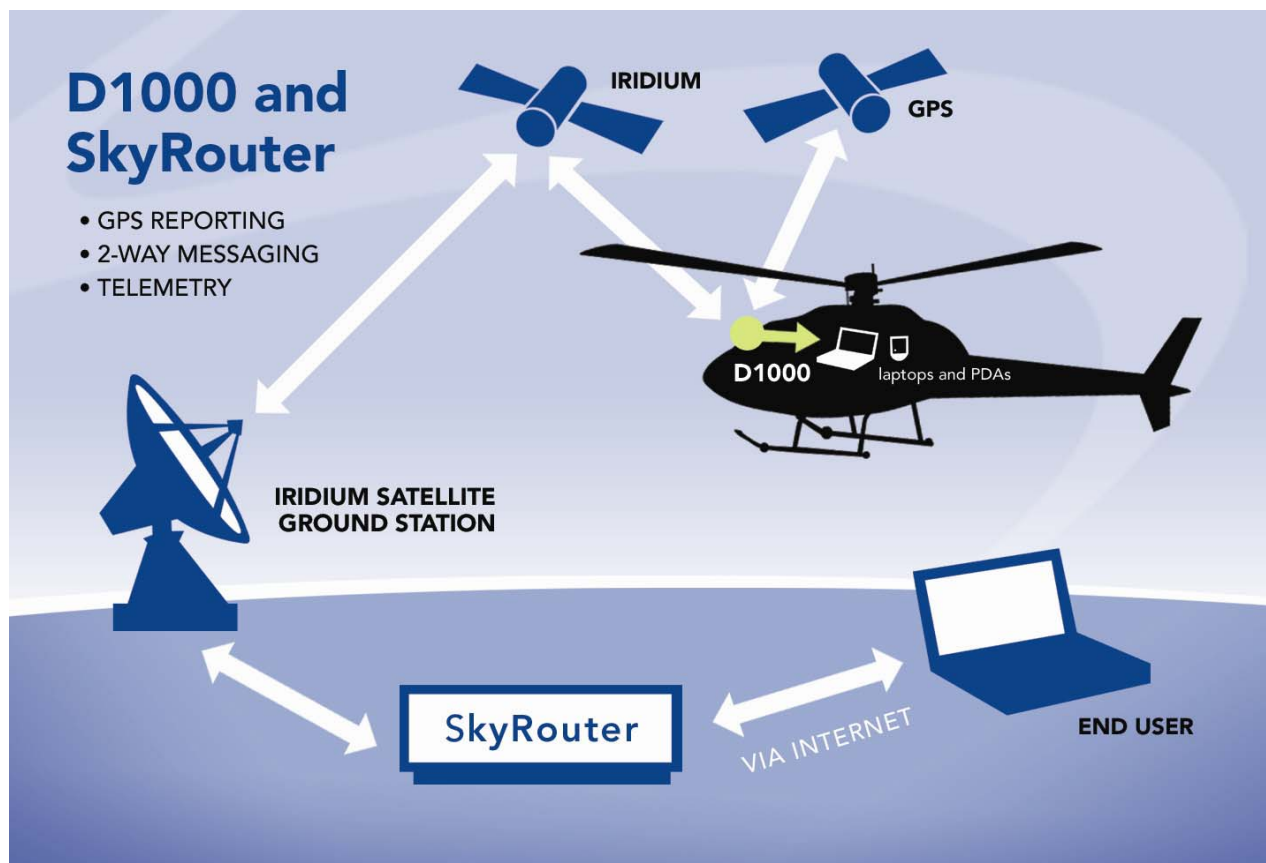
System Description

General

The BLUE SKY NETWORK D1000(A) IRIDIUM SATCOM DATA SOLUTION provides unprecedented next generation satellite data communications to and from aircraft on a global scale. This affordable and robust terminal provides an integrated Iridium and GPS solution that allows owners, operators, and passengers to track, and communicate with, aircraft world-wide. The D1000(A) offers GPS position reporting, two-way email messaging and telemetry data delivery.

All data services are managed by the customer through our web-based SkyRouter.com servers. SkyRouter.com offers global flight tracking powered by Flight Explorer and a two-way messenger application. It also offers account management features, such as user and D1000(A) fleet management, and billing information. Access to SkyRouter.com is highly secure and password protected.

The D1000(A) solution ties easily in with Blue Sky Network's SATCOM voice products using our dual-channel Iridium antenna.



Portable vs. Fixed Installation

The Blue Sky Network D1000(A) comes in two different configurations.

1. **Portable:** The portable configuration allows users to easily bring the D1000(A) unit on and off an aircraft. The unit can be carried in the carrying sack provided. A quick disconnect cable is also provided for easy antenna cable attachment and detachment. In the portable configuration the Control Unit is fitted into the Modem Unit.
2. **Fixed:** In a fixed installation the D1000(A) is mounted permanently into the aircraft. The Modem Unit is typically mounted in an avionics bay and the Control Unit, which is a standard ½ ATI size, can be mounted in the cockpit panel. A wire harness between the Modem Unit and Control Unit must be built by the installer. The fixed install configuration comes with all required connectors.

In both configurations the D1000(A) should get power from the main aircraft power bus. The battery included in the unit is for EMERGENCY USE ONLY. The picture below shows the D1000(A) in a Fixed Installation configuration.

FAA Certification Issue

For a fixed installation where the control unit is installed in the aircraft cockpit, use of the RJ45 data port has not been evaluated by the FAA for use in flight.



Features

World-wide - The D1000(A) is a truly global satellite communication solution. Using the Iridium Satellite Network, Blue Sky has exploited an efficient and cost effective communication delivery system.

GPS - The D1000(A) has an integrated GPS. Users can define position reporting intervals via the unit locally or remotely. The GPS sensor receives its input via the single-channel, TSOed Iridium antenna, requiring less installation.

Flight Tracking - Directly from our website, users can view the location of one, or a fleet of; aircraft. Our web-based SkyRouter.com flight tracking solution is powered by Flight Explorer. Flight tracking data can also be utilized by 3rd party flight tracking solutions.

2-Way Messaging - Utilizing any web-browser based laptop or PDA, and using a standard Ethernet connection, users can send and receive messages to and from anywhere in the world.

Quick Position - A push-on/push-off button on the front panel will interrupt all other communication and start sending uniquely flagged position reports at set intervals.

Remote Configuration - Parameters in the D1000(A) unit may be set remotely from the SkyRouter.com website or on the unit itself. Parameters are changed on a last-updated basis.

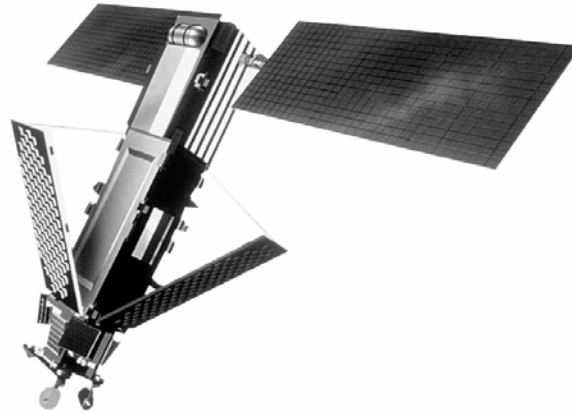
Sensor Data Reporting - The D1000 unit is equipped with two RS-232 serial interfaces, while the D1000A has only one serial port (the other one should be used to connect the ACH1000 Control Head). Serial sensor input can be forwarded to email addresses on the ground.

Battery and Portability - The D1000(A) can be optionally ordered as a portable kit, and includes unit has an optional emergency backup rechargeable battery. A portable kit, including carrying case and cabling, is optional.

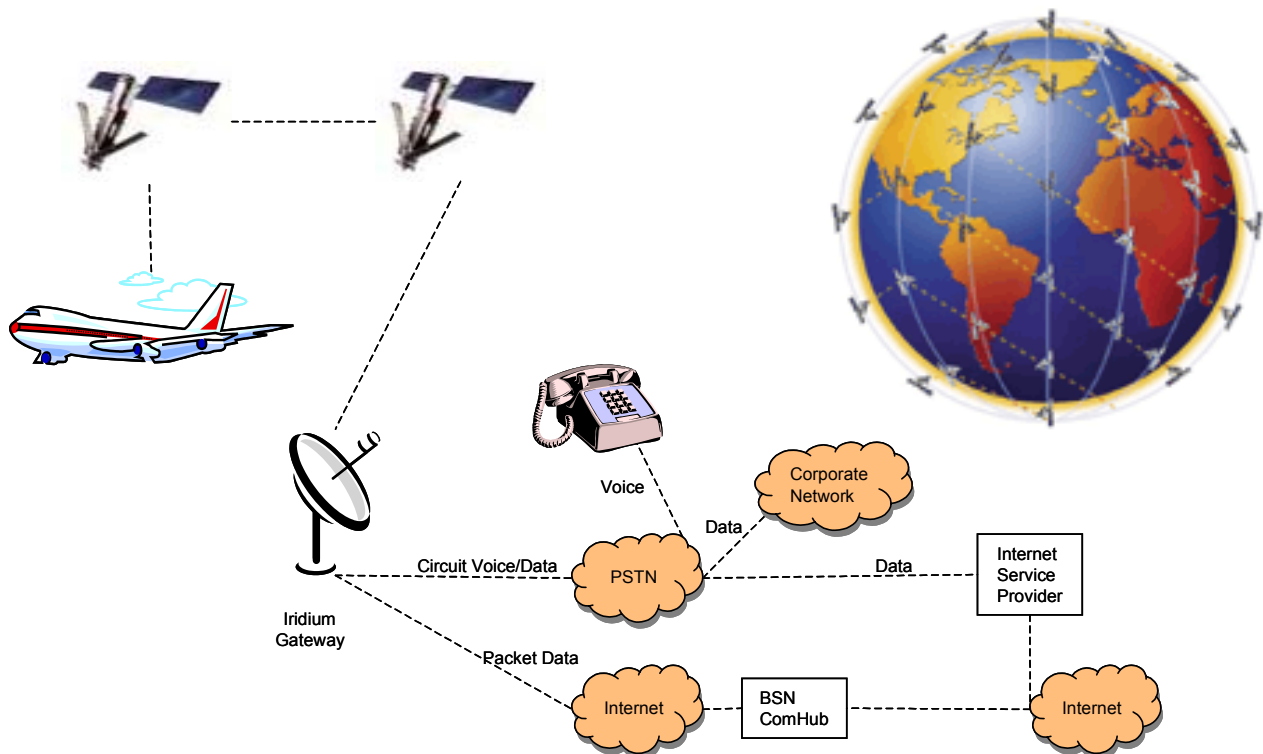
**** Voice Communication** – The D1000A (not the D1000), can be installed with an ACH1000 Control Head and provide voice communication capabilities through audio panels. Please contact Blue Sky Network for further information on the ACH1000 Control Head. **This option is valid for D1000A only.**

Iridium Satellite Network

The Iridium Satellite System is the only current provider of truly global, truly mobile satellite voice and data solutions with complete coverage of the Earth (including oceans, airways and Polar regions). Through a constellation of 66 low-earth orbiting (LEO) satellites operated by Boeing, Iridium delivers essential communications services to and from remote areas where terrestrial communications are not available. The service is ideally suited for the aviation industry as well as industrial applications such as heavy construction, defense/military, emergency services, maritime, mining, forestry, oil and gas.



- Satellites66 (plus 6 in-orbit backup satellites)
- Orbital Planes6
- Orbit Altitude.....485 miles (780 kilometers)
- Inclination of Orbital Plane86.4 degrees
- Orbital Period 100 minutes, 28 seconds
- Satellite Weight 1,500 pounds (689 kilograms)
- Spot Beams48 per satellite (30 miles in diameter per beam)



GPS Satellite Navigation System

The Global Positioning System (GPS) is a worldwide radio-navigation system formed from a constellation of satellites and their ground stations.

GPS uses these "man-made stars" as reference points to calculate positions accurate to a matter of meters (like giving every square meter on the planet a unique address).

GPS satellite signals are processed in a GPS receiver, enabling the receiver to compute position, velocity and time. GPS receivers have been miniaturized to just a few integrated circuits, and are becoming very economical, which makes the technology accessible to virtually everyone.

While there are thousands of civil users of GPS world-wide, the system was designed for the U. S. military. GPS is funded and operated by the U. S. Department of Defense (DOD).

Flight Tracking

Blue Sky Network D1000(A) has already been integrated with several flight tracking solutions, including Flight Explorer, the world's leading provider of Internet-based real-time flight tracking.

Through a partnership with Flight Explorer, customers who purchase the Blue Sky Network D1000(A) communication equipment and service will, as part of the agreement, be provided with SkyRouter.com web-based aircraft tracking and dynamic mapping capability powered by Flight Explorer (see below).

For more comprehensive flight tracking capabilities of both their Blue Sky Network-tracked aircraft, as well as all other IFR air traffic in the US, Canada, the UK and New Zealand, customers can use Flight Explorer Professional. Flight Explorer Professional's comprehensive tracking and management capabilities include the ability to generate numerous alerts and log files of specific events, interface with other applications, determine the last known location of an aircraft, display graphical and textual TFRs and more

Blue Sky Network has also integrated tracking data with the US Forest Service, and Provante Technologies, Inc.



FAA/JAA APPROVAL

General

Acceptance for the installation and use of the D1000(A) must be sought through the appropriate offices of the Federal Aviation Administration (FAA), Joint Aviation Authorities (JAA) or other certifying agency.

The D1000 Satellite System is approved by the FAA (Federal Aviation Administration) as compliant with the airworthiness requirements as defined in 14 CFR (Code of Federal Regulations), Part 23.

STC Number: ST01588LA – Cessna 414A Series as amended January 23, 2004

PMA #: PQ2389M

Supplement No.: 2

The Blue Sky Network Iridium-tuned Single-channel Antenna and the Iridium-tuned Dual-channel Antenna have been approved by the FAA (Federal Aviation Administration) as compliant with the airworthiness requirements as defined in 14 CFR (Code of Federal Regulations), Part 23.

Installation and Operational Approval Procedures

A functional ground test procedure and an operational flight check procedure (more information on page 21) should be used to verify proper installation, functional performance and electromagnetic compatibility with existing aircraft systems.

Instructions for Continued Airworthiness

The D1000(A) components require no routine servicing or maintenance. The installation has no additional overhaul time limitations.

Environmental Qualification

D1000 Modem Unit

The D1000 Modem Unit has been tested to DO-160D Section 21, Category M.

D1000 Control Unit

The D1000 Control Unit has been tested to DO-160D Section 21, Category M.

Single-Channel Antenna

The Single-Channel Antenna is qualified to DO-160, MIL-C-5541, MIL-E-5400, MIL-STD-810 and TSO-C129.

Dual-Channel Antenna

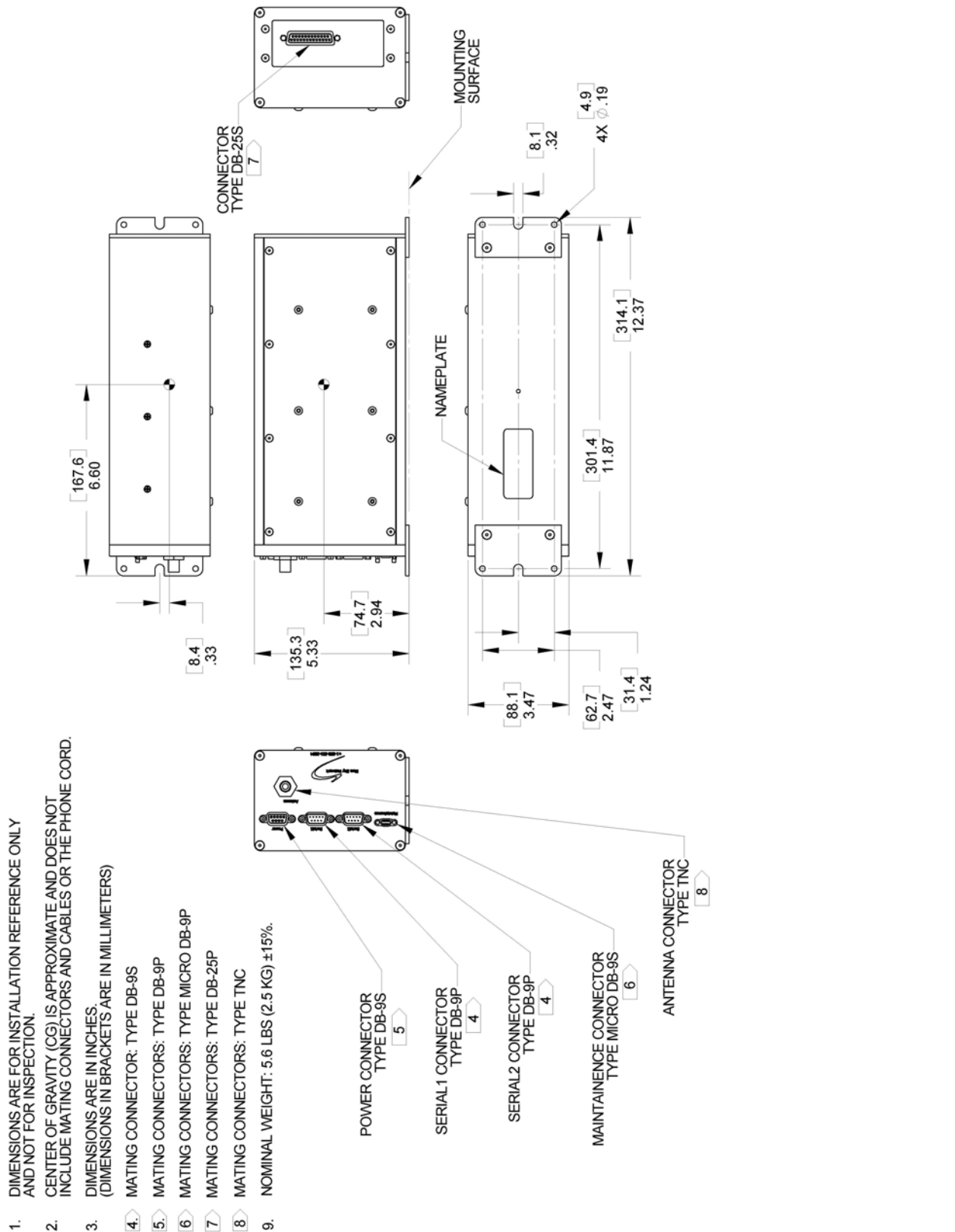
The Dual-Channel Antenna is qualified to DO-160C, MIL-C-5541, MIL-E-5400, MIL-STD-810 and TSO-C129a.

EQUIPMENT SPECIFICATIONS AND DRAWINGS

BLUE SKY NETWORK D1000(A) Specifications

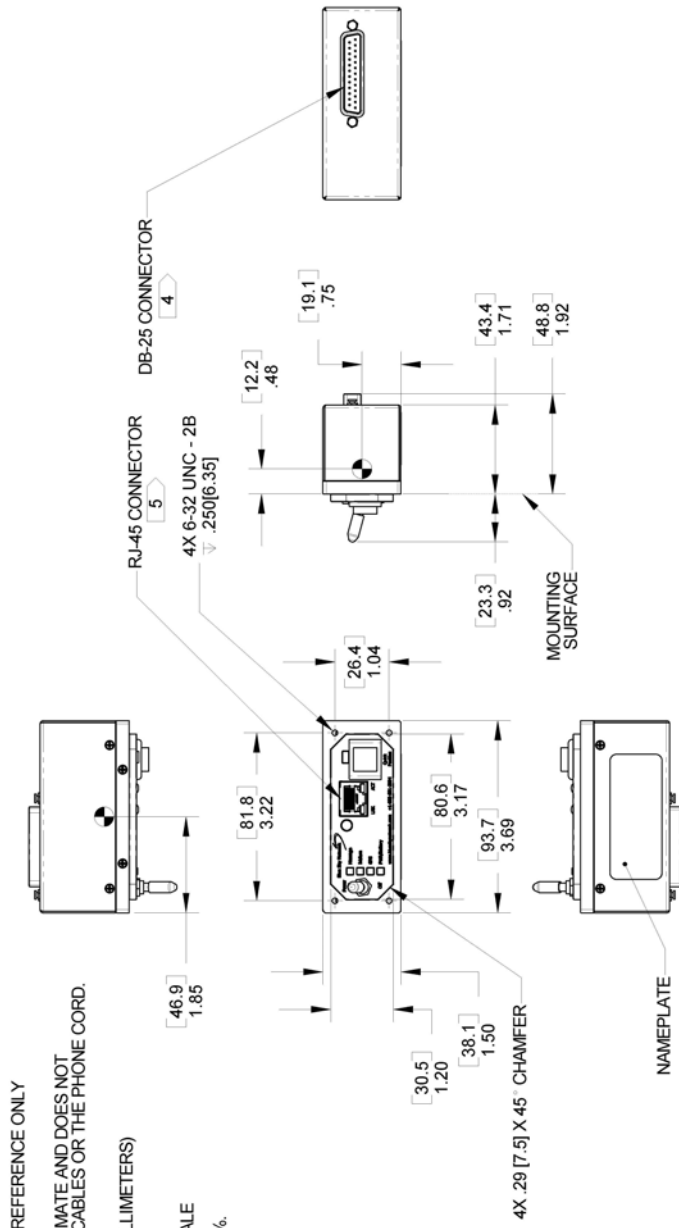
Height	Maximum 3.5 inches (8.9 cm)
Width	Maximum 5.3 inches (13.5 cm)
Depth	Maximum 12.5 inches (31.8 cm)
Weight	6.1 pounds
Power Requirements	10VDC - 33VDC
Alternate Power	Rechargeable Emergency Battery Backup
Nominal Current	< 1A Continuous, < 3A Peak (at 28VDC)
Operating Temperature Range	-20 degrees C to + 60 degrees C
Altitude	Up to 50,000 feet
Iridium Data Circuit Frequency	L-Band
Short Burst Data Frequency	L-Band
GPS Frequency	L-Band
LED Indicators	Power (ON/OFF) Iridium and GPS Signal Strength Message Waiting (ON/OFF) Ethernet (LINK/ACTIVE) Quick Position (ON/OFF)
Laptop/PDA I/O	Ethernet (RJ-45)
Sensor Data I/O	2 RS-232 DB9 (only 1 port, if using D1000A)
Antenna Options	Single or dual channel GPS/Iridium tuned fully TSOed
FAA Certification	DO-160D / STC

D-1000 (A) Modem Mechanical Specifications – 100140 (A)



OBS: Please note that Serial 2 on the D1000 becomes Control Head on D1000As.

D-1000 Control Unit Mechanical Specifications (100160)



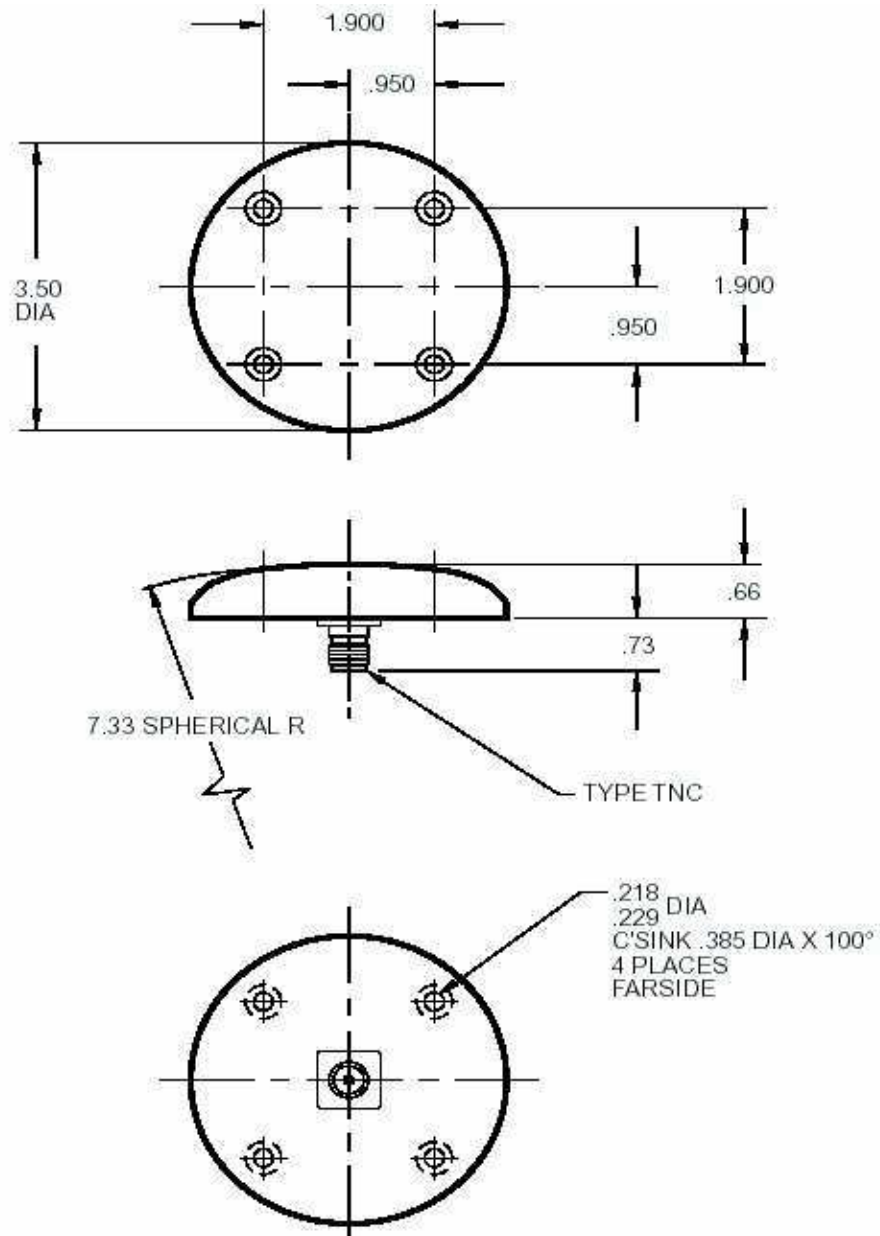
1. DIMENSIONS ARE FOR INSTALLATION REFERENCE ONLY AND NOT FOR INSPECTION.
2. CENTER OF GRAVITY (CG) IS APPROXIMATE AND DOES NOT INCLUDE MATING CONNECTORS AND CABLES OR THE PHONE CORD.
3. DIMENSIONS ARE IN INCHES (DIMENSIONS IN BRACKETS ARE IN MILLIMETERS)
4. MATING CONNECTOR: TYPE DB-25
5. MATING CONNECTOR: TYPE RJ-45 MALE
6. NOMINAL WEIGHT: .5 LBS (0.2 KG) ±15%.

Single-Channel Antenna



The antenna is a spherical-radius molded radome that provides protection against rain, ice, and lightning strikes. It is qualified for high-speed military and commercial aircraft and is designed to DO-160, MIL-C-5541, MIL-E-5400, MIL-STD-810 and TSO-C129 standards.

Frequency (Iridium/GPS).....	1616 -1626.5 MHz / 1575 ±10MHz
VSWR.....	1.5:1
Polarization.....	Right Hand Circular Polarization (RHCP)
Impedance.....	50 ohms
Power Handling.....	60 watts CW
Gain.....	+3 dBic @ Zenith
Lightning Protection.....	DC grounded
Weight.....	6 oz.
Material.....	6061-T6 aluminum / thermoset plastic
Finish.....	Skydrol resistant enamel

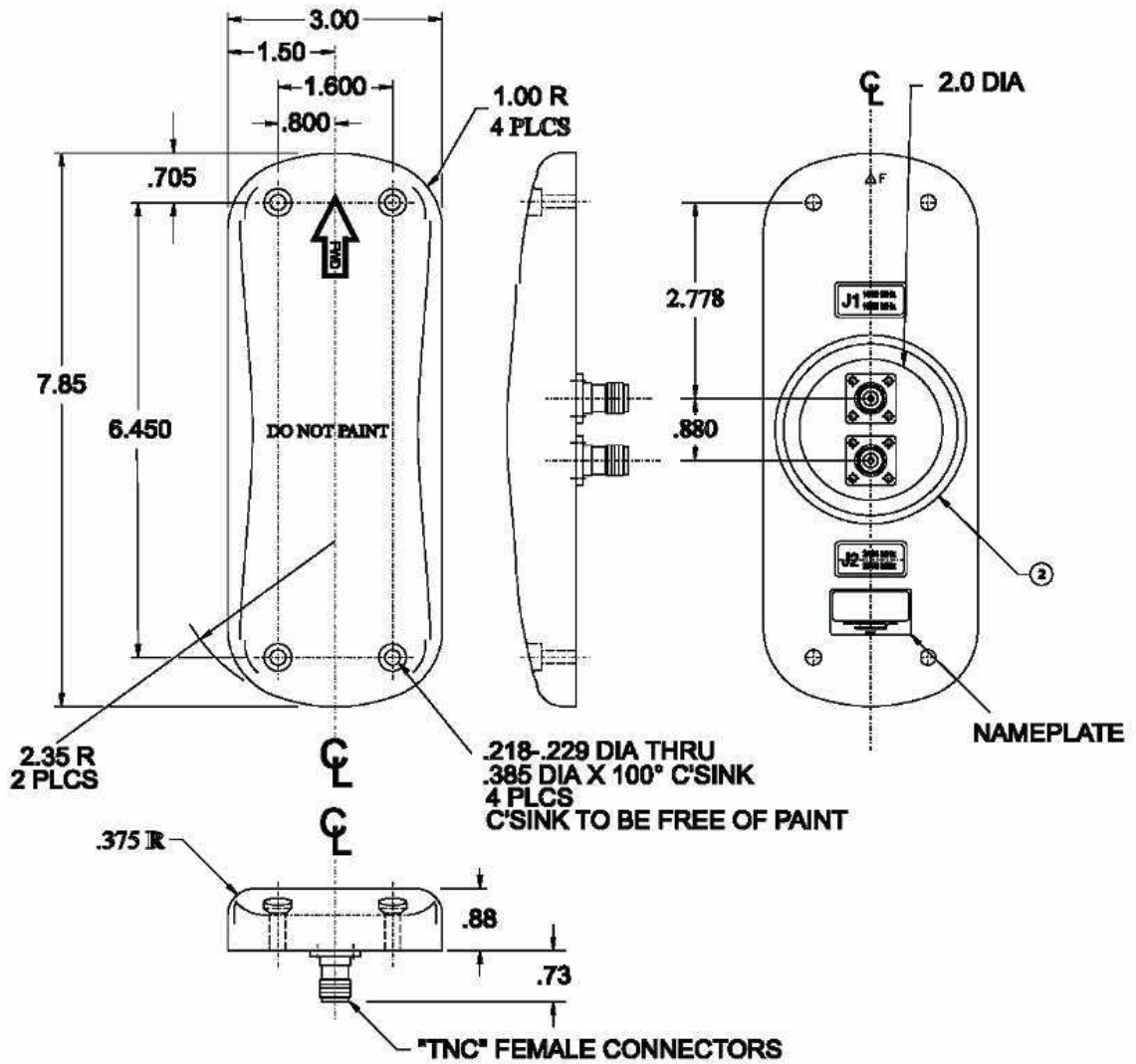


Dual-Channel Antenna



The Dual-Channel antenna is available for aircraft with multiple Iridium phone installations. The antenna is a low profile dual-element molded radome that provides coverage from 1610 to 1626.5 MHz for excellent Iridium operations and 1530-1660.5 MHz for low gain data application. It is designed to DO-160C, MIL-C-5541, MIL-E-5400, MIL-STD-810 and TSO-C129a standards and is qualified for high-speed military and commercial aircraft.

Frequency	
J1	1610 - 1626.5 MHz
J2	1530 - 1660.5 MHz
VSWR.....	2.0:1
Polarization.....	Right Hand Circular Polarization (RHCP)
Impedance.....	50 ohms
Power Handling	60 watts
Gain	+3 dBic @ Zenith
Lightning Protection.....	DC grounded
Weight.....	16 oz.
Material.....	6061-T6 aluminum / thermoset plastic
Finish	Skydrol resistant enamel



INSTALLATION & WIRING

General Information

Generally, modification of the aircraft consists of installing a dedicated single-channel or dual-channel Iridium antenna with a connection for a carry-on D1000 (A).

NOTE: AN IRIDIUM ANTENNA REQUIRES PROFESSIONAL INSTALLATION.

License Requirements

The D1000(A) SATCOM DATA SOLUTION has no licensing requirements.

Cooling Air Requirements

The D1000(A) has very low power usage so forced air cooling is not required for any of the components. However, units should be kept away from heat sources.

Aircraft Interfaces

The D1000(A) operates independent of aircraft navigation systems. Therefore, no aircraft interface is required other than the 10 – 32 Vdc Power Input, Power Return and Chassis Ground.

Power Input

The only component of the D1000(A) requiring aircraft power is the Modem Unit.

The D1000(A) power interface supports wide voltage input in the range of 10V to 33V DC. The following input connections are the most commonly used:

- 28 VDC nominal, typically less than 0.5A (up to 1A if charging the optional emergency battery)
- 12 VDC nominal, typically less than 1A (up to 2A if charging the optional emergency battery)

A single 3-amp circuit breaker is recommended to protect the aircraft power distribution system. See the section of the Modem Unit installation or the D1000(A) Modem Unit Equipment Specification & Drawing for details.

Some D1000 units come with an emergency rechargeable battery (this is not a default option). This battery should not be used for primary operation and is included to provide continuous power in the event of an electrical failure.

Equipment Required But Not Supplied

1. Circuit Breaker: Pull Type Required for D1000(A) Modem Unit
2. Interconnect Wiring for power and from Modem Unit to Control Unit
3. Mounting Hardware

Wire Harness Fabrication & Installation Considerations

Referring to the appropriate section of this manual, assemble a wiring harness as required for the installation. All wires must be MIL-SPEC in accordance with current regulations. Two-conductor shielded wire must be used where indicated and be MIL-SPOEC-27500 or equivalent specification. Shields should only be grounded at the Modem Unit end of the interconnect cable. Other ends remain floating.

It is imperative that the correct wiring be used and that proper stripping, shielding, grounding, crimping and soldering techniques be used at all times. Failure to correct techniques may result in poor performance, electrical noise or unit failure.

Power Wiring

To assure that the D1000(A) will operate properly down to its rated minimum input voltage, ensure that power wires of at least the recommended size are connected in accordance with the installation drawings. It is recommended that power and ground wires are a twisted pair to reduce signal noise.

Ground Bonding

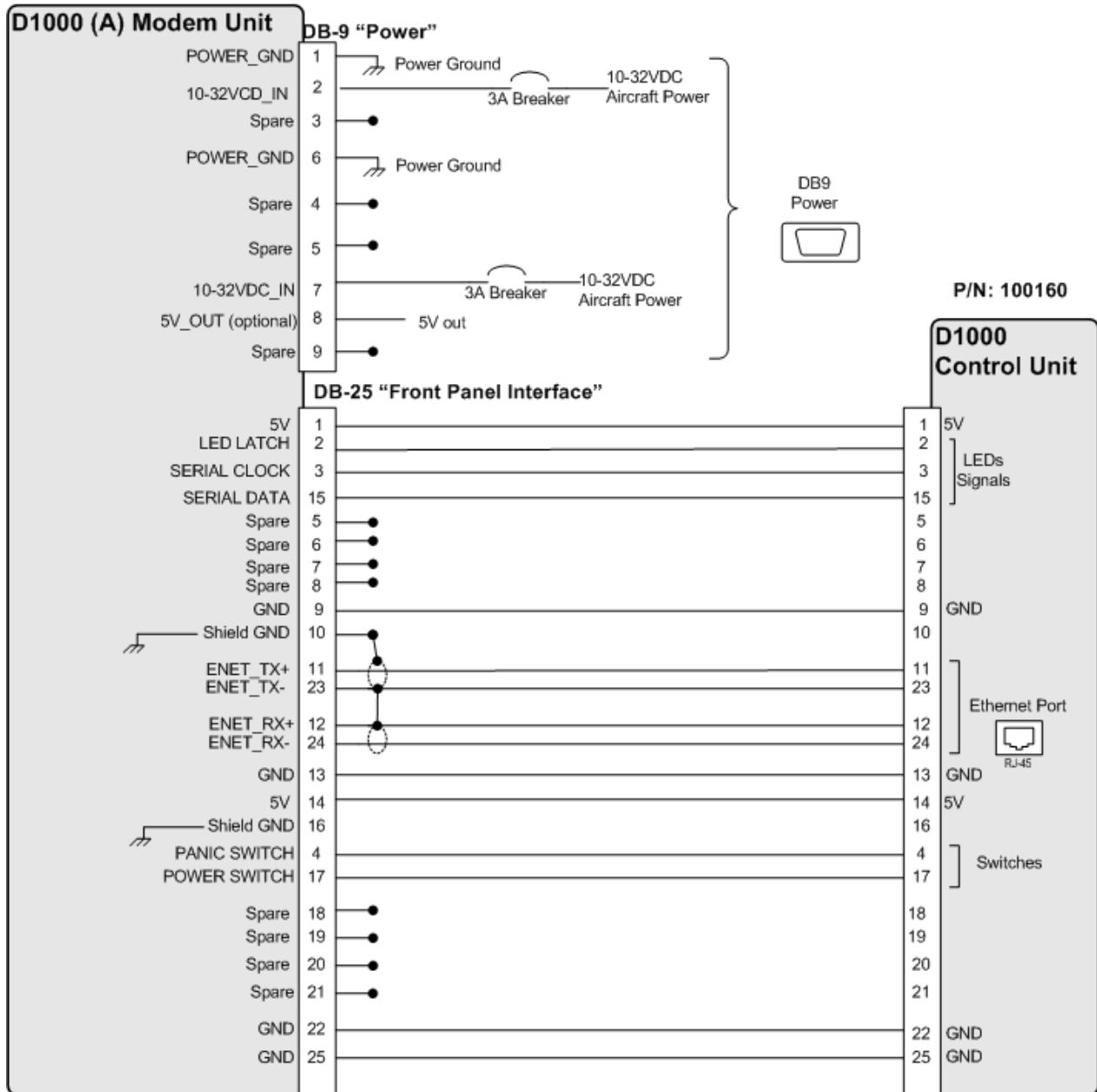
In order to assure installation characteristics match the DO-160 RF and Lightning test conditions, ensure that ground wires of at least the recommended size are installed and these wires are connected to a bonded aircraft ground.

Cable & Wire Harness Routing Considerations

- The length and routing of cables must be carefully planned before starting the installation.
- Avoid sharp bends in the cable.
- Do not locate the cable near aircraft controls.
- Observe all appropriate sections of FAR Parts 23, 25, 27, and 29, as well as AC 43.13-1B and AC 43.13-2A. Damage caused by improper installation will void product warranty.
- In order to ensure optimum performance, the D1000(A) and associated wiring should be kept a minimum of three feet from high noise sources and not routed with cables from high power sources.

Wiring Diagram

P/N: 100140 (A)



Antenna & Antenna Cable Installation

For optimum performance, the antenna must be installed on the upper surface of the aircraft fuselage, away from the vertical stabilizer and with an unrestricted view of the sky down to eight degrees above the horizon (similar to a GPS antenna).

Transmission from the antenna may be affected by, and can affect the operation of other systems and it is the installer's responsibility to evaluate the location for any possible RF interference. In particular, the Iridium frequency is near the allocated GPS and Inmarsat band. The antenna should be at least 39 inches (1 meter) from any L-band antennas, particularly GPS, TCAS and Transponder antennas.

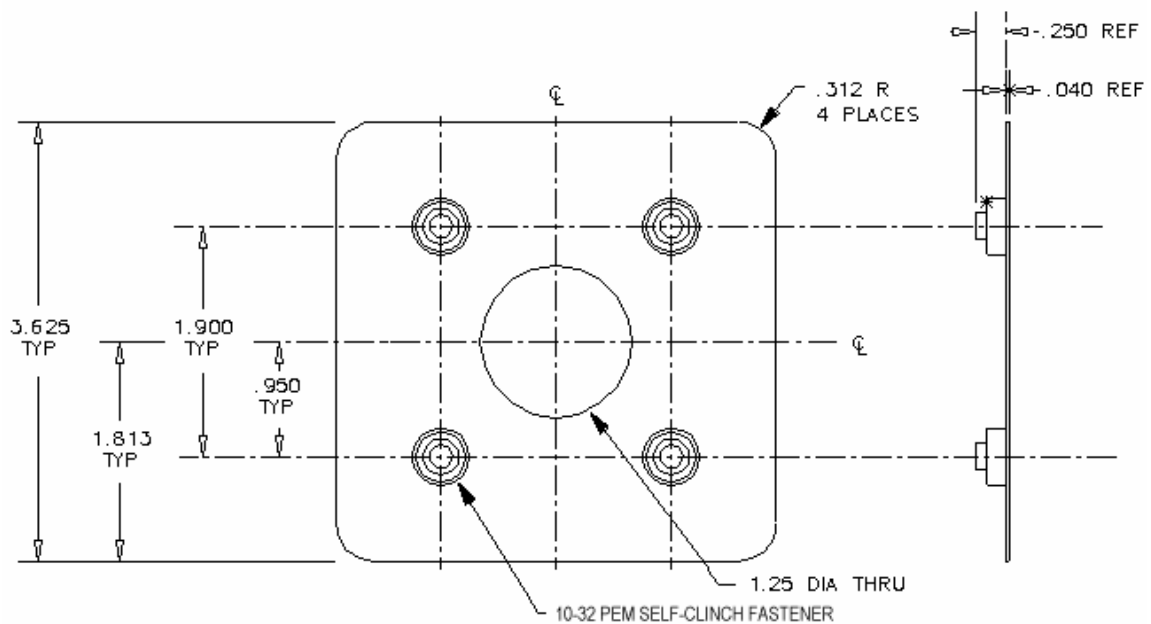
Observe all appropriate sections of AC 43.13-1B and AC 43.13-2A.

Strict maximum attenuation requirements for the coax cable and connectors that link the Antenna to the D-1000 Unit must be observed. The signal loss budget, including the antenna cable and all connector, from the antenna to the D-1000 Unit is < 1.5dB @1626MHz. The BSN Installation Kits include the FAA approved low loss coax antenna cable sized to meet this requirement.

Single-Channel Antenna (S67-1575-109) Installation

The S67-1575-109 Single-Channel Antenna has a low profile, providing structurally insignificant drag loads. The antenna is usually installed using four MS27039C1-10 attachment screws (10-32). However, each aircraft has unique airframe issues. *The installer is responsible for the decision on any antenna installation issue*

A 1.25-inch (32 mm) diameter penetration, drilled at installation, permits the antenna coax connector to be fed into the aircraft. A doubler, provided with the antenna, reinforces the 1.25-inch diameter penetration. The doubler is 0.040 inch (1.0 mm) thick 6061-T6 aluminum alloy and creates an effective ring of 4.09 inches (104 mm). The doubler is attached to the skin using sixteen NAS1097AD3 rivets. *This doubler may NOT be appropriate for your aircraft. The installation material required may vary from aircraft to aircraft and is the responsibility of the installer to determine.*



Doubler Plate

Dual-Channel Antenna (S67-1575-165) Installation

The S67-1575-165 Dual-Channel Antenna has a low profile, providing structurally insignificant drag loads. The antenna is usually installed using four MS27039C1-10 attachment screws (10-32). However, each aircraft has unique airframe issues. *The installer is responsible for the decision on any antenna installation issue.*

A 1.25- inch (32 mm) diameter penetration, drilled at installation, permits the antenna coax connector to be fed into the aircraft. No doubler plate is included with the dual channel antenna, since each aircraft has a different shape and design.

The Dual-Channel Antenna has a J1 and a J2 channel. The D-1000 unit and matching coax cable must be connected to the **J2** channel. This is the only channel that will cover both the Iridium and GPS frequencies. If the antenna label states that both channels work within the same frequency range, then any channel can be used.

Antenna Cable Installation

The antenna cable must be routed from the antenna to the D1000(A) Modem Unit. The Modem Unit is generally installed in the avionics bay of the aircraft or other location as determined by the installer.

Strict maximum attenuation requirements for the coax cable and connectors that link the Antenna to the D1000(A) must be observed. The signal loss budget, including the antenna cable and all connectors, from the antenna to the D1000(A) Modem Unit is < 1.5dB @1626MHz. Maximum cable length is determined by this specification. Measured Voltage Standing Wave Ratio, or VSWR, of the coax cable assembly, antenna and any bulkhead feed-through adapter must be less than 1.5 to 1.

Note: *The Blue Sky Network Installation Kits include a 15-foot (4.6 m) FAA approved low loss coax antenna cable sized to meet this requirement. In addition, Blue Sky Network has custom cables lengths and configurations up to 60 feet (18 meters) long to meet your installation requirements. You can also request that one or both end connectors be shipped uninstalled to ease cable routing.*

Antenna Cable Routing Considerations

- The length and routing of cables must be carefully planned before starting the installation.
- Avoid sharp bends in the cable. Exceeding the minimum bend radius of the antenna coax cable may result in permanent degradation of the cable loss.
- Do not locate the cable near aircraft controls.
- Observe all appropriate sections of FAR Parts 23, 25, 27, and 29, as well as AC 43.13-1B and AC 43.13-2A
- In order to ensure optimum performance, the D1000(A) and associated wiring should be kept a minimum of three feet from high noise sources and not routed with cables from high power sources.

Ground Test & Operational Flight Check Procedure

A functional ground test procedure and an operational flight check procedure should be used to verify proper installation and functional performance. In order to accomplish a quick functionality check (after installation is completed), position the aircraft outside of the hangar with no overhead obstructions. With all other aircraft systems powered down, apply aircraft power to the D1000(A) Modem Unit.

1. Switch the D1000(A) power on by moving the knob on the Control Unit to the on position.
2. Observe the LED's. A startup routine will light the LED's on the left side of the Control Unit one by one (from Power to GPS to Iridium to Msg). This indicates that the software on the unit is operational.
3. Allow a couple of minutes to acquire both Iridium and GPS signal. The respective LED's will light upon sufficient signal. An amber signal indicates sufficient, but not full signal. Green indicates full signal.
4. Make sure the *QuickPosition* button is working by pushing it and verifying that the blue LED on top of it lights up. Push the button again to disable *QuickPosition* (turning LED light off).
5. Please refer to the "D1000(A) User Guide" and the "SkyRouter User Guide" for operation.

If any difficulty is experienced with the functionality or operational performance of the D1000A, please contact Blue Sky Network for assistance.

The required logbook entries and FAA approvals are the responsibility of the installer and Blue Sky Network assumes no responsibility for either obligation.

Maintenance

Aircraft Annual Inspection Considerations

During the aircraft annual inspection:

- Visually inspect the antenna installation for loose fasteners or corrosion
- Perform a functional check of the system by transmitting and receiving data (such as making an internet inquiry).

Service Activation Instructions

To activate* Iridium services, please have the SkyRouter account administrator complete the steps below. The administrator is the contact name listed on your service agreement. For security purposes, **we can only activate on the request of the account administrator.**

- 1) Send an email to: Billing@blueskynetwork.com with Subject: Activation Request from [Company Name]
- 2) In your message please specify if you are activating voice and/or data. For voice activations, please include SIM serial number and/or SIM phone number. For tracking and two-way messaging activations, please include IMEI number and serial number.
- 3) Please include a phone number where you can be reached in the event Blue Sky Network will need to contact you regarding your request.

Once the activation is complete you will receive an email notification.

*Service activation will usually take 1-2 hours to complete during normal business hours (M-F, 8AM – 5PM PST), but may require additional time if the request is received after normal business hours.

PRODUCT WARRANTY

PLEASE READ -- THIS DOCUMENT CONTAINS IMPORTANT NOTICES, WARRANTY INFORMATION AND LIMITATIONS ON YOUR RIGHTS

USE AND INSTALLATION

The D1000A is intended to be used and installed on aircraft only. Installation of this Product and any of its component parts and any other work performed on the airframe during installation must be performed in accordance with federal aviation administration ("FAA") regulations and all other applicable regulations and may require further FAA certification. This Product should be installed by a professional and is intended to be handled and used solely in accordance with FAA regulations and the most recent specifications and instructions distributed by Blue Sky Network, LLC ("Blue Sky"). NO SUBSTITUTION ALLOWED FROM RECOMMENDATIONS WITHOUT Blue Sky Network LLC PERMISSION, TO MAINTAIN EQUIPMENT WARRANTY.

FUNCTIONALITY

The functionality of this Product will, in significant part, depend on the service provider and the communications network used in conjunction with this Product. To the extent Blue Sky is also your service provider for this Product, then this Product is also subject to the terms and conditions of your service contract.

LIMITED WARRANTY

This Product consists of two basic components: a D1000A Modem Unit (part #100140), and antenna (part # S67-1575-109/165).

Blue Sky is the original equipment manufacturer for the modem unit. Blue Sky warrants that the Warranted Components shall be free from defects in materials and workmanship for a period of six (6) months from the date this Product is delivered to the first end-user purchaser ("Purchaser") or the date this Product is first placed into satellite subscriber service, whichever occurs earlier. This warranty is not assignable or transferable by the Purchaser.

Blue Sky, at its option, shall at no charge to Purchaser either repair or replace Warranted Components that do not conform to this warranty, provided that the Warranted Components are returned in accordance with the instructions set out below and within the warranty period. These remedies are Purchaser's exclusive remedies under this warranty. Repair may include the replacement of parts with functionally equivalent reconditioned or new parts. Warranted Components that have been repaired or replaced are warranted for the balance of the original warranty period. All Warranted Components for which replacements have been provided shall become Blue Sky's property.

Blue Sky does not manufacture the antenna and therefore Blue Sky is not providing any warranty concerning this component. To the extent the manufacturer warrants the antenna and such warranty may be assigned and passed through to Purchaser, such warranty shall be assigned by Blue Sky and passed through to the Purchaser. The Purchaser must deal directly with, and Blue Sky accepts no responsibility regarding the actions of, the manufacturer of the antenna.

Blue Sky does not warrant any installation, maintenance, or service of this Product or any component thereof not performed by Blue Sky.

Blue Sky is not responsible in any way for any damage to ancillary equipment or software which is attached to or used in connection with this Product, or for operation of this Product with any ancillary equipment or software, and all such equipment and software are expressly excluded from this warranty. Furthermore, Blue Sky is not responsible for any damage to this Product resulting from the use of ancillary equipment not furnished by Blue Sky for use with this Product.

BLUE SKY ASSUMES NO RESPONSIBILITY FOR PAYMENT OF ANY REPAIR SERVICES PERFORMED BY THIRD PARTIES INCLUDING REMOVAL OF THE UNIT FROM THE AIRCRAFT, INSPECTION, PACKAGING, HANDLING, OR INSTALLATION UNLESS SUCH SERVICES ARE AUTHORIZED IN ADVANCE AND IN WRITING BY BLUE SKY.

HOW TO GET WARRANTY SERVICE

Warranty service is available by contacting Blue Sky at the following telephone number (during business hours) or email address or by returning the Warranted Components to Blue Sky at the following address:

Blue Sky Network, LLC.
5333 Mission Center Rd. Suite 220
San Diego, CA 92108
Phone: +1-858 551-3894
E-mail: support@blueskynetwork.com

Purchasers are advised to contact Blue Sky at the above telephone number or email address for a consultation prior to returning Warranted Components. All Product shipped to Blue Sky must be shipped with freight, duties, and insurance prepaid. Purchaser must include with the Product a bill of sale (or other comparable proof of purchase), the Purchaser's name, address and telephone number, the tail number and serial number of the aircraft on which the Product was installed and a detailed description of the problem. Warranted Components that are repaired or replaced under this limited warranty shall be shipped to Purchaser at Blue Sky's expense for the freight and insurance and at Purchaser's expense for any applicable duties or other expenses of shipment.

Blue Sky reserves the right to make changes, upgrades, and improvements to this product without incurring any obligation to install such changes, upgrades, and improvements in previously manufactured products.

ANY SERVICE WORK PERFORMED BY A PARTY OTHER THAN BLUE SKY OR BY A PARTY NOT OTHERWISE AUTHORIZED BY BLUE SKY SHALL IMMEDIATELY VOID THIS LIMITED WARRANTY.

Please contact Blue Sky if you have any questions regarding Blue Sky's limited warranty.

DISCLAIMERS AND LIMITATION OF LIABILITY

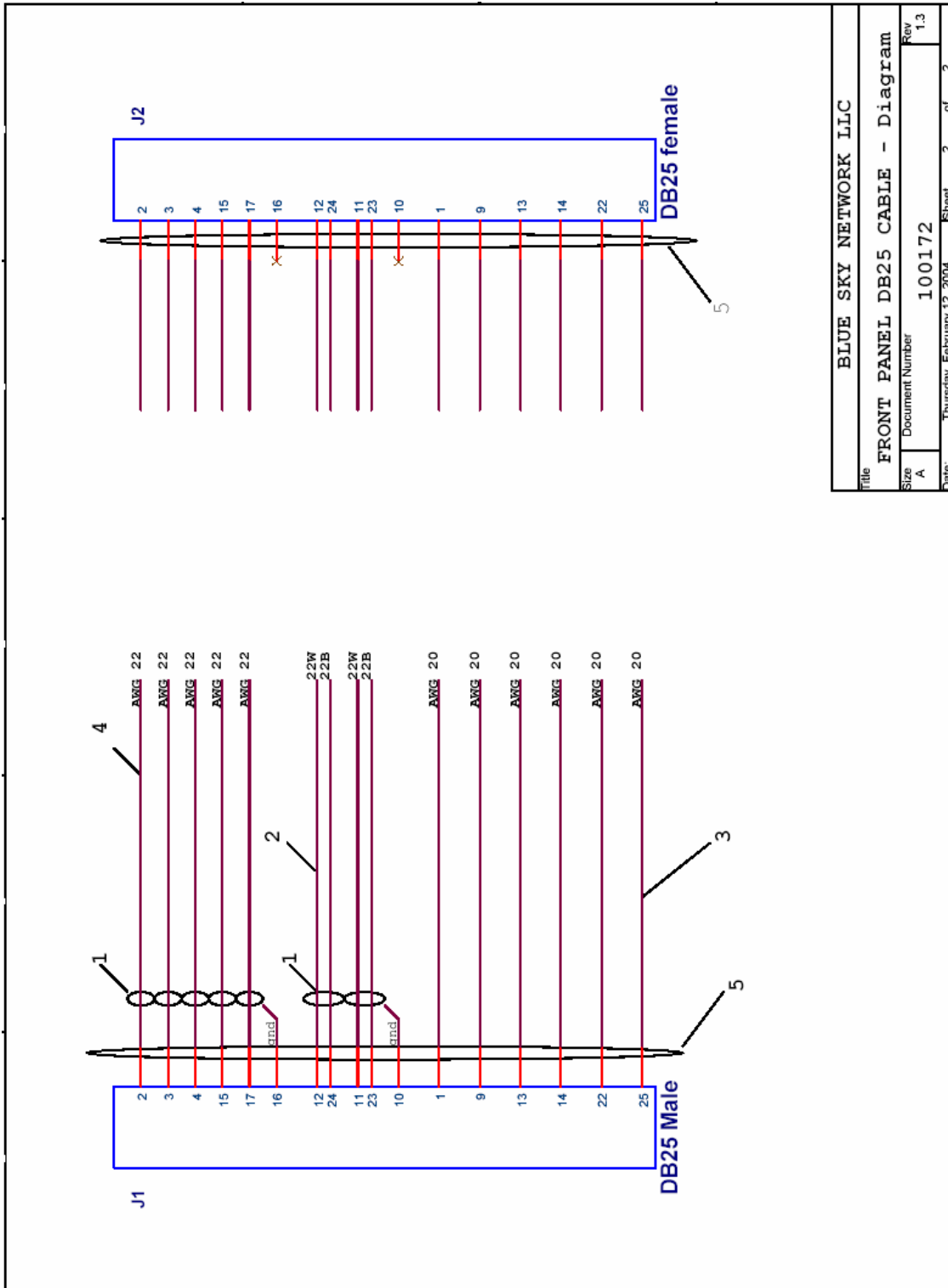
EXCEPT FOR THE LIMITED WARRANTY SPECIFICALLY PROVIDED HEREIN, ALL OTHER WARRANTIES ARE EXPRESSLY DISCLAIMED, INCLUDING, WITHOUT LIMITATION, WARRANTIES OF MERCHANTABILITY AND FITNESS OR SUITABILITY FOR A PARTICULAR PURPOSE. ANY LIABILITY SHALL BE LIMITED EXCLUSIVELY TO REPLACEMENT OR REPAIR OF THE WARRANTED COMPONENTS AS PROVIDED HEREIN. UNDER NO CIRCUMSTANCES SHALL LIABILITY EXIST FOR INCIDENTAL, CONSEQUENTIAL, OR SPECIAL DAMAGES RELATING TO THE HANDLING, INSTALLATION OR USE OF THIS PRODUCT. BLUE SKY SHALL NOT BE OBLIGATED OR LIABLE FOR, AMONG OTHER THINGS, DEFECTS CAUSED BY TAMPERING, MISUSE, ACCIDENT, ABUSE, NEGLIGENCE, IMPROPER STORAGE OR MAINTENANCE, USE IN A MANNER BEYOND WHICH THIS PRODUCT IS INTENDED TO BE USED AS SET FORTH IN BLUE SKY'S SPECIFICATIONS, IMPROPER REPAIR, POOR WORKMANSHIP OR USE OF DEFECTIVE MATERIALS BY SOMEONE OTHER THAN BLUE SKY, OR ANY OTHER CAUSE EXCEPT FOR DEFECTS IN MATERIALS OR WORKMANSHIP WITH RESPECT TO THE WARRANTED COMPONENTS AS DELIVERED BY BLUE SKY.

Some states do not allow the exclusion or limitation of incidental or consequential damages and some states do not allow limitations on how long an implied warranty may last; therefore, the above limitations or exclusions may not apply to you. The warranty provided herein gives you specific legal rights. You may also have other rights that vary from state to state. In the event any of the provisions of the limited warranty are found by statute or by applicable administrative or judicial entity to be unenforceable, the remaining provisions shall remain in force.

Installation Drawings

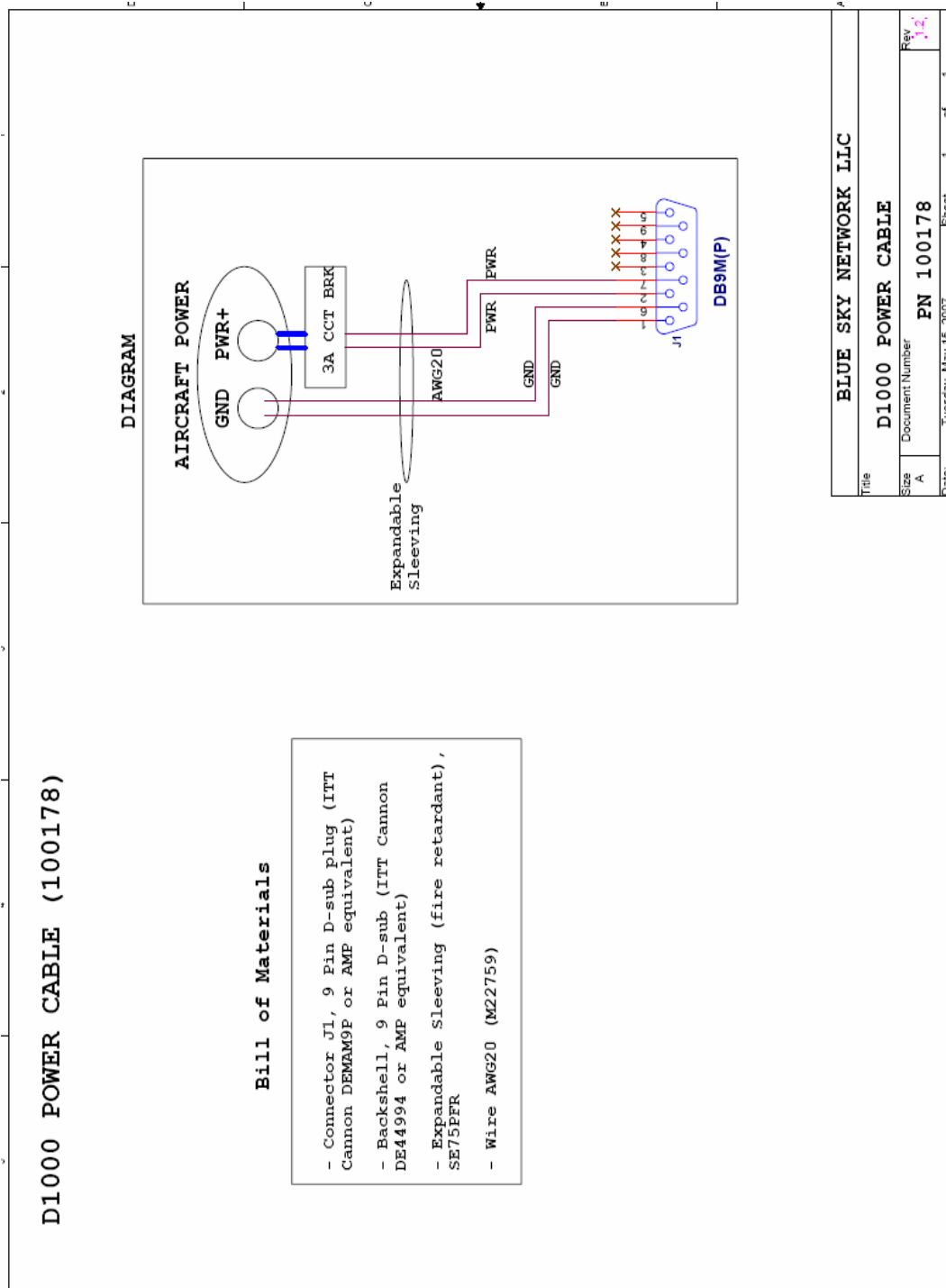
D1000(A) Front Panel Cable (DB25S – DB25P)

<p>PN: 100172</p> <p>D1000 FRONT PANEL CABLE DB25 (F) - DB25 (M)</p> <p style="text-align: center;">CONNECTORS</p> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p>J1 (DB25P)</p> <ul style="list-style-type: none"> - ITT Cannon DBMAM25P or equivalent - Backshell (ITT Cannon DB24659) or equivalent - Sliding-lock kit (ITT Cannon DB51221-1) or equivalent </div> <div style="border: 1px solid black; padding: 5px;"> <p>J2 (DB25S)</p> <ul style="list-style-type: none"> - ITT Cannon DBMAM25S or equivalent - Backshell (ITT Cannon DB24659) or equivalent - Sliding-lock kit (ITT Cannon DB51221-1) or equivalent </div>	<p style="text-align: center;">WIRING ITEMS</p> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p>1 - Solder Sleeve (M83519)</p> <p>2 - Wire, AWG 22, 2-conductor shielded (M27500-22TE2T14)</p> <p>3 - Wire, AWG 20, single conductor (M22759/16-20-9)</p> <p>4 - Wire, AWG 22, single conductor shielded (mil spec)</p> <p>5 - Expandable Sleeve (fire retardant), SE75PFR</p> </div>	<p style="text-align: center;">BLUE SKY NETWORK LLC</p> <p style="text-align: center;">FRONT PANEL DB25 CABLE - BOM</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="font-size: small;">Title</td> <td style="font-size: small;">Rev</td> </tr> <tr> <td style="font-size: small;">Size</td> <td style="font-size: small;">1.3</td> </tr> <tr> <td style="font-size: small;">A</td> <td style="font-size: small;">Document Number</td> </tr> <tr> <td style="font-size: small;">100172</td> <td style="font-size: small;">100172</td> </tr> <tr> <td style="font-size: small;">Date:</td> <td style="font-size: small;">Sheet</td> </tr> <tr> <td style="font-size: small;">Thursday, February 12, 2004</td> <td style="font-size: small;">1 of 2</td> </tr> </table>	Title	Rev	Size	1.3	A	Document Number	100172	100172	Date:	Sheet	Thursday, February 12, 2004	1 of 2
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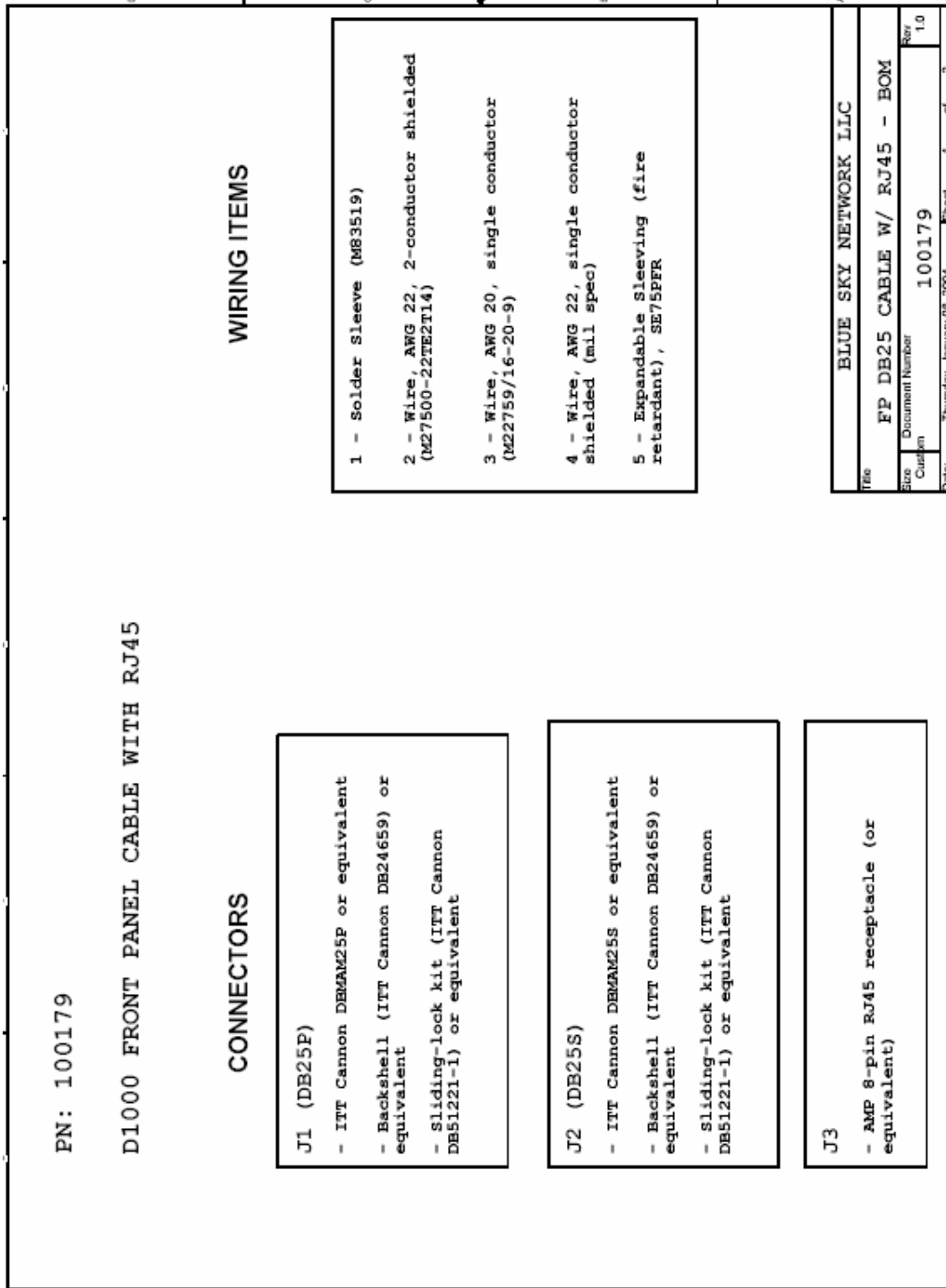


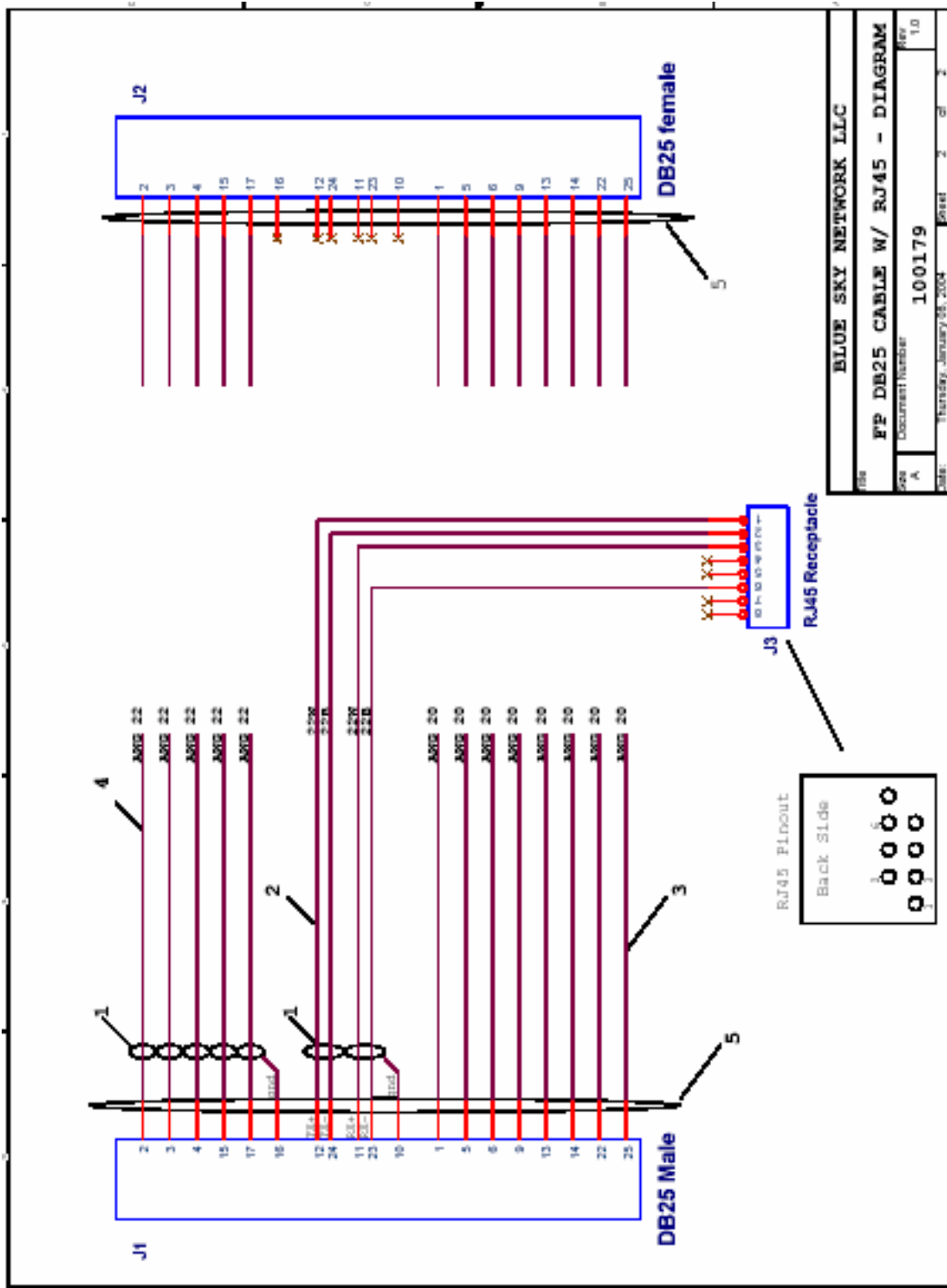
D1000(A) Power Cable

If the power harness between the circuit breaker and the D1000 (A) Modem Unit is less than 10', there is no need to connect two PWR wires and two GND wires to the D-Sub connector (the diagram below shows the case scenario for a long wiring scheme – above 10'). The D1000 (A) should work without problems if the installer chooses to only connect GND to pin 1 and PWR to pin 2. Installation of a 3A circuit breaker is also recommended for protection purposes.



D1000(A) Harness with RJ45 Interface

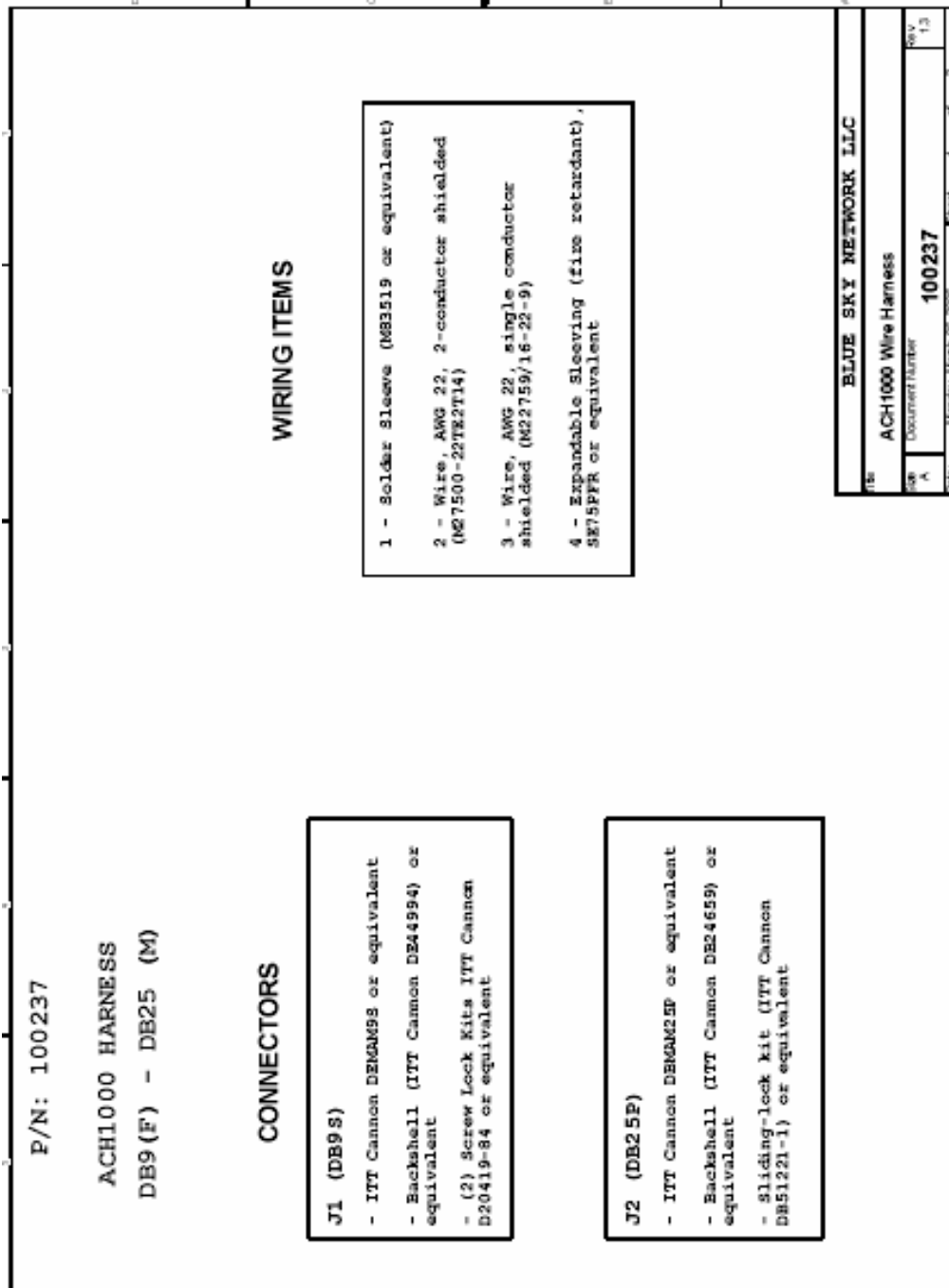


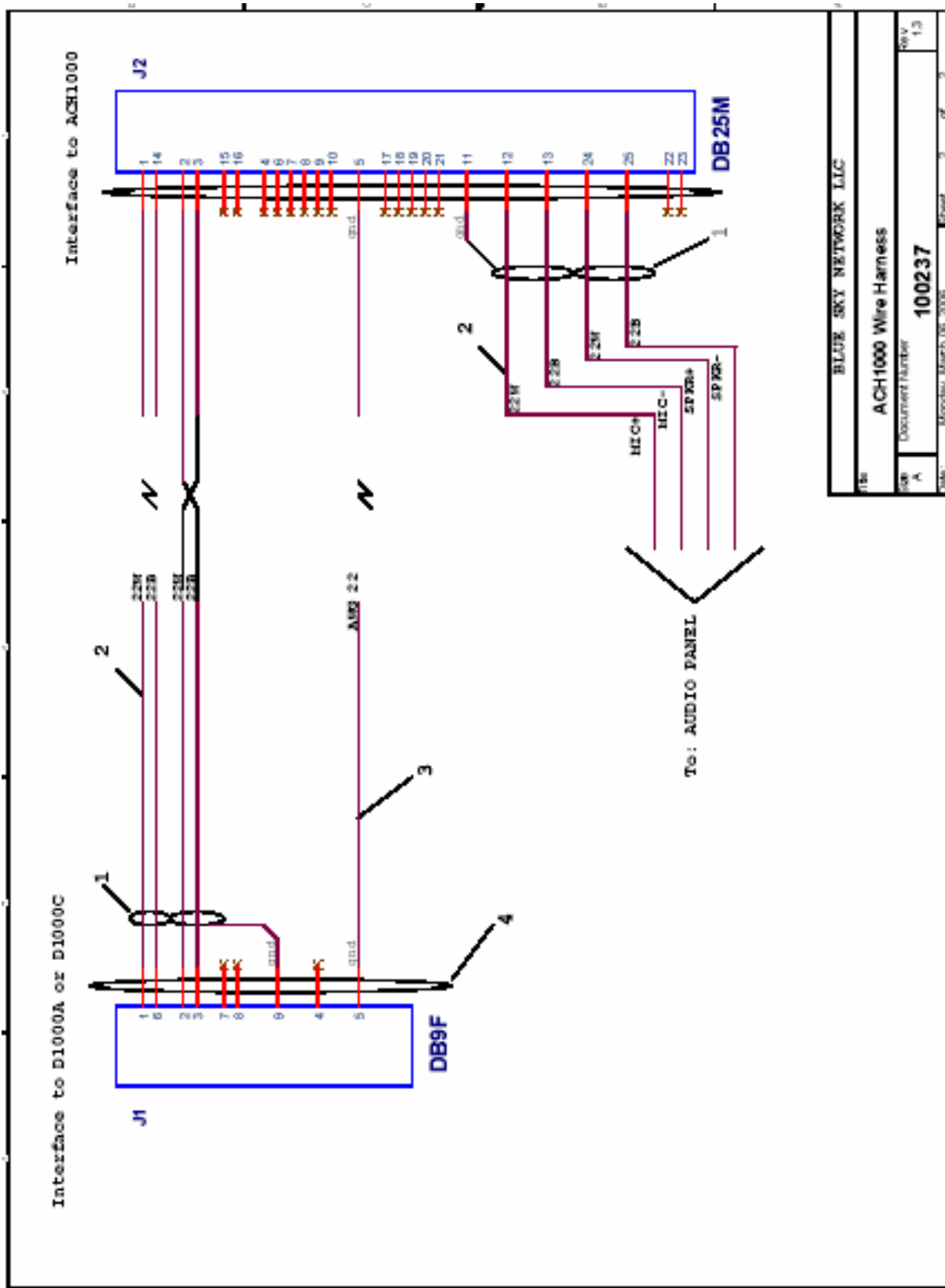


D1000A INTERFACE TO ACH1000

ATTENTION: THIS INSTALLATION DRAWING IS VALID ONLY FOR THE D1000A, WHICH IS AN UPGRADED VERSION OF THE STANDARD D1000 AND CAN BE IDENTIFIED BY ITS SERIAL NUMBER FORMAT (DMxxxxx-A).

Please note that in the upgraded D1000 units (converted to D1000A), the Serial 2 port is equivalent to the Control Head port (on D1000As) and it should be used to interface with the ACH1000 Control Head. In upgraded units, Serial 2 does NOT work as a serial port (like Serial 1), whether in the standard D1000 both Serial 1 and Serial 2 ports are used for serial communication (RS232).





BLUE SKY NETWORK LLC	
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ACH1000 Wire Harness	
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