

GETTING STARTED WITH MODEL A3LA-X

Version 1.0

May 22, 2009



Copyright © 2009 by NAL Research Corporation

The specifications in this document are subject to change at NAL Research's discretion. NAL Research assumes no responsibility for any claims or damages arising out of the use of this document or from the use of the A3LAs based on this document, including but not limited to claims or damages based on infringement of patents, copyrights or other intellectual property rights. NAL Research makes no warranties, either expressed or implied with respect to the information and specifications contained in this document. Performance characteristics listed in this document are estimates only and do not constitute a warranty or guarantee of product performance.

RECOMMENDED READING MATERIALS IN THE FOLLOWING ORDER:

1. Getting Started with Model A3LA-X (TN2009-21-V1.0)
2. General Description of Model A3LA-X (TN2009-20-V1.0)
3. SatTerm Software Manual (TN2009-19-V7.0)
4. ISU AT Command Reference V2.22

The A3LA-X is shipped with the following items in the package:

1. A3LA-X Modem
2. Installation CD with Manuals and SatTerm Software

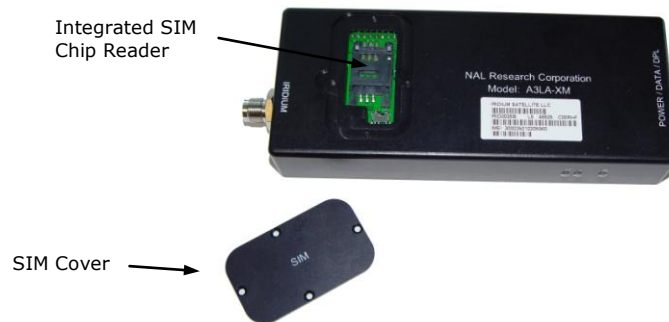
STEP 1:

Before using the A3LA-X, the following additional hardware and software are required:

1. Desktop or laptop computer
2. 9-wire DB25-to-DB9 RS232 data cable
3. DC power source
4. SatTerm software or any terminal emulator software

STEP 2:

Remove the SIM cover located on top of the A3LA-X Iridium modem.



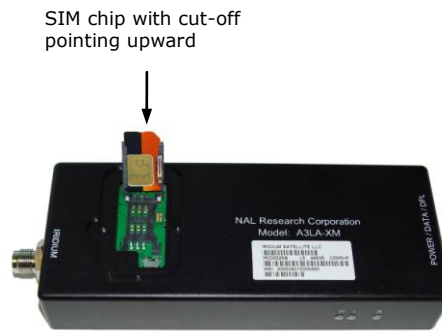
STEP 3:

Under the SIM cover is an integrated SIM Chip Reader. The modem uses and requires an Iridium SIM chip for operation. The SIM chip should be detached from the full-size SIM card as shown in picture below.



STEP 4:

Slide the SIM Chip Reader's plastic bracket in the direction indicated by the arrow and lift up the bracket. Place the SIM chip (facing down) into the SIM bracket as shown in picture below. There is a small cut-off on one of the corners of the SIM chip. Make sure that the cut-off is pointing upward which should align the SIM chip with the SIM Chip Reader. Lower the bracket and lock the SIM bracket by sliding in the reverse direction.



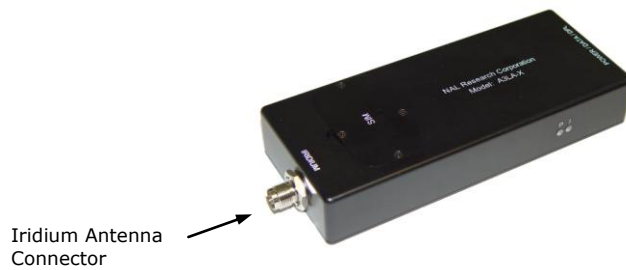
STEP 5:

Connect a DTE (data terminal equipment such as a computer, laptop, a microcontroller, etc.) to the modem DB25 port using either the RS232/data cable model HRC-24-7X or the DB25 data kit model HRC-24-8X. Both of these models can be purchased separately from NAL Research. The HRC-24-7X cable consists of a full DB-9 serial connector and two terminal leads for DC power input. The HRC-24-8X data kit consists of a full DB-9 serial connector/cable, an RJ-45 for the DPL audio handset and a DC power plug. Three-wire (TX, RX and GND) serial cable can also be used (see document TN2009-20-V1.0) if flow control is not required. The A3LA-X will automatically adjust to the DTE baud rate.



STEP 6:

Connect an external antenna to the A3LA-X. Any of the four types of antennas offered by NAL Research is appropriate. Make sure the antenna has full view of the sky and the cable loss between the modem and antenna is less than 2 dB.



WARNING: To comply with FCC RF exposure requirements, a minimum separation of 20 cm is required between the antenna and all persons.

STEP 7:

Supply a constant DC voltage (can be at any voltage between 4VDC and 32VDC) to the power input of the HRC-24-7X cable or of the HRC-24-8X data kit. Highest current drawn will be at power-up and approximately 2.2A@5.0VDC for less than 500 milliseconds. The modem will automatically be ON/OFF when DC power is applied/removed. If power to the modem is cycled, make sure the elapsed time between each power cycle is approximately 20 seconds. NAL Research's AC adapter model LA-3098 (purchase separately) can be used to power the A3LA-X (see picture below).



STEP 8:

Wait for about 15 seconds for the modem to register with the Iridium satellite network.

STEP 9:

The A3LA-X is basically a "black box" with two LED indicators (power on and satellite registration status). This can pose great difficulties for first-time users who are not familiar with satellite modems. For application developers, NAL Research recommends the use of a DPL handset DPLS0401-X (or DPLS0401-412) and a DB25 Data Kit HRC-24-8X in combination with the A3LA-X. This setup can be a useful diagnostic tool allowing the modem status to be displayed on the LCD of the handset as well as using the handset to place a voice call.



STEP 10:

Use any terminal emulator software and AT commands to communicate with the modem. However, the A3LA-X is shipped with a CD with a terminal emulator software package called SatTerm. NAL Research recommends the use of SatTerm with the A3LA-X since it provides a complete reference manual for all AT commands through user selected buttons for quick and easy access.

STEP 11:

Check the followings if a connection cannot be made:

1. Antenna has a full view of the sky
2. The PIN number has been removed from the SIM chip
3. Power source provides enough current

STEP 12:

Check the followings if using the DPL handset:

1. LCD screen on the DPL handset is ON with the word "Iridium" written across the LCD screen. If not, check for appropriate power input.
2. The <Enter PIN> message is not displayed on the LCD. If the <Enter PIN> message appears on the LCD, enter the appropriate PIN number (the default PIN is 1111). The handset can be used to remove the PIN permanently.
3. Displayed satellite signal strength on the LCD must be at least 3 bars. Re-arrange/re-located the Iridium antenna if the signal strength remains at 3 bars or below.

STEP 13:

If the DPL handset is not available, use the following steps to check if the SIM or the Phone Control is locked:

1. If using the SatTerm software, open the AT Command Table for the AT+CPIN command and click the Read button. If NOT using the SatTerm software, enter the command "AT+CPIN?"
2. If the response from the A3LA-X is "SIM PIN", then the SIM is currently locked (or activated). To remove the SIM, do the followings:

If using the SatTerm software:

- i. Enter the SIM PIN code (each SIM is shipped with the default code of 1111) in the "p" box, and then click the Send button. If the PIN code is correct, the response from the A3LA-X should be "OK".
- ii. Open the AT Command Table for the AT+CLCK command, and then choose "SC" from the "f" box, choose "0" from the "m" box and enter the PIN code (again the default code is 1111) in the "p" box. Then, click the Send button. If the PIN code is correct, the response should be "OK".
- iii. Now, the SIM is removed and ready to be used.

If NOT using the SatTerm software:

- i. Enter the following command AT+CPIN="PIN code" (where the default PIN code is 1111). If the PIN code is correct, the response should be "OK".
 - ii. Enter the following command: AT+CLCK="SC",0,"PIN code". If the PIN code is correct, the response should be "OK".
 - iii. Now, the SIM is removed and ready to be used.
3. If the response is "PH PIN", then the surface control for the A3LA-X is currently locked and the phone PIN code needs to be entered in order to use the commands that operate the A3LA-X. To unlock the A3LA-X surface control, do the same procedure in part 2 above except "CS" should be chosen instead of "SC" in step ii.
 4. If the response is "READY" or "SIM PIN2", then the SIM is not locked and the A3LA-X is ready to be used. No PIN code needs to be entered.
 5. If the response is "SIM PUK" or "SIM PUK2", contact your service provider.

FOR TECHNICAL SUPPORT, PLEASE CONTACT US AT

Phone: 703-392-1136
E-mail: contact@nalresearch.com

Technical documents are also available to download on NAL Research's website www.nalresearch.com under <http://www.nalresearch.com/AnonymousFTPSite.html>