

inseego

Skyus™ 3G

Quick Start Guide

Aeris



Preface

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Intended Use

Use this product only for the purpose it was designed for; refer to the datasheet and user documentation. For the latest product information, visit us online at www.inseego.com.

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Contents

Overview.....	3
Intended Audience	3
Scope.....	3
Environmental Specifications	3
Power Consumption	3
LED States	4
Installation Steps	4
Packing List: Package Contents	4
Operating Systems.....	4
Installation of Sierra Wireless Driver.....	5
Connecting the Antenna	6
Connecting to Computer or Router	6
Activation	7
Provisioning.....	7
Activating the Skyus 3G AERIS Using AT Commands.....	7
Connection Manager.....	8
Skyus Watcher Utility	9
Sierra Wireless Skylight.....	9
Contacting Inseego.....	9
Online Library	10
Return and Warranty.....	10
Further Specifications	10
FCC Compliance.....	11

Overview

The Skyus platform is a rugged, low-cost, self-contained modem kit. The Skyus platform simplifies the integration efforts of adding mobile connectivity in M2M solutions and accelerates time-to-market for creating connected devices. In contrast to standalone radio modules, the Skyus uses a standard USB connection interface, making it readily compatible with the largest choice of host devices.

Integration of the Skyus 3G into a Windows based system requires at a minimum two high level components, the **driver** and a mechanism to provide **connection management**. This document is intended to guide you through the process of connecting the hardware and setting up these two components.

Intended Audience

This document is intended for users responsible for the initial set-up of the Skyus and assumes the installer possesses a basic working knowledge of computer networking, wireless routing and network administration.

Scope

This Quick Start Guide focuses on the installation and configuration of the Skyus.

Inseeo recommends initial set-up of the Skyus should be performed on a bench with a computer to gain some familiarity with the hardware and software of your system.

Environmental Specifications

The Skyus 3G is designed to operate in a minimum ambient environment of -30°C or -22°F.

The Skyus 3G is designed to operate in maximum ambient environment of 60°C or 140°F.

Power Consumption

The Skyus 3G power consumption is specified as: 500 mA at 5 VDC typical, 1 A peak.



Figure 1: Skyus Top View

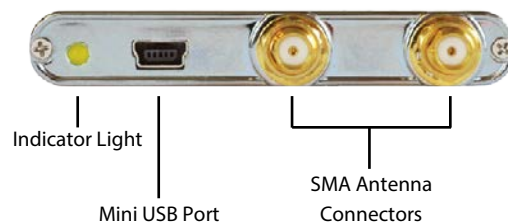


Figure 2: Skyus Ports

LED States

State	Indicates
Off	Module is not powered.
On	Module is powered and connected, but not transmitting or receiving.
Slow Blink	Module is powered and searching for a connection.
Fast Blink	Module is transmitting or receiving

Note: MC572x modules support customer-defined LED controls.

Installation Steps

- Inspect the package contents and compare against the packing list.
- Install the Sierra Wireless Driver.
- Connect the antenna.
- Connect the Skyus to a computer or router.
- Verify activation.
- Install the connection manager.
- Verify a connection to the Internet.

Packing List: Package Contents

Item	Description
Skyus	Skyus 3G Device
Cable	USB 2.0 Type A Male to Mini B Male

If, during inspection of package contents, you determined that you are missing an item, please contact your Inseego Service Representative.



Figure 3: Package Contents: Skyus 3G

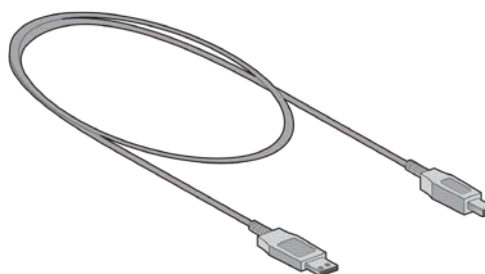


Figure 4: Package Contents: USB 2.0 Type A Male to Mini B Male

Operating Systems

The information contained in this guide is focused on operating your device in a Windows environment. If your system is operating with a non-Windows application, please contact Inseego for guidance that is specific to your environment.

Installation of Sierra Wireless Driver

The Skyus 3G utilizes an internal Sierra Wireless radio module. Drivers for Windows based platforms are provided in binary form by Sierra Wireless and are available for download on the Inseego website. For quick connection, download the driver-only package directly from Inseego. This package is available here:

www.inseego.com/downloads

Under 'Skyus 3G Drivers' click the 'Download Files' button to begin downloading the driver file for installation.

If you are working on the device you intend to use the Skyus with, proceed with installation on the local drive.

If you are working on a separate device from the one you intend to use the Skyus with, save the file to a portable media device and install the drivers on the target device.

Begin the installation of the Sierra Wireless drivers by clicking on the executable driver installation file.



Figure 5: Sierra Wireless Driver Installation

Follow the necessary steps to finish the installation until the screenshot matches the image shown in Figure 6.

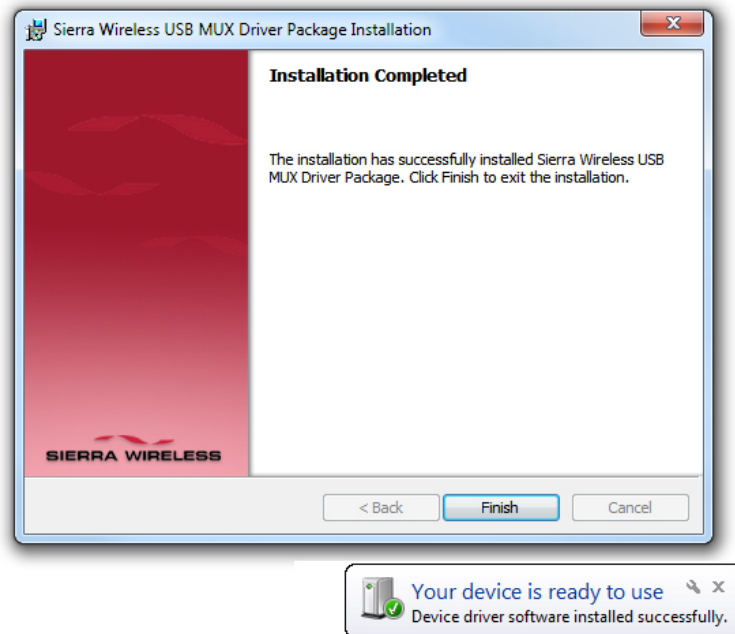


Figure 6: Sierra Wireless Installation Completed

Connecting the Antenna

To ensure that you are using the appropriate cellular antenna, please contact your Inseego representative to provide the proper service to your installation.

Band: CDMA 1xRTT/EV-DO RevA 850/1900 MHz

Connect the cellular antenna to the outermost antenna connection of the Skyus, as shown in Figure 7. The innermost antenna connection is primarily used for 4G devices. It is used for receive diversity and is optional.



Figure 7: 3G Antenna Connection

Connecting to Computer or Router

Connect the Type A Male side of the enclosed USB cable to your computer or alternate host device.

Connect the Mini B Male side of the enclosed USB cable to the Skyus.



Figure 8: Type A Male USB



Figure 9: Type Mini B Male USB

Power is provided by the USB cable. Once connected, your Skyus will power up and attempt to register to the carrier.

Activation

Your device is ready to be activated only after the cellular carrier sets up an account and provides a phone number and IP address for your device. Once you have an account associated with your device, activation will need to be performed when connecting to the cellular network for the first time. If you are not sure if your device has an account, contact your AERIS carrier representative or Inseego support.

Provisioning

Once your device is activated by AERIS and you are attempting to connect to AERIS's network for the first time, your device will need to be provisioned.

The provisioning process varies depending on which connection manager you are using.

NOTE: Inseego offers a provisioning service for this model Skyus. Check with your Inseego sales or support representative to see if this provisioning process has already been performed on your Skyus device if you are unsure.

Activating the Skyus 3G AERIS Using AT Commands

To activate the Skyus 3G AERIS using AT commands, you will need access to the AT command interface via a terminal program such as HyperTerminal, PuTTY, or Tera Term (contact Inseego support if you need help using a terminal program). The only settings you will need to program are the Mobile Identification Number (MIN) and Mobile Directory Number (MDN). All other settings are preprogrammed and do not need to be modified. The MIN and MDN are provided by your AERIS representative.

After the device is provisioned, enter the device parameters using the steps below, where:

XXXXXXXXXX = Device MDN

YYYYYYYYYY = Device MIN

1. Enter the Number Assignment Module (NAM) unlock code:

```
AT~NAMLCK=000000
```

Response: OK.

2. Program the MDN and MIN:

```
AT~NAMVAL=0 ,XXXXXXXXXX ,YYYYYYYYYY
```

Response: OK.

3. Reset the module:

```
AT~RESET
```

Response: OK.

To validate the activation, follow the steps below. This procedure is optional.

1. Enter the NAM unlock code:

```
AT~NAMLCK=000000
```

Response: OK.

2. Confirm the MDN and MIN:

```
AT~NAMVAL?0
```

Response:

```
MDN : XXXXXXXXXXXX
```

```
MIN : YYYYYYYYYYY
```

```
SID :
```

```
NID :
```

3. Confirm the Network Access Identifier (NAI) is <MDN>@tsp08.sprintpcs.com, and confirm HA-SPI is 23747:

```
AT$QCMIPGETP
```

Response: Profile 1 details.

Connection Manager

There are multiple options for connection management. The following sections provide a brief description of relevant connection managers. Please contact Insee^{go} Support for guidance regarding the correct manager for your installation.

Skyus Watcher Utility

Inseego Skyus Watcher is designed to manage the connection to the cellular network and provides connection watchdog, connection status reporting, and logging functionality appropriate for M2M applications where 24x7 connectivity is desired.



Figure 10: Skyus Watcher Utility – User Interface

Skyus Watcher is available after signing an End User Licensing Agreement (EULA) with Inseego. Skyus Watcher can be downloaded from the Inseego website. The Skyus Watcher installation package is available at:

www.inseego.com/downloads

For information on the installation of the Skyus Watcher application, please refer to the “Skyus Watcher User Guide.”

Sierra Wireless Skylight

Sierra Wireless provides a connection utility compatible with Skyus devices that can manage connections and display network coverage indication. For more information on Sierra Wireless Skylight go to www.sierrawireless.com or contact your Inseego sales representative.

Contacting Inseego

For help with installing, operating, maintaining, and troubleshooting this product, refer to this document and any other documentation provided.

If you still have questions, contact us during business hours:

Monday through Friday, excluding holidays, between 8 a.m. and 5 p.m. Pacific Time.

Support E-mail	support@inseego.com
Telephone	(800) 683-4818
Website	www.inseego.com
Mailing Address	P.O. Box 2549, Eugene, OR 97402

When contacting technical support, please have the following information on-hand:

1. Serial Number
2. Date that you received your device
3. Brief description of the problem

Online Library

For other documentation, see our online document library at: www.inseego.com/documents

Return and Warranty

Inseego offers a standard one-year warranty on all hardware. For returns or warranty information, call our toll free number: 800-683-4818.

Further Specifications

For more specifications please see the Skyus Technical Specifications sheet at www.inseego.com/documents.

FCC Compliance

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a residential environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communication. Inseego does not guarantee that interference will not occur in a particular installation.

Operation is subject to the following conditions:

- a. This device may not cause harmful interference.
- b. This device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

If this equipment does cause harmful interference to radio or television reception, which can be determined by tuning the equipment off and on, the user is encouraged to try and correct the interference by one or more of the following measures:

- a. Reorient or relocate the receiving antenna.
- b. Increase the distance between the equipment and the receiver.
- c. Connect the equipment to outlet on a circuit different from that to which the receiver is connected.
- d. Consult the dealer or an experienced radio/TV technician for help.

Exposure to RF radiation - To comply with FCC RF exposure compliance requirements, for mobile configurations, a separation distance of at least 20 cm must be maintained between the antenna of this device and all persons. Do not collocate or operate this device in conjunction with any other antenna or transmitter.

Contains TX module FCC ID: N7N-MC5728