

S2C Link

User Manual

NimbeLink Corp

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1. Introduction

Overview

This document is the User Manual for the S2C Link, a serial to cellular modem.

1.1 Product Description

The S2C Link utilizes NimbeLink's patented Skywire® cellular modems to provide convenient RS232 and USB to cellular communications for industrial applications. Orderable part numbers are available to support multiple cellular technologies, carriers, and geographies including 2G, 3G, 4G LTE, and LTE CAT1 cellular networks.

2. Get Connected

The S2C Link typically does not have an active cellular data plan when it arrives.

On the Verizon Network the S2C Link is classified as a Machine to Machine device and needs to be activated on an M2M account.

If you do not have a Verizon account, you can get the device connected immediately by NimbeLink. NimbeLink resells Verizon data plans in order to speed the product evaluation and development process. For more details on available plans or to activate the modem, go here:

<http://nimbelink.com/skywire-cellular-data-plans/>

2.1 SIM Cards

All LTE modems require a SIM card in order to activate a data plan. The S2C Link requires a “Micro-SIM” size 3FF.

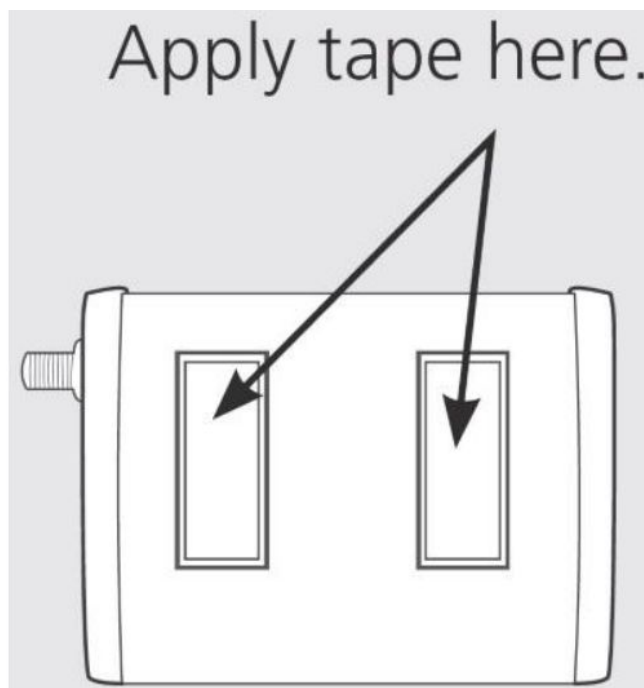
3. Mounting

The S2C Link is a rugged product that can be attached to equipment in numerous ways. The retail packaging includes two methods to adhere the S2C Link in the end application.

3.1 Adhesive Tape

The retail packaged product includes two pieces of weather-resistant, double sided polyurethane foam adhesive which can be applied to the enclosure to adhere the product to a surface. The adhesive attaches well to rigid surfaces.

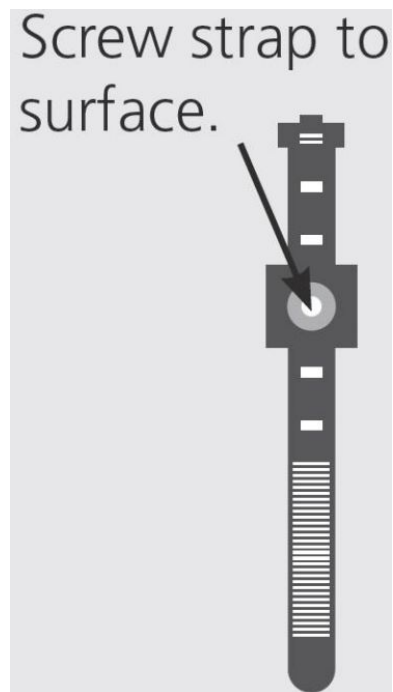
- 1) Wipe dust from the surface of the S2C Link and apply double sided tape as shown. Be sure to copy the MEID/IMEI/SIM ID from the bottom label if it will not be visible after installation.
- 2) Wipe dust from surface of the equipment and press the S2C Link firmly for 30 seconds.



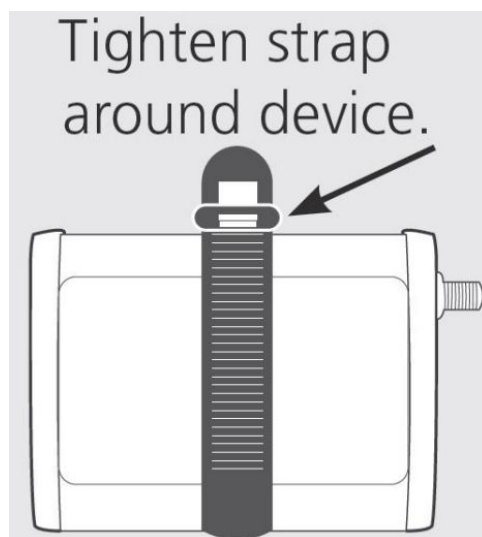
3.2 Re-usable Strap

The retail package includes one re-usable strap that can attach to many surfaces and provide an installation option that allows you to later remove the product if necessary.

- 1) Screw strap to desired surface using screw or bolt appropriate for the surface type.



- 2) Wrap strap around S2C Link and tighten strap to secure the product.



4. Powering the Modem

4.1 Barrel Jack Power

While using the DB9 port for serial communications, the modem can be powered by either the USB port OR the barrel jack input.

4.2 USB Power

The USB port can power the modem assuming the upstream USB Host port can handle the current requirements for the specific modem type. If the USB Host power is insufficient, then supplemental power must be provided via the barrel jack input.

5. Serial Connections

5.1 USB Port

The USB port is a type Mini-AB and acts as a client interface.

5.1.1 Connecting to Microsoft Windows 7-8 devices

A Windows USB device driver is required in order to recognize the modem within the Windows environment. The Windows driver files are available on the NimbeLink website [here](#). Included in the package are additional instructions for installation.

After the driver has been installed, the modem can be plugged into the PC via a USB cable and the operating system will recognize the device and instantiate multiple COM ports that are available for use to communicate with the modem.

5.1.2 Connecting to Linux devices

Some Linux distributions recognize the unique modem USB IDs and will instantiate serial communication ports. If the modem is not recognized, then the USB device IDs must be added to the system.

After the COM ports are established, there are multiple ways the modem can be used:

- 1) Send AT commands directly to the modem, see specific AT command manual for more details.
- 2) Establish a PPP link, see modem specific PPP link application note for more details.

- 3) Establish a QMI, NCM, or CDC_ETHER modem-specific communications link, see modem specific application notes for more details.

5.2 RS232 DB9 Port

The DB9 connector interface provides an RS232 communications port.

5.2.1 Serial Settings

Default Baud Rate: 115.2Kbps

Default Format: 8 bits, no parity bit, 1 stop bit

Most modems support auto-baud rate setting, however, you can set the target baud rate using the AT+IPR command. For more details see the AT command manual specific to the modem.

5.2.2 Connecting to devices

Connecting the RS232 port to a compatible device will allow the device to communicate directly with the modem's AT command interpreter.

The device must drive DTR and RTS signals to proper state or the modem will not respond.

6. Antennas

The S2C Link can accommodate two external antennas. The Primary antenna port must always have an antenna connected. The retail kit includes our recommended antenna which is the following part number:

Taoglas TG.30.8113



Note: The 2G 1xRTT modem does not use the diversity connection.

When the modem is placed inside another metal cabinet or deep inside a building, it is advantageous to use a remote-mount antenna. The modems use a standard SMA port and can accommodate many aftermarket externally mounted antennas.

7. LEDs

7.1 Power LED

When power is applied to the modem, the Power LED will light green.

7.2 Status LED

The Status LED is a flexible use LED. Each modem can use the LED in different ways. The 1XRTT and EVDO products can manually control the LED using the AT#GPIO1 command or configured as a true status LED using the AT#SLED command. See AT command manual for additional information on how to drive the LED.

8. AT Commands

Each modem uses a unique set of AT commands. Please refer to the appropriate AT command manual for each underlying Skywire modem to learn more.

NL-S-2GT-V	AT command Manual Link
NL-S-3GT	AT command Manual Link
NL-S-C1G-V	AT command Manual Link