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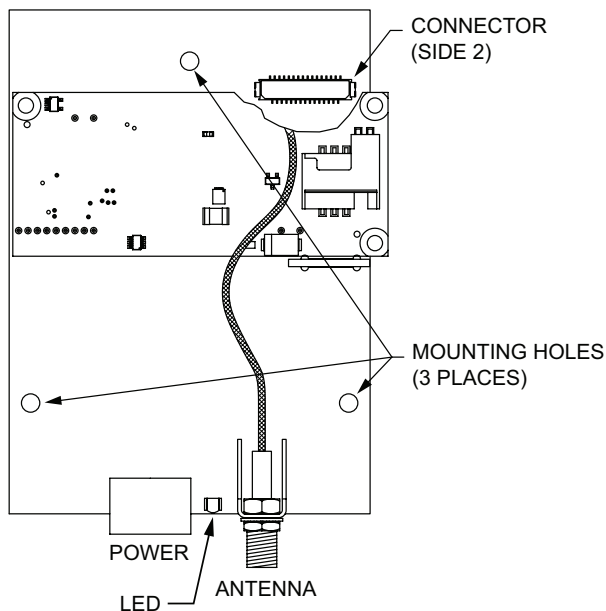
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# MODEL G3HSPA - G3 SERIES HSPA+ CELLULAR MODEM OPTION CARD FOR G3 OPERATOR INTERFACE TERMINALS



- CONFIGURED USING CRIMSON SOFTWARE (VERSION 3.0 OR LATER)
- SUPPORTS HSPA+ CELLULAR DATA CONNECTIVITY WITH FALL BACK TO 3G AND 2G
- UP TO 21 MBPS DOWNLINK/5.76 MBPS UPLINK SPEEDS
- INSTALLS INSIDE A G3 OPERATOR INTERFACE TERMINAL
- INSTALLATION AND CONNECTION HARDWARE INCLUDED WITH CARD



## GENERAL DESCRIPTION

The G3HSPA option card allows the user to add HSPA+ cellular modem capability to their G3 operator interface terminal. The cellular standard adopted in this option card is HSPA+ with fallback capability to 3G and 2G. It can get speeds up to 21 Mbps downlink and 5.76 Mbps uplink. It's built upon the GSM standard, offered in the US and widely available throughout the world. HSPA+ can be used for services such as Wireless Application Protocol (WAP) access, Short Message Service (SMS), and for Internet connectivity.

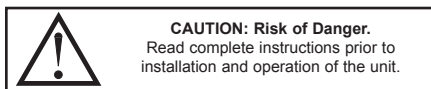
The G3HSPA option card is penta-band, allowing it to work in frequencies across the Americas, Europe and Asia. US and Canada work in the 850/1900 MHz bands, while Europe, Middle East, Africa and most of Asia work in the 900/1700/2100 MHz HSPA+ frequencies.

The G3HSPA requires the addition of a SIM (Subscriber Identity Module) card, which is inserted into the holder prior to installation of the G3HSPA card. The SIM card securely stores the service-subscriber key (IMSI) used to identify a subscriber, and is used to connect to the network to obtain an IP address from the provider.

## SAFETY SUMMARY

All safety related regulations, local codes and instructions that appear in the manual or on equipment must be observed to ensure personal safety and to prevent damage to either the instrument or equipment connected to it. If equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

Do not use the module to directly command motors, valves, or other actuators not equipped with safeguards. To do so can be potentially harmful to persons or equipment in the event of a fault to the module.



## CONTENTS OF PACKAGE

- G3HSPA Option card
- Cable already attached to G3HSPA option card
- Hardware pack consisting of three screws.
- This hardware bulletin

## ORDERING INFORMATION

MODEL NO.	DESCRIPTION	PART NUMBER
G3HSPA	GSM/HSPA+ Modem Option Card for G3 operator interface <sup>1</sup>	G3HSPA00
ANT	2G/3G 3" hinged antenna	ANT-TG090113
	2G/3G/4G LTE low profile direct permanent mount antenna, IP67 rated	ANT-G30B108111
	2G/3G 4.5" whip magnetic mount antenna, IP65 rated	ANT-GA107201111
	2G/3G low profile direct permanent mount antenna, IP65 rated	ANT-G21B301111

<sup>1</sup> Antenna is NOT included with the card. Must be purchased separately if needed.

## SPECIFICATIONS

### 1. POWER REQUIREMENTS:

24VDC ± 20%; (independent from the host G3 power connection). Must use NEC Class 2 or Limited Power Source (LPS) rated power supply.

### G3HSPA Max Power:

**HSPA+ Mode:** During continuous active webserver traffic  
 Instantaneous maximum: 5.5 W  
 Average: 3.7 W

### GPRS Mode:

Instantaneous maximum: 14.5 W (1.1 msec every 4.6 msec)  
 Average: 7.0 W

### 2. LINK STATUS LEDs:

**Link Status** - Link Status LED shows cellular link condition.

**3. COMMUNICATIONS:**

**Isolation from G3HSPA Antenna connector to G3 operator interface:**  
500 VDC for 1 minute.

**4. ENVIRONMENTAL CONDITIONS:**

**Operating Temperature Range:** 0 to 50 °C

**Storage Temperature Range:** -20 to 80 °C

**Operating and Storage Humidity:** 80% maximum relative humidity (non-condensing) from 0 to 50 °C.

**Altitude:** Up to 2000 meters.

**5. ANTENNA CONNECTOR:**

**SMA Female connector requires:**

50 Ohm antenna with SMA male connector

Penta-band HSPA+ antenna (850/900/1700/1900/2100 MHz) for global support.

Dual-band (850/1900 MHz) antenna for US and Canada only

Dual band (900/2100 MHz) for Europe only

Voltage Standing Wave Ratio (VSWR) should not exceed 2.0:1

The antenna cable should be 50Ω impedance, RG178/U or RG174/U type and be able to connect to the RSMA (Male) jack bulkhead. The antenna could be horizontal, vertical or right angled. Longer antenna cable would equate to signal loss.

**6. CERTIFICATIONS AND COMPLIANCES:**

**SAFETY:**

IEC 61010-1, EN 61010-1: Safety requirements for electrical equipment for measurement, control and laboratory use, Part 1.

**ELECTROMAGNETIC COMPATIBILITY**

Emissions and Immunity to EN 61326: Electrical Equipment for Measurement, Control and Laboratory use.

**Immunity to Industrial Locations:** Reference G3 unit for immunity specifications

**Emissions:**

Emissions EN 55011 Class A

*Note:*

1. G303 unit's emission level changes from Class B to Class A levels when G3HSPA option card is installed.

2. The G3HSPA option card has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC rules.

**7. CONSTRUCTION:** Installation Category I, Pollution Degree 2.

**8. INSTALLATION REQUIREMENTS:** Card must be installed inside the rear cover of a G3 operator interface with the hardware provided. See "Installing the G3HSPA Option Card" for more details.

**9. WEIGHT:** 2.5 oz (70.9 g)

# INSTALLING THE G3HSPA OPTION CARD

## INSTALLATION INSTRUCTIONS



**Caution:** The option and main circuit boards contain static sensitive components. Before handling the cards, discharge static charges from your body by touching a grounded bare metal object. Ideally, handle the cards at a static controlled clean workstation. Also, handle the cards by the edges only. Dirt, oil, or other contaminants that may contact the card can adversely affect circuit operation.



**Warning:** Depending upon the G3 operator interface, high voltage may be present inside the operator interface. Be sure to remove all power before removing the rear cover of the operator interface.

Each G3HSPA option card comes with a cable for communications from the main G3 operator interface PC board. It also comes with three screws for attaching the option card to the inside of the G3 operator interface's rear cover.

The first step is to buy a SIM Card from one of the GSM/HSPA+ providers and insert into the option card SIM Card slot. The SIM Card slot is the rectangular slot on top of the HSPA Cellular Modem in G3HSPA option card as shown in Figure 1. See SIM Card details in the Software/Unit Operation section for more details.

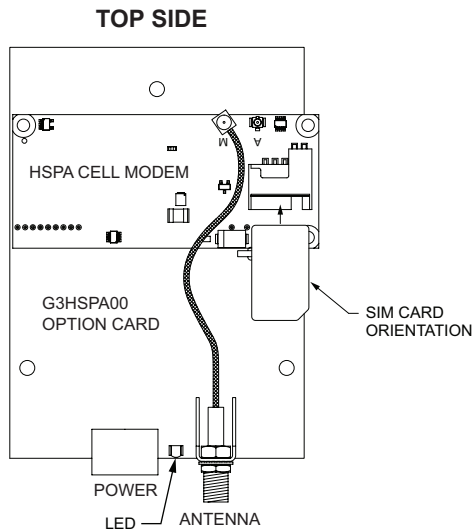


Figure 1

To install the option card remove all power and communication cables from the unit. The chassis ground connection to the rear cover may be left connected. The G3 operator interface literature contains instructions for removing the rear cover, refer to the "Battery & Time Keeping" section.

Using the three screws provided, connect the option card to the rear cover as shown in Figure 2. V2 HMIs connect at the main board.

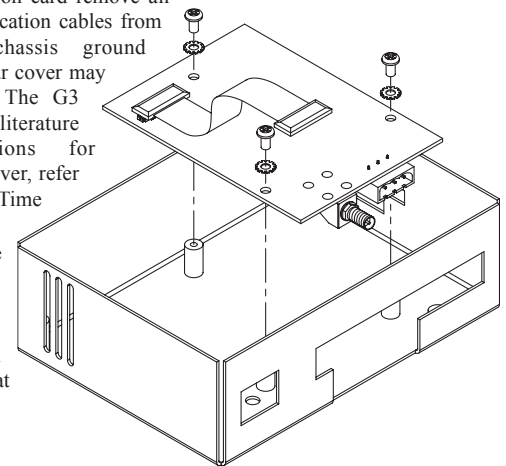


Figure 2

Connect the cable from the option card to CN11 on the main board of the G3 operator interface as shown in Figure 3. Be sure both ends of the cables are firmly seated into their appropriate connector housing.

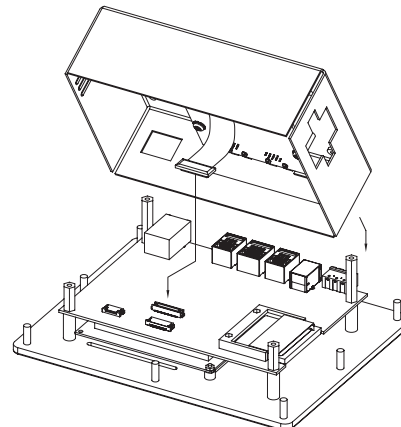


Figure 3

Carefully replace the rear cover by reversing the previous instructions for removing the rear cover. An external antenna must be attached to the bracket on the option card as shown in Figure 4. See Antenna Connector in the Specifications section for more information.

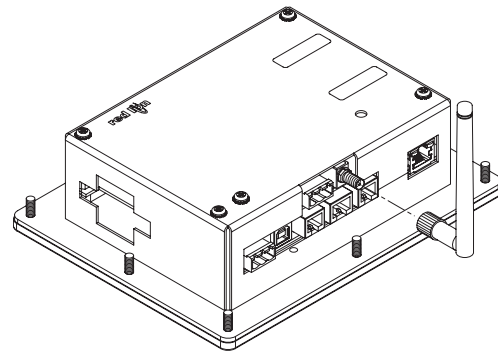
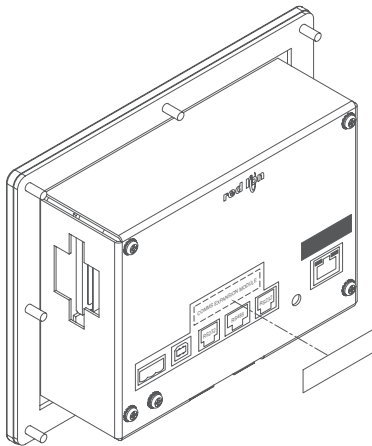


Figure 4

## THE OPTION CARD LABEL

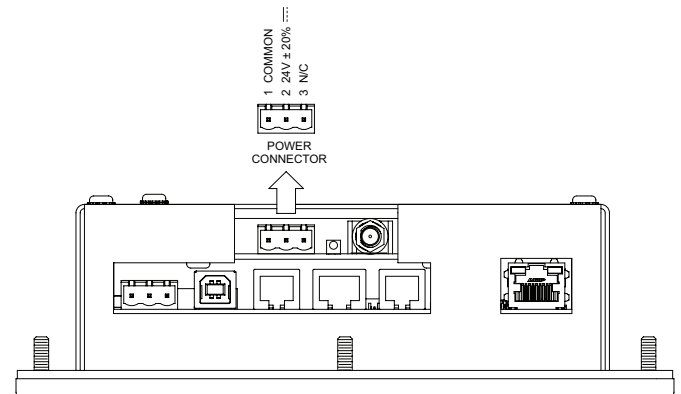
Place the option card label on your rear cover in the space indicated by the dashed lines and labeled “COMMS EXPANSION MODULE.” The label would also display the FCC ID of the particular modem being used.



## POWER SUPPLY REQUIREMENTS

### NEW AND EXISTING INSTALLATIONS

The G3HSPA option card needs 24 V power independently of the G3. The 24 V power terminal connector for the G3HSPA option card is shown below.



# SOFTWARE/UNIT OPERATION

## LED

### LINK STATUS – MODEM STATUS LED

The Link Status LED is a green LED that provides information regarding the state of the modem card’s cellular connection. The status is described below.

OFF	No power to the unit
ON	Powered and not registered on the cellular network.
BLINKING	Powered and registered on the cellular network.

## CONFIGURING A G3HSPA OPTION CARD

The G3HSPA option card is configured using Crimson (3.0 or later) software. After choosing the appropriate Cellular modem option card, it is set up as a PPP Modem client (choosing HSPA+ modem in the drop down box selection), PPP Modem Server or SMS via HSPA+ Modem. Find additional information in your G3 device hardware literature and the Crimson 3.0 manual.

## SIM CARD INSTALLATION & DETAILS

A SIM Card with data plan enabled has to be installed on the G3HSPA option card before installing the card in the Graphite host device. Please contact your GSM/HSPA+ cellular network provider on setting up an account and data plan. The carrier should provide you with a SIM card to insert into the card, along with the APN, username, and password for data connectivity.

## TROUBLESHOOTING YOUR G3HSPA OPTION CARD

If for any reason you have trouble operating, connecting, or simply have questions concerning your new G3HSPA option card, contact Red Lion's technical support. For contact information, refer to the back page of this bulletin for phone and fax numbers.

EMAIL: [techsupport@redlion.net](mailto:techsupport@redlion.net)

Web Site: <http://www.redlion.net>

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