

Introduction

This guide describes how to install the optional Connected Services Gateway Cellular Module, antenna and antenna extensions.

There are two cellular modules available that connect to different cellular networks, AT&T 3G and Verizon LTE. The AT&T 3G cellular module requires one antenna. The Verizon LTE module requires two antennae.

In cases with poor signal strength at the Fire Alarm Control Unit (FACU), you may need to move the antenna to another location with improved network coverage using an extension kit.

Related documentation

You may need to consult the following additional documentation:

- *Connected Services Gateway Module installation guide 579-1247*
- *Connected Services Gateway External Box installation guide 579-1249*
- *ES Programmer Manual 579-849*
- *4007ES Programmer Manual 579-1167*

In this publication

Topic	Page
Cautions, warnings, and regulatory information	2
Overview	5
Installing the cellular module	7
Antenna mounting guidelines	8
Mounting the antenna	9

Cautions, warnings, and regulatory information

READ AND SAVE THESE INSTRUCTIONS - Follow the instructions in this installation manual. These instructions must be followed to avoid damage to this product and associated equipment. Product operation and reliability depend upon proper installation.



DO NOT INSTALL ANY SIMPLEX® PRODUCT THAT APPEARS DAMAGED - Upon unpacking your Simplex product, inspect the contents of the carton for shipping damage. If damage is apparent, immediately file a claim with the carrier and notify an authorized Simplex product supplier.



ELECTRICAL HAZARD - Disconnect electrical field power when making any internal adjustments or repairs. All repairs should be performed by a representative or authorized agent of your local Simplex product supplier.



STATIC HAZARD - Static electricity can damage components. Handle as follows:

- Ground yourself before opening or installing components.
- Prior to installation, keep components wrapped in anti-static material at all times.

FCC MODIFICATION STATEMENT

Digital Security Controls has not approved any changes or modifications to this device by the user. Any changes or modifications could void the user's authority to operate the equipment.

Digital Security Controls n'approuve aucune modification apportée à l'appareil par l'utilisateur, quelle qu'en soit la nature. Tout changement ou modification peuvent annuler le droit d'utilisation de l'appareil par l'utilisateur.

ISED CANADA INTERFERENCE STATEMENT

This device complies with Part 15 of the FCC Rules and ISED Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'ISED Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

FCC CLASS B DIGITAL DEVICE NOTICE

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 in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or experienced radio/television technician for help.

CAN ICES-3 (B) / NMB-3 (B)

Cautions, warnings, and regulatory information, *continued*

FCC/ISED CANADA WIRELESS NOTICE

This equipment complies with FCC and ISED Canada radiation exposure limits set forth for an uncontrolled environment. The antenna should be installed and operated with minimum distance of 20 m between the radiator and your body. The antenna(s) used for this transmitter must not be co-located or operating in conjunction with any other antenna or transmitter, except as described in this user manual.

Cet appareil est conforme aux limites d'exposition aux rayonnements de la IC pour un environnement non contrôlé. L'antenne doit être installée de façon à garder une distance minimale de 20 centimètres entre la source de rayonnements et votre corps. L'antenne (s) utilisée pour cet émetteur ne doit pas être située ou opérant en conjonction avec une autre antenne ou émetteur, sauf tel que décrit dans ce mode d'emploi.

Antenna gain must be below/Gain de l'antenne doit être ci-dessous:

Carrier	Frequency band	4100-6401, 4010-6401, 4007-6401
AT&T / Rogers DSC M/N: 3G9080 with FCC ID: F53173G9080 IC: 160A-3G9080	GSM850 (B5) / FDD V	3.64 dBi
	PCS 1900 (B5) / FDD II	2.51dBi
Carrier	Frequency band	4100-6400, 4010-6400, 4007-6400
Verizon DSC M/N: LT9080 with FCC ID: F5317LT9080 IC: 160A-LT9080	700 (B13)	5.94 dBi
	AWS1700 (B4)	5.00 dBi

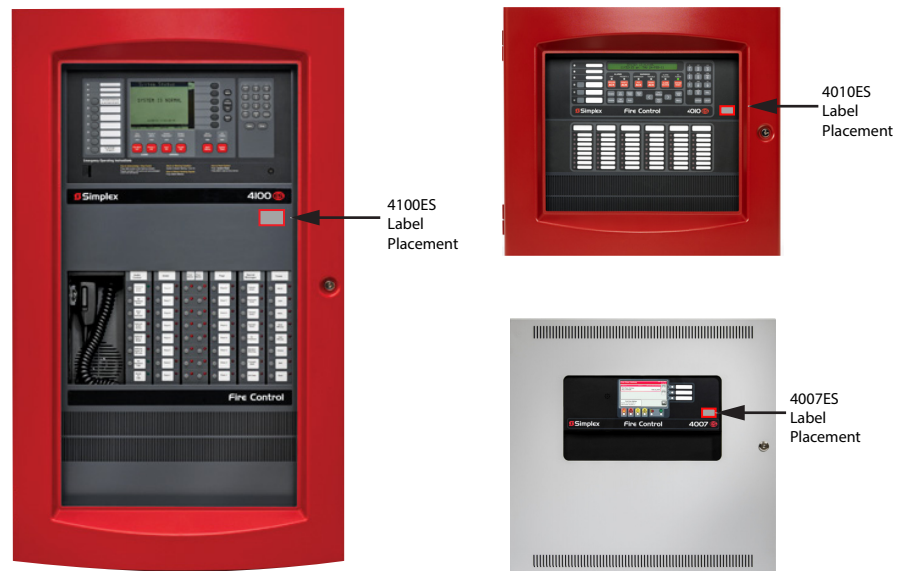
WARNING: To satisfy FCC RF exposure requirements for mobile transmitting devices, a separation distance of 20cm or more must be maintained between the antenna of this device and persons during device operation.

Cautions, warnings, and regulatory information, *continued*

FCC/IC LABEL

The modular transmitter 3G9080 or LT0080 is labeled with its own FCC ID and IC number. When the module is installed inside the host device and the FCC ID/IC of the module is not visible, the host device displays the provided label referring to the FCC ID and IC of the enclosed module. This label is shipped together with the module and it is the responsibility of the integrator to apply it to the exterior of the enclosure, as displayed in the following figure.

Le modulaire émetteur 3G9080 ou LT9080 est étiqueté avec son propre ID FCC et le numéro IC. Lorsque le module est installé à l'intérieur du dispositif hôte et la FCC ID / IC du module ne soit pas visible, le dispositif d'accueil affiche l'étiquette fournie se référant à l'ID FCC et IC du module ci-joint. Ce label est livré avec le module et il est de la responsabilité de l'intégrateur de l'appliquer à l'extérieur de l'enceinte, comme indiqué dans la figure suivante.

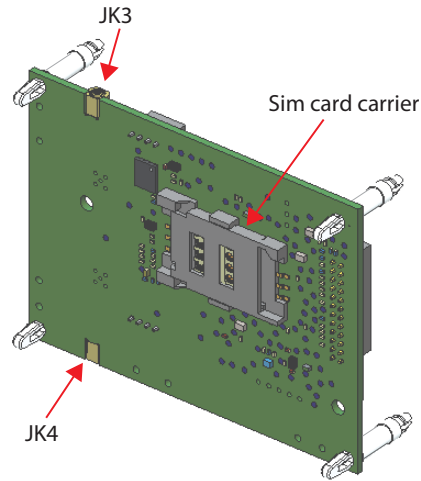


Model 3G9800
 Contains FCC ID: F53173G9080
 Contains IC: 160A-3G9080
 Model LT9080
 Contains FCC ID: F5317LT9080
 Contains IC: 160A-LT9080

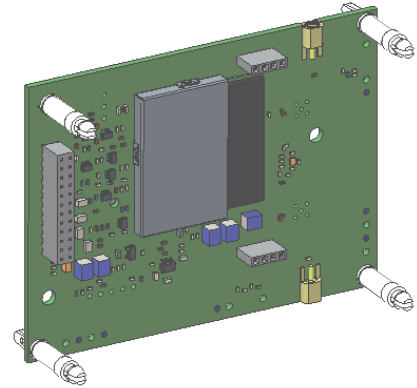
Overview

Introduction

The Connected Services Gateway Cellular Module is an optional module used with the Connected Services Gateway Module (CSGM). The cellular module connects the CSGM to connected services through a cellular network.



Top side of the cellular module



Bottom side of the cellular module

Figure 1. The Connected Services Gateway Cellular Module

You must install one or more antennae depending on the network of your chosen cellular module. AT&T 3G cellular modules require one antenna. Verizon LTE cellular modules require two antennae, referred to as primary and secondary antennae. Each kit includes the correct number of harnesses you require for the cellular module you are installing. Refer to **Table 1** for a list of PIDs.

In the case of poor signal strength at the FACU, an optional antenna extension kit may be required. Refer to **Table 2** for compatible extension kit information.

Table 1: Cellular Module PIDs

Cellular Module kit description	Cellular Module kit PIDs for CSGMs mounted in the FACU	Cellular Module kit PIDs for CSGMs mounted in an external box
Verizon, LTE	4100-6400 4010-6400 4007-6400	4100-6402 4010-6402 4007-6402
AT&T, 3G with 2G fall back	4100-6401 4010-6401 4007-6401	4100-6403 4010-6403 4007-6403

Overview, continued

Introduction

Table 2: Antenna extension kit PIDs

Cellular Module	Extension antenna kits	Compatible extension antenna kit PIDs
Verizon, LTE	15 feet (4.57 m) Antenna extension kit	4100-6407 4010-6407 4007-6407
	25 feet (7.62 m) Antenna extension kit	4100-6408 4010-6408 4007-6408
	50 feet (15.24 m) Antenna extension kit	4100-6409 4010-6409 4007-6409
AT&T, 3G with 2G fall back	15 feet (4.57 m) Antenna extension kit	4100-6404 4010-6404 4007-6404
	25 feet (7.62 m) Antenna extension kit	4100-6405 4010-6405 4007-6405
	50 feet (15.24 m) Antenna extension kit	4100-6406 4010-6406 4007-6406

The Connected Services Gateway Cellular Module attaches to the CSGM, which comes pre-installed in new FACUs.

Specifications

Refer to **Table 3** for cellular module electrical requirements and for environmental limitations.

Table 3: Electrical and environmental specifications

Electrical specifications			
Voltage DC	Nominal 24V draw through the CSGM	24V battery	Powered from SPES - see Note 1 .
Current DC	40 mA	40 mA	30 mA
Environmental specifications			
Temperature	Normal operation with ambient temperature outside the cabinet at 32F to 120.2F (0C to 49C).		
Humidity	Normal operation under non-condensing humidity conditions up to 93% relative humidity at 100.4F (38C)		

Note 1: When the SPES powers the CSGM, add the current draw of the cellular module to the current draw of the CSGM, and calculate the 24 V battery draw using the SPES current draw table in the **Specifications** section of *Power over Ethernet Switch Module installation guide 579-1250*.

Installing the cellular module

Mounting the cellular module

Note: The header connectors are located on the bottom of the cellular module. The SIM card carrier is located on the top.

To mount the cellular module perform the following steps:

1. Insert the SIM card into the SIM card carrier.
2. Push the four nylon standoffs through the bottom of the cellular module. The longer snap lock ends click through the top of the cellular module, see Figure 2.
3. Align the connectors on the cellular module with the matching connectors on the CSGM.
Note: The main connector is shrouded and only inserts correctly. Standoffs ensure the connectors on both modules align correctly.
4. Press the cellular module onto the CSGM until the standoffs snap into place.
5. Verify that the two smaller connectors insert correctly, see Figure 3. If you insert the connectors incorrectly, do the following:
 - Pinch the locking tops of the four adjacent standoffs to loosen the cellular module from the CSGM.
 - Realign the cellular module and repeat steps 3 to 5.
6. Place the FCC label included in the cellular module kit on the box that you installed the CSGM in. Ensure that it is visible when the doors of the FACU are closed.

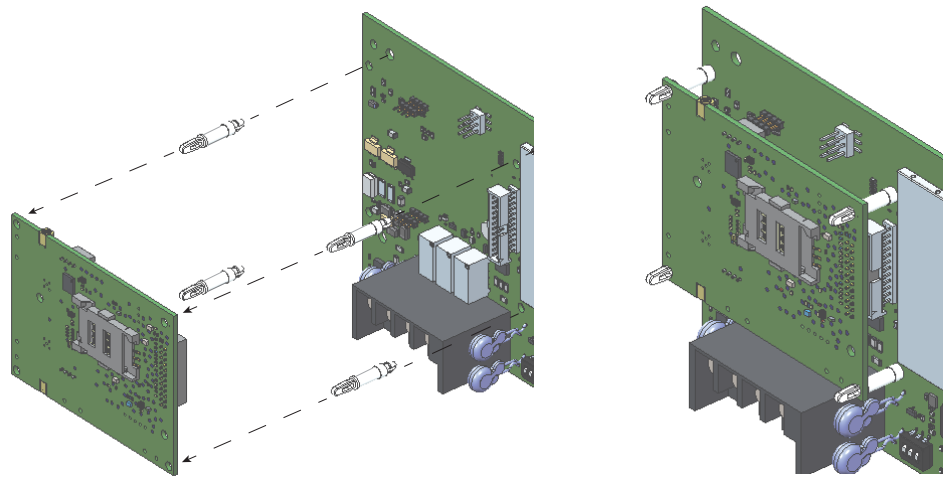


Figure 2. Connecting the cellular module to the CSGM

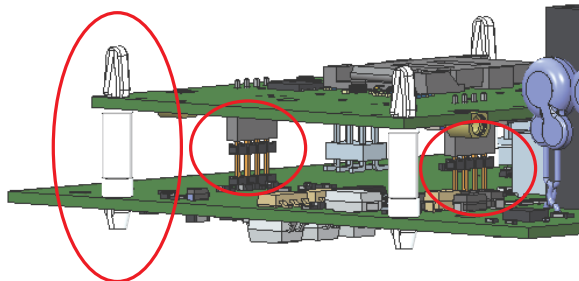


Figure 3. Connectors inserted correctly

Antenna mounting guidelines

Overview

You can mount the antennae for the cellular module in three locations as follows:

- Directly on the FACU that the CSGM is installed in.
- On the wall using an extension cable or bracket.
- Directly on the CSGM external box.

Notes:

- You can use a combination of the mounting locations listed above for installations requiring more than one antenna.
- The cables and antennae included in the cellular module kit are identical. You can use either antenna as the primary or secondary antenna mounting.
- The antennae are omni-directional. You do not need to align them to a particular compass direction.

Mounting the antenna directly on the FACU

Consult the following guidelines before mounting the antenna directly on the 4100ES, 4010ES, or 4007ES FACUs:

- The antenna cables are 36 inches long. They reach all areas on top of the 4100ES and 4010ES FACUs with the CSGM mounted in the top bay.
- The antenna cables reach all areas of the 4007ES FACU.
- When you are flush-mounting a 4007ES, leave at least two inches of wall protrusion to mount the antenna.
- Run the antenna cables as power-limited wiring.
- Always vertically align the primary antenna. You can mount this antenna close to either the top left or right edge of the FACU to conserve space on the unit for conduit entry. See Figure 4.
- Mount the secondary antenna vertically at least 5.5 inches (14 cm) away from the primary antenna and other antennae. Alternatively, you can mount the secondary antenna at a 90 degree angle from the primary antenna at the side of the FACU, without spacing restrictions. See Figure 5.
- If you choose to mount the secondary antenna on the side of the FACU, place it opposite the hinge side of the door, and at least **TBD** away from adjunct FACUs.
- Position antennae at least 5.5 inches (14 cm) away from cables, conduit, and metal structures.

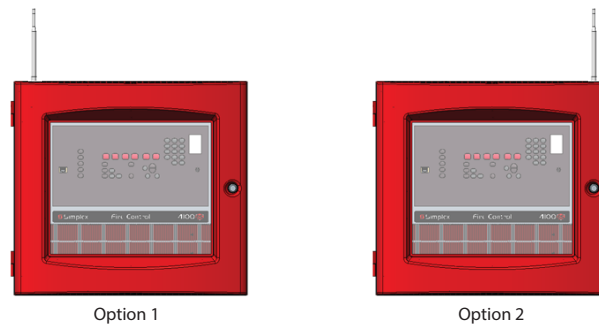


Figure 4. Primary antenna mounting examples

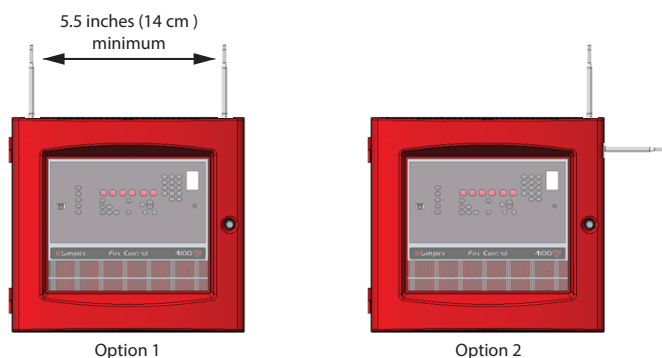


Figure 5. Primary and secondary antennae mounting example

Mounting the antenna

Mounting the antenna on the wall using an antenna extension

You can use antenna extensions to mount the antenna remotely in an area with better cellular signal and greater mounting space. For antenna extensions, use the same internal cables as when you mount antennae directly on the FACU. Rules for mounting antenna extensions are less restrictive than for mounting on the FACU.

Antennae are pre-installed with the extension and wall brackets in antenna extension kits. Consult the following guidelines before installing the antenna extension:

- You can place holes to mount antenna extension cables anywhere on the box. Ensure that the 36 inch cable can reach the mounting hole from the cellular module location, which is usually in the top bay.
- You must leave a minimum of 3/4 inches (19 mm) around the center of the antenna cable connector for ease of installation.
- Always mount remote antennae vertically.
- Antenna extension cables are power-limited.
- If you mount more than one antenna, mount the extended antennae at least two inches apart. Further than two inches (5 cm) apart is better.
- You cannot link antenna extensions together. Use only one extension for each antenna.
- Use the full length of the antenna extension cable. Do not cut or splice the cable.
- Coil excess cable near the FACU. Do not coil the 15 foot extension cable tighter than a six inch (15.3 cm) diameter loop. Do not coil the 15 foot and 25 foot cables tighter than a 12 inch (30.5 cm) diameter loop.

Mounting the antenna on the CSGM External Box

Consult the following guidelines before mounting the antenna on the CSGM External Box:

- Antenna holes are pre-located with knockouts in the CSGM External Box. Choose any two of these holes to mount the antennae.
- Mount the primary antenna vertically aligned.
- The cellular module kit for the external box comes with a shorter antenna cable that reaches all of the knockouts in the external box.

Mounting the antenna, *continued*

Mounting the antenna

Before you begin, refer to **Installing the cellular module** for information about the installation type you are performing. All of the parts you require to mount the antenna cable are included in the cellular module kit.

To mount the antenna, perform the following steps:

1. Drill or punch a 21/64 inch (8.3344 mm) hole in the unit. If you are mounting the antenna on the external box, use knockouts instead.
2. Remove the nut from the SMA connector, leaving the lock washer in place.
3. Place the lower, thicker nylon shoulder washer on top of the lock washer, with the collar side facing up, see Figure 6.
4. Insert the SMA connector through the hole from the inside of the unit.
5. Place the second, thinner nylon washer over the SMA connector.
6. Replace the nut and tighten firmly, so that the cable does not spin freely.
7. Connect either the antenna or the extension cable to the SMA connector.
8. Route the antenna cable through the unit as power-limited wiring to the cellular module on the CSGM.

Note: The primary antenna connects to the cellular module at J4. The secondary antenna connects to the cellular module at J3.

9. Press the antenna cable MMCX connector firmly to the connection on the cellular module until it snaps into place.

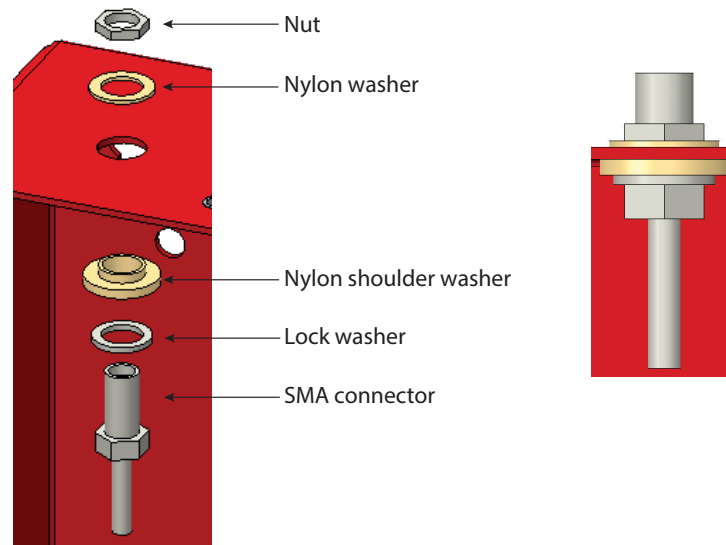


Figure 6. Installing the antenna cable

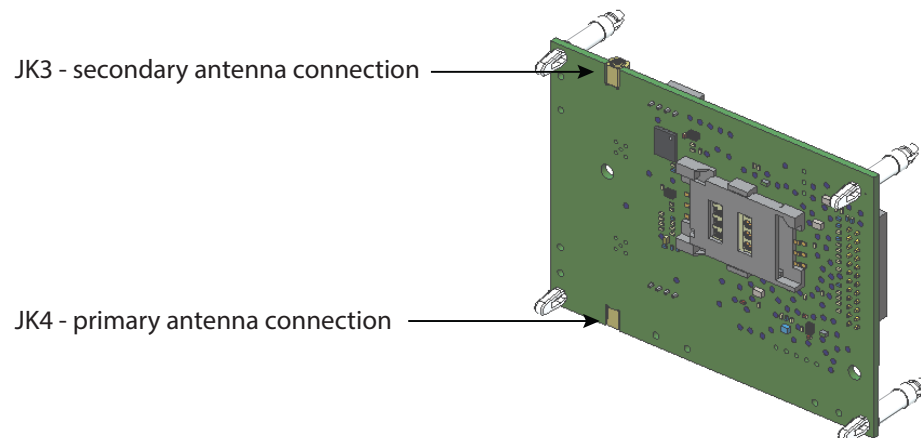


Figure 7. Antenna connectors on the cellular module