AUTOCALL

A050 / A250 Panels IP Communicator / Connected Services Gateway Module Installation Guide

579-1463AC Rev. C

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1 Introduction

This guide describes the procedure to install the IP Communicator (IPC) / Connected Services Gateway (CSG) Module in A050-9101 and A250-9101 Fire Alarm Control Units (FACU).

2 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 Autocall™ PRODUCT THAT APPEARS DAMAGED Upon unpacking your Autocall 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 Autocall product supplier.

ELECTRICAL HAZARD Disconnect electrical field power when making any internal adjustments or repairs. All repairs should be performed by a representative or an authorized agent of your local Autocall 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 and Innovation, Science and Economic Development Canada RULES AND REGULATIONS This equipment has been tested and found to comply with the limits for a Class A 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 commercial 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 communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

3 Important information

This equipment complies with Part 68 of the FCC Rules. On the side of this equipment is a label that contains, among other information, the FCC registration number and ringer equivalence number (REN) for this equipment. If requested, this number must be provided to the Telephone Company.

IP Communicator / Connected Services Gateway Module Product Identifier US: 5QWAL01ACSGM

REN:0.1A

USOC Jack:RJ-31X

Telephone connection requirements

A plug and jack used to connect this equipment to the premises wiring and telephone network must comply with the applicable FCC Part 68 rules and requirements adopted by the ACTA. A compliant telephone cord and modular plug is provided with this product. It is designed to be connected to a compatible modular jack that is also compliant. See installation instructions for details.

Ringer equivalence number (REN)

Use the REN to determine the number of devices that may be connected to a telephone line. Excessive RENs on a telephone line may result in the devices not ringing in response to an incoming call. In most but not all areas, the sum of RENs should not exceed five. To be certain of the number of devices that may be connected to a line, as determined by the total RENs, contact the local Telephone Company. For products approved after July 23, 2001, the REN is part of the product identifier that has the format: US: AAAEQ##TXXXX. The digits represented by ## are the REN without a decimal point, for example, 03 is a REN of 0.3. For earlier products, the REN is separately shown on the label.

Incidence of harm

If this equipment causes harm to the telephone network, the telephone company will notify you in advance that temporary discontinuance of service may be required. If advance notice is not practical, the Telephone Company will notify the customer as soon as possible. Also, you will be advised of your right to file a complaint with the FCC if you believe it is necessary.

Changes in telephone company equipment or facilities

The Telephone Company may make changes in its facilities, equipment, operations, or procedures that could affect the operation of the equipment. If this happens the Telephone Company will provide advance notice in order for you to make necessary modifications to maintain uninterrupted service.

Equipment maintenance facility

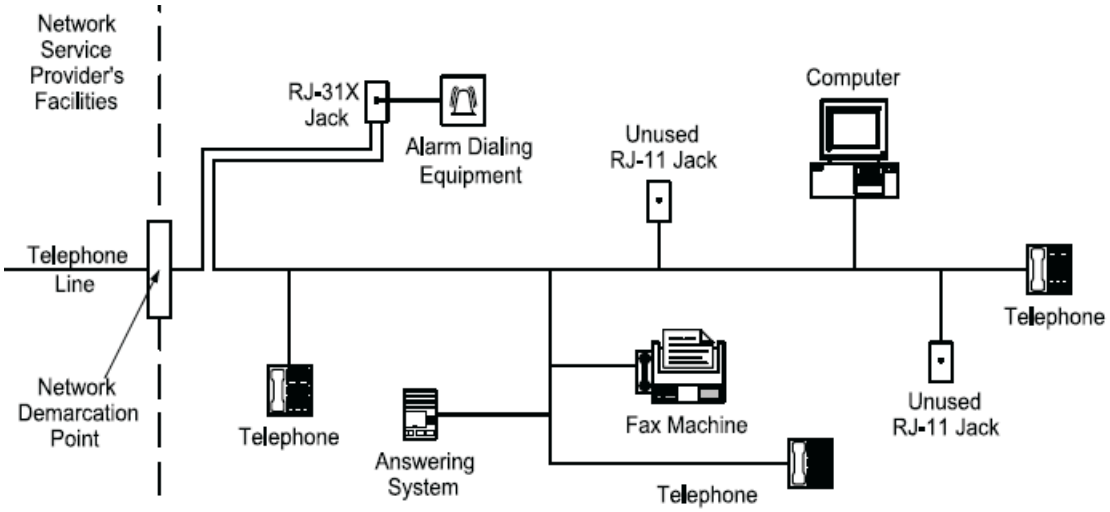
If you experience trouble with this equipment, contact the facility indicated below for repair or warranty information. If the equipment is causing harm to the telephone network, the Telephone Company may request that you disconnect the equipment until the problem is solved. This equipment is of a type that is not intended to be repaired by the end user.

Additional information

Connection to party line service is subject to state tariffs. Contact the state public utility commission, public service commission, or corporation commission for information.

Alarm dialling equipment must be able to seize the telephone line and place a call in an emergency situation. It must be able to do this even if other equipment, for example telephone, answering system, computer modem and so forth, already has the telephone line in use. To do so, alarm dialling equipment must be connected to a correctly installed RJ-31X jack that is electrically in series with and ahead of all other equipment attached to the same telephone line. Proper installation is depicted in the figure below. If you have any questions concerning these instructions, consult your telephone company or a qualified installer about installing the RJ-31X jack and alarm dialling equipment for you.

Figure 1: Customer premises equipment and wiring



4 Compatibility

The FACU firmware must be at the correct revision, or higher, to be compatible with the IP Communicator / Connected Services Gateway Module. See Table 1 for compatible firmware revisions.

Table 1: Compatible FACU firmware

FACU	Compatible revision
A050-9101	1.02
A250-9101	1.02

5 Related documentation

You may need to refer to the following additional documentation:

- *IP Gateway GSM Cellular Module Installation Guide (579-1248AC)*
- *IP Gateway External Box Installation Guide (579-1249AC)*
- *2050 and 2250 Foundation Series Fire Alarm Control Units Operation Guide (579-1405AC)*
- *2050 and 2250 Foundation Series Fire Alarm Control Units Programming Manual (579-1421AC)*

6 Overview

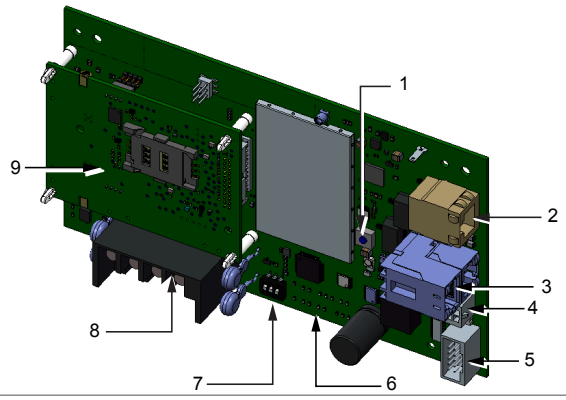
The IPC/CSG provides central station reporting, enterprise server reporting, or both for FACUs. You can mount the IPC/CSG internally in the FACU or close-nippled. The IPC/CSG connects using telephone lines, LAN Ethernet, or with a cellular connection.

The IPC/CSG provides the following capabilities:

- Central station reporting features: IP, cellular, and telephone line capabilities (IP Communicator)
- Enterprise server reporting features: IP and cellular capabilities (Connected Services Gateway)

Use the A050-9101 / A250-9101 Panel User Interface or Addressable Panel Programmer Tool to program the IPC/CSG. Refer to *2050 and 2250 Foundation Series Fire Alarm Control Units Operation Guide (579-1405AC)* and *2050 and 2250 Foundation Series Fire Alarm Control Units Programming Manual (579-1421AC)* for information.

Figure 2: IPC/CSG module



Callout	Description
1	Reset switch
2	Port 3: LAN side Ethernet port
3	Ports 1 and 2 Local Ethernet ports
4	P2 power connector
5	P1 serial connector
6	LEDs
7	Configuration switch
8	Screw terminal telephone line connectors
9	**Optional:** Cellular Module, see Table 5

6.1 Specifications

See Table 2 for IPC/CSG module electrical requirements and environmental limitations. The voltage is provided by the FACU.

Table 2: Electrical and environmental specifications

Electrical Specifications			
Voltage D.C.	Nominal 24 V	Battery	Powered from auxiliary power supply.
Current D.C.	125 mA	125 mA	125 mA
Environmental Specifications			
Temperature	Normal operation with ambient temperature outside the cabinet at 32°F to 120°F (0°C to 49°C).		
Humidity	Normal operation under non-condensing humidity conditions up to 93% relative humidity at 100.4°F (38°C).		

6.2 Central station transmission paths

The module can perform central station reporting. Central station reporting can be configured with one path, or dual paths with a Primary and Secondary path. The Primary and Secondary paths can be configured to use any of the external connections, telephone line, cellular, or LAN Ethernet connections. Both IP (cellular and Ethernet) and telephone line connection types can communicate with the Digital Alarm Communications Receiver (DACR) at the central station. See Table 3 for possible UL combinations.

Packet switched data network interface equipment that is not required for the processing of the signals shall be evaluated to the applicable requirements of the Standard for Information Technology Equipment – Safety – Part 1: General Requirements, UL 60950-1, either as burglar alarm equipment or communication equipment. You can configure both communication paths as telephone line.

The IPC/CSG receives system status messages from the host FACU, and communicates the information over the public telephone network to a DACR at the central station.

The telephone lines do not need to be dedicated to the fire alarm. You can connect the lines to other telecom equipment, but you must wire the module electrically first in the chain. The Ethernet connections are standard Ethernet that have access to the Internet.

Wire the telephone line connection such that the FACU takes precedence, see Field wiring.

Use the A050-9101 / A250-9101 Panel User Interface or Addressable Panel Programmer Tool to configure the module. Refer to the *2050 and 2250 Foundation Series Fire Alarm Control Units Operation Guide (579-1405AC)* , and *2050 and 2250 Foundation Series Fire Alarm Control Units Programming Manual (579-1421AC)* for information about programming. Central station communications are monitored for integrity.

Table 3: UL allowed path configurations

Scenario	Primary path	Secondary path
Scenario 1	IP (see Note)	IP (see Note)
Scenario 2	Telephone	IP (see Note)
Scenario 3	Telephone	Telephone
Note: IP can be cellular or wired (1 maximum each).		

6.3 Central station receiver protocol support

The following protocols are supported for central station reporting:

Phone line transmission:

- ADEMCO Contact ID Alarm Communication Protocol

IP based transmission (cellular or Ethernet):

- DSC Fibro protocol

6.4 Connected services transmission paths

You can use any IP connection for connected services to the Enterprise Server but you cannot use telephone lines for connected services.

Refer to *2050 and 2250 Foundation Series Fire Alarm Control Units Operation Guide (579-1405AC)* and *2050 and 2250 Foundation Series Fire Alarm Control Units Programming Manual (579-1421AC)* for information about programming the module for connected services.

7 Getting started

7.1 Reviewing the IP Communicator / Connected Services Gateway PIDs

Confirm that you have everything required to perform the installation. Depending on the connections used for the module, you may need to order additional parts specified in this section.

The following tables list the PIDs

Table 4: IP Communicator and Connected Services Gateway PIDs

PID	Description
A250-9800	Connected Services Gateway and IP Communicator Module, A050-9101 and A250-9101 panels

Cellular connections require an optional cellular module kit specified in Table 5. Cellular module kits include antennas. In the case of poor signal strength at the FACU, you may also require an additional antenna extension kit. For additional information about the cellular modules and antenna extension kits, refer to *IP Gateway GSM Cellular Module Installation Guide (579-1248AC)*.

Table 5: Cellular Module PIDs

Cellular module kit description	Cellular module kits for external box mounted IPC/CSG modules
GSM 4G/LTE	A007-6417

For additional mounting options refer to *IP Gateway External Box Installation Guide (579-1249AC)*.

7.2 Understanding the work flow

This section outlines the possible use cases and work flows. Most steps are explained in further detail in this document. You need additional documentation to install the cellular module kit, extension antenna, or external box.

Note: Installations do not require all of the following connection options: cellular, Ethernet, and telephone line. Typically, an installation comprises of two of the connection types listed.

There are two possible installation scenarios. These are as follows:

- FACU with internally installed IPC/CSG
- FACU with externally installed IPC/ CSG in external box

NOTICE: Power off the FACU before mounting or connecting the IPC/CSG.

The process for installing the IPC/CSG internally, or close-nippled, in the FACU is as follows:

1. Mount the IPC/CSG as required.
2. Optional: Mount the cellular module and antenna if required, in external box only
3. Optional: Connect the IPC/CSG to the LAN, or telephone lines if required.
4. Connect the IPC/CSG to the serial port, CPU, and power.
5. Power on the FACU.

To mount the IPC/CSG module or close-nippled, to the FACU, refer to *IP Gateway External Box Installation Guide (579-1249AC)*.

7.3 Installing the telephone lines

If the installation requires telephone line connection to the central station, ask the telephone company to install the required number of telephone lines before installing the IPC/CSG. The lines must be terminated with an RJ-31X jack immediately above, or as close as possible to the FACU. Be prepared to supply the telephone company with the FCC information printed on the FCC or Industry Canada label located on the IPC/CSG.

CAUTION: Do not direct-connect the IPC/CSG to a coin telephone or party line. Be sure that the telephone lines that you are connecting the IPC/CSG to are standard analog lines and not digital (PBX), party, or coin telephone lines. The line must not have any Telephone Company (TELCO) features such as Call Waiting.

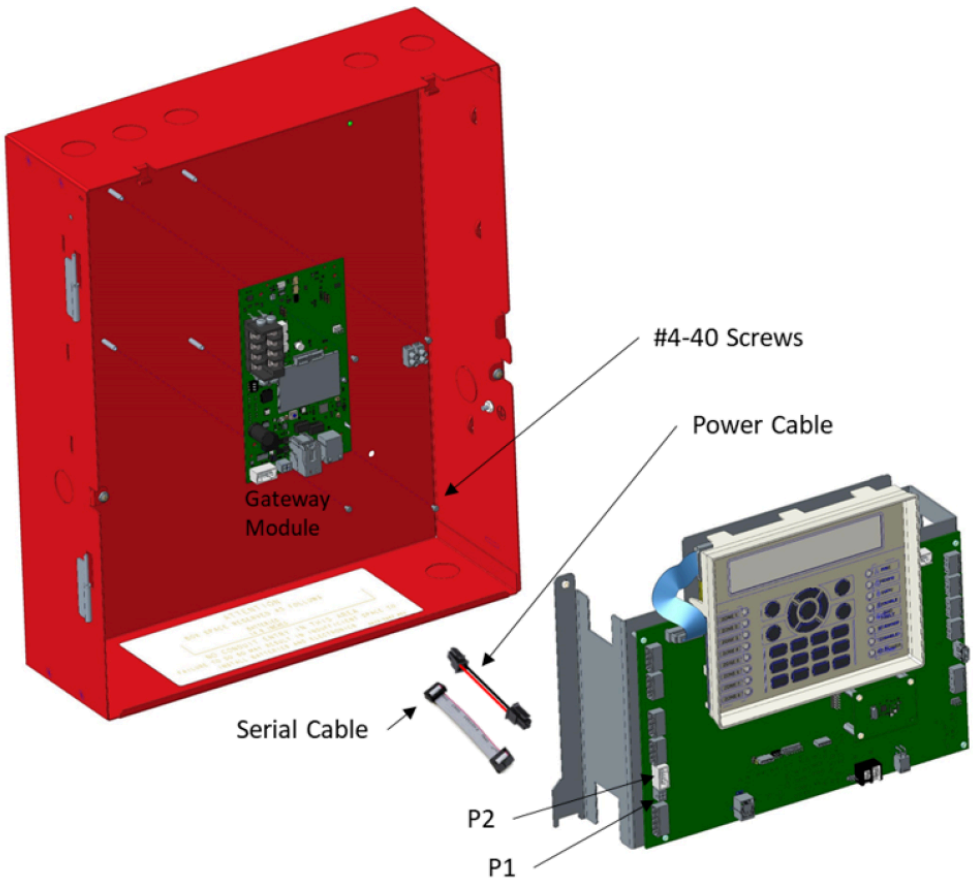
8 Mounting the module in a A050-9101 / A250-9101 FACU

Mount the IPC/CSG internally in the A050-9101 / A250-9101 with supplied studs. The following sections describe the installations.

Alternatively, you can mount the IPC/CSG remotely in the external box. Refer to *IP Gateway External Box Installation Guide (579-1249AC)*.

1. At the breaker, remove AC power from the control unit. Unlock the panel enclosure, remove the safety cover and disconnect the battery.
2. Disconnect all harnesses attached to main system board.
3. At the top, unscrew the two #4-40 screws that attach the main system board chassis to the panel enclosure, then remove the main board chassis assembly and place it at a secure location.
4. Unpack the gateway PCA packaging. It consists of a circuit board, a power cable, a serial cable, four #4-40 screws and four #6-32 screws. You can use the #6-32 screws to mount the gateway circuit board assembly in an external enclosure. You can use the #4-40 screws to mount the gateway circuit board assembly inside the panel.
5. Use the four #4-40 screws to mount the gateway circuit board inside the panel enclosure as shown in Figure 3.
6. Connect one end of the power harness to the connector labeled P1 on the main system board assembly and the other end to the connector labeled P2 on the gateway board.
7. Connect one end of the serial communication cable to the connector labeled P2 on the main system board and the other end to P1 on the gateway board. Then install the main system board chassis assembly above the gateway board using top two #4-40 screws.
8. After assembly, connect the battery, attach the safety cover, and then at the breaker, apply AC power to verify the gateway installation.

Figure 3: Gateway module mounting location



9 Field wiring

This section describes how to connect to building LAN and telephone lines in order to connect to the central station or the Enterprise server. Connecting to a service PC to configure the IPC/CSG is also described in this section. For cellular connections, refer to *IP Gateway Cellular Module Installation Guide (579-1248AC)*.

9.1 Connecting to the LAN

The LAN Ethernet port on the IPC/CSG are auto-crossover and compatible with 802.3u, 100Base-TX type standard RJ45 type connections. You do not require crossover cables. Cable requirements are as follows:

- Use Category 5 (CAT5) cable or greater for 100Mbit operation. Using lower grade cables such as Category 3, can result in slower link speeds, or shorter distances which may affect the performance of your connection.
- The maximum distance from the IPC to the next Ethernet termination, such as the router or switch, is 328 feet (100 meters) with CAT5 cable.
- Cables must conform to the TIA/EIA-568-B standard.

The IPC/CSG can connect to the central station or Enterprise server, through an Ethernet connection to the building LAN. To connect to the LAN, do the following:

1. Insert an Ethernet cable into port 3 of the IPC/CSG.
2. Insert the other end of the Ethernet cable into an Ethernet port connected to the building LAN.

NOTICE: Do not connect the LAN to port 1 or port 2. Connecting to port 1 or port 2 is a security risk. It will also cause disruption to the building LAN.

LAN configuration is DHCP by default. If you require static IP configuration, refer to the *2050 and 2250 Foundation Series Fire Alarm Control Units Programming Manual (579-1421AC)* and *2050 and 2250 Foundation Series Fire Alarm Control Unit Operation Guide (579-1405AC)*.

9.2 Connecting to the telephone lines

For installations where the IPC/CSG shares the telephone line with telephones on the premises or other equipment, make the connection to the RJ-31X jacks through the modular jack. Use A080-9047 harnesses for this connection. The harnesses are not included.

Note: The telephone company must install the telephone lines before installation. See Installing the telephone lines for more information.

To connect to the central station using a telephone line (IP Communicator only), complete the following steps:

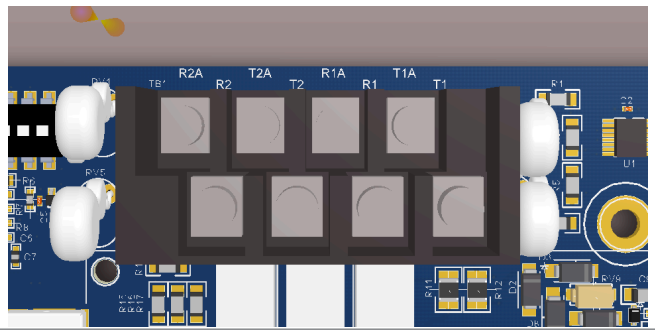
1. Connect the A080-9047 harness to the screw terminals on the IPC/CSG.
2. Use cable tie-wraps to provide strain relief for the two telephone line harnesses. Secure the cables to any standoff, or metal fixture along the cable run between the IPC/CSG and the FACU exit.

   Note: The two telephone line harnesses take separate paths from the host FACU to the RJ-31X blocks.

3. Connect one harness to each RJ-31X jack.

   Note: TELCO wiring is supervised.

Table 6: PCB reference designators and descriptions

	Pin	Name	Description / Connection
Figure 4: Telephone connection terminal block on the module 	8	T1	Line Tip Connection to POTS Line 1
	7	R1	Return Ring Connection to POTS Line 1
	6	T2	Line Tip Connection to POTS Line 2
	5	R2	Return Ring Connection to POTS Line 2
	4	T1A	N.C.
	3	R1A	N.C.
	2	T2A	N.C.
	1	R2A	N.C.

To configure with a A050 or A250 panel, refer to *2050 and 2250 Foundation Series Fire Alarm Control Unit Operation Guide (579-1405AC)*.

10 Confirming connection and additional operations

The LED behavior, enabling Manual Configuration Mode, and resetting the IPC/CSG are explained in this section.

After installing the IPC/CSG, consult the LEDs on the IPC/CSG, cellular module, and any Ethernet ports in use to confirm that the connections are successful. See Figure 5 for the locations of the LEDs and Ethernet ports.

Note: If a CSG is mounted externally, the LEDs are visible and the reset switch is accessible. If mounted inside a A250 or A050 panel, it is not required to use them.

10.1 Consulting the LEDs

To confirm the IPC/CSG is connected and operating correctly consult the following tables:

Table 7 System Status LEDs

Table 8 Panel (FACU) Communications LEDs

Table 9 Central Station Communications LEDs

Table 10 Phone line LEDs

Table 11 Cellular LEDs

Table 12 Ethernet port LEDs

Figure 5: Location of LEDs on the module

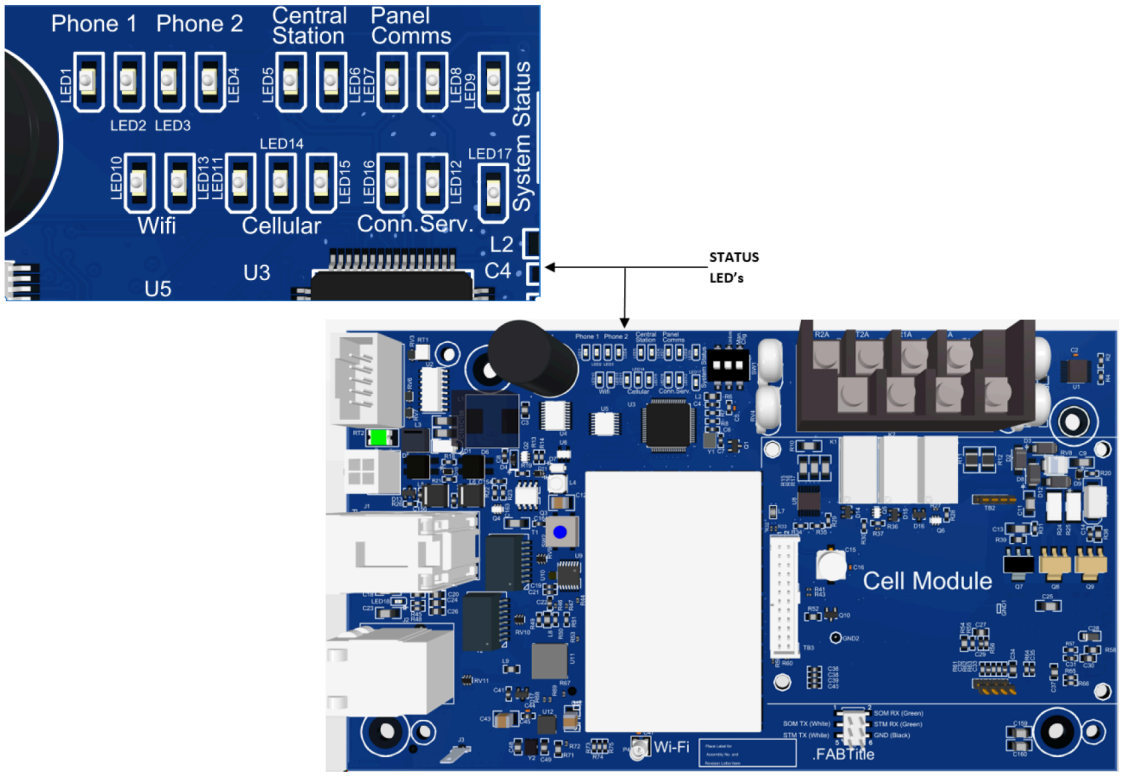


Table 7: System Status LEDs

Status	Green LED	Red LED
No power	Off	Off
Power connected: software not running	On	On
Power connected: software booting	On	Off
IPC/CSG application running	Blinking	Off
Software controlled restart	On	Off
Manual reset	On	On
Complete system failure, IPC/CSG application is not running	On	On

Table 8: Panel (FACU) Communications LEDs

Status	Green LED	Yellow LED
Normal: connected to the FACU	On	Off
Not connected with the FACU: communication failure with FACU	Off	On
Mismatch	Off	Blinking

Table 9: Central Station LEDs

Status	Green LED, primary path indicator	Yellow LED, secondary path indicator
Primary path, Secondary path both up	On	On
Primary up, Secondary path down	On	Off
Primary down, Secondary path up	Off	On
Primary up, Secondary path as none	On	On
Primary down, Secondary Path as none	Off	On
Both paths down	Off	Off

Table 10: Phone Line LEDs

Status	Green LED	Yellow LED
Normal	On	Off
Telephone line in use	Blinking	Off
Telephone line is not connected, or not functional.	Off	Blinking
Hardware fault	Off	On
Disabled	Off	Off
Note: The function of the LEDs for both telephone lines is identical.		

Table 11: Cellular LEDs

Status	Green LED #11	Green LED #14	Yellow LED #15
High quality signal	On	On	Off
Moderate quality signal	On	Blinking	Off
Low quality signal	On	Off	Off
Very poor quality signal	Blinking	Off	Off
Not connected	Off	Off	Blinking
Fault / error	Off	Off	On
Disabled	Off	Off	Off

Table 12: Ethernet port LEDs

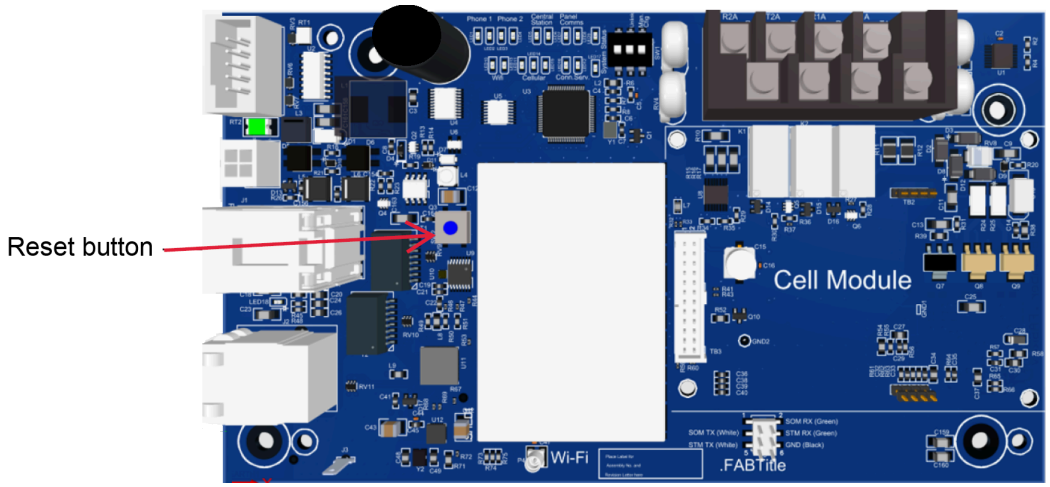
Status	LED behavior
Link up	On
Activity	Blinking
Not connected	Off

10.2 Resetting the module

Use the reset button to perform software and hardware resets for the IPC/CSG. See Figure 6 to locate the reset button. To perform a reset, do one of the following:

1. To perform a software reset, momentarily press the reset button.
2. To perform a hardware reset, press and hold the reset button for three seconds.

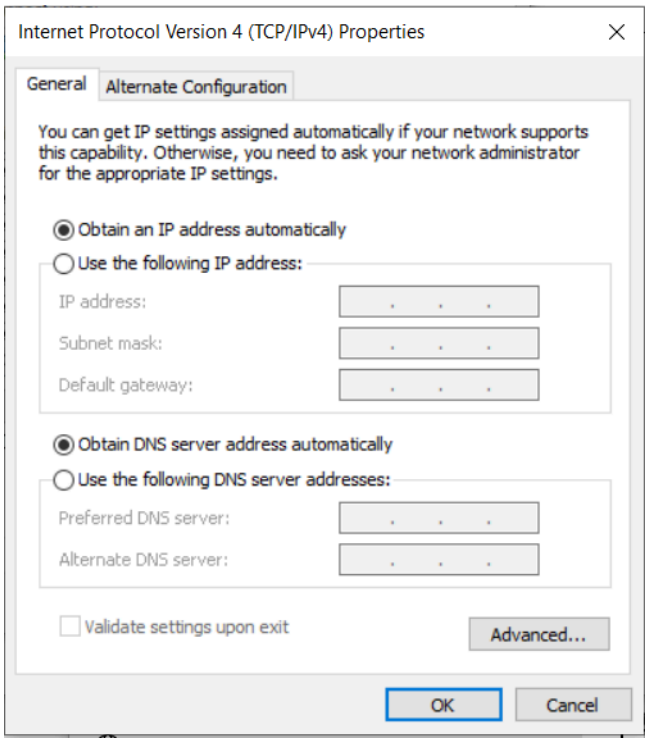
Figure 6: Location of reset button on the module



10.3 Accessing Connected Service Gateway

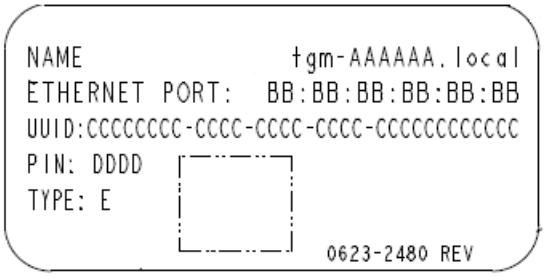
1. Connect the Gateway's panel interface Ethernet port, named Panel P1-2 port with the local PC by an Ethernet cable.
2. Apply power to the CSG from a suitable 24 V power supply from Panel P1 (PWR).
3. Set the Personal Computer's / Laptop's IP address to DHCP as shown in the following image.

Figure 7: IPv4 properties



4. Open browser Mozilla Firefox or Google Chrome and enter CSG URL tgm-x1x2x3.local/ to load the gateway's webpage. The URL is labeled (Name : tgm -AAAAAA.local) on the Gateway board as in the following image.

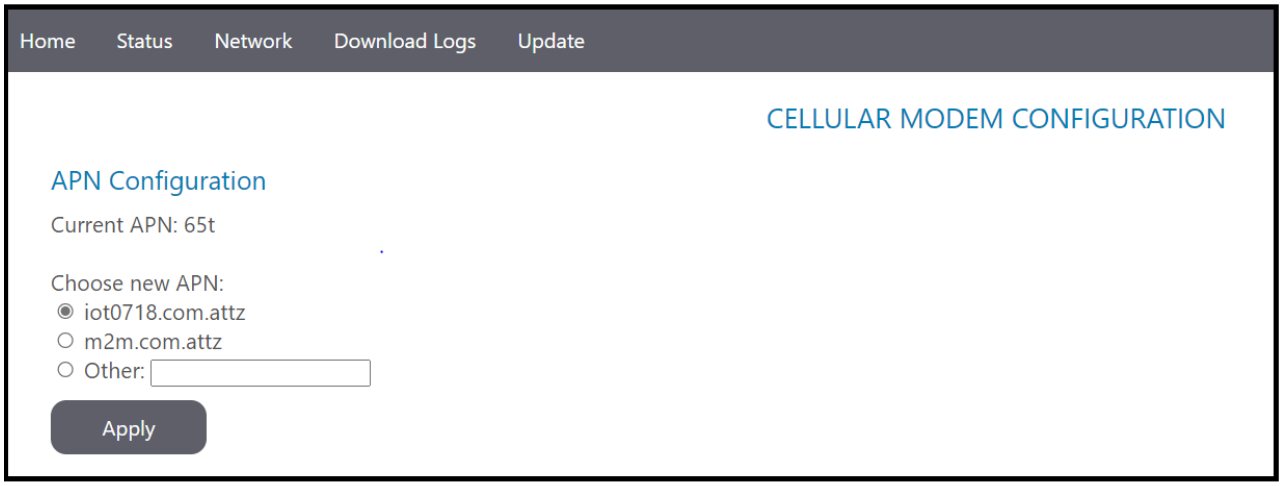
Figure 8: Label



10.4 Configuring the APN for a cellular network

1. Click on the **Network** tab and select **Cellular modem configuration**, see the following figure.

Figure 9: Cellular modem configuration

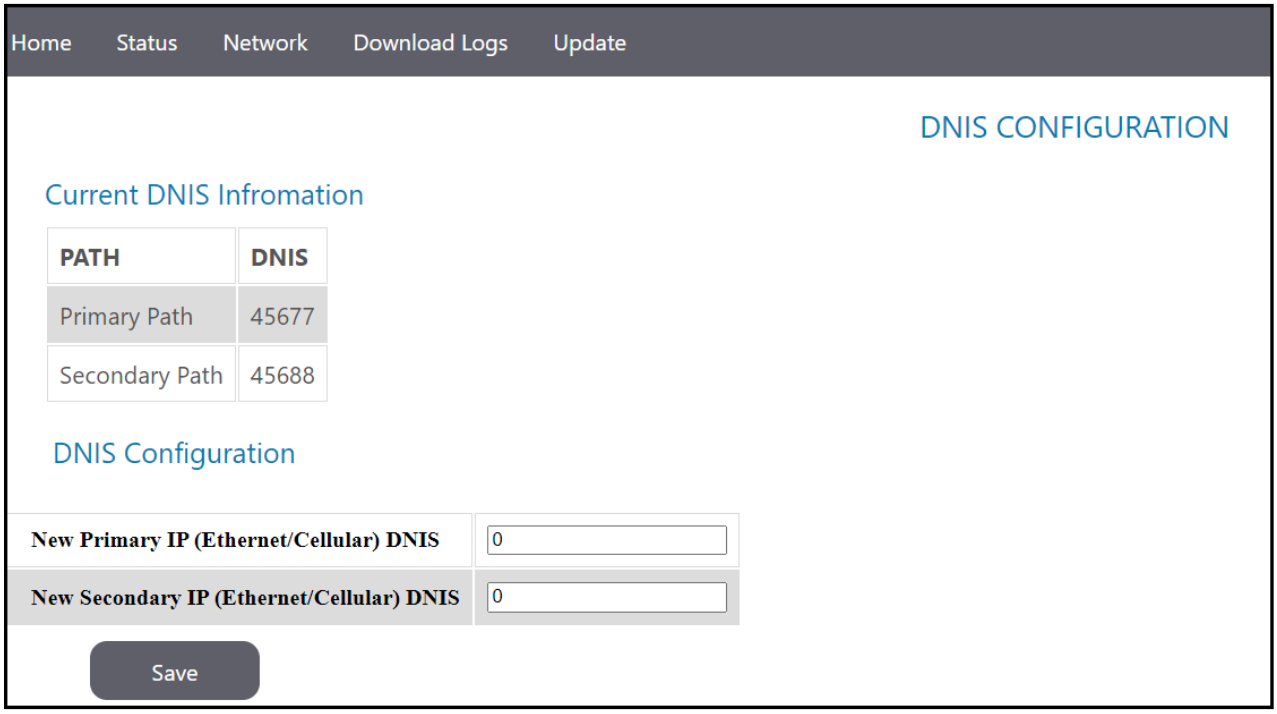


2. Select or enter the new correct APN for the SIM used in the CSG.
3. Click on the **Apply** button, restart the CSG

10.5 Configuring the DNIS

1. Click on the **Network** tab and select **DNIS configuration**, see the following figure.

Figure 10: DNIS configuration

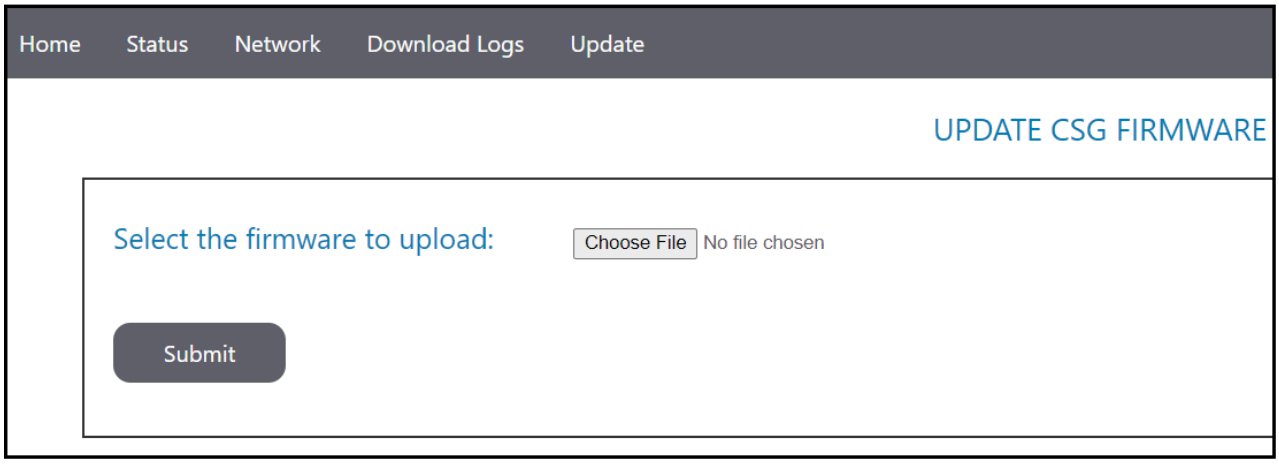


2. Enter the new DNIS value for Primary and Secondary Path.
3. Click on the **Save** button.
4. Reconfiguration CSG or restart the CSG

10.6 CSG build upgrade

1. Click on the **Update** tab, see the following figure.

Figure 11: Update CSG firmware



2. Click on the **Choose File** button and select the new CSG build files.
3. Click on the **Submit** button.
4. CSG updates and restarts automatically.