

3G4000W

3G (HSPA) WIRELESS ALARM COMMUNICATOR

INSTALLATION MANUAL V5.0

WARNING: This manual contains information on limitations regarding product use and function and information on the limitations as to liability of the manufacturer. The entire manual should be carefully read.

Include a table of contents here.

IMPORTANT The equipment is fixed, wall-mounted and shall be installed in the position specified in these instructions. The equipment enclosure must be fully assembled and closed, with all the necessary screws/tabs and secured to a wall before operation. Internal wiring must be routed in a manner that prevents:

- Excessive strain on wire and on terminal connections
- Loosening of terminal; connections
- Damage of conductor insulation

WARNING: Never install this equipment during a lightning storm!

Instruct the end-user to:

- Not attempt to service this product. Opening or removing covers may expose the user to dangerous voltages or other risks. Any servicing shall be referred to trained service persons only.
- Use authorized accessories only with this equipment.

Do not dispose of the battery in fire or water. Disposing of the battery in a fire will cause rupture and explosion. Do not dispose of the waste battery as unsorted municipal waste. Consult your local regulations and /or laws regarding recycling with regard to this NiMH battery pack. Doing so will help protect the environment. Some of the materials that are found within the battery could become toxic if not disposed of properly and may affect the environment.

Introduction

The 3G4000W is a wireless communicator that sends alarm system information to a Sur-Gard SG-System I-IP, II, III, IV or 5 Receiver through a 3G (HSPA) or 2G (GPRS) wireless network. This wireless communicator can be used with UL/ULC Listed compatible control units, as indicated in the manufacturer's installation instructions.

NOTE: The 3G4000W is designed to work with the Contact ID communication format as described in SIA DC-05 Standard and the SIA DC-03 standard for 300 baud. Before completing the field installation of the alarm monitoring system, please ensure communication with the supervising central station is successful by sending several events and getting confirmation that they have been received.

Features

- Compatible with 4-digit or 10-digit Contact ID communication format as described in SIA DC-05 Standard and the SIA DC-03 standard for 300 baud. Example of suitable compatible alarm panels: DSC Models PC1864, PC1832, PC1616, PC4020.
- Simulates landline
- Switches automatically to the 3G (HSPA) or 2G (GPRS) network in the event of landline trouble (e.g., line down)
- Wireless Signal Strength Indicator
- Programmable Output
- Case and Wall Tamper
- Landline overvoltage protection
- Quad-Band GSM/EDGE Radio
- Programmable Inputs
- 3G (HSPA)/2G (GPRS) / Internet communication with Sur-Gard SG-System I-IP / II / III / IV / 5
- Panel transmission monitoring for up to four phone numbers
- Local or Remote firmware upgrade
- DLS support for status, firmware updates, and event history retrieval
- Advanced Carrier Selection
- Panel format detection
- Remote diagnostics

Technical Specifications

The input voltage to the 3G4000W can be drawn from the UL/ULC Listed control panel or provided by an external UL/ULC Listed power supply (with battery back-up) rated for the application (external power-limited source).

Power Supply (Sold Separately)	
Input Voltage Class:	Class 2, Power Limited
Compatible External Power Adapters (2-prong):	ADP1310(W)-NA / ADP1310(W)-NAU
Power Adaptor Input	100-240V ~50/60Hz 0.4A
Power Adaptor Output	13.8V DC / 1 Ampere
Product Input Voltage and Current Draw	
3G4000W Input Voltage / Input Current (Nominal)	13.8Vdc/700mA (when supplied by compatible external power adapter) 9-14Vdc/500mA (use listed, compatible control panel or power supply)
Average Current	40mA*
Peak Current (no battery)	180mA*
Peak Current (with battery)	350mA*
* Plus any current draw from the 3G4000W +ve terminal if outputs are used	
Battery (Sold Separately)	
Battery Type	NiMH, rated 7.2V, 2.2 AH
Battery Charging Voltage (maximum)	9.1 VDC
Battery Charging Current	160 mA
Battery Standby Time	Greater than 24 hours
Note: The battery must be replaced every 3-5 years	
Radio and Antenna	
Supported Cellular Bands	2G Bands – GSM 850, GSM 900, DCS 1800, PCS 1900 3G Bands – FDD Band 1 (2100 MHz), Band 2 (1900PCS), Band 5 (850MHz), Band 8 (900 GSM)
Cellular Antenna Gain	
WCDMA B5, WCDMA B8, GMS 850, GSM 900	2.5 dBi
WCDMA B1 (Tx), WCDMA B2, DCS 1800, PCS 1900	6.2 dBi
WCDMA B1 (Rx)	2.8 dBi
Environmental Specifications	
Operating Temperature	0°C - 49°C (32°F - 120°F)
Humidity	93%RH Maximum (non-condensing)
Mechanical Specifications	
Dimensions, Plastic Enclosure (painted)	.125 mm (W) x 220mm (H) x 31mm (D) / 4.9" x 8.7" x 1.2"
Weight (without battery)	400g / 1.2 oz
Simulated Telco Loop Specifications (TIP/RING)	
On-Hook Voltage	12 VDC
Off-Hook Current	24 mA
Loop Resistance	600 Ohms
Loop Current	25 mA

Installing the 3G4000W

Step 1 – Activate SIM card

The 3G4000W cellular alarm communicator requires a data only SIM card in 3FF Micro size. It is recommended that the SIM card be activated with an appropriate data and billing plan prior to installing the communicator.

Step 2 - Determine the Best Signal Location

1. Remove the front cover by inserting a screwdriver into each of the slots at the bottom of the enclosure and pushing down.
2. Apply power (DC and/or battery). The 3G4000W will indicate signal strength after successfully registering on the 2G or 3G cellular network.

Step 2a – SIM Card is activated

The red LED will be on solid, the blue LED will be off and the signal strength LEDs will display the average signal strength. In this state, the 3G4000W is registered to the cellular network.

If the signal strength is too low (bottom signal LED off or flashing), the 3G4000W will move to **Step 3** and scan for carriers with sufficient signal strength. If the 3G4000W is connected to a carrier with sufficient signal strength (minimum of bottom signal strength LED on solid), it will move to **Step 4**.

Step 2b – SIM Card is not yet activated

The red LED will flash, the blue LED will be off and the signal strength LEDs will display the average signal strength.

In this state, the 3G4000W is unable to register to the cellular network because it is inactive. The signal strength indicated is from **any** nearby cell tower (including cellular towers belonging to non-roaming partners) and does **not** necessarily reflect the signal strength of the intended network. The 3G4000W will remain in this state until the SIM is activated. Once the SIM is activated, the communicator will move to **Step 2a**.

Step 3 – Carrier Scanning Due To Insufficient Signal Strength

The 3G4000W will scan the surrounding cellular network and connect to the carrier. When this action is being performed, all four LEDs will activate to show a scanning sequence. The LEDs will cycle from top to bottom and then bottom to top. This cycle will continue until the 3G4000W is connected to a carrier with sufficient signal strength. This process can take several minutes.

The carrier scanning sequence repeats until complete.

Step 4 – Create a new account in within the Downloading Software

Open the downloading software. From the Start Page in the DLS software, click on New Account. Enter a name for the account, and select 3G4000W v5.0 from the Panel Type dropdown box. Select SMS as the connection type, and enter the phone number of the SIM card.

Note: It is possible to use the account template feature at this stage to quickly load cellular APN, login and password information for the SIM card, and receiver IPs and Ports so this data doesn't need to be manually entered for each installation.

With the cover to the enclosure removed, connect a 4 PIN PC-Link adaptor and cable to the PCLINK header on the 3G4000W circuit board.

Step 5 – Receiver Initialization

Initially, the red LED and the blue LED are both solid and the signal strength LEDs are off.

When the LE4000 sends a request to communicate with the receiver, the top signal strength LED will begin flashing.

When the central station communicates back with the LE4000, the top signal strength LED will turn on solid.

When the LE4000 sends a request to communicate with the next receiver (if programmed), the bottom signal strength LED will begin flashing.

When a signal is received from the central station, the bottom signal strength LED turns on solid.

If at least one receiver could not be initialized, the signal strength LED corresponding to that receiver will turn off.

Step 6 - Mount the 3G4000W

NOTE: If using a 3G4000W trim plate, snap the 3G4000S back plate onto the trim plate before mounting to the wall. If flush mounting or using with an extension antenna, remove the provided breakaway from the trim plate prior to mounting.

1. Using the mounting holes on the LE4000 backplate, mark the four screw locations. Drill the anchor screw holes. **NOTE:** Check for cable conduits and water pipes before drilling.
2. Inspect the mounting surface. Ensure that the surface is flat and will hold the wall tamper closed when mounted. Using anchor screws (not provided), mount the cabinet to the wall. If the tamper cannot be secured it can be disabled via a programmable option.
3. Run the cables through the cable entry [13] or through the cabinet cable run knockout [15].
4. Complete the connections on the terminal blocks [12].
5. Reattach the front cover securely to the enclosure.

CONNECTING THE 3G4000W

TIP (1) / RNG (2) External Telephone Line - If the 3G4000W is being used as a back-up communicator, these terminals must be connected directly to the incoming telephone line.

T1 (3) / R1 (4) Internal Telephone Line - These terminals must be connected to the TIP and RING of the control panel.

Zone 2 (7) Programmable Input - This terminal can be set up to trigger events. Refer to 'Input' for details.

PGM2 (8) Programmable Open-collector Output - This output can be activated by programmed events. Refer to 'Activating the Output' for details. The maximum current sink of each output must not exceed 50mA.

DC in + (9), DC in - (10) Device Power Supply - These terminals must be connected to a rated power supply. Once the connections are completed, connect the battery, [12] in Figure 1) to a 7.2V, 2.2Ah battery.

NOTE: When disposing of batteries, follow the instructions and precautions printed on the batteries, and contact your municipal offices for information on the disposal of used batteries.

Identification of Parts

Table 1: Parts

Parts

1 Plastic Casing

2 Anchor Screw Holes (3mm)

3 SIM Card Holder

4 2G/3G External Antenna*

5 2G/3G (HSPA) Radio Module

6 Antenna Connector

7 Antenna Mounting Hardware

8 Cover Tamper Switch

9 Status LEDs

10 Terminal Blocks

11 PC-Link Connector

12 Battery Connector

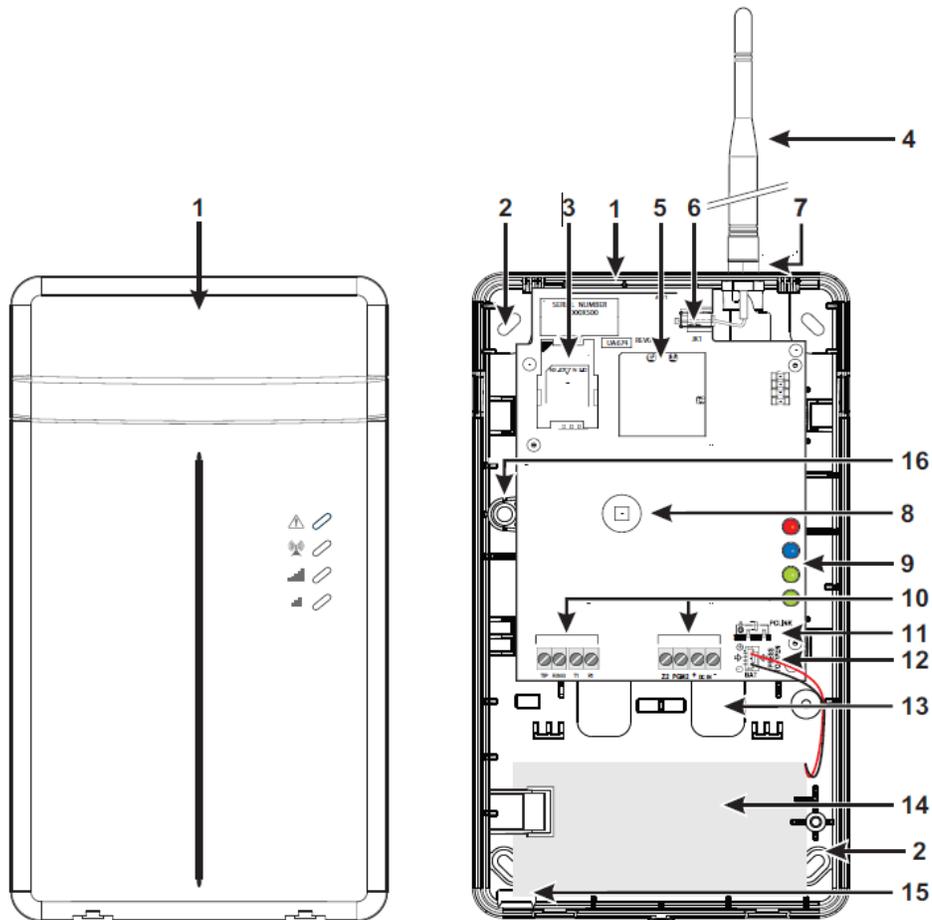
13 Cable Entry

14 7.2V - 2.2Ah Battery

15 Cable Run Knockout

16 Wall Tamper Switch

* Use only DSC provided antenna.



All circuits are classified for UL installations as Power Limited/Class II Power Limited. Do not route any wiring over circuit boards. Maintain at least 1" (25.4mm) separation.

This equipment (3G4000W) is fixed and shall be installed by Service Persons only (Service Person is defined as a person having the appropriate technical training and experience necessary to be aware of hazards to which that person may be exposed in performing a task, and of measures available to minimize the risks to that person or other persons). It shall be installed and used within an environment that provides the pollution degree max 2, over voltages category II, in non-hazardous, indoor locations only. This manual shall be used with the Installation Manual of the relevant alarm control panel. All instructions specified within that manual must be observed.

Description

This 3G4000W manages transmissions to a central station and can simulate the landline in the event of trouble (e.g., landline down) or even substitute the landline completely in areas where the 3G or 2G wireless service is provided and a landline is not available. The 3G4000W has the capability of communicating alarm signals via the cellular data network. This capability ensures a fast, reliable path to central stations equipped with a Sur-Gard SG-System I-IP / II / III / IV / 5 Receiver. By connecting a 3G4000W to a control panel's standard PSTN interface, telephone based Contact ID or SIA signals are decoded and seamlessly routed through the cellular network to any of the compatible receiver options.

The performance of the 3G4000W depends greatly on wireless network coverage. Therefore, it should not be permanently mounted without first performing placement tests to determine the best location for reception (minimum of one green/yellow LED ON). It is recommended that the SIM card be activated prior to performing placement test to ensure results are specific to the home network determined by the SIM card.

Optional antenna extension kits – GS15/25/50-ANTQ (15ft/4.6m, 25ft/7.6m or 50ft/15.2m) and GS8-ANTP (8ft/2.4m) – are available.

The 3G4000W shall be powered from a compatible listed control unit or compatible listed power supply that complies with the specified ratings. The power supply shall be listed for burglary applications and provide a minimum of 4 hours standby power capabilities. An example of a suitable listed compatible control unit is the DSC Model PC1864 with an AUX output rated 11.1 - 12.6Vdc. An example of a suitable, listed power supply is DSC Model PC5204 with an AUX output rated 11.6 - 12.6Vdc.

Status LEDs

Operating Modes

The 3G4000W features two distinct operating modes: Normal Mode and Service Mode. The unit will be in Normal Mode when both the cover and wall tamper are in a restored state. If either a cover tamper or wall tamper are present, the unit will be in Service Mode.

Normal Mode

The 3G4000W interface has four status LEDs. The following describes the status LEDs when the communicator is in normal operating mode (cover and wall tamper both in the restored state).

NOTE: The top two LEDs blink during the Initializing and Programming phases.

Red - This LED indicates trouble conditions.

1 Flash: Wireless Network Trouble

2 Flashes: Battery Trouble

3 Flashes: Input Power Trouble

Solid: Other Troubles (use Service Mode to view)

Blue - This LED indicates cellular radio activity. When this LED is on (solid), a phone line trouble condition exists. This LED turns on when the interface switches to the wireless network (due to a landline trouble condition). This LED will also flash once when the 3G4000W transmits a signal and twice when the 3G4000W receives a kiss-off from the central station.

NOTE: If the 3G4000W is programmed to be the primary communicator, the blue LED will remain off but will still flash during the signal transmission as described above.

Green/Yellow (Top) - This LED indicates signal strength and network technology. If the 3G4000W is operating in over a 2G channel, the LED will be YELLOW. If the 3G4000W is operating over a 3G channel, the LED will be GREEN. When this LED is On, the reception is optimal. This LED switches On only when the bottom LED is on.

Green/Yellow (Bottom) - This LED indicates signal strength and network technology. If the 3G4000W is operating in over a 2G channel, the LED will be YELLOW. If the 3G4000W is operating over a 3G channel, the LED will be GREEN. If this LED is Off and the Red LED is On, the Wireless Network service is unavailable (NO SERVICE). This LED flashes when the Wireless Network reception is poor. If this LED is on, the 3G4000W is able to communicate with the 3G (HSPA) or 2G (GPRS) network.

Service Mode

To view detailed trouble information on the status LEDs, the 3G4000W must be placed in Service Mode by causing a cover or wall tamper condition. When in Service Mode, the status LEDs will indicate the trouble condition as follows.

Flashes		Trouble Conditions
Red LED	Blue LED	
1	Off	Wireless Network Trouble
2	Off	Battery Trouble
3	Off	Input Power Trouble
1	Flashing	Insufficient Signal Strength – registered on cell network
1	On	Radio / SIM trouble – Radio or SIM unresponsive
2	On	Receiver Not Available
3	On	Supervision Trouble
4	On	Wall / Cover Tamper Trouble
Off	-	No trouble conditions present

Operating Principles

Simulated Landline Mode

The simulated landline provides the alarm control panel (with dialer interface) with a back-up line in the event of PSTN line trouble. If the voltage on the landline terminals (TIP/RNG) drops below 2.8V for a period of between 10 seconds and 45 seconds - depending on the device connected to the T1/R1 terminals- the 3G4000W switches the connected telephone device to the wireless network. After waiting between 30 and 40 seconds, it checks the landline for one of the following:

- If the landline has been restored, the 3G4000W switches the connected device back to the landline,
OR

- If the landline is still down, the 3G4000W continues the simulation until the landline is restored. The 3G4000W will not switch during ongoing calls.

When the landline is down, the 3G4000W provides a dial tone to any device connected to T1 and R1, including any telephones on the premises. The phones on the premises will not, however, be able to dial out over the 3G4000W.

Panel Transmission Monitoring (PTM)

The 3G4000W can also monitor the panel's attempt to communicate with the central station. If it determines that the panel is having difficulty communicating over the landline, it switches the line to the wireless network. This feature is only active when the 3G4000W is configured as a back-up communicator.

This feature is in addition to the regular line voltage detection.

The 3G4000W monitors the phone line for four consecutive failed attempts within a 12-minute window. The panel phone number dialed must include five or more digits for the 3G4000W to detect the dialing attempt. A failed dialing attempt is assumed to have occurred when a line seizure takes place during dialing (either the alarm panel or the customer telephone), but no 1400Hz tone (Contact ID kiss-off) or 2025 tone Hz tone (SIA kiss-off) is received from the receiver.

Once the conditions for a failed attempt are met, the 3G4000W connects the panel to the wireless network to communicate the events. When the 3G4000W switches the line it stays in this mode until the panel has successfully communicated its events and hangs up. If the panel communications are unsuccessful and the panel has hung up, the 3G4000W will exit takeover mode after three minutes. On the next event the 3G4000W restarts the error detection sequence before switching.

The 3G4000W performs this sequence on any phone number that is detected on the line. Specific central station phone numbers can be programmed into the 3G4000W if desired. The phone number programmed in the 3G4000W must match the number dialed by the panel exactly. If programmed, the 3G4000W will only look for a Contact ID or SIA kiss-off after these numbers are dialed. A Telephone Line Monitoring trouble (PGM output activation and/or reporting code if applicable) is also activated and/or transmitted when the PTM is activated. A restoral is sent at the end of the call.

Wireless Communications Sequence

- When an alarm is triggered, the control panel goes off-hook.
- The 3G4000W asserts a dial tone.
- The Control panel dials the number of the central station. Ensure that the alarm panel inserts a minimum one second pause, or has Dial Tone Search enabled before dialing the number.
- The 3G4000W detects the DTMF dialing and stops dial tone.

NOTE: The 3G4000W is unable to decode pulse dialing and does not support pulse communication formats.

If the panel is programmed for Contact ID format:

- The 3G4000W sends the required Contact ID dual-tone handshake to the panel.
- After receiving the handshake, the control panel transmits an alarm message in Contact ID format.
- The 3G4000W decodes and transforms the Contact ID digits into an IP packet and sends it to the central station receiver over the cellular network.
- The central station receiver acknowledges the alarm and sends a command to the 3G4000W to generate the corresponding 1400Hz Kiss-off signal for a minimum of 800msec.

After the 3G4000W generates a Kiss-off signal, it sends the next alarm or, if no further alarms need to be sent, the control panel goes on-hook.

If Panel is programmed for SIA (300 baud) format:

- The 3G4000W sends the required SIA handshake to the panel.
- After receiving the handshake, the control panel transmits an alarm message in the SIA format.
- The 3G4000W decodes and transforms the SIA events into an IP packet that it sends to the central station receiver over the cellular network.
- The central station's receiver acknowledges the alarm and sends a command to the 3G4000W to generate the corresponding 2025Hz kiss-off signal for a minimum of 1 second.
- After the 3G4000W generates a kiss-off signal, it sends the next alarm or, if no further alarms need to be sent, the control panel goes on hook.

NOTE: The 3G4000W will automatically adjust the order of the handshakes based on the last format the control panel used to transmit an event.

Inputs

The 3G4000W has two inputs that can be used to trigger specific communications. These events will transmit using Contact ID or SIA format with Input 2. The inputs are normally open at default and will activate when a short condition is detected between the terminal and the COM. They can be configured as normally open, normally closed, or support a single end of line 5.6k ohm resistor. Refer to the 3G4000W Wiring Diagram (Figure 2)

Outputs

The 3G4000W has two programmable outputs to activate in response to the associated events. Refer to the 3G4000W Wiring Diagram (Figure 2)

Activating the Output

The 3G4000W has two open collector outputs capable of a maximum of 50mA. Internal events on the 3G4000W can trigger the output to turn on an LED or activate an input on the host panel.

Output 1 – Output 1 is normally low and will switch to high (activate) when a Wireless Network Trouble, Failure to Communicate (FTC) trouble, Insufficient Signal Strength or Radio / SIM Trouble is detected. The output will switch low (deactivate) when all 4 trouble conditions are restored.

Output 2 – At default, this output is disabled. Output 2 is a general use output that can be enabled if required, and can be configured to activate for a number of trouble conditions.

NOTE: A programmable output may be connected to the control panel as shown in Figure 4 (Residential applications) or Figures 8-9 (Commercial applications). If the control panel input Zone/Point is defined as 24hr 'Supervisory', with keypad-only notification when activated, local keypads will sound a buzzer tone when a trouble condition has been detected by the 3G4000W.

NOTE: The outputs may also be configured to activate for a programmable duration.

Reporting Codes				
3G4000W Reporting Codes	Contact ID	SIA	Programmable?	Comments
PSTN Line Down	E351-000	LT-000	No	Telco Fault
PSTN Line Restoral	R351-000	LR-000	No	Telco Fault Restore
Input Power Loss	E337-000	YP-000	No	Power Supply Trouble
Input Power Loss Restoral	R337-000	YQ-000	No	Power Supply Trouble Restore
Low Battery Trouble	E338-000	YT-000	No	Communicator Battery Trouble
Low Battery Restoral	R338-000	YR-000	No	Communicator Battery Trouble Restore
Periodic Test	E603-XXX	RP-XXX	No	Test Transmission <Receiver Path>
Periodic Test with Trouble	E608-XXX	RY-XXX	No	Test Transmission <Receiver Path>
Radio Activation	R552-000	RS-000	No	Remote Programming Successful
Internal Buffer Full	E624-000	JL-000	No	
Failure to Communicate Restore	R354-000	YK-000	No	Communications Trouble Restored
Firmware Update Successful	R901-000	LS-000	No	
Firmware Update Fail	E902-000	LU-000	No	
Firmware Update Begin	E901-000	LB-000	No	
Tamper Trouble	E145-000	ES-000	No	Case or Wall Tamper
Tamper Trouble Restore	R145-000	EJ-000	No	Case or Wall Tamper Restore

Swinger Shutdown

To protect again "runaway" signals to the central station, the 3G4000W includes a Swinger Shutdown feature which will limit certain trouble or alarm events to a maximum of 3 reports every 24 hours. The condition will restore at midnight, at which point the signals may again be reported. Swinger shutdown will limit the number of events logged to the communicator's event history, and the event history will also log when swinger shutdown has occurred and / or cleared for each event.

Swinger shutdown applies to the following conditions:

- System Tamper / Restore
- Battery Trouble / Restore
- PSTN Line Down / Restore
- Input Power Trouble / Restore
- FTC Restore
- Zone Input Alarm / Restore

Hardware Default

A hardware default will erase any programmed information and restore the product to a base set of defaults. It must then be reprogrammed using the DLS software. Hardware default is typically performed after swapping a SIM card for a new one, when

moving an already installed unit to a different location or site, or if the unit was programmed incorrectly. The DLS software will fully program all options contained within the product when downloading so hardware default is optional with 3G4000W

To perform a hardware default:

- Power down the unit, remove primary DC power and the backup battery if used.
- Connect a wire between the Zone 2 terminal and PGM2 terminal.
- Power up the product by connecting the battery first and then DC power
- Wait for 20 seconds, then completely power down the unit again.
- Disconnect the wire between the Zone 2 and PGM 2 terminals.

SMS Command and Control

The 3G4000W can provide limited control of the security panel's functions through the use of a cell phone. SMS text messages can be sent to the 3G4000W to check the armed status of the security system and either arm or disarm the security panel. The user's cell phone number must be programmed in the 3G4000W in order to allow access. Up to 6 cell phone numbers can receive permission to use the SMS command and control feature. A text message must be sent to the 3G4000W's SIM phone number, along with the desired function and an access code. Three languages are supported by the SMS Command and Control feature, English, French and Spanish. The messages are not case-sensitive.

Six functions are supported.

- Arm
- Disarm
- Activate Programmable Output
- Deactivate Programmable Output
- Status Request
- Help

The communicator will send an SMS message back to the user's cell phone to indicate if the function was successful or unsuccessful. The command and control access code must be included in any messages to arm, disarm, activate an output or deactivate an output.

Arming – The control panel must support a zone input that has been programmed as a keyswitch zone type, or similar function that can be used to arm or disarm the partition. This zone input must be connected to one of the programmable outputs on the 3G4000W, and the output must be configured to follow the arm or disarm SMS message.

Send a text message to the 3G4000W's phone number, and include <arm><space><user code>. For example, Arm 1234.

English Arming Message: Arm

French Arming Message: Armement

Spanish Arming Message: Armado

The 3G4000W will respond with an Arm Successful message after receiving the SMS, or an error message Arm Unsuccessful if the SMS contains an error or if the access code was incorrect.

Disarming – Send a text message to the 3G4000W's phone number, and include <disarm><space><user code>. For example, Disarm 1234.

English Disarming Message: Disarm

French Disarming Message: Desarmement

Spanish Disarming Message: Desarmado

The 3G4000W will respond with a Disarm Successful message after receiving the SMS, or an error message Disarm Unsuccessful if the SMS contains an error or if the access code was incorrect.

Activate Output – The 3G4000W supports 2 outputs can be connected to the input of many different products and allow remote activation of a variety of functions, such as a door strike or a light. The output is connected in the same manner as described for arming an alarm system. Send a text message to the 3G4000W's phone number and include <activate><space><Output #><space><user code>. For example, Activate 1 1234 to turn on Output #1, or Activate 2 1234 to turn on Output #2.

Need to verify whether PGM must be included in these messages

English Activate Output Message: Activate

French Activate Output Message: Activation

Spanish Activate Output Message: Activar

The 3G4000W will respond with an Activate PGM Successful message after receiving the SMS, or an error message, Activate PGM Unsuccessful if the SMS contains an error or if the access code was incorrect.

Deactivate Output – Send a text message to the 3G4000W's phone number and include <deactivate><space><Output #><space><User code>. For example, Deactivate 1 1234 to turn off Output #1, or Deactivate 2 1234 to turn off Output #2.

English Deactivate Output Message: Deactivate
French Deactivate Output Message: Desactivation
Spanish Deactivate Output Message: Desactivar

The 3G4000W will respond with a Deactivate PGM Successful message after receiving the SMS, or an error message, Deactivate PGM Unsuccessful if the SMS contains an error or if the access code was incorrect.

Status Request – A 3G4000W zone input must be designated as “panel arm state” in order to use this feature. The zone input must be connected to an output on the security panel that follows the system's armed status. This function indicates the current status of the defined 3G4000W zone input, representing the arm or disarm status of the system.

Send a text message to the 3G4000W's phone number and include <Status Request><space><user code>. For example, Status Request 1234.

English Status Request Message: Status Request
French Status Request Message: Etat Demandé
Spanish Status Request Message: Petición de Estado

The 3G4000W will respond with a message indicating that the system is Armed or Disarmed, along with a Status Request Successful message. If the SMS contains an error or if the access code was incorrect, a Status Request Unsuccessful message will be sent.

Help – This function provides the user with a list of possible functions and messages that are supported. Send a text message to the 3G4000W's phone number and include the word Help in the appropriate language. No access code is required for this function.

English Help Request Message: Help
French Help Request Message: Aide
Spanish Help Request Message: Ayuda.

Programmable Options and Configuration

Signature Graphic Tab – Status Screen

The DLS account for 3G4000W supports a continuous upload function for communicator status. This can be selected and the status screen will update in real-time until the DLS connection is closed.

The following statuses are available for upload:

Communicator ID (SIM Number) – The 19-21 digit SIM number will be displayed.

IMEI: The IMEI (International Mobile Equipment Identity) is a 15 digit identifier for the radio module used with the device.

Radio Type: The radio type used with 3G4000W shall always be UE910-GL

Radio Reset Codes: The product tracks a number of 2 digit values that can be used by Technical Support to determine why a radio reset has occurred.

Current Receiver Number: This field indicates which of the 4 receivers the communicator is currently using for alarm communications.

Radio Manufacturer ID: The radio manufacturer for 3G4000W will be indicated as Telit.

Cellular Tower ID: This is an identifier used by Telecom companies to determine which cellular tower on the network the communicator is attached to.

Firmware Version: This is the firmware version of the application software. Example: v5.05.

Radio Firmware Version: This is the firmware version of the radio module. Example: 12.00.459.

Receiver 1 Initialization Status: If the product is programmed to communicate to Receiver 1, this status will show if the product is in the process of initializing the central station receiver for the account, if the initialization step has failed, or if the receiver was successfully initialized.

Receiver 1 Encrypted: If the central station receiver has encryption enabled for the communicator's account, all central station data packets shall be encrypted. This status indicates if the receiver 1 communications path is using encryption or not.

Receiver 2 Initialization Status: If the product is programmed to communicate to Receiver 2, this status will show if the product is in the process of initializing the central station receiver for the account, if the initialization step has failed, or if the receiver was successfully initialized.

Receiver 2 Encrypted: If the central station receiver has encryption enabled for the communicator's account, all central station data packets shall be encrypted. This status indicates if the receiver 2 communications path is using encryption or not.

Receiver 3 Initialization Status: If the product is programmed to communicate to Receiver 3, this status will show if the product is in the process of initializing the central station receiver for the account, if the initialization step has failed, or if the receiver was successfully initialized.

Receiver 3 Encrypted: If the central station receiver has encryption enabled for the communicator's account, all central station data packets shall be encrypted. This status indicates if the receiver 3 communications path is using encryption or not.

Receiver 4 Initialization Status: If the product is programmed to communicate to Receiver 4, this status will show if the product is in the process of initializing the central station receiver for the account, if the initialization step has failed, or if the receiver was successfully initialized.

Receiver 4 Encrypted: If the central station receiver has encryption enabled for the communicator's account, all central station data packets shall be encrypted. This status indicates if the receiver 4 communications path is using encryption or not.

Zone Input 1 Status: This status shows whether the zone 1 input is in a violated / alarm state or is restored.

Zone Input 2 Status: This status shows whether the zone 2 input is in a violated / alarm state or is restored.

PGM Output 1 Status: This status shows whether the PGM 1 output is on or off.

PGM Output 2 Status: This status shows whether the PGM 2 output is on or off.

Communications Format: The communicator supports communications using Contact ID or SIA formats. There is a setting to specify which format the communicator will use for reporting its trouble or test transmission events. The security panel communication format shall be automatically detected by the communicator and identified.

Cellular Network Provider: If the network provider can be detected, it shall be indicated in this field. Example: Movistar, Entel.

Cellular Network Type: This status shall indicate whether 2G or 3G technology is being utilized to connect to the cellular network.

Cellular Network CSQ: The CSQ relates to the product's effective signal strength, ranging from 0 (no signal) to 31.

FTC Trouble: This status indicates if a failure to communicate trouble is present.

Low Battery Trouble: This status indicates that the battery voltage is low and requires a charge.

Battery Absent Trouble: This status indicates that the battery is not connected. If no battery is used, a programmable option exists to disable battery monitoring.

Insufficient Signal Strength Trouble: This status indicates that the radio's signal strength has fallen below 4 CSQ (-105 dBm).

Radio Initialization Trouble: This status indicates that the radio could not be activated properly and has failed to initialize.

Cellular Service Not Available Trouble: This condition is not supported in 3G4000W

Cellular Network Trouble: This status indicates there is no cellular service available. The unit either cannot connect to the cellular network or is unable to establish a data session (failure to activate a PDP context).

Telephone Line Trouble: This status is only supported when the product is operating as a backup communicator, and the trouble is indicated if the incoming phone line is no longer operational.

Zone Input AC Trouble: This status is only generated when a communicator zone input is configured for AC trouble monitoring.

The zone is activated only when an AC trouble output from the control panel activates, tripping the zone input on the communicator.

Receiver Supervision Trouble: This status is present when a heartbeat signal has been sent to the central station receiver, but no acknowledgement for the heartbeat was received within 75 seconds.

Receiver Unavailable Trouble: This status is present when the communicator is not able to initialize a central station receiver following a power up of the device.

PTM Take Over Active: This status indicates that the panel transmission monitoring feature has taken effect when the product is configured as a backup for the phone line.

Input Power Trouble: This status indicates the 12V DC input voltage is not present.

Cellular Trouble Since Last Test: This status indicates a trouble condition was detected since the last test transmission was successfully sent to the central station receiver.

Receiver Initialization Roll Back Completed: This status indicates that the 3G4000W has not been able to initialize the central station receiver for an extended period of time, following a product reboot. It indicates that the 3G4000W will only attempt to initialize the receiver once per day. This status is reset after rebooting the communicator.

Tamper Trouble: This status indicates that either the case or wall tamper is open and needs to be secured.

PTM Error Count: This status shows the number of failed communication attempts that have occurred on the control panel when the PTM feature is used and the communicator is configured for backup. When the PTM error count reaches the programmed value, the communicator will disconnect the outside phone line and will instead simulate the phone line to the control panel.

Battery Voltage: This status provides a reading of the battery's current voltage. Note that when the battery is disconnected this value will read 9.2 - 9.5VDC.

Communicator Options Tab

[112] System Account Code – Default (FFFFFF)

The account code is included when transmitting any events generated by the communicator, such as a communicator trouble condition. It is recommended that the account code be programmed with the same value as the control panel's account number so all events are reported to the same central station account. The valid range for this section is 000001-FFFFFF. If 4-digit account codes are needed, the two lowest digits must be programmed as FF. For example, an account code of 1234 is programmed as 1234FF.

[113] GS / IP Installer's Code – Default (CAFE)

Program the installer code for the communicator module using this section. The installer code is used when validating DLS programming sessions. If the installer's code is lost and it is no longer possible to program the communicator using DLS, use the hardware default feature to restore the installer's code to default. The valid range of programming entries is 0000-FFFF.

[705] SIM Phone Number

This section will indicate the phone number associated with the SIM card. If no phone number is indicated ensure the SIM has been provisioned correctly by the cellular provider. The SIM phone number is not programmable using DLS.

[706] IMEI

The IMEI, or International Mobile Equipment Identity, is an identifier for the cellular radio module. This value is typically used when troubleshooting a device with a wireless network provider. The IMEI is not programmable using DLS.

[709] Firmware Version

This field indicates the current software version of the 3G4000W communicator.

[140] – [5] – Heartbeat Type – Default (Residential)

The 3G4000W sends supervision heartbeats at a specified interval to monitor whether the communications path to the central station receiver is operational. There are 2 heartbeat types that can be selected, Residential and Commercial. If the central station is using a SurGard System 5 receiver and DNIS is intended to be used, enable Commercial Heartbeats. Residential heartbeats require less cellular data and do not support the DNIS feature.

Commercial heartbeats are also recommended if the installation requires that swap detection is required. The receiver can detect if a different device has been configured to report to the same receiver using the same account code. Residential heartbeats does not support swap detection.

[140] – [6] – Backup or Primary Communicator – Default (Primary)

If the 3G4000W is intended to fully replace a phone line connection to the control panel, select Primary. If the panel will be using the phone line for regular communications and the 3G4000W is only to provide a simulated phone line when a phone line trouble is present then select back.

[140] – [7] – Alternate Test Transmissions – Default (Disabled)

If a backup cellular receiver has been programmed, the product can be configured to send test transmission signals to both the primary and backup receivers. The 3G4000W will alternate between sending test transmissions to the primary and backup paths, based on the interval programmed for test transmissions. For example, if sending daily test transmissions, on the first day the signal will be reported to the primary receiver and the next day to the backup receiver.

[140] – [9] – Battery Enable / Disable - Default (Disabled)

This option can be used to enable or disable the battery backup feature. If there is no battery connected to the product, disable battery monitoring by turning off this option to prevent a battery related trouble conditions from being indicated using the trouble LED.

[140] – [10] – Test Transmission Alternate Reporting Codes – Default (Disabled)

This setting modifies the SIA and Contact ID reporting code identifiers used when communicating test transmission and test transmission with trouble signals to each receiver. Check with your monitoring station if the standard or modified identifiers are desired.

Event	Contact ID Reporting Codes		SIA Reporting Codes	
Receiver 1 Test Transmission	E6A3-001	E6A3-955	RP-001	RP-955
Receiver 2 Test Transmission	E6A3-002	E6A3-956	RP-002	RP-956
Receiver 3 Test Transmission	E6A3-003	E6A3-957	RP-003	RP-957
Receiver 4 Test Transmission	E6A3-004	E6A3-958	RP-004	RP-958
Receiver 1 Test Transmission With Trouble	E6A8-001	E6A8-955	RY-001	RY-955
Receiver 2 Test Transmission With Trouble	E6A8-002	E6A8-956	RY-002	RY-956
Receiver 3 Test Transmission With Trouble	E6A8-003	E6A8-957	RY-003	RY-957
Receiver 4 Test Transmission With Trouble	E6A8-004	E6A8-958	RY-004	RY-958

[140] – [11] – Internal Events – Default (Contact ID)

This setting configures the 3G4000W to report internally generated signals, such as trouble conditions, using the SIA or Contact ID reporting format. The communicator will automatically adjust the option to match the format used by the control panel after successfully communicating a signal.

[140] – [12] – SIA Handshake – Default (Disabled)

This setting determines if the 3G4000W will provide signals when the control panel has been programmed to report using the SIA communications format. If it is disabled, the communicator shall only provide Contact ID handshake and kiss-off frequencies to the control panel. When it is enabled, the 3G4000W shall provide SIA handshake and kiss-off frequencies to the control panel.

[140] – [13] – Wall Tamper – Default (Enabled)

This option can be used to disable the wall tamper on the rear housing. If the 3G4000W is mounted in a location where it is not possible to restore the tamper switch, this option can be used to disable the local trouble indication.

[170] – Cellular Trouble Delay – Default (0 minutes)

This feature provides a delay, programmable in minutes, before cellular network related trouble conditions are communicated to the central station. It is used to suppress short duration troubles that may occur due to cellular network congestion. The trouble condition must persist for the duration of the delay value without restoring before it will be communicated. A trouble restore condition must also be restored for the duration of the delay value before the trouble restore reporting code is generated.

[171] – Cellular Inactivity Timeout – (Default 65 Minutes)

When the 3G4000W communicator sends signals using cellular, it must first request an IP address from the cellular network. The cellular inactivity timeout value determines how long the radio will wait before releasing the IP and closing the data session. If no signals are sent for the duration of the cellular inactivity timeout, the IP is released by the radio and when a new signal must be communicated a new IP request will occur.

[174] – Receiver Supervision Interval – Default (135 seconds)

The supervision interval is only valid when supervision has been enabled for one of the monitoring paths. The receiver supervision interval determines the delay, in seconds, between each heartbeat signal sent to the central station receiver. The valid range is 10 to 65535 seconds.

[175] – Outgoing SMS Retry Delay – Default (15 seconds)

In the event of a failure to deliver an SMS when using the Command and Control feature, this value determines the delay, in seconds, between each attempt to deliver the SMS. It is not recommended to change this value from default.

[176] – Outgoing SMS Retry Attempts – Default (25 attempts)

In the event of a failure to deliver an SMS, this value determines the number of times the 3G4000W will attempt to deliver the SMS.

[311] – Cellular Public Access Point Name (APN) – Default ()

The public access point name will identify the public cellular network that the communicator will connect to when data sessions for DLS or remote firmware upgrading are required. Often the APN will be the same as those used for receiver programming, however enter the appropriate APN required for your private or public SIM card.

[312] – Cellular Login User Name – Default ()

Some network providers require login credentials when connecting to an APN. Program the login user name in this section. The cellular login user name can be up to 32 ASCII characters.

[313] – Cellular Login Password – Default ()

Some network providers require login credentials when connecting to an APN. Program the login password in this section. The cellular login password can be up to 32 ASCII characters.

[314] - Receiver Group 1 Test Transmission Time of Day – Default (Disabled)

If receiver group 1 (Receivers 1 and 2) test transmission signals are desired, a checkbox is available to enable test transmissions. After the feature is enabled, the test transmission time of day can be programmed. An option exists to select 24 hour or 12 hour (am/pm) time entries. A function labelled "NOW" can be clicked to program the test transmission time of day with the current time of the DLS computer. If test transmissions are not required, leave the checkbox disabled.

[315] – Receiver Group 1 Test Transmission Interval – Default (000000)

This programmable option determines the delay between test transmissions, programmable in minutes. For daily test transmissions enter 001440 in this section. For weekly test transmissions, enter 010080 minutes. For monthly test transmissions (3 days) enter 043200.

The first test transmission sent by the 3G4000W is determined by the Test Transmission Time of Day value. Each receiver can be programmed with a different test transmission cycle and time of day.

[316] – Receiver Group 2 Test Transmission Time of Day – Default (Disabled)

If receiver group 2 (Receivers 3 and 4) test transmission signals are desired, a checkbox is available to enable test transmissions. After the feature is enabled, the test transmission time of day can be programmed. An option exists to select 24 hour or 12 hour (am/pm) time entries. A function labelled "NOW" can be clicked to program the test transmission time of day with the current time of the DLS computer. If test transmissions are not required, leave the checkbox disabled.

[317] – Receiver Group 2 Test Transmission Interval – Default (000000)

This programmable option determines the delay between test transmissions, programmable in minutes. For daily test transmissions enter 001440 in this section. For weekly test transmissions, enter 010080 minutes. For monthly test transmissions (3 days) enter 043200.

The first test transmission sent by the 3G4000W is determined by the Test Transmission Time of Day value. Each receiver can be programmed with a different test transmission cycle and time of day.

[325] – Receiver Dialing Attempts – Default (2 attempts)

This setting controls how many communication attempts occur to a central station receiver before the 3G4000W gives up and moves on to the next programmed backup receiver.

[331] – Command and Control Access Code – Default (disabled)

Enter up to 8 digits for the command and control access code if the SMS command and control feature is intended to be used. The code must be included in the SMS sent to the 3G4000W when performing various functions.

[332] – SMS Phone Number 1 – Default (Blank)

The 3G4000W will only process command and control SMS messages when they are sent from a known cell phone number. Program the user's cell phone number into this field to provide the phone access to execute command and control functions.

[333] – SMS Phone Number 2 – Default (Blank)

The 3G4000W will only process command and control SMS messages when they are sent from a known cell phone number. Program the user's cell phone number into this field to provide the phone access to execute command and control functions.

[334] – SMS Phone Number 3 – Default (Blank)

The 3G4000W will only process command and control SMS messages when they are sent from a known cell phone number. Program the user's cell phone number into this field to provide the phone access to execute command and control functions.

[335] – SMS Phone Number 4 – Default (Blank)

The 3G4000W will only process command and control SMS messages when they are sent from a known cell phone number. Program the user's cell phone number into this field to provide the phone access to execute command and control functions.

[336] – SMS Phone Number 5 – Default (Blank)

The 3G4000W will only process command and control SMS messages when they are sent from a known cell phone number. Program the user's cell phone number into this field to provide the phone access to execute command and control functions.

[337] – SMS Phone Number 6 – Default (Blank)

The 3G4000W will only process command and control SMS messages when they are sent from a known cell phone number. Program the user's cell phone number into this field to provide the phone access to execute command and control functions.

[345] – [5] – PTM Force Dial Enabled – Default (Disabled)

If the 3G4000W is being used in backup mode, and panel transmission monitoring is desired, enable this option if the control panel is configured for force dialing. Force dialing is an option in many security panels that causes the system to dial out even if there is no dial tone present. The 3G4000W will count a number of failed panel communication attempts and determine if the maximum error count has been reached. In order to maintain an accurate count, this option should be enabled so any failed communication attempt made by the control panel will register as an error and increase the PTM error count by 1.

[364] – PTM Call Duration – Default (3 minutes)

This setting determines how long the 3G4000W will seize control of the phone line and provide dialtone, handshake and kissoff frequencies to the control panel for SIA or Contact ID communications. This setting only applies when the 3G4000W is configured as a backup communicator and the PTM error count has been reached.

[347] – PTM Max Errors Before Takeover – Default (4)

This section determines how many failed panel PSTN communication attempts must occur before the 3G4000W seizes the phone line connection and provides the required dial tone, handshake and kissoff frequencies to the control panel. This feature only applies when the 3G4000W is configured as a backup communicator.

[422] – [1] – Radio Activation Restore Reporting – Default (Enabled)

This option determines whether the Radio Activation Restore reporting code will be communicated or suppressed.

[422] – [2] – FTC Restore Reporting – Default (Enabled)

This option determines whether the FTC (Failure to Communicate) Restore reporting code will be communicated or suppressed.

[422] – [3] – Low Battery Trouble Reporting – Default (Enabled)

This option determines whether the Low Battery Trouble reporting code will be communicated or suppressed. Note: If no battery is used the battery can be disabled via a programmable option.

[422] – [4] – Low Battery Trouble Restore Reporting – Default (Enabled)

This option determines whether the Low Battery Trouble Restore reporting code will be communicated or suppressed. Note: If no battery is used the battery can be disabled via a programmable option.

[422] – [5] – TLM Trouble Reporting – Default (Enabled)

This option determines whether the TLM (Telephone Line Monitoring) Trouble reporting code will be communicated or suppressed.

[422] – [6] – TLM Trouble Restore Reporting – Default (Enabled)

This option determines whether the TLM (Telephone Line Monitoring) Trouble Restore reporting code will be communicated or suppressed.

[422] – [7] – Input Power Trouble Reporting – Default (Enabled)

This option determines whether the Input Power Trouble reporting code will be communicated or suppressed.

[422] – [8] – Input Power Trouble Restore Reporting – Default (Enabled)

This option determines whether the Input Power Trouble Restore reporting code will be communicated or suppressed.

[422] – [9] – System Tamper Trouble Reporting – Default (Enabled)

This option determines whether the System Tamper Trouble reporting code will be communicated or suppressed.

[422] – [10] – System Tamper Trouble Restore Reporting – Default (Enabled)

This option determines whether the System Tamper Trouble Restore reporting code will be communicated or suppressed.

[422] – [11] – Supervision Trouble Reporting – Default (Enabled)

This option determines whether the Supervision Trouble reporting code will be communicated or suppressed.

[422] – [12] – Supervision Trouble Restore Reporting – Default (Enabled)

This option determines whether the Supervision Trouble Restore reporting code will be communicated or suppressed.

[422] – [13] – Firmware Update Start Reporting – Default (Enabled)

This option determines whether the Firmware Update Start reporting code will be communicated or suppressed.

[422] – [14] – Firmware Update Fail Reporting – Default (Enabled)

This option determines whether the Firmware Update Fail reporting code will be communicated or suppressed.

[422] – [15] – Firmware Update Successful Reporting – Default (Enabled)

This option determines whether the Firmware Update Successful reporting code will be communicated or suppressed.

[702] – Communications Format – Default (Unknown)

This status indicates whether the 3G4000W has detected the control panel is using the SIA or Contact ID reporting formats to communicate signals.

[906] – Radio Reset Codes

This status field contains a history of radio resets and the reasons why they occurred. This field may be used by JCI Technical Support to diagnose network connectivity issues. This is a read-only section.

[907] – Current Receiver

This status shows which of the central station receivers the product is presently using for communications. This is a read-only section.

[908] – Cellular Network Provider

The network provider name is derived by the Mobile Country Code (MCC) and Mobile Network Code (MNC). The 3G4000W DLS software will attempt to show the cellular network provider's name, if available. For example, Movistar, Claro or Entel.

[909] – Cellular Network Type

This status will indicate whether the 3G4000W is currently attached to a 2G or 3G network.

[910] – Cellular Network CSQ

This status indicates the signal strength of the device, where 00 is no connectivity or measurable signal strength, and 31 is the maximum measured received signal strength.

[911] – Radio Manufacturer ID

This status indicates the manufacturer of the radio module. 3G4000W will indicate Telit in this field.

[912] – Radio Type

This status indicates the name of the cellular radio model. The 3G4000W will indicate UE910-GL in this field.

[913] – Radio Firmware Version

This status indicates the current firmware version of the cellular radio module.

[915] – Tower ID

This status indicates a 7 digit hexadecimal ID that can be used to locate the cellular tower, or cell ID, that the radio is currently attached to. This may be used for troubleshooting purposes.

[918] – PTM Count

This status shows the current panel transmission monitoring error count. This feature is only active when the 3G4000W is configured as a backup communicator.

[921] – Battery Voltage.

This status shows the voltage measured from the battery the last time it was tested. The nominal battery voltage is 7.2V.

Zones Tab

There are 2 onboard zone inputs that can be used to monitor various functions. Each zone has its own set of configurable options. Typically the zone inputs are wired to programmable outputs from the security panel to allow central station communication of various states and trouble conditions using the cellular channel.

Zone Definitions – There are 5 available zone definitions that can be selected. Reporting code identifiers denote which zone input has been tripped when delayed 24 hour fire, 24 hour panic, 24 hour burglary, system trouble or AC power trouble are defined as

zone types. Contact ID events may include an identifier of 991 for zone 1 and 992 for zone 2. SIA events may include an identifier of 001 for zone 1 and 002 for zone 2.

Zone Type Definition	Zone Type	Reporting Codes	
01	Delayed 24 Hour Fire	Contact ID: E11A / R11A	SIA: FA / FH
02	24 Hour Panic	Contact ID: E12A / R12A	SIA: PA / PH
03	24 Hour Burglary	Contact ID: E13A / R13A	SIA: BA / BH
04	System Trouble	Contact ID: E13A / R13A	SIA: BA / BH
13	AC Power Trouble	Contact ID: E13A / R13A	SIA: BA / BH

Alarm / Alarm Restore Options – These settings determine whether the communicator will send alarm or alarm restore reporting codes when the zone changes state. In some cases it may be desirable to only communicate the alarm conditions but not the restore conditions.

Alarm / Restore Contact ID Reporting Code – This option is dependent on whether SIA or Contact ID has been selected for the communicator’s reporting format. If Contact ID is selected, the reporting code used for the zone alarm and restore condition can be modified using this entry. Zones use default reporting codes, so this entry doesn’t typically need to be programmed.

Alarm SIA Reporting Code – This option is dependent on whether SIA or Contact ID has been selected for the communicator’s reporting format. If SIA is selected, the reporting code used for the zone alarm condition can be modified using this entry. Zones use default reporting codes, so this entry doesn’t typically need to be programmed.

Alarm Restore SIA Reporting Code – This option is dependent on whether SIA or Contact ID has been selected for the communicator’s reporting format. If SIA is selected, the reporting code used for the zone alarm restore condition can be modified using this entry. Zones use default reporting codes, so this entry doesn’t typically need to be programmed.

End of Line – This option determines whether the zone input is configured as Normally Open, Normally Close, or Single End of Line. A normally open setting will create an alarm condition when the input is shorted and restores when the circuit is open. A normally closed setting will create an alarm condition when the input is open and restores when the circuit is shorted. A single end of line setting will create an alarm condition when the input is open or shorted, and restores when the loop resistance is 5.6K ohms. Use a 5.6k resistor in this configuration. Configure this setting as Not Used if the zone input is not required.

Zone Follows Delay Timer Enabled – There are 2 settings available for this option, No Delay or Follows Delay Time. This timer only applies to zones that have been configured as AC Power Trouble. An AC power trouble will be generated only if it persists for the full duration of the timer, at which time it shall be communicated to the central station. If the zone input restores before the delay timer has expired then the signal will not be communicated to the central station. After the 3G4000W has communicated the AC Failure reporting code, the zone must restore for the full duration of the delay timer before an AC Restore signal is communicated to the central station.

Zone Delay Timer – Default (0 minutes)

This setting is used in conjunction with the Zone Follows Delay Timer function and determines the time, in minutes, that the zone must be violated or restored before an AC Power Trouble or AC Power Trouble restore reporting code is communicated to the central station. Typically a value of 2 minutes is sufficient to eliminate transmissions of temporary power failures. If the power failure continues longer than the programmed duration the AC Power Trouble reporting code will be sent. The power failure must also be restored for the programmed duration before the AC Power Trouble Restore reporting code is sent.

Send on Violation Enabled – Default (Enabled)

When this option is disabled, reporting codes will not be sent to the central monitoring station when the zone is in an open or violated state. When enabled zone alarm signals will be reported to the central station.

Send on Restore Enabled – Default (Enabled)

When this option is disabled, reporting codes will not be sent to the central monitoring station when the zone is in a closed or restored state following an alarm condition. When enabled zone alarm restore signals will be reported to the central station.

Zone Monitors Panel Arm Status – This option is used in conjunction with the SMS command and control feature. An output of the control panel must be programmed as “Armed Status” and wired to this zone input. SMS messages may then be sent to the communicator to determine whether the zone is open or closed, which represents whether the alarm system is armed or disarmed. This feature overrides the zone type settings.

Zone Input 1 or 2 Status – This entry reflects the current status of the zone inputs the last time a DLS upload was performed. Zone status is indicated as opened or closed.

PGM Options Tab

The product supports 2 programmable outputs that activate for a number of different conditions on the communicator. Typically these outputs are wired to zone inputs on the control panel being monitored.

There are 11 trouble conditions that can be monitored using the programmable outputs. If multiple trouble conditions are selected for the same output, it shall activate when any of the troubles are present and deactivate when all of the troubles have restored. The output can also be configured to provide a pulse with a programmable duration instead.

TLM Trouble – The communicator has detected a problem with the incoming phone line to the site when the communicator is configured as backup. If the communicator always simulates the phone line, as it does when configured as primary, this output will not activate. A problem is registered when Tip/Ring have been disconnected, or the line voltage has dropped below 2.8V for 15 seconds. If the communicator has detected that the panel is having problems communicating with the central station and the panel transmission monitoring feature has resulted in the product seizing control of the phone line, this will also cause the output to activate. The output deactivates when these conditions have all been restored.

Input Power Trouble – The input power on the +12V terminals has been interrupted.

Battery Trouble – The backup battery voltage has reached a low voltage threshold or the battery is not connected.

Wireless Network Trouble – This output activates when a cellular network trouble condition has been detected and deactivates when the condition has restored.

Insufficient Signal Strength – The averaged cellular signal strength is below 4 CSQ and the communicator is locally indicating a low signal strength trouble. The output deactivates when this condition is restored.

FTC Trouble – The output activates after a number of cellular communication attempts have been unsuccessful and restores after successful transmission to the central station receiver.

Radio SIM Failure – This output activates when the SIM is not inserted properly or is not operational. The output restores when there is no longer a SIM trouble present in the communicator.

Tamper Trouble – A case or wall tamper trouble is present. This is normal when the enclosure is open. The trouble restores when the wall and case tampers are secured.

Zone Input AC Trouble – A communicator zone input was defined for AC monitoring, and is currently in an alarm state. When the zone input restores the output will deactivate.

PGM Follows – There are 3 selections available to allow configuration of the PGM. At default the PGM is configured to follow the trouble assignments described above. The PGM can be configured to activate / deactivate upon sending an output activate or deactivate SMS message to the communicator. The PGM can also be configured to activate or deactivate upon sending an Arm or Disarm SMS to the communicator. In this case, the PGM output should be wired to a keyswitch or similar arming/disarming type zone on the control panel.

PGM Output Polarity – The output can be changed from the default, normally low (off) state to a normally high (on) state. When configured as normally high, the output will deactivate when trouble conditions are detected and activate when trouble conditions are restored.

PGM Pulse Timer – The default setting of 0 seconds determines that the output only activates when trouble conditions are detected and deactivates when trouble conditions are cleared. An activation or pulse time can be programmed in this section which causes the output to only activate for the duration of the timer before it turns off automatically.

PGM Output Status – This section reflects whether the output was active or not when the last DLS upload was performed.

Receiver Options Tab

Up to 4 cellular receivers can be programmed for central station communications. Each can have a unique, panel-dialed phone number associated with them for use with the panel transmission monitoring feature.

Cellular Receiver Supervision – This option determines if the communicator will send supervision heartbeat signals to the receiver to monitor whether the path is functional. Supervision troubles will be detected and indicated if the path is not functional. If supervision is not required, this option should be disabled.

Account Code – The system account code identifies the communicator to the central station receiver, so the monitoring station can determine the account and address of the system. Up to 10 digits can be programmed for the receiver account code, and different account codes may be used for each of the 4 receivers.

DNIS – A DNIS value can be used in conjunction with the account code to access different profiles in a SurGard System 5 receiver. Up to 5 digits can be programmed for the DNIS and each receiver can have a different DNIS value.

Receiver IP – Program an IPv4 IP address for the central station receiver in this section, using the format XXX.XXX.XXX.XXX. If the receiver domain name feature is used, the IP address programmed in this section is ignored.

APN – The access point name required for the communicator must match the SIM card being used in order to allow data sessions to be used with the product.

Remote Port – Program the port associated with the central station receiver in this section.

Receiver Test Transmission Reporting Code – This entry is used to enable or disable the test transmission reporting code. Enter 00 to disable or FF to allow the automatic test transmission reporting codes to be used.

Receiver Initialization Status – When the 3G4000W has been reprogrammed or boots up, it will initialize with the central station receiver. The status of this operation is displayed here. The cell in DLS will show "Failed" if the 3G4000W could not reach the

programmed receiver or Initialized when successful. This field will show Initialization Not Started if the receiver is not programmed or if the unit hasn't attempted to connect to the receiver yet.

Receiver Encrypted – The 3G4000W can be configured for encrypted central station communications using 128 bit AES encryption. This operation requires a central station receiver that supports encryption. This field indicates whether the receiver communications are presently encrypted or not.

PTM Options Tab

Up to 4 phone numbers can be programmed for use with the 3G4000W's panel transmission monitoring feature. Enter each phone number that should be monitored and enable it in each of these sections. The phone number dialed by the panel must be 5 digits or more. Refer to the panel transmission monitoring feature description for more information.

Event Buffer Tab

The 3G4000W supports a 50 event buffer that records zone input alarm and restore conditions and communicator trouble and restore conditions. Each event is recorded along with a UNIX time stamp. The time reflected in the event buffer is determined by the cellular network.

The 3G4000W will track and log the following events:

Low Battery Trouble	Low Battery Trouble Restore
TLM (Telephone Line Monitoring) Trouble	TLM Trouble Restore
Battery Absent Trouble	Battery Absent Trouble Restore
Input Power Trouble	Input Power Trouble Restore
Wall Tamper Trouble	Wall Tamper Trouble Restore
Case Tamper Trouble	Case Tamper Trouble Restore
Low Signal Strength Trouble	Low Signal Strength Trouble Restore
Radio / SIM Trouble	Radio / SIM Trouble Restore
Receiver 1 Absent Trouble	Receiver 1 Absent Trouble Restore
Receiver 2 Absent Trouble	Receiver 2 Absent Trouble Restore
Receiver 3 Absent Trouble	Receiver 3 Absent Trouble Restore
Receiver 4 Absent Trouble	Receiver 4 Absent Trouble Restore
Receiver 1 Supervision Trouble	Receiver 1 Supervision Trouble Restore
Receiver 2 Supervision Trouble	Receiver 2 Supervision Trouble Restore
Receiver 3 Supervision Trouble	Receiver 3 Supervision Trouble Restore
Receiver 4 Supervision Trouble	Receiver 4 Supervision Trouble Restore
Cellular Network Trouble	Cellular Network Trouble Restore
Receiver 1 FTC (Failure to Communicate) Trouble	Receiver 1 FTC Restore
Receiver 2 FTC (Failure to Communicate) Trouble	Receiver 2 FTC Restore
Receiver 3 FTC (Failure to Communicate) Trouble	Receiver 3 FTC Restore
Receiver 4 FTC (Failure to Communicate) Trouble	Receiver 4 FTC Restore
Receiver 1 Test Transmission	Receiver 1 Test Transmission with Trouble
Receiver 2 Test Transmission	Receiver 2 Test Transmission with Trouble
Receiver 3 Test Transmission	Receiver 3 Test Transmission with Trouble
Receiver 4 Test Transmission	Receiver 4 Test Transmission with Trouble
Zone 1 Alarm	Zone 1 Alarm Restore
Zone 2 Alarm	Zone 2 Alarm Restore
Zone 3 Alarm	Zone 3 Alarm Restore
Zone 4 Alarm	Zone 4 Alarm Restore
PTM Active	Radio Activation Restore
Firmware Update Begin	Firmware Update Fail
Firmware Update Successful	128 Bit Encryption Enabled
Swinger Shutdown	Swinger Shutdown Restore

Setup and Troubleshooting Guide

Powering up the 3G4000W – When power up the 3G4000W cellular communicator, always connect the battery first before connecting primary DC power using the transformer if a battery is intended to be used.

Primary Communicator Wiring – R-1 / T-1 of the 3G4000W should be connected to the Ring / Tip terminals on the control panel. If using a battery, plug the battery into the terminal labelled BAT, and connect the DC transformer to the DC + and - input terminals.

Backup Communicator Wiring – Connect the incoming phone line to the Ring / Tip terminals on the 3G4000W, the Ring / Tip terminals on the control panel to R-1 / T-1 on the 3G4000W, and R-1 / T-1 of the control panel to the phones installed in the location. If using a battery, plug the battery into the terminal labelled BAT, and connect the DC transformer to the DC + and - input terminals.

SIM Card – It is recommended to activate the SIM card 24 hours before arriving on site to ensure it has been fully provisioned by the SIM card provider before attempting to complete the installation. The 3G4000W will show signal strength with an inactive SIM card, however it will indicate the signal strength of any 3G network, regardless of whether or not it the network is compatible with the SIM. The SIM must be active to ensure the displayed signal strength relates to the wireless network provider that the SIM belongs to.

Panel Programming – The control panel must be programmed to communicate using Contact ID or SIA reporting formats, with appropriate call directions and reporting codes selected for the site. The panel must also be configured for DTMF dialing.

Testing Communications – When the 3G4000W transmits a signal for the control panel, or for an internal transmission such as a trouble or zone input violation, the blue light will flash once when the signal is transmitted and two times when a kiss off signal from the central station receiver has been received.

Understanding Signal Strength Indications

Signal Strength LED Status	CSQ	What it means:	Signal Strength Status
Both RSSI LEDs ON	14+	Excellent Signal Strength	Unit can be installed in the current mounting location
Top LED Flashing with Bottom LED ON	11-13		
Top LED Off , Bottom LED ON	7-10		
Top LED Off , Bottom LED Flashing	5-6 No Trouble 1-4 Trouble	Poor Signal Strength	<ul style="list-style-type: none"> - Ensure the antenna has been securely attached - If the SIM is active, connect a battery to the 3G4000W and test for alternate locations until good or excellent signal strength is indicated - Connect an antenna extension kit if necessary
Both RSSI LEDs Off	0	No Signal Strength	<ul style="list-style-type: none"> - If the red LED is on, check for trouble conditions. - Verify the SIM card is activated - Ensure the antenna has been securely attached - If the SIM is active, connect a battery to the 3G4000W and test for alternate locations until good or excellent signal strength is indicated - Connect an antenna extension kit if necessary

Blue LED Status (Normal Mode)	Blue Communication Indicator and Status
Blue LED ON	When used as a backup communicator, the blue LED will be ON when the incoming phone line has been disconnected from the 3G4000W Tip / Ring terminals, or the line voltage is below 2.8VDC.
Blue LED OFF	When used as a backup communicator, the blue LED will be Off when the incoming phone line is connected to the 3G4000W Tip / Ring terminals and the line voltage is above 2.8VDC. The LED is also off when the communicator is configured as a primary communicator which doesn't require an external phone line connection.
Blue LED Flashing	The blue LED will flash once when the 3G4000W transmits a signal and twice when the signal is successfully received by the central station

The Red light will flash to indicate various trouble conditions outlined previously. If multiple trouble conditions are present, the red light will flash according to the highest priority trouble. For example, if both a wireless network trouble (one flash) and a low battery

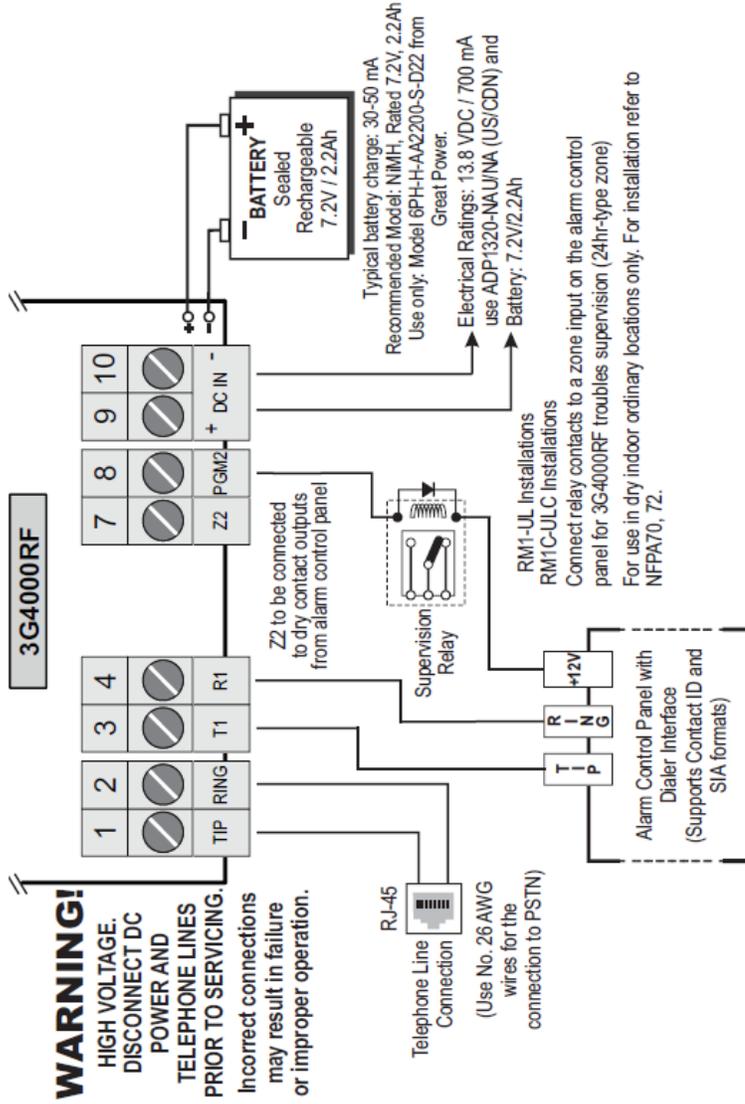
trouble (two flashes) are present; the red light will flash one time. Once the wireless network trouble condition has been corrected, the red light will then begin flashing two times.

# of Flashes		Trouble Type	Trouble Notes
Red	Blue		
On Solid	On Solid	No Signal Strength or Connection	<ul style="list-style-type: none"> - Verify the SIM card is activated - Ensure the antenna is securely attached - If the SIM is active, connect a battery to the unit and test alternate locations. - Connect an antenna extension kit - Verify the region is not experiencing a network outage - Try deactivating / reactivating the SIM card to ensure it is correctly provisioned by the wireless provider
1	Off	Wireless Network Trouble	
2	Off	Battery Trouble	<ul style="list-style-type: none"> - Verify that the battery is plugged into the BAT terminal. - A new battery may not be fully charged. Typically it takes 1 hour or less to charge the battery to 7.2VDC or higher. - Verify the input DC voltage is 13.8VDC and at least 500mA can be supplied if powering the 3G4000W from a source other than the listed transformer. - Replace the battery if it is not possible to charge it to at least 7.2V
3	Off	Input Power Trouble	<ul style="list-style-type: none"> - Verify the input DC voltage is 13.8VDC and at least 500mA can be supplied if powering the 3G4000W from a source other than the listed transformer.
1	Flashing	Insufficient Signal Strength	<ul style="list-style-type: none"> - Ensure the antenna is fully secured to the antenna connector. - If the SIM is active, connect a battery and test alternate locations looking for good or excellent signal strength indication. - Connect an antenna extension kit if the insufficient signal strength trouble cannot be cleared by relocating the 3G4000W.
1	On	Radio / SIM Trouble	<ul style="list-style-type: none"> - Ensure the SIM card is inserted correctly and is held firmly in place. - Ensure the antenna is secured. - Ensure the SIM card has been provisioned correctly, and is the correct SIM card for the product (3G SIM, not LTE)
2	On	Receiver Not Available Trouble	<ul style="list-style-type: none"> - Contact the monitoring station to verify that the 3G4000W programming is correct (receiver IP address, remote port, DNIS if used, etc.) - Contact your central station to verify they are not experiencing any receiver issues. - Ensure the correct APN, login and password are programmed for the SIM card being used. - Contact the cellular service provider and ensure the SIM card has been provisioned correctly. It must support a 3G data plan and billing plan or data sessions to the receiver will fail.
3	On	Receiver Supervision Trouble	<ul style="list-style-type: none"> - Contact your central station to verify they are not experiencing any receiver issues. - Verify the 3G4000W is still able to connect to the cellular network. - Review event buffer logs using DLS to determine when the trouble condition has occurred and restored, then check to see if 3G cellular service outages have been reported for the area.
4	On	Tamper Trouble	<ul style="list-style-type: none"> - Ensure the front cover is secured and the wall tamper is pressed firmly against the wall. The wall tamper can be disabled using a software programming option in DLS if it is not required.

General Trouble Conditions

<p>The control panel is displaying a telephone line trouble condition.</p>	<ul style="list-style-type: none"> - Ensure T1 and R1 of the 3G4000W are wired to the Tip and Ring terminals of the control panel - If the 3G4000W red light is flashing refer to the troubleshooting guide.
<p>The control panel displays a communication trouble condition</p>	<ul style="list-style-type: none"> - Ensure the control panel is programmed for SIA or Contact ID reporting formats. - Ensure the control panel does not have pulse dialing enabled. - Check if the control panel is indicating a TLM trouble and check wiring if so. - If the 3G4000W red light is flashing, refer to the troubleshooting guide. - Ensure the programmed receiver has been initialized with the central station. - Ensure any programmed PTM phone numbers match the panel's dialed numbers.
<p>No signals are arriving at the central station, but no trouble conditions are displayed either.</p>	<ul style="list-style-type: none"> - Ensure the control panel is correctly programmed for central station communications. Verify phone numbers, call directions, format and reporting codes are correctly programmed. - Ensure the control panel's account number is programmed and correct. - Check if "programmed" or "automatic" SIA or Contact ID reporting codes are used. If programmed reporting codes are enabled, ensure all events that must be communicated have an appropriate reporting code programmed. - Ensure communications are enabled in the control panel. There is often a single option that can be used to enable or disable all system communications - Connect a handset o T1 and R1 of the 3G4000W in monitor mode to verify that the control panel is actually going off hook and dialing central station phone numbers.
<p>Not receiving internal signals generated directly from 3G4000W (test transmissions, zone alarms, troubles etc.)</p>	<ul style="list-style-type: none"> - Ensure the 3G4000W was initialized with the correct DNIS and Account Number. This can be checked by uploading the programming using DLS V. - Ensure there are no trouble conditions present that may impair successful transmissions. - In the case of zone alarms, swinger shutdown may be active. The Blue LED will flash once when the 3G4000W attempts a transmission. If swinger shutdown is active the Blue LED will not flash as the communication attempt has been suppressed.
<p>The phone line is seized when the 3G4000W is connected</p>	<ul style="list-style-type: none"> - Verify that the Tip / Ring and T-1 / R-1 phone line wiring is correct and no shorts are present. - Ensure the Ringer Equivalency Number (REN) is not being exceeded on the line.

Wiring Diagrams



WARNING: Incorrect connections may result in PTC failure or improper operation. Inspect wiring and ensure connections are correct before turning on.

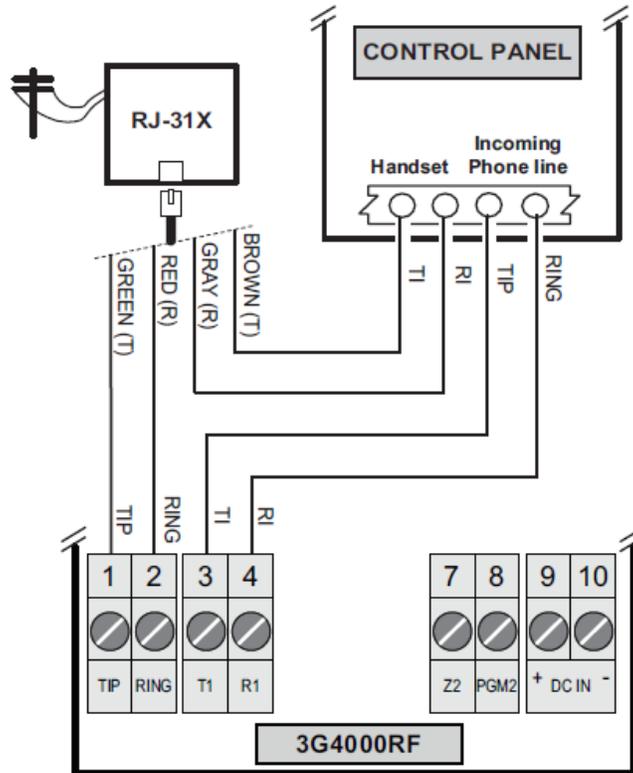
All circuits are classified for UL installations as Power Limited/Class II Power Limited. Do not route any wiring over circuit boards. Maintain at least 1" (25.4mm) separation. A minimum 1/4" (6.4mm) separation must be maintained at all points between Power Limited wiring and all other Non-Power Limited wiring. Route wires as indicated in the diagram.

NOTE: For ULC Commercial Burglary Installation requirements please refer to Figure 5 and to the ULC Installation Guide PN 29002157.

For UL Installations, the system shall be installed in accordance with chapter 2 of the ANSI/NFPA 72 and ANSI/NFPA70. Recommended locations and wiring methods shall be in accordance with the National Electrical Code, ANSI/NFPA 70, the Standard for Installation and Classification of Burglar and Holdup Alarm Systems, UL 681, and the Standard for Central-Station Alarm Services, UL 827.

Telephone Wiring Diagram

Figure 3 - Telephone Connection

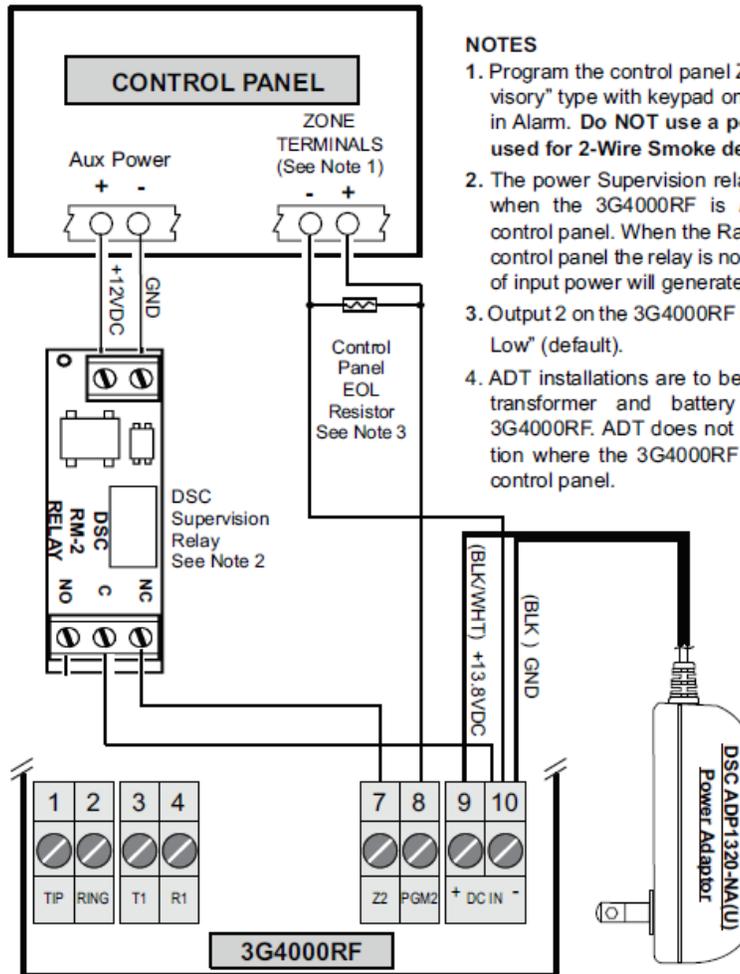


Note: The Ring and Tip terminals should only be connected when the 3G4000W is programmed as a backup communicator.

Power Supply and Supervision Wiring Diagram

A zone input on the control panel may be used to monitor if the 3G4000W has lost power. It should be connected in accordance with the following wiring diagram.

Figure 4 - Power Supply and Supervision Wiring Diagram



NOTES

1. Program the control panel Zone/Point as "Supervisory" type with keypad only annunciation when in Alarm. Do NOT use a point that is normally used for 2-Wire Smoke detectors.
2. The power Supervision relay, RM-2 is only used when the 3G4000RF is *not* powered by the control panel. When the Radio is powered by the control panel the relay is not required since a loss of input power will generate a signal to the CMC.
3. Output 2 on the 3G4000RF must be set as "Active Low" (default).
4. ADT installations are to be completed using the transformer and battery provided with the 3G4000RF. ADT does not accept the configuration where the 3G4000RF is powered from the control panel.

Regulatory Information

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.

Interference Statement

This device complies with Part 15 of the FCC Rules. 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.

Wireless Notice

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. The antenna should be installed and operated with minimum distance of 30 cm between the radiator and your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter. Antenna gain must be below/:

Frequency Band	3G4000W
GSM 850	2.5 dBi
GSM 900	2.5 dBi
DCS 1800	6.2 dBi
PCS 1900	6.2 dBi
WCDMA B5, WCDMA B8	2.5 dBi
WCDMA B1 (Tx), WCDMA B2	6.2 dBi
WCDMA B1 (Rx)	2.8 dBi

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 or relocate 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 an experienced radio/TV technician for help.

3G4000W:

FCC ID: F53193G4000W

3G4000W Product Identifier US: F53MO00A3G4000W

US OC Jack: RJ - 31X

WARNING: To satisfy FCC RF exposure requirements for mobile transmitting devices , a separation distance of 30cm or more must be maintained between the antenna of this device and persons during device operation .