

Genus™ G2 Users Manual



Table of Contents

Declarations	2
Introduction.....	3
Genus™ G2 Terminal.....	4
The User Interface	4
Terminal Features	5
Terminal Hardware.....	6
Terminal Connections.....	8
Installation	11
Power Up	12
Online Mode	13
Offline Mode	14
Entering Offline.....	15
User Operational Displays.....	17
Genus™ WiFi Module Installation	35
Genus™ WiFi Configuration/Setup	40
Troubleshooting Genus™ WiFi Issues.....	47
Troubleshooting Terminal Issues	50
Reference	52
Steps to Re-Program Genus™ Firmware:	52
Loading A Customer Defined Java Application.....	53
Programming Table (Code 39)	54
Service & Technical Support.....	56

Disclaimer

No part of this publication may be reproduced, or transmitted in any form or by any means without the written permission of Control Module, Inc. The information described by this publication is specifically intended for use by customers and resellers of Control Module Data Collection products and data collection systems and only for use with Control Module Data Collection products and data collection systems.

The information in this manual is subject to change without notice and does not represent a commitment on the part on Control Module, Inc.

Declarations

Control Module, Inc.

Model: Genus™ G2

Serial: 3000

FCC Compliance

The Control Module Model Genus™ G2 Time and Attendance Terminal conforms to the requirements of FCC PART 15, SUBPART B, CLASS A, 2004 for radiated and conducted emissions without modifications.

Note: 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 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 their own expense.

Introduction

Welcome to Control Module's Genus™ G2 Data Collection Terminal.

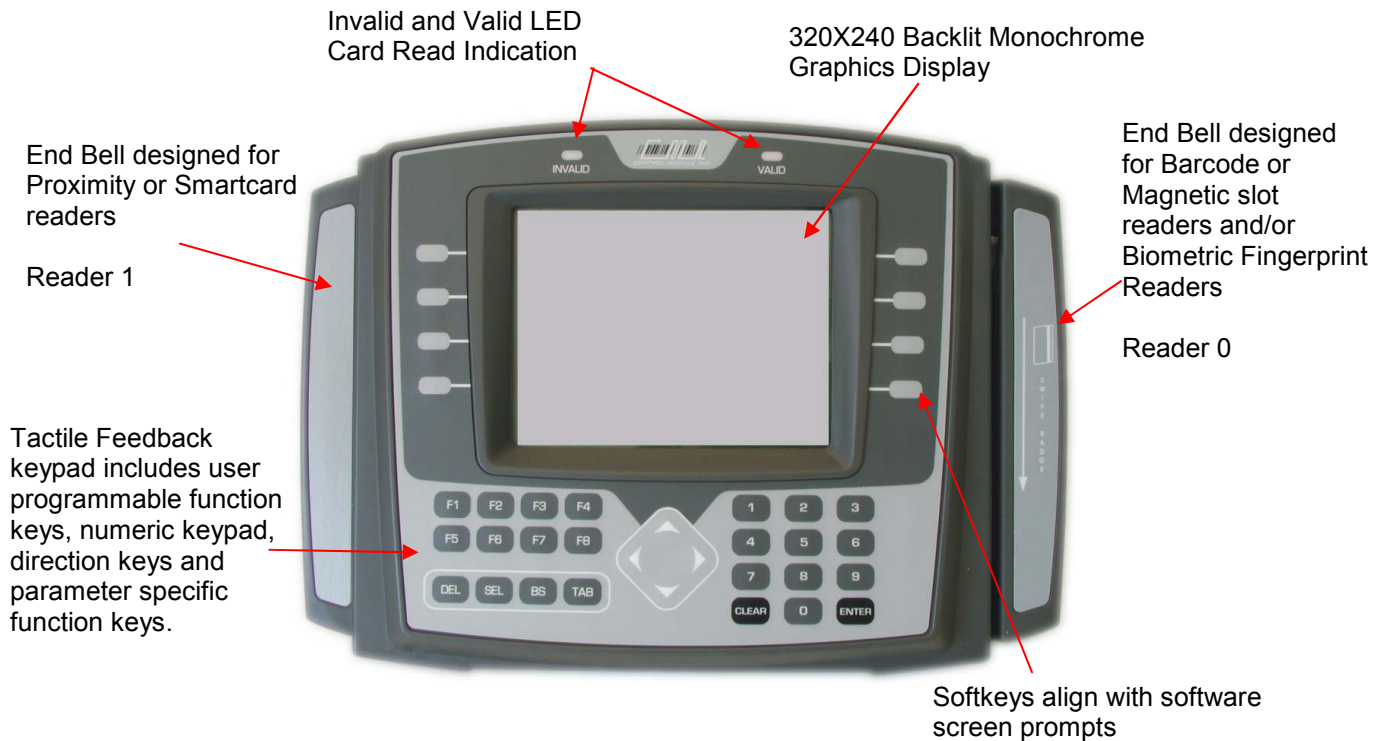
The “Genius of Genus” is that it offers an intelligent Java programming language and enables companies – for the first time – to realize the maximum potential of their workforce management terminals, by using them as a powerful interface to connect highly customized applications and the databases that fuel them. The Genus™ open and modular platform is designed to provide fast, accurate, and reliable data collection for any industrial application. The Genus™ Terminal is ideal for time and attendance, workforce management, employee self-service, shop floor data collection, and access control. Genus™ is the intelligent and affordable decision for any organization.

Congratulations on your purchase!

Genus™ G2 Terminal

Terminal features are labeled in the picture below for reference. Descriptions of user interface, terminal features, terminal hardware and connections follow.

Terminal Front



The User Interface

The user interface offers options for data entry into the Genus™ G2 terminal through the 36-key ATM style membrane keypad, softkey, function, navigation and user programmable function keys and/or internal or external card readers. User output is via a 320X240 backlit Monochrome graphic LCD display. The terminal also has the capability to produce multiple sound tones to help guide the user.

Terminal Features

Memory Configuration The Terminal is equipped with 32 MB of dynamic memory, 2 MB of non-volatile memory for data retention, and 40 MB of Flash memory for program storage.

Programmability The Terminal is designed to be a Java-capable embedded data collection platform. Users may create, load, and execute J2ME Personal Profile 1.1 compliant applications that utilize existing OEM classes for display, keyboard, biometric, barcode, Magnetic, Proximity, Mifare™, iClass®, and DI/DO inputs and outputs. A software development kit (SDK) is available separately that provides development documentation, development support, and samples for the use of the OEM classes.

Digital I/O The Terminal provides program control of integrated Digital Outputs for relay control, two (2) Digital Inputs, and includes a Tamper sense.

Host Interface The Terminal comes with a dedicated Ethernet port for connection to 10/100 Ethernet networks. DHCP or static IP address configuration is supported.

Display The Terminal is equipped with a 320 x 240 backlit Monochrome graphic LCD display. The full alphanumeric character set and graphics are supported. LED back-lighting provides viewing in low light conditions.

Keypad The Terminal is equipped with a 36-key ATM style tactile response membrane keypad. The keys are divided into four groups; numbers, functions, navigation, and programmable keys. Keys positioned next to the display align with softkeys for ease of use.

Power The configuration uses a 20 VDC 1 amp power pack to power the terminal. The power pack is UL listed and CSA certified.

Audio Annunciator This is programmable with variable tone and duration capability.

Terminal Hardware

Keypad – with local buffering

- 10 Numeric Keys, (0 through 9)
- 8 Function Keys (F1 through F8)
- Clear and Enter Keys
- Navigation Keys for cursor position and network parameters, alpha characters and special symbols.
- 8 Softkey aligned keys
- 4 Parameter Edit keys, Delete, Select, Backspace and Tab

Display

- 320 x 240 Backlit Monochrome Graphics Display

Media Readers

2 Internal reader ports, 1 External reader port, 1 Barcode wand port

- Magnetic Track 1 and 2
- Barcode Code 39 and code 39 full ASCII, Interleaved 2of5, Code 128
- Proximity allows up to a 99 bit badge (HID, Motorola™)
- Smartcard (Mifare™, iClass®)
- Biometrics (Fingerprint)

Beeper

- Variable duration monotone beep
- Variable duration warble beep
- Emit a series of beeps

Host Interface

- RS232
- 10/100 Ethernet
- Modem via serial port (PPP)
- WiFi option

External Control

- Relay Output—30VDC @ 1A

LED

- Two Status (red, green)

Power Requirements

- 20 -30VDC, 3W

Environmental

- Operating 0° to 50°C (32° to 122°F)
- Storage -40° to 66°C (-40° to 151°F)
- Humidity 0 to 90 % non-condensing

File System Specification

The Terminal provides file systems on different hardware devices. Instead of using the common alphabet notation for file system devices ('A:', 'C:'), the Genus™ terminal identifies the file storage devices as:

Storage Device	Memory size	Location
'\flashdisk'	40 Mbytes	Low write, frequent read. Used for firmware, user applications, and application data.
'\ramdisk'	2 Mbytes	High read/write usage. Data is preserved through power loss. Often used for transaction (punch) storage
'\scratchdisk'	5 Mbytes	High read/write usage. Temporary file storage. Not preserved through power outage

Digital Output (DO Relay Configuration)

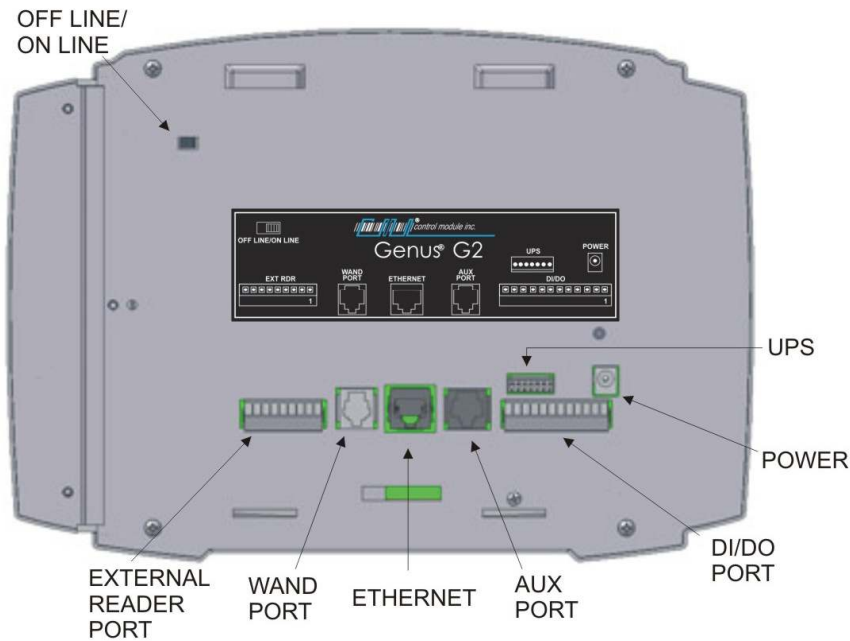
The relay port brings out the three relay connections (common, normally open, normally closed) plus ground. The common can optionally be connected to an internal current source, VUNREG (nominally, 12 volts at 100mA—over-current protected). The internal current source is useful when driving external buzzers, lamps, low current, low voltage devices or a larger external relay, since it requires no external power source.

The Digital Output configuration design supports the option for both sourcing and non-sourcing DO. The DO is a Form C contact relay rated for 1 amp @ 30V AC/DC.

Relay Port—Internal Power	
Pin	Function
1	Normally open contact
2	Common contact
3	Normally closed contact
4	Ground
5	VUNREG
6	Ground
7 - 12	DI Pins, See Terminal Connections

Terminal Connections

Terminal Back



Ethernet Port

The Ethernet port supports the 10/100BASE-T network connections

Connector: 8 position RJ45.

Pinouts:

1 = Receive +	5 = Input Power
2 = Receive –	6 = Transmit –
3 = Transmit +	7 = GND
4 = Input Power	8 = GND

Serial Aux Port

The Serial Aux port provides a serial connection to interface to serial peripheral devices or for modem communications. Default for pin-6 is +12V power.

Connector: 8 position RJ45.

Pinouts:

1 = DCD	5 = GND
2 = RXD	6 = +12V/DSR
3 = TXD	7 = RTS
4 = DTR	8 = CTS

Wand / Scanner Port

The wand port maintains the standard CMI pinouts with the RJ11 connector.

Connector 6 position RJ11

Pinouts:

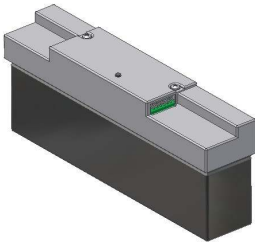
1 = Shield	4 = N/C(No Connection)
2 = Ground	5 = Data
3 = +5 VDC	6 = Vunreg

Digital Input / Output	
<p>The digital input with tamper switch is included with this terminal configuration. This option detects attempts to interfere with normal operation of the terminal. A pluggable connector is supplied with the terminal. The Digital Output configuration design supports the option for both sourcing and non-sourcing DO. The DO is a Form C contact relay rated for 1 amp @ 30V AC/DC. The DO can be used to control or monitor doors, bells, and alarms.</p>	<p>Connector 12 position Terminal Block Pinouts:</p> <ul style="list-style-type: none"> 1 = Normally Open (N.O.) 2 = Common (C) 3 = Normally Closed (N.C.) 4 = Ground 5 = Vunreg 6 = Ground 7 = +12 VDC 8 = DI 1 9 = DI 2 10 = Open Collector (OC1) 11 = Open Collector (OC2) 12 = Tamper
External Reader Port	
<p>An external port is provided for external reader connection. The port provides two digital inputs, one open collector and access to one RS232 serial port. Power to the external readers is also provided through this port.</p>	<p>Connector 9 position Terminal Block Pinouts:</p> <ul style="list-style-type: none"> 1 = Data 2 = Card Pres 3 = Clock 4 = OC2 5 = VDD 6 = GND 7 = +12 VDC 8 = RXD / 232 9 = TXD / 232
Power Port	
<p>Power is supplied to the terminal via a standard 5.5 mm (2.5 mm ID) Barrel Jack on the backplate of the terminal.</p>	<p>Connector 5.5 mm (2.5 mm ID) Barrel Jack Pinouts:</p> <ul style="list-style-type: none"> 1 = +20V to 30VDC 2 = Power Ground
UPS (Uninterruptible Power Supply)	
<p>An optional UPS is available to power the terminal in the event of a main power failure or brownout conditions.</p>	<p>Connector 7-Pin KK100</p> <p>The UPS is shipped with a removable cable that plugs into the UPS connection port on the backplate of the G2 Terminal.</p>

Module Options

The Genus™ G2 Terminal provides UPS, Modem and WiFi Module Options.

UPS 2050-011



UPS Module. The 2050-011 module provides backup power to the Genus™ G2 terminal and integrated readers and communications options in the event of a main power failure and brownout conditions.

Battery. The 2050-011 uses a 2.3Ah Sealed Lead-Acid battery with a nominal voltage of 12V. The battery will attain full charge after 12 hours of recharge time.

Modem 2042-300



Modem Comm Module. The 2042-300 module provides communication level conversion from a standard Telco line to RS232 levels for Genus™ G2.

56K Baud Modem. The modem is a 56K baud Auto Answer/Auto Connect modem which connects via the RJ11 Telco Port (Modem Host). It features Data Mode v.92 (57600 BPS) and supports enhanced “AT” commands.

WiFi 3046-101



WiFi Comm Module. The 3046-101 communications module provides LAN and Internet connectivity with the standard Ethernet interface to applications. The module is interoperable with industry standard 802.11 LAN and Internet connectivity and provides advanced security standards such as WEP and WPA. It provides a complete, reliable transparent wireless connection between a G2 Terminal and a network host via an RF access point.

Installation

The installation process proceeds with the bulleted items below. All installation steps are discussed in the Installation Guide for Genus™ G2 (3000-IG-0001), however, follow only those that apply to your installation requirements.

- Wall Mount Installation & Recommended Height
- Grounding the G1 Terminal
- Wand / Scanner and Ethernet Connections
- Serial Aux Port Connection
- Digital Input Connection
- Digital Output Connection
- Power and UPS Connections
- Modules
- WiFi Antenna
- WiFi Module Connections
- Modem Module Connections
- Close & lock the Terminal and Store the Key

Power Up

The several displays with the following messages appear in sequence during the normal G2 Terminal power-up process. In addition, during power-up, the Genus G2 terminal also executes an internal firmware test.

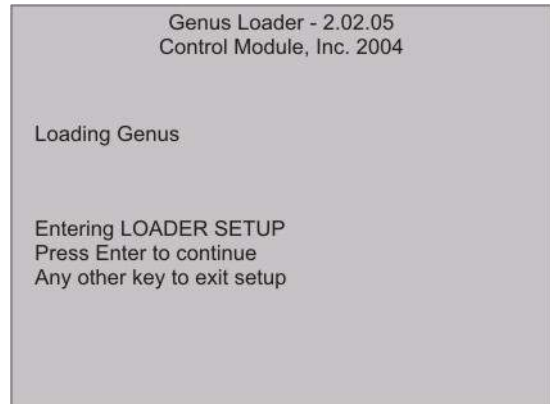
Genus Loader Display

Genus Loader will display with program and version numbers at the top of the screen.

Followed by company name Control Module, Inc. 2004

Followed by “**Loading Genus**” and the following prompts;

Entering LOADER SETUP
Press Enter to continue
Any other key to exit setup



Power-On Diagnostic Display

Genus G2 will display with program and version numbers at the top of the screen.

Followed by company name Control Module, Inc. 2004

Initializing Network displays with current IP of the terminal on the network

IP:192.168.000.078

Initializing Flash

Initializing File System

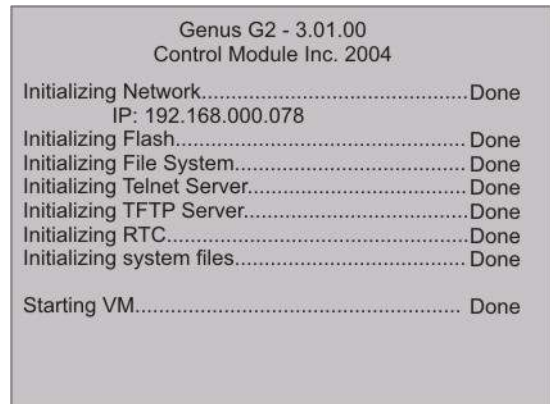
Initializing Telnet Server

Initializing TFTP Server

Initializing RTC


Initializing System Files

Starting VM



Online Mode

Following installation and power-up, the terminal will reach online mode at a screen that has been defined by the user. The terminal is now ready to communicate to the host system. The G2 Terminal is shipped with a basic test and reader setup application.



```
Starting:<user's app>
```

At this point the G2 Terminal has completed the boot process and transitions to a Java application that begins its functionality and data collection as defined by the user.

If no user defined program has been loaded the terminal will display the CMI reader setup application.

Refer to *Loading a Customer Defined Java Application* in the Reference section of this document.

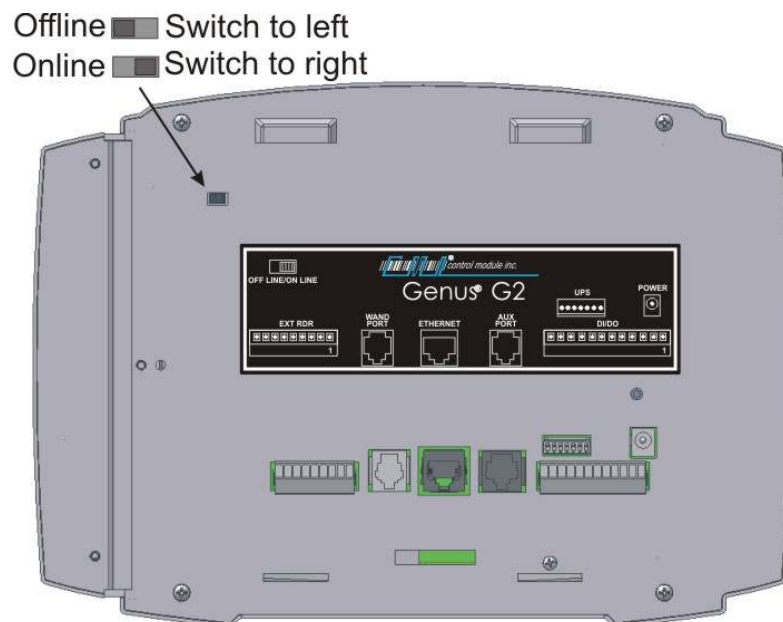
Offline Mode

The Genus™ G2 terminal offline mode is utilized for initial setup and when any of the following options require a change: communications, readers, security, time/date, terminal maintenance and terminal administration.

Offline Mode is accomplished by moving the switch located on the backplate of the terminal to the left position prior to power-up. If the switch is moved while the device is powered up the terminal will reset and enter Offline Mode.

Note: If a transaction build is in process when the terminal is switched between modes this data will be lost.

When no setup changes are required the switch position is to the right for Online.



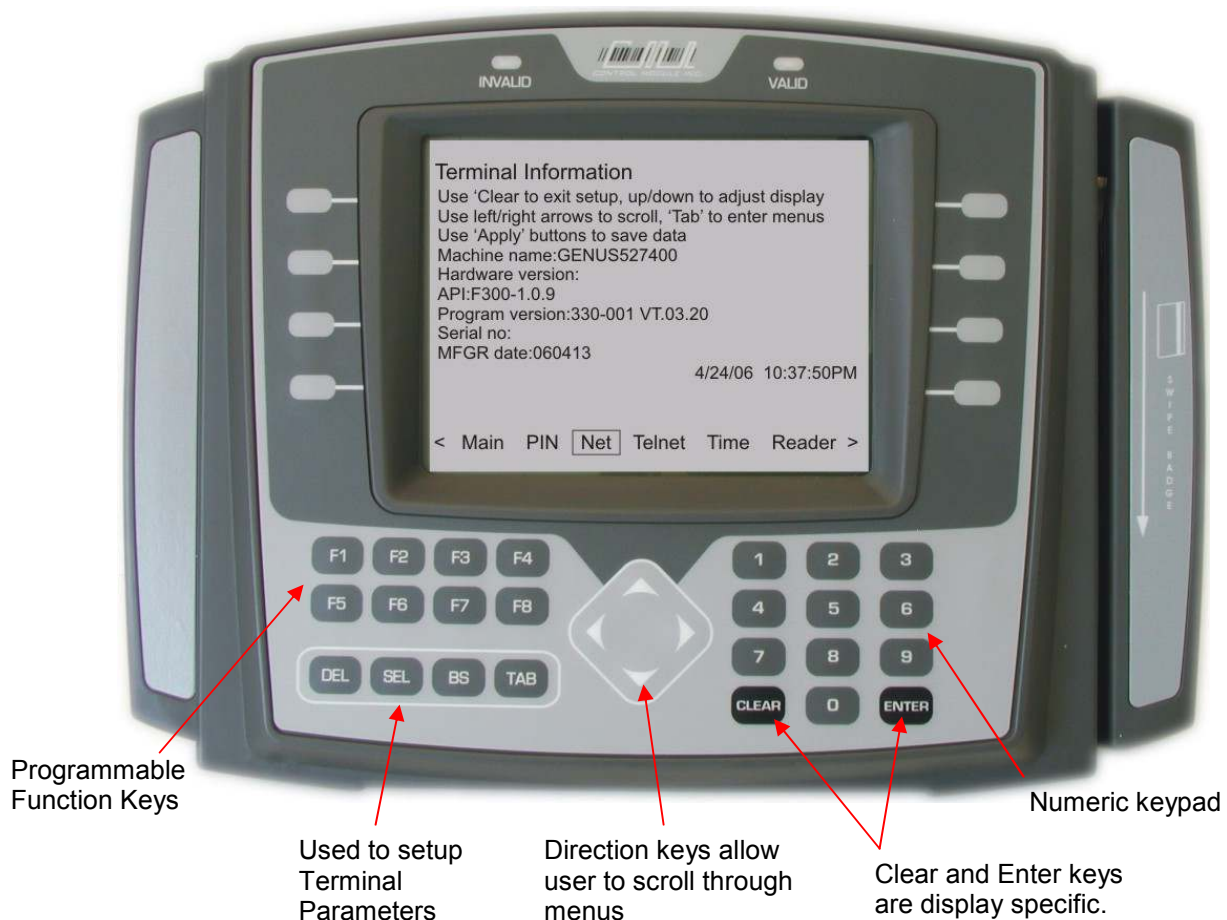
Entering Offline

Offline Mode for the G2 Terminal Setup Mode is entered through power-up as the Terminal initializes. The normal power up displays will occur until the 'Starting:Setup' displays message appears.

Starting:Setup displays as a separate display prior to Terminal Information

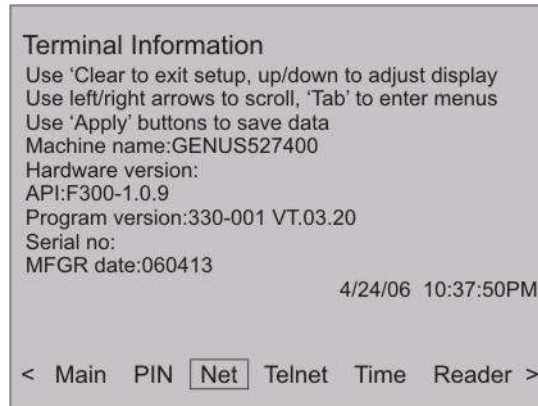
At this point the terminal stops and waits at the Terminal Information prompt, for keypad entry, as shown below, unless a PIN number has been setup then the terminal will request a PIN.

Note: Enter PIN prompt will only appear if PIN number has been setup in "Setup PIN" from main menu during a previous offline session.



Menu Options located at the bottom of the display in Offline Mode

TERMINAL INFORMATION is the first display reached as the Main screen when powered up into Offline Mode. This provides basic terminal hardware information.



Menu options include

Main	Main Terminal Information screen
PIN	Security PIN
Net	Network Setup, includes option for WiFi
Telnet	Telnet port settings
Time	Time, Format, Time Zone settings
Reader	Reader setup
Maint	Maintenance
TAdmin	Terminal Administration
DUN	Dial-Up Network settings

Active keypad in offline mode

The keypad is the users interface used to set terminal parameters and input data. Key activity works differently depending on the current display parameters.

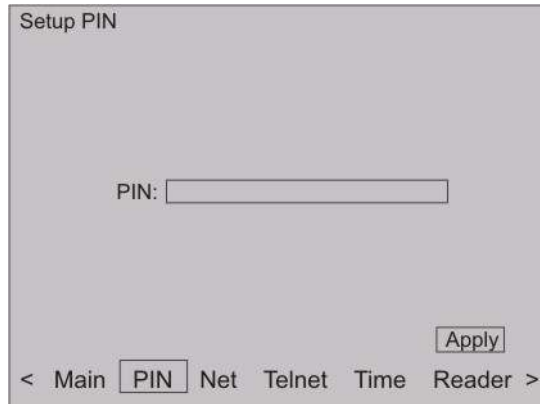
Left and Right Arrows	Advance through menu selections located at the bottom of the display
Tab	Advances through all parameters displayed, and returns to the menu selections located at the bottom of the display
Delete (DEL), Backspace (BS)	Edit at cursor location
UP and Down Arrows	Scroll through available options at parameter location
Clear	Will suspend entry and return to a previous display.



The following User Operational Display pages provide descriptions, additional information, and key activity for each menu option

User Operational Displays



SETUP PIN

Personal Identification Number (PIN) is used for security to prevent unauthorized entry into the setup mode.






1. From the options at the bottom of the display press  to advance to and highlight PIN.
2. Press  to highlight PIN field.
3. Use the numeric keypad to enter PIN.

PIN field accepts \leq (less than or equal to) 20 characters and is masked.

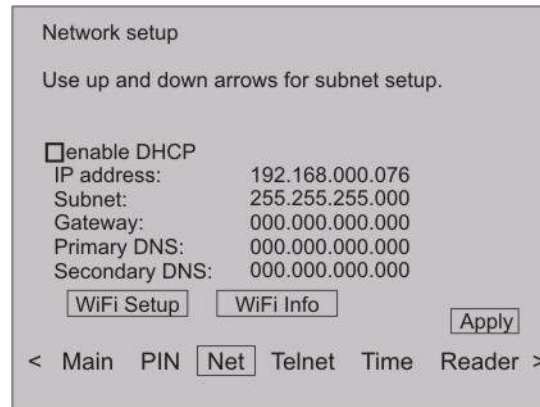
4. Use  (backspace) or  key as needed to delete part of field or to erase the entire field.



Note: Step 5 must be used to accept the erased PIN field.

5. Use  to highlight Apply and press  to save settings.
6. Use  to return to the Main Menu at the bottom of the screen.





NETWORK SETUP

The Network Setup provides the ability to configure the Terminal's network parameters, including DHCP, IP address, gateway, subnet mask, DNS servers, and telnet menu.



1. From the options at the bottom of the display press  to advance to and highlight **Net**.
2. Press  to advance to and highlight the **enable DHCP** field.

Enable DHCP Turns on the terminal's ability to obtain an IP address automatically from a DHCP server on the local network.

3. Press  to check for **enable** or uncheck for **disable DHCP**.
4. If DHCP is not enabled, use  to advance through the remainder of the Network setup parameters. If DHCP is enabled go to step 8.
5. Use the  arrow keys for cursor position in the network parameter octets.
6. Use the  arrow keys and numeric keypad to change settings for IP, Gateway, Primary DNS and Secondary DNS.






Terminal IP Used to specify a static IP address.

Subnet Mask Used to specify a subnet mask for the terminal.

Gateway IP Used to specify a gateway address for the terminal. This entry is optional if the terminal does not need to communicate with devices outside the immediate subnet.

Primary DNS Used to specify a primary Domain Name Server (DNS). This entry is optional if the terminal does not need access to DNS services.

Secondary DNS Used to specify a secondary Domain Name Server (DNS). This entry is optional if the terminal does not need access to DNS services.

7. Use   arrow keys to change Subnet.
8. Use  to highlight and press  to save settings.
9. Use  to return to the Main Menu at the bottom of the screen.

The WiFi settings and information are also accessed on this display.



WiFi information provides a resource for firmware and version releases and Link connectivity status.



For more information on the WiFi installation and setup refer to the *Genus™ WiFi Module Installation* section in this document.

TELNET SETUP




1. From the options at the bottom of the display press  to advance to and highlight Telnet.
2. Press  to advance to and highlight **enable Telnet**.


Enable Telnet Enables the telnet interface to the terminal.

3. Press  to check for **enable** or uncheck for **disable Telnet**.

Note: If Telnet is **disabled**,  skips to the Apply button

4. Press  to highlight **Port** field.
5. Use the numeric keypad to enter port number.


Telnet Port Used to select a port to listen on for telnet configuration.

6. Press  to highlight **Password** field.
7. Use the numeric keypad to enter password.


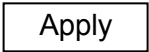


Telnet Password Sets up a password for the telnet configuration.

Note: This PIN password differs from the Offline mode PIN.

Password field accepts **<=** (less than or equal to) 20 characters and is masked.

8. Use  (backspace) or  key as needed to delete part of field or to erase the entire field.

Note: Step 9 must be used to accept the erased Password field.

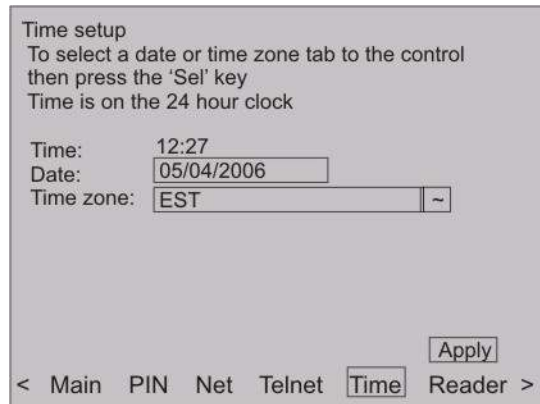
9. Use  to highlight  and press  to save settings.
10. Use  to return to the Main Menu at the bottom of the screen.

Note: The Terminal will need to be restarted for Telnet changes to take effect.

To restart the terminal

If done with setup in offline mode, ensure there is power to the terminal and simply switch the offline/online switch to online, which will reboot the terminal.

TIME SETUP








Time setup
To select a date or time zone tab to the control
then press the 'Sel' key
Time is on the 24 hour clock

Time: 12:27
Date: 05/04/2006
Time zone: EST





Apply

< Main PIN Net Telnet Time Reader >

Time

1. From the options at the bottom of the display press  to advance to and highlight Time.
2. Press  to highlight **hour** field (Time is set to a 24 hour clock).
3. Use the  (backspace) key twice to delete the hour and enter in new hour (HH) using the numeric keypad.
4. Press  to highlight **minute** field.
5. Use the  (backspace) key twice to delete the minutes and enter in new minutes (MM) using the numeric keypad.

Date- Month


6. Press  to highlight **Date** field.
7. Press  to enter calendar.
8. Press  to highlight backward or forward arrows for **month** direction, at the top of the screen.
9. Press  to move between the months.

Date- Day










10. When in correct Month, Press  or     to advance to and highlight new date.
11. Press  to accept the highlighted day date.

Date- Year

The year can be edited in the date field, however if the slash separator is deleted by mistake return to step 10 to recover the date format.

12. While in the date field, use  to delete and use the numeric keypad to change the year.

Time Zone

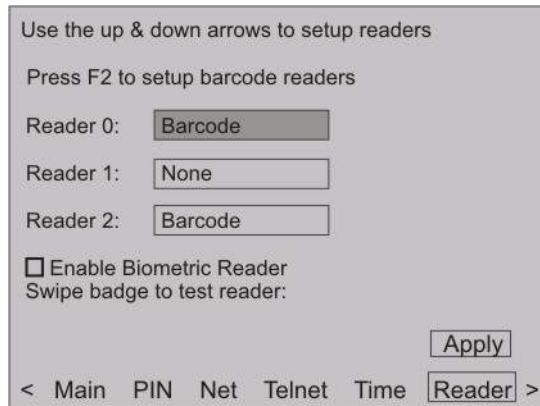
13. Press  to highlight **Time Zone** field.
14. Press  to enter Time Zone option list.
15. Use the   arrows or  to highlight an appropriate Time Zone from the option list.
16. Pressing  exits from the time zone option list and returns to the Time Zone field.
17. Use  to highlight and press  to save settings.
18. Use  to return to the Main Menu at the bottom of the screen

Note: The Terminal will need to be restarted for the Time Zone change to take effect.

To restart the terminal

If done with setup in offline mode, ensure there is power to the terminal and simply switch the offline/online switch to online, which will reboot the terminal.

READER SETUP



Use the up & down arrows to setup readers

Press F2 to setup barcode readers





Reader 0:

Reader 1:

Reader 2:

Enable Biometric Reader
Swipe badge to test reader:

< Main PIN Net Telnet Time **Reader** >


1. From the options at the bottom of the display press  to advance to and highlight .
2. Press  to highlight active field for Reader 0, Reader 1 or Reader 2.
3. Use   to select type of reader (Barcode, Proximity/Wiegand, Magnetic, or None).

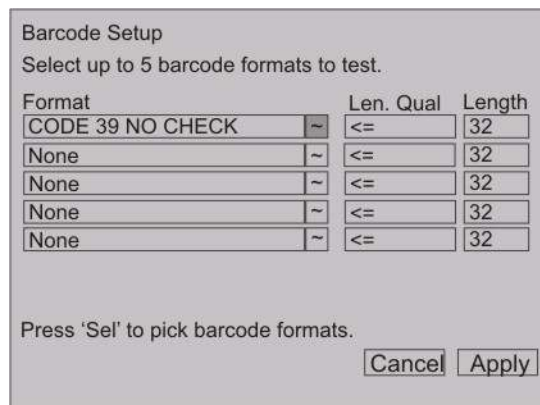
Reader 0 corresponds to the internal connection for Barcode or Magnetic readers located on the right side of the G2 Terminal when looking at the Terminal front.

Reader 1 corresponds to the internal connection for Proximity or Smartcard readers located on the left side of the G2 Terminal when looking at the Terminal front.

Reader 2 corresponds to the external Wand/Scanner connection located on the terminal backplate.

Note: Biometric reader configuration is handled separately after the barcode section.

4. Press  to configure reader. The following screen will appear for Barcode.




Barcode Setup



Select up to 5 barcode formats to test.

Format	Len.	Qual	Length
CODE 39 NO CHECK <input type="text" value="~"/>	<=		32
None <input type="text" value="~"/>	<=		32
None <input type="text" value="~"/>	<=		32
None <input type="text" value="~"/>	<=		32
None <input type="text" value="~"/>	<=		32



Press 'Sel' to pick barcode formats.

The box to the right of the first format will be highlighted.



5. Press  to go to a list of barcode formats.

6. Press   to highlight a barcode format.

Barcode Format options include	Definitions
None	
NO CODE	
CODE 39 NO CHECK	Standard Set, no check digit
CODE 39 CHECK NO TRANS	Standard set, check digit computed but not transmitted
CODE 39 CHECK TRANS	Standard set, check digit computed and transmitted
CODE 39 ASCII NO CHECK	Full ASCII, no check digit
CODE 39 ASCII CHECK NOT TRANS	Full ASCII, check digit computed but not transmitted
CODE 39 ASCII CHECK TRANS	Full ASCII, check digit computed and transmitted
I2OF5 NO CHECK	No check digit
I2OF5 CHECK NOT TRANS	Check digit computed but not transmitted
I2OF5 CHECK TRANS	Check digit computed and transmitted
CODE 128 NO CHECK	No check digit
CODE 128 CHECK NOT TRANS	Check digit computed but not transmitted
CODE 128 CHECK TRANS	Check digit computed and transmitted

7. Press either  or  to save and return to the previous Barcode Setup screen.


8. Press  to highlight **Length Qualifier** field.


9. Press   to highlight a **Length Qualifier**.

Length Qualifier options include = (equal) or <= (less than or equal).

10. Press  to highlight the **Length** field.

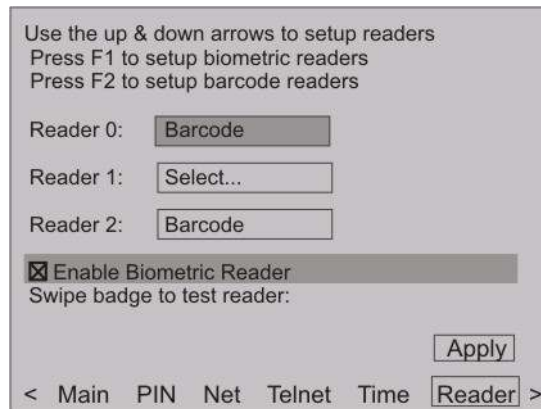
The Terminal accepts up to 32 in the length field, 32 being the total number of characters.




11. Use  to delete field and use the numeric keypad to enter a new value.

12. Press  to scroll through the remainder of the fields to select up to 5 barcode formats to test.

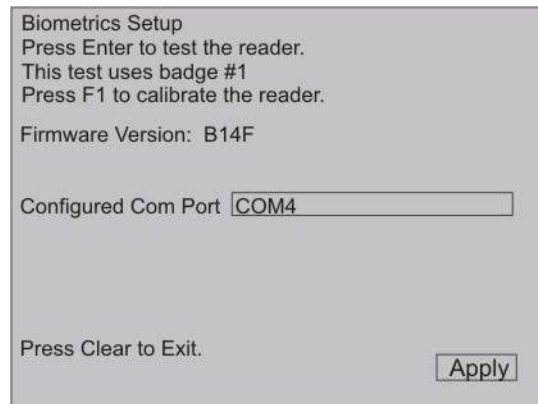
13. To cancel changes press **TAB** to advance to and highlight **Cancel**.
14. Press **SEL** to Cancel and return to the Main Reader Setup screen.
15. To accept changes press **TAB** to advance to and highlight **Apply**.
16. Press **SEL** to Apply and return to the Main Reader Setup screen.
17. On the Main Reader Setup screen (0, 1, 2) Press **TAB** to advance and highlight **Apply** and press **SEL** to save settings.
18. Press **TAB** to return to Main Menu at the bottom of the screen.

BIOMETRIC READER SETUP



1. Press  to advance to and highlight **Enable Biometric Reader**
2. Press  to check for **Enable** or uncheck for **disable Biometric Reader**
3. Once **Enable Biometric Reader** is checked, press  to setup a biometric reader.


The following Biometrics Setup screen will display.



Biometrics on screen message ‘This test uses badge #1’ is explained as; the user presses enter to run the bio test, it does an enroll, verify, and delete. The enrollment occurs for badge number ‘1’. **If someone is already enrolled under that ID, the templates would be erased.**

Note: The Com4 setting is the Biometric reader default and should remain as is.


Messages from firmware tests on the Biometric reader, calibration attempts, and com port configurations are displayed under the Configured Com Port section of the screen.

4. Press  to test the reader.

Messages from the reader test may either prompt the user or provide information.

These messages are as follows:



Place Finger on Sensor...
Finger enrolled, Remove Finger
Place Finger on Sensor...
Finger Verified, Remove Finger
Template Deleted.
Test Passed!
Test Failed!

5. Press  to calibrate the reader.

Messages from the reader calibration may also prompt or provide information.




These messages are as follows:

Calibrating Please do not touch sensor
Calibration Successful
Calibration Failed

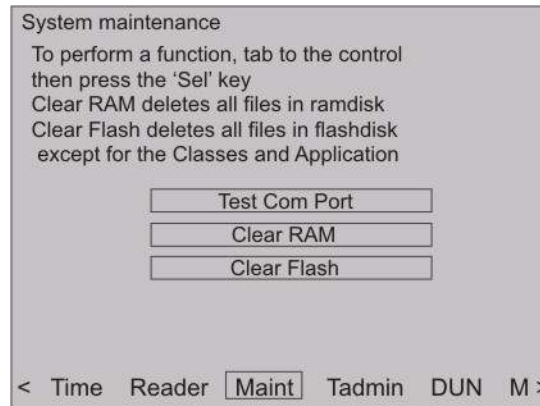
6. Choose a **Configured Com Port** by using the   arrow keys.


Messages from Com Port changes are as follows:

Connecting to reader...
Connection attempt failed!

7. Press  to highlight .
8. Press  to save and return to the previous screen.
9. Or press  to exit

SYSTEM MAINTENANCE





1. From the options at the bottom of the display press  to advance to and highlight Maint .

Maint - Test Com Port

Test Com Port is used to test the DI/DO and the Serial Aux Port on the G2 Terminal. This test requires special test equipment. Contact CMI's Technical Support for additional information.

Maint – Clear RAM

Clear RAM will clear the 'ramdisk' current transaction files residing in the terminal.



1. Press  to highlight **Clear RAM**.
2. To clear RAM press .

Note: A WARNING screen will show confirming that all data will be lost.


3. Press  to continue or  to cancel.


Maint – Clear Flash

Clear Flash will clear the 'flashdisk' on the terminal erasing everything except Classes.jar, App.jar, and Genus App.

1. Press  to highlight **Clear Flash**.
2. To clear Flash press 

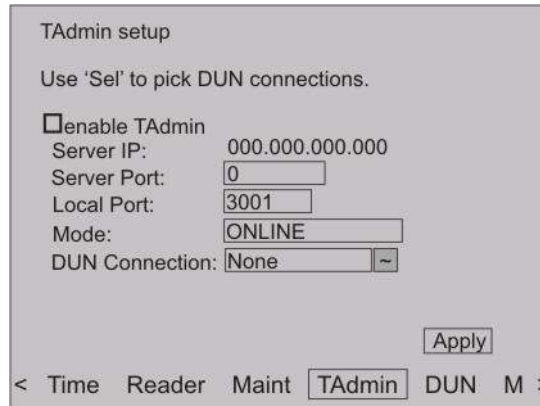
Note: A WARNING screen will show confirming that all data will be lost.





3. Press  to continue or  cancel.

Use  to return to Main Menu at the bottom of the screen.







TADMIN SETUP

Terminal Administration used to configure host side software and communication connections. This is only required when working with CMI's TAdmin host software.





1. From the options at the bottom of the display press  to advance to and highlight TAdmin.
2. Press  to advance to and highlight **enable TAdmin**.
3. Press  to check to **enable** or uncheck to **disable TAdmin**.
4. If TAdmin is enabled, use  to advance through the remainder of the fields.



TAdmin – Server IP

5. Press  to highlight **Server IP**.
6. Use  to move cursor within and between the octets.
7.  can also be used to move cursor between the octets.
8. Press  or  to delete at cursor location.
9. Use the  arrows or numeric keypad to enter new values.

TAdmin – Server Port




1. Press  to highlight **Server Port**.
2. Use  to delete field and use the numeric keypad to enter new value.

TAdmin – Local Port

1. Press  to highlight **Local Port**.
2. Use  to delete field and use the numeric keypad to enter new value.






TAdmin – Mode



There are two Mode options available, Online or ONOFF. Online Mode will attempt to transmit transactions to the host as they occur. If they fail, they are not stored. ONOFF Mode will store the transactions until it successfully transmits them to the host.

1. Press  to highlight Mode.
2. Use the   arrow keys to choose mode from ONLINE or ONOFF.

TAdmin – DUN (Dial Up Network) Connection

TAdmin DUN Connection provides a link to a list of alias connection settings that have been assigned under the Dial Up Network Setup section.

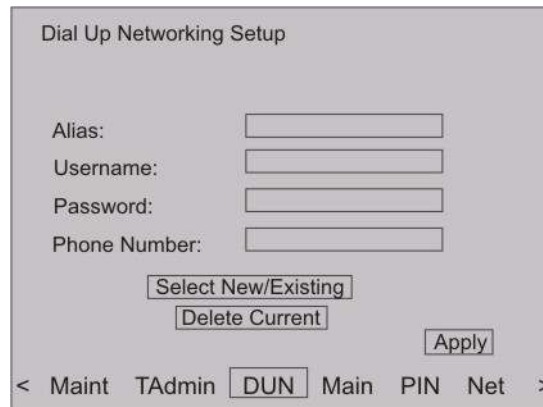
1. Press  to highlight DUN Connection.
2. Press  to choose from the list of DUN connections.
3. Press  to return to TAdmin setup with no changes.
4. Press  or  again to choose DUN connection.

Press  to highlight and press  to save settings.

Press  to return to Main Menu.





DIAL UP NETWORK SETUP

Creates a DUN parameter set under an Alias name to be used with TAdmin.




1. Press **TAB** to advance to **Select New/Existing**
2. Press **SEL** to access DUN aliases
3. Use the  arrow key and **SEL** to edit an existing DUN Alias or to create a NEW DUN.


Note: Step 3 will return to the Dial Up Networking Setup screen pictured above.

4. To delete use the **TAB** to advance to **Delete Current** and press **SEL** to delete the current DUN Alias displayed.
5. Otherwise, the **Alias** field is highlighted and ready to edit.
6. Use **BS** or **DEL** to edit the field as needed and the numeric keypad to enter new value.
7. Press **TAB** to highlight **Username** field.
8. Use **BS** or **DEL** to edit the field as needed and the   arrow keys to insert alpha and special characters.
9. Press **TAB** to highlight **Password** field.
10. Use **BS** or **DEL** to edit the field as needed and the   arrow keys to insert alpha and special characters.

11. Press  to highlight **Phone Number** field.

12. Use  or  to edit the field as needed and the numeric keypad to enter new value.

Press  to advance to and highlight and press  to save settings.

Press  to return to Main Menu.

Note: Modem parameter configuration can be found in the Genus API Documentation.

Genus™ WiFi Module Installation

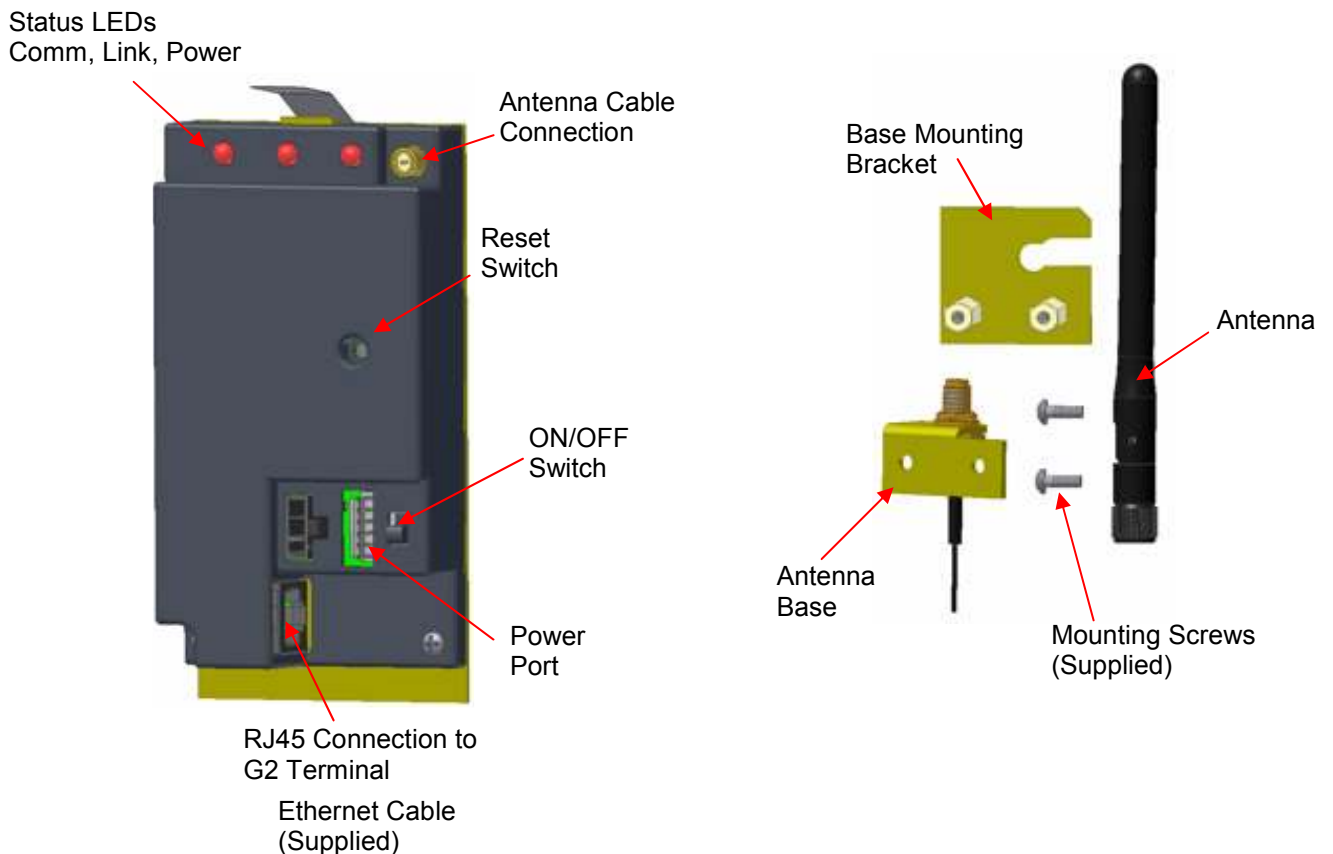
Introduction

The 3046 WiFi Module provides wireless network connectivity for the CMI Genus™ series terminals. The WiFi Module functions as an Ethernet to Wireless LAN bridge and connects to the Genus™ terminal's RJ-45 Ethernet port. The WiFi Module will provide a seamless connection to an 802.11b compliant Access Point (AP) that is within range. This WiFi Module is compliant with the IEEE 802.11b standard and provides security and encryption functions for a secure and reliable network.

This document describes the Genus™ WiFi installation and setup. It also provides troubleshooting information and a Code 39 barcode table to assist in the setup of the Module using a digital barcode wand. This provides easy access to special characters that are not available on the Genus™ terminal keypad, but may be required for SSID, WEP Keys, and other security parameters.

Please note that the WiFi Module may be referred to as “Module” within this document.

Genus™ WiFi Module



Hardware Installation

Antenna and bracket assembly to the G2 Base

The antenna assembly is mounted directly to the G2 Base.

- Make sure the knockout for the antenna has been removed from the base.
- Loosen the top right base screw to fit this bracket.
- The Mounting Bracket (Figure 1) slides under the base screw at the top right corner.
- Re-tighten the base mounting screw.
- The Antenna (Figure 2) can be tightened down to the Antenna Base (Figure 3).

Note: The Antenna Nut should be tightened enough so that when the antenna is rotated the nut does not loosen.

- The Antenna portion of the assembly fits through the knockout at the top of the base.
- Two supplied screws secure the antenna assembly to the base mounting bracket.

Antenna Knockout
Position - Top of base

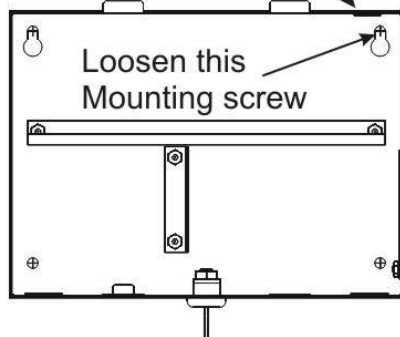


Figure 1
Base mounting Bracket

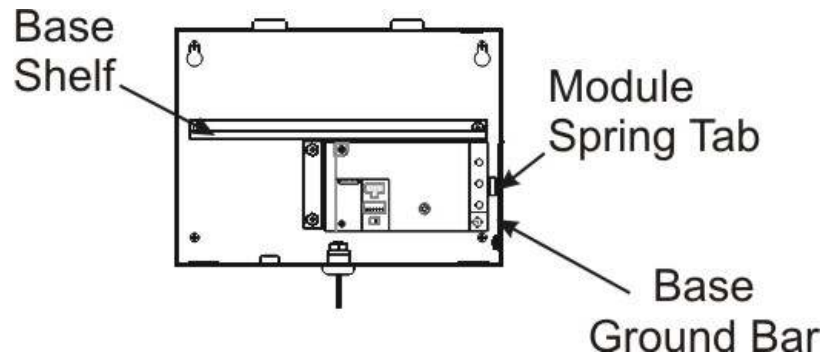


Figure 2
Antenna

Figure 3
Antenna Base

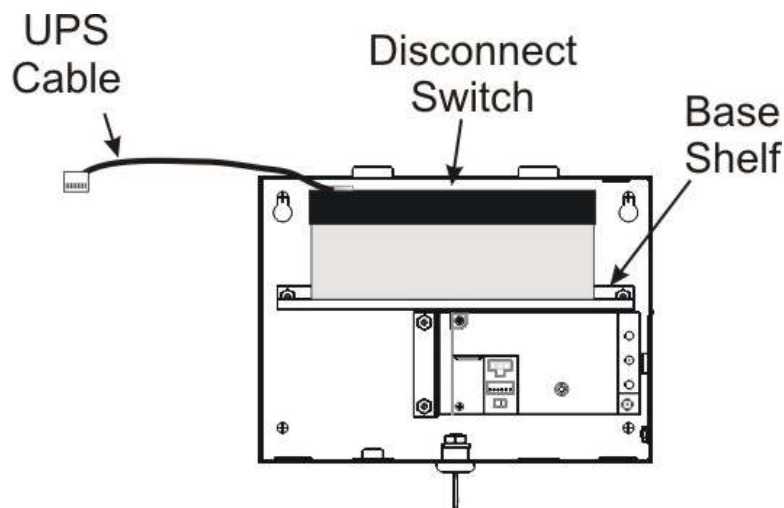
Adding the WiFi Module

- The 3046 WiFi Module has a spring tab that must make contact with the ground bar at the inside right of the base.
- Press the 3046 WiFi Module into the base until it snaps securely in place.



Adding the UPS (Option)

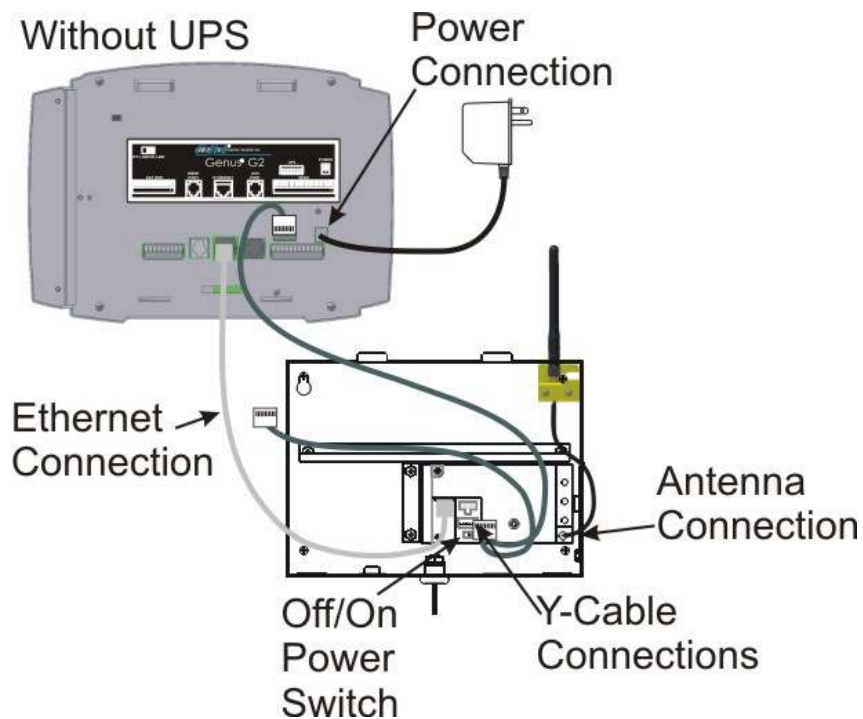
- Momentarily depress the disconnect switch on the 2050 UPS, to ensure the battery is disconnected.
- Remove the cable that is shipped attached to the UPS.
- Use the Y-Cable, supplied with the WiFi Module, and attach one 6-pin connector end to the UPS where the UPS cable has been removed.
- The 2050 UPS rests on the base shelf in the G2 Terminal base.



G2 WiFi Connections – Without UPS

- Ensure the WiFi Module Power Switch is off.
- Connect Antenna cable to WiFi Module, secure onto the Module.
- Connect Ethernet cable from WiFi Module to the Ethernet port on the G2 Terminal.
- G2 Y-Cable connection for power.
 - Connect one end of the 6-pin Y-Cable to the WiFi Module and the 7-pin connector end to the G2 Terminal.
 - The remaining Y-Cable connection will not be used and can be tucked into the base with the wiring.

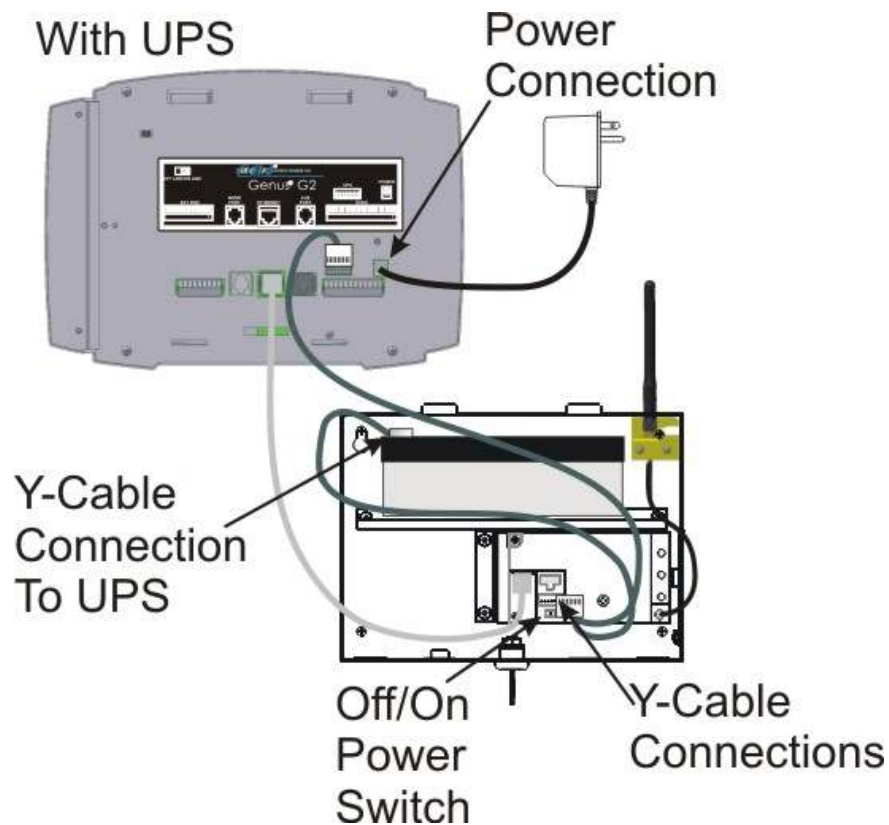
Note: To make these connections, the Y-Cable and the Ethernet cable are shipped with the WiFi Module.



G2 WiFi with UPS Connections

- Ensure the WiFi Module Power Switch is off.
- Connect Antenna cable to WiFi Module, secure onto the Module
- Connect Ethernet cable from WiFi Module to the Ethernet port on the G2 Terminal.
- G2 Y-Cable connection for power.
 - Ensure the UPS disconnect switch has been pressed.
 - Connect the remaining 6-pin connector end of the Y-Cable to the “UPS G2” connection on the WiFi Module and the 7-pin connector end to the “UPS” connection on the G2 Terminal.

Note: New UPS Modules may be shipped less than fully charged. Depending on the degree of charge, the G2 2300 mAh UPS may require power for up to 12 hours to obtain full charge.



Genus™ WiFi Configuration/Setup

WiFi Module

The WiFi Modules are shipped with DHCP disabled, and all security modes turned off. If the Module successfully associates with an access point, the Link and Power LEDs will be green. If the Module is unable to associate with an access point, the Link LED will blink red and the Power LED will be green in color.

WiFi Module - Fallback

If DHCP is enabled and the WiFi Module has been powered up for 60 seconds without being able to associate with an access point, the Module will fallback to the following settings:

IP address:	192.168.0.68
Subnet Mask:	255.255.255.0
Gateway IP:	0.0.0.0

When the Module reaches the 60 second timeout, it will revert back to the fallback settings. The Power LED will change from amber to green and the Link LED will continue to blink red.

Genus™ Terminal

The Genus™ terminal must also have a valid IP address (Terminal DHCP turned off) in which the first three octets are 192.168.0.XXX, otherwise the Terminal will not be able to communicate with the WiFi Module installed.

DHCP and WiFi Module setup

Upon entering setup mode the user is given the option to enable (select check box) or disable DHCP for the WiFi Module. If DHCP is disabled, the Terminal will prompt the user to enter network settings for the Module. These settings are stored by the Terminal allowing it to be able to go back into setup again as needed. If DHCP is enabled, and the Module is assigned an IP address by the DHCP server, the Terminal will not know the Module's IP setting and will not be able to go into setup.

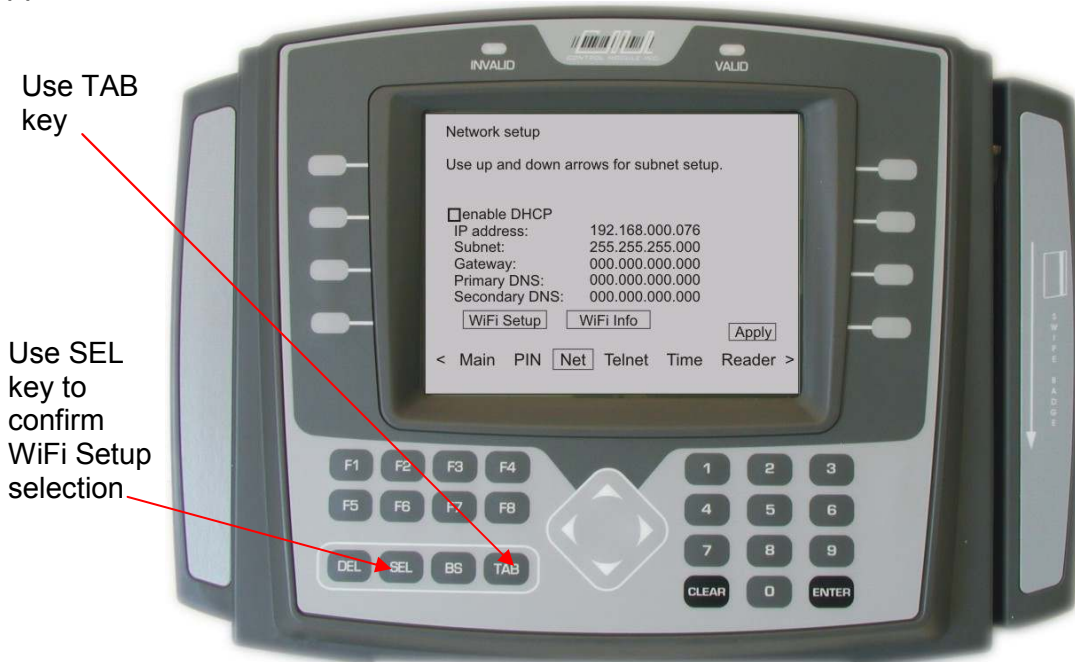
However, the need to go back into setup once the Module associates with an access point and is running is unlikely. If there is a need to go into setup, the access point would have to be powered down or the Terminal would have to be moved out of range. After 60 seconds, the WiFi Module will revert back to its fallback settings and the user will be able to go into setup.

Genus™ G2 Initial Setup screen

When Genus™ powers up it displays its power up sequence of screens and arrives at the following Terminal Information screen on the G2 Terminal.



Use the **right** arrow key to advance and highlight Net. The following Network setup screen will appear.



Use **TAB** to advance through the network setup fields until 'WiFi Setup' is highlighted. Then press **SEL** to get to WiFi Network Setup screen.

WiFi Information

The WiFi information is also available from the initial 'Network Setup' display. WiFi information provides a resource for firmware and version releases and Link connectivity status.

Use **TAB** to advance to and highlight 'WiFi Info'. Then press **SEL** to view the current information.



WiFi Link Status

Depending on the connectivity of the WiFi module and the network, the Link status will provide messages indicating the current status of the connection. These messages are as follows:

- Association Incomp.
- Connected
- Disconnected
- AP Change
- AP out of range
- AP in range
- Association failed


Refer to the *WiFi LED Descriptions* in this section for further information on Link status as associated with the WiFi Module LED colors.


WiFi Network Setup

After 'WiFi Setup' has been selected from the Network setup screen the G2 Terminal will arrive at the WiFi Network Setup.

Active keys: Once entered into the WiFi Network Setup additional keys become active on the G2 Terminal to assist with the parameter changes.

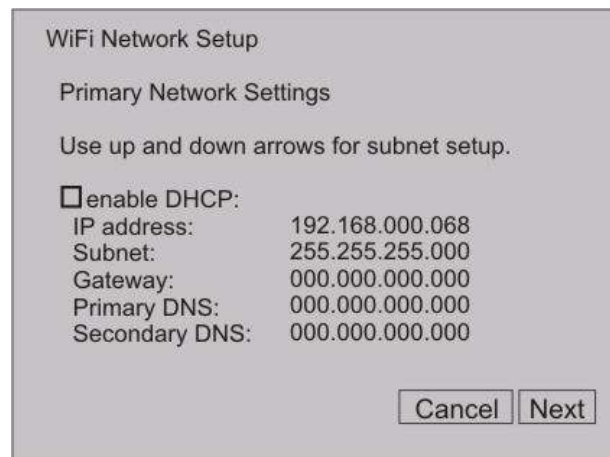
Select (SEL)	Enables or disables the DHCP checkbox
Left and Right Arrows	Position cursor within parameters
Tab	Advances through all parameters displayed
Delete (DEL) and Backspace (BS)	Edit at cursor location
UP and Down Arrows	Scroll through available options, alphanumeric characters and subnet mask octets at parameter locations
Clear	Suspends entry and returns to terminal network settings
Select (SEL) and Enter	Accept CANCEL once highlighted to return to terminal network settings
Select (SEL) and Enter	Accept NEXT once highlighted to advance to the next screen
Select (SEL) and Enter	Accept APPLY once highlighted to save the changed parameters to the WiFi Module, (this appears on the security settings screen)

Enable DHCP: Use  to *check enable* or *uncheck* to **disable** DHCP.

Use  to advance through the network settings.

WiFi Primary Network Settings are standard network parameters that follow the enable DHCP prompt on the WiFi Network Setup screen.

Primary Network Settings;
 IP:
 Subnet Mask:
 Gateway IP:
 Primary DNS:
 Secondary DNS:



WiFi Network Setup

Primary Network Settings

Use up and down arrows for subnet setup.

enable DHCP:

IP address: 192.168.000.068
 Subnet: 255.255.255.000
 Gateway: 000.000.000.000
 Primary DNS: 000.000.000.000
 Secondary DNS: 000.000.000.000

Cancel Next

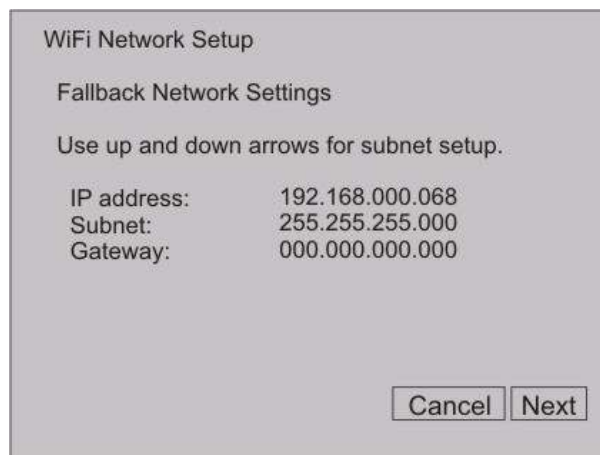
WiFi Module Fallback Settings

Fallback mode can occur when the WiFi module is unable to associate with an access point after 60 seconds. The Terminal recognizes these settings and will allow a setup session. The LEDs on the Module revert to the Power LED changing from amber to green and the Link LED will continue to blink red.

Fallback IP Default is: 192.168.000.068.

Fallback Subnet Default is: 255.255.255.0.

Fallback Gateway Default is: 000.000.000.000.



WiFi Network Setup

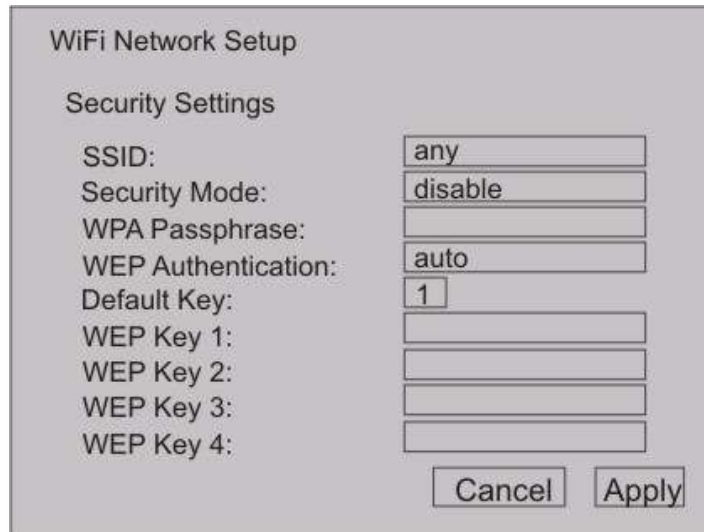
Fallback Network Settings

Use up and down arrows for subnet setup.

IP address:	192.168.000.068
Subnet:	255.255.255.000
Gateway:	000.000.000.000

WiFi Module Security Settings

The WiFi Module provides security setting options, with the default set to disabled. Each security field is available to enter settings as needed depending on the security chosen. Security options are wep64, wep128, and wpa-psk.



The screenshot shows a dialog box titled "WiFi Network Setup" with a "Security Settings" section. The settings are as follows:

SSID:	any
Security Mode:	disable
WPA Passphrase:	
WEP Authentication:	auto
Default Key:	1
WEP Key 1:	
WEP Key 2:	
WEP Key 3:	
WEP Key 4:	

At the bottom right of the dialog box are "Cancel" and "Apply" buttons.

SSID: The default value for the SSID is “any”. The SSID can be up to 31 characters. This controls which AP the Module connects to. If using a digital wand, refer to the Code 39 Programming Table in this document.

Security Mode: Scroll through the security wep64, wep128, wpa-psk and disable options.

WPA-PSK refers to Pre-Shared Key used in Authentication. This is a shared key between the station and the access point (AP) and is entered as a passphrase.

WPA-PSK passphrase Input is 8 to 63 ASCII characters or 64 hex characters and cannot contain spaces. The passphrase must match the passphrase on the AP.

If using a digital wand, refer to the *Code 39 Programming Table* in this document.

Note: If too few characters are entered for Passphrase or WEPkeys the terminal will beep in error.

WEP64 refers to 64-bit key length assigned to the WiFi Module that must match the access point on the network.

The **WEP Authentication** type can be configured for auto, open or shared. **Auto** is the default setting and will automatically detect the authentication. **Open** authenticates using open Key algorithm, and will communicate the key across the network. **Shared** authenticates using Shared Key algorithm, and will allow communication only with devices with identical WEP settings.

The **Default Key** option must match the key index configured on the Access Point. The options are 1, 2, 3, 4, with the default set as 1.

WEP Keys, there are four WEP Key input areas to add the ASCII HEX values. These correspond to the number as chosen through the Default Key above.

WEP 64 requires 10 hex digits that are entered in WEP Key areas 1-4. Acceptable characters include only 0-9, and A-F, in upper case.

If using a digital wand refer to the *Code 39 Programming Table* in this document.

WEP128 refers to 128-bit key length assigned to the WiFi Module that must match the access point on the network.

Wep128 works the same as wep64 described above with a requirement of 26 ASCII HEX digits that are entered in WEP Key areas 1-4.

Troubleshooting Genus™ WiFi Issues

Issue	Resolution
The WiFi Module cannot find the Access Point.	Verify that the Link LED is solid green. If it isn't, refer to "LED Troubleshooting" table.
The AP (Access Point) cannot find the WiFi Module.	Click the Refresh button in your Access Point's configuration application. If the problem remains, check the WiFi Module's physical connections. Then power-down the WiFi Module, power it up, and check the LED status. The "WiFi LED Description" table defines the various LED status indications. Make sure that there is not another AP in the area that may be interfering with your AP. If the problem remains, contact CMI.
The WiFi Module cannot associate with an Access Point.	Change the location of the WiFi Module to improve reception. If that does not help, go into the WiFi configuration and be sure the SSID matches that of the Access Point (remember the SSID is case sensitive). Also verify that the security settings such as WEP keys or WPA PASSPHRASE match the AP exactly.
The Genus™ terminal cannot access the WiFi Module for setup purposes	Most likely the Terminal does not know what the IP address of the WiFi Module is. This will happen if the Module is set for DHCP and the Module obtains an IP from the server. The Terminal will be able to access the Module by using the WiFi Module's fallback IP address. The WiFi Module will revert back to the fallback Ethernet settings after 60 seconds if it is moved out of range of the AP or if the AP is powered down. Fallback mode is indicated when the Power LED changes from amber to green and the Link LED is blinking red. Default fallback Ethernet settings IP address: 192.168.0.68 Subnet Mask: 255.255.255.0 Gateway IP: 0.0.0.0 DHCP must be turned off in the Genus™ terminal and fixed address settings entered that match the above values. The first three octets of the Terminal must match the address above. The last octet must be something other than 68.
The Genus™ terminal still cannot access the WiFi Module after "fallback" has occurred.	The fallback Ethernet settings have been changed to something other than the default values. The default values can be restored to the WiFi Module by turning the Module on while holding the reset button momentarily. All user changed values will be defaulted.

Indicator LED Troubleshooting Table

If the...	Perform These Tasks...
Power LED does not turn On .	Check power connector is properly inserted.
Power LED turns Red .	Remove power and re-apply. If the Power LED remains Red, contact CMI.
Power LED is Amber .	<p>WiFi Module has not established an IP address either through DHCP or Static methods.</p> <p>If DHCP is enabled your network must have a DHCP server available when the WiFi Module is powered-up. Most AP/Routers have a DHCP server built-in.</p> <p>Enable your DHCP server and re-start the Module.</p>
Link LED continues to Blink Red .	<p>WiFi Module has not found an Access Point with which to associate. Be sure the Access Point you want to use is turned on and has WEP disabled (you can enable WEP after the WiFi Module has been configured).</p> <p>If this does not help, be sure there are no nearby devices causing interference. If there are, either turn off or move the device causing the interference or move the WiFi Module and Access Point to another location.</p>
Comm LED is Off or Amber .	Be sure the Genus™ terminal is connected to the WiFi Module and that the device is turned on.
Comm LED is Red and Link LED is Green but you are unable to pass data.	Check the Ethernet settings of the Genus™ terminal. Except for the last octet of the IP address, all settings should match those of the WiFi Module. If the Terminal is set for DHCP, your network must have a DHCP server available when the Genus™ Terminal is powered-up.

WiFi LED Description

LED	LED Color	Function
Comm	Off	No power, or no wireless TCP session is established and no Ethernet physical connection is detected.
	Red	No wireless TCP session is established; an Ethernet physical connection is detected.
	Blinking Red	An Ethernet physical connection was detected and there is Ethernet traffic present on that connection, but no wireless TCP session is established.
	Amber	A wireless TCP connection is established but no physical Ethernet connection is detected (i.e., no Ethernet cable is attached to the Module).
	Blinking Amber	A wireless TCP session is established, a physical Ethernet connection is detected, and the Module is transmitting or receiving data across the wired Ethernet port.
	Green	A wireless TCP session is established, a physical Ethernet connection is detected, but there is no active data movement across the wired Ethernet port.
Link	Off	Module is not receiving power.
	Blinking Red	Module is searching for an Access Point.
	Green	Wireless network and MAC have associated with an Access Point.
Power	Off	Module is not receiving power.
	Red	Module failed its Power On Self Test (POST) and is not configured for wireless communication.
	Amber	Module passed its POST but is not configured for wireless communication.
	Green	Module passed its POST and is configured for wireless communication.

Troubleshooting Terminal Issues

Terminal Issue	Possible Causes	Resolution
Terminal does not power on	No Power to the terminal.	Verify power cable is connected to terminal. If a UPS is included verify power is connected to the UPS and the power cable from the UPS is connected to the Terminal.
Loader screen does not show; only the copyright screen then it goes blank	Loader is missing or has become corrupt.	Refer to the <i>Service and Technical Support</i> section in this document.
Default loads all the time after Loader	Genus executable has become corrupt or needs to be programmed.	Reload Genus to the terminal. Refer to <i>Steps to Re-Program Genus Firmware</i> section in this document.
Terminal stops at “Initializing network”	Terminal is searching for DHCP and/or Network connection is not available.	Wait at least 3 minutes. Make sure your network cable and switch are connected and working properly.
Terminal shows “Serial Loader Mode”	Terminal does not have a usable copy of Genus or Default.	Refer to the <i>Service and Technical Support</i> section in this document.
Terminal shows “Error opening Classes.jar”	Terminal does not have the Classes (or API) loaded.	Reload Classes to the terminal. Refer to <i>Steps to Re-Program Genus Firmware</i> section in this document.
Terminal shows “Error opening App.jar”	Terminal does not have an application loaded.	Load Application to the terminal. Refer to <i>Loading a Customer Defined Java Application</i> section of in this document.

Terminal Issue	Possible Causes	Resolution
Terminal shows “Error initializing RAM File System”	The SRAM on the memory board could be failing.	Refer to the <i>Service and Technical Support</i> section in this document.
Terminal shows “Error initializing RTC”	The Real Time Clock is not functioning.	Refer to the <i>Service and Technical Support</i> section in this document.

Reference

Steps to Re-Program Genus™ Firmware:

In the event an update becomes available for the Genus terminal, the firmware can be updated in the field.

The following items are required to re-program Genus firmware:

- Genus terminal to be programmed, connected to the network
- the IP address of the Genus terminal
- computer / laptop connected to the network and able to PING the data terminal
- Genus firmware

Genus (“System”) file update:

The Genus terminal application makes use of CMI Java classes and interfaces in the CMI Genus API.

```
tftp -i PUT <ip address> Genus \flashdisk\Genus
```

(Note: Genus file name may be versioned (e.g. g2_3_3_12))

Classes (API) update:

The classes file is specific to your terminal type (G1 or G2). Check the release notes or other documentation provided with the updated files to confirm the name of Classes.jar (may be G1.jar or G11.jar).

```
tftp -i PUT <ip address> Classes.jar \flashdisk\Classes.jar
```

**Note: The terminal will reboot after replacing the Genus or Classes files
Wait until the terminal reboots before sending additional files.**

Confirming Updates:

To confirm that the Genus and/or Classes update(s) took place, follow the steps below:

- 1) Place the terminal in Offline mode
- 2) Locate the “Terminal Information” screen
- 3) Check “API:” to find Classes version.
- 4) Scroll to “Program Version:” to locate Genus Version.

Loading A Customer Defined Java Application

This application runs on the terminal and handles both a user interface and any backend processing or communication. This is created by the user of the terminal, a value added Reseller, or CMI.

```
tftp -i PUT <ip address> <myapp.jar> \flashdisk\App.jar
```































































where <myapp.jar> is the local name of the user created Java application.









Important Note: The terminal will reboot after sending the file above.

See the Genus Software Development Kit (SDK) for more information on creating terminal applications.

Programming Table (Code 39)

This table provides Code 39 barcode access to special characters that are not available on the Genus™ terminal keypad. By using a digital barcode wand, these individual characters can be entered into the network setup parameters prompted by the Terminal.

 0	 1	 2	 3	 4
 5	 6	 7	 8	 9
 A	 B	 C	 D	 E
 F	 G	 H	 I	 J
 K	 L	 M	 N	 O
 P	 Q	 R	 S	 T
 U	 V	 W	 X	 Y
 Z				
 a	 b	 c	 d	 e
 f	 g	 h	 i	 j
 k	 l	 m	 n	 o
 p	 q	 r	 s	 t
 u	 v	 w	 x	 y
 z				

Service & Technical Support

If you are an End User that has been working with one of our Value Added Resellers, please call your VAR as the first point of contact prior to calling direct to CMI's Service Department.

PLEASE HAVE THE FOLLOWING INFORMATION AVAILABLE WHEN CALLING SERVICE.

Customer Number:		Phone #
Customer P.O.#		Fax #
Contact:		E-mail:
Company:		
Address:		
City/State/Zip		
Ship To:		
Model #	Serial #	Quantity:
Problem		

Several Time & Material plans are available to choose from and will be explained by a CMI Representative when you call in for service.

Our Service numbers: 1-800-527-4998, CT customers please use 1-860-741-2830
 Our Technical Support Number: 888-753-8222
 Hours of Operation: M-F, 8:00 A.M. – 4:30 P.M. EST excluding holidays