



QUICK START GUIDE

SIEMENS A80485-1 GCP DISPLAY MODULE CONFIGURATION AND OPERATION

DECEMBER 2017 (REVISED JANUARY 2019)

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DOCUMENT HISTORY

Version	Release Date	Sections Changed	Details of Change
A	DEC 2017	- - - -	Initial Release
A.1	DEC 2018	Section 2.1	Added note after Figure 2-1 indicating when the SEAR menu would appear grayed out.

Table of Contents

Section	Title	Page
	PROPRIETARY INFORMATION	ii
	TRANSLATIONS.....	ii
	WARRANTY INFORMATION	ii
	SALES AND SERVICE LOCATIONS	ii
	FCC RULES COMPLIANCE	ii
	DOCUMENT HISTORY	iii
	NOTES, CAUTIONS, AND WARNINGS.....	vi
	ELECTROSTATIC DISCHARGE (ESD) PRECAUTIONS.....	vii
	GLOSSARY	viii
	SECTION 1 - INTRODUCTION	1-1
1.0	INTRODUCTION.....	1-1
1.1	GCP DISPLAY MODULE	1-1
1.1.1	GCP Display Module Controls, Indicators, Connectors, and Display.....	1-2
1.2	RESOURCE DOCUMENTS.....	1-4
	SECTION 2 - CONFIGURATION.....	1-1
2.0	CONFIGURATION	2-1
2.1	DISPLAY MODULE MAIN SCREENS	2-1
2.2	KEYPAD/NAVIGATION CLUSTER.....	2-2
2.2.1	Keypad and Navigation Cluster Operation	2-3
2.3	SERIAL PORT	2-3
2.3.1	Configuring the Serial Port.....	2-4
2.4	ETHERNET PORTS.....	2-5
2.4.1	Ethernet Port Configuration	2-5
2.4.1.1	Server Mode	2-5
2.4.1.2	Client Mode.....	2-5
2.4.1.3	Disabled Mode	2-6
2.4.1.4	Laptop Ethernet Port Setup	2-6
2.4.1.5	Ethernet Ports 1 and 2 Setup (GCP3000+ and GCP5000 only)	2-8
2.4.1.6	DNS (Domain Name System) Setup	2-9
2.4.1.7	Ethernet Port Status	2-9
2.4.2	Display Options Settings.....	2-10
	SECTION 3 - OPERATION.....	2-1
3.0	OPERATION	3-1
3.1	DISPLAY MODULE LAPTOP INTERFACE	3-1
3.1.1	Display Module to Laptop Connection.....	3-1

3.2	USB OPERATION	3-2
3.2.1	USB Drive File Structure.....	3-2
3.2.2	USB Menu	3-3
3.2.3	USB Detection	3-3
3.2.4	USB Menu	3-4
3.3	MODULE SOFTWARE UPDATES.....	3-5
3.4	DISPLAY MODULE POWERED ETHERNET PORT.....	3-5
3.4.1	Display Module to Ethernet 1 Port Power-Over-Ethernet (POE) Device Connection .	3-6
3.5	ETHERNET NETWORK CONNECTION	3-7

List of Figures

Section	Title	Page
Figure 1-1	A80485 Siemens Display Module.....	1-1
Figure 1-2	A80485 GCP Display Module Controls, Indicators, and Display.....	1-2
Figure 2-1	GCP4000 and GCP5000 Main Screens.....	2-1
Figure 2-2	GCP3000+ Main Screens.....	2-2
Figure 2-3	Keypad, and Navigation Cluster Keys.....	2-2
Figure 2-4	Keypad Operation.....	2-3
Figure 2-5	Navigation Key Cluster	2-3
Figure 2-6	Configuring the Serial Port 1	2-4
Figure 2-7	Configuring the Serial Port 2	2-4
Figure 2-8	Laptop Ethernet Port Setup	2-6
Figure 2-9	DHCP Configuration	2-7
Figure 2-10	IP Address	2-7
Figure 2-11	Ethernet Port Setup	2-8
Figure 2-12	Display DNS	2-9
Figure 2-13	Ethernet Port Status	2-9
Figure 3-1	Display Module to Laptop Connection.....	3-1
Figure 3-2	Inserting a USB Drive	3-3
Figure 3-3	USB Detected Screen	3-3
Figure 3-4	USB Menu Screens GCP4000 and GCP5000	3-4
Figure 3-5	USB Menu Screens GCP3000+	3-4
Figure 3-6	Display Module to GCP Module Serial Cable Connection	3-5
Figure 3-7	Display Module to Ethernet Power-Over-Ethernet Device Connection.....	3-6
Figure 3-8	Display Module to Ethernet Network Connection.....	3-7

List of Tables

Section	Title	Page
Table 1-1	Display Module Controls, Indicators, Connectors, and Display Descriptions.....	1-3
Table 1-2	Resource Documents	1-4

NOTES, CAUTIONS, AND WARNINGS

Throughout this manual, notes, cautions, and warnings are frequently used to direct the reader's attention to specific information. Use of the three terms is defined as follows:

WARNING

WARNING

INDICATES A POTENTIALLY HAZARDOUS SITUATION WHICH, IF NOT AVOIDED, COULD RESULT IN DEATH OR SERIOUS INJURY. WARNINGS ALWAYS TAKE PRECEDENCE OVER NOTES, CAUTIONS, AND ALL OTHER INFORMATION.

CAUTION

CAUTION

REFERS TO PROPER PROCEDURES OR PRACTICES WHICH IF NOT STRICTLY OBSERVED, COULD RESULT IN A POTENTIALLY HAZARDOUS SITUATION AND/OR POSSIBLE DAMAGE TO EQUIPMENT. CAUTIONS TAKE PRECEDENCE OVER NOTES AND ALL OTHER INFORMATION, EXCEPT WARNINGS.

NOTE

NOTE

Generally used to highlight certain information relating to the topic under discussion.

If there are any questions, contact Siemens Mobility, Inc. Application Engineering.

ELECTROSTATIC DISCHARGE (ESD) PRECAUTIONS

Static electricity can damage electronic circuitry, particularly low voltage components such as the integrated circuits commonly used throughout the electronics industry. Therefore, procedures have been adopted industry-wide which make it possible to avoid the sometimes invisible damage caused by electrostatic discharge (ESD) during the handling, shipping, and storage of electronic modules and components. Siemens Mobility, Inc. has instituted these practices at its manufacturing facility and encourages its customers to adopt them as well to lessen the likelihood of equipment damage in the field due to ESD. Some of the basic protective practices include the following:

- Ground yourself before touching card cages, assemblies, modules, or components.
- Remove power from card cages and assemblies before removing or installing modules.
- Remove circuit boards (modules) from card cages by the ejector lever only. If an ejector lever is not provided, grasp the edge of the circuit board but avoid touching circuit traces or components.
- Handle circuit boards by the edges only.
- Never physically touch circuit board or connector contact fingers or allow these fingers to come in contact with an insulator (e.g., plastic, rubber, etc.).
- When not in use, place circuit boards in approved static-shielding bags, contact fingers first. Remove circuit boards from static-shielding bags by grasping the ejector lever or the edge of the board only. Each bag should include a caution label on the outside indicating static-sensitive contents.
- Cover workbench surfaces used for repair of electronic equipment with static dissipative workbench matting.
- Use integrated circuit extractor/insertor tools designed to remove and install electrostatic-sensitive integrated circuit devices such as PROM's (OK Industries, Inc., Model EX-2 Extractor and Model MOS-40 Insertor (or equivalent) are highly recommended).
- Utilize only anti-static cushioning material in equipment shipping and storage containers.

For information concerning ESD material applications, please contact the Technical Support Staff at 1-800-793-7233. ESD Awareness Classes and additional ESD product information are also available through the Technical Support Staff.

GLOSSARY

TERM	DESCRIPTION
AAR:	Association of American Railroads – An organization that establishes uniformity and standardization among different railroad systems.
AREMA:	American Railway Engineering and Maintenance-of-way Association
DIAG.:	Diagnostic
DNS:	Domain Name Server
GCP:	Grade Crossing Predictor – A train detection device used as part of a highway-railroad grade crossing warning system to provide a relatively uniform warning time.
GPS:	Global Positioning System.
IP:	Internet Protocol - ISO Model Layer 3 (network) protocol that performs proper routing of packets.
LAN:	Local Area Network – A limited network where the data transfer medium is generally wires or cable.
LED:	Light-Emitting-Diode - A solid-state indicator.
Module:	Physical package including PCBs and input/output terminals for connecting to external devices and equipment.
RJ-45:	Industry standard Ethernet port
RS232:	Industry standard serial port.
RX:	Receive
RXD:	Receive Data
TX:	Transmit
TXD:	Transmit Data
USB Port:	Universal Serial Bus Port
USB Drive:	Types of memory devices that plug into a USB port. These devices are commonly called flash drives or memory sticks.

SECTION 1 - INTRODUCTION

1.0 INTRODUCTION

The purpose of this quick start guide is to introduce GCP Users to the Siemens Next-Generation Display module, A80485-1, used on the GCP 3000+, GCP 4000, and GCP 5000. The scope of this guide encompasses the location and operation of the display controls, indicators, and connectors as well as addressing the initial user-configurable port parameters to enable connection to external devices, such as a laptop, external network, or Ethernet powered devices.

1.1 GCP DISPLAY MODULE

The Siemens A80485-1 Display Module is the next generation display module replacing the A80407 Display Module, offering enhanced features and improved speed and responsiveness. A restructured menu reduces programming and maintenance time in the field. The addition of two Ethernet ports offers connectivity to a network or Ethernet devices. A powered Ethernet port is available for devices deriving their power from an Ethernet connection. The Laptop port enables the user to connect a laptop computer to the display to configure parameters, update software, and download logs. The display screen and keypad provide a local user interface, allowing operation without the need of a computer.



Figure 1-1 A80485 Siemens Display Module

1.1.1 GCP Display Module Controls, Indicators, Connectors, and Display

The GCP Display module controls, indicators, connectors, and display are shown in Figure 1-2 and described in Table 1-1.

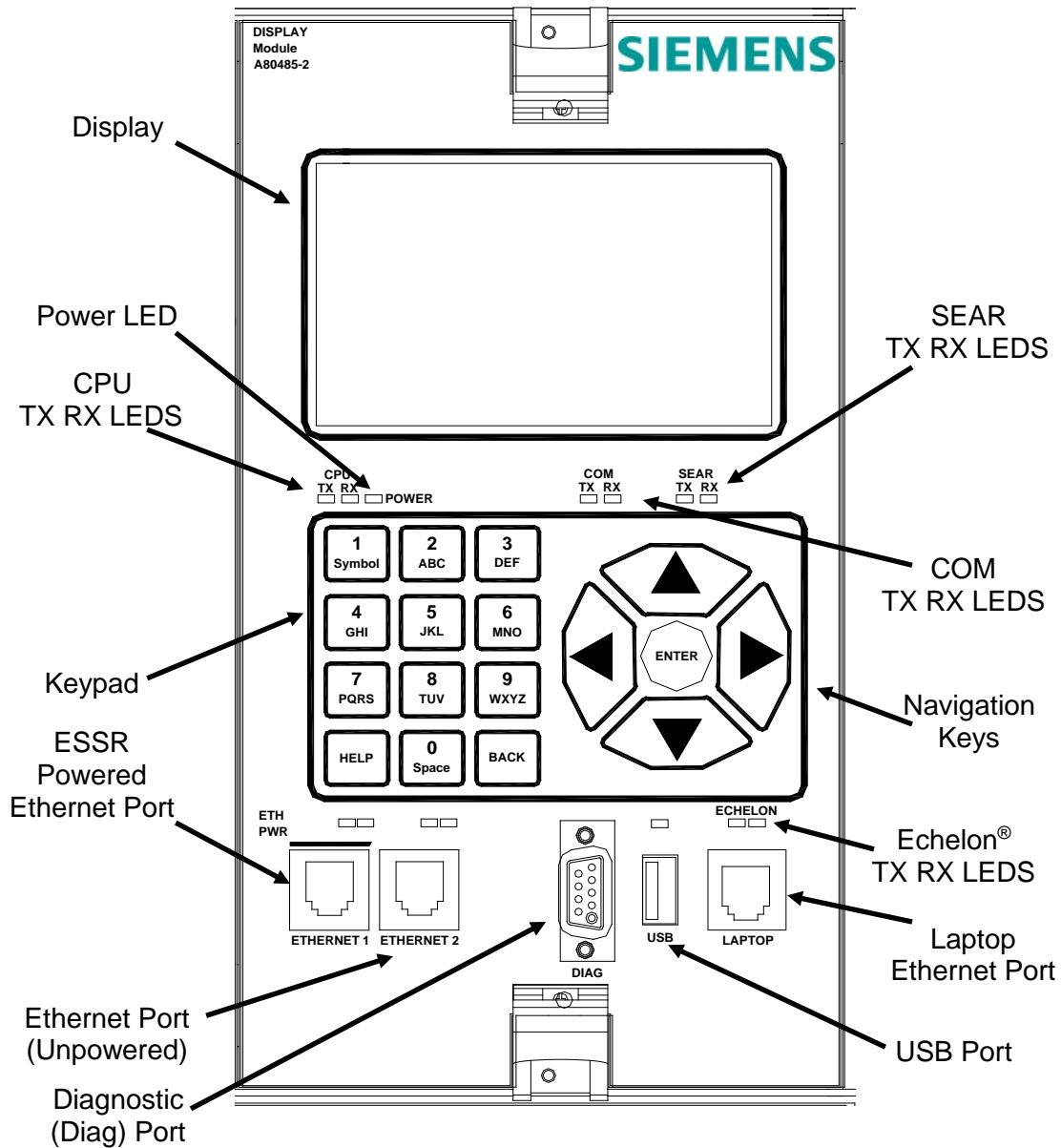


Figure 1-2 A80485 GCP Display Module Controls, Indicators, and Display

Table 1-1 Display Module Controls, Indicators, Connectors, and Display Descriptions

ITEM	DESCRIPTION
DISPLAY	2 ½ x 4 inch OLED Color Display
CONTROLS	
Keypad	12-key membrane keypad
Navigation	5-key membrane navigational cluster
INDICATORS	
Power	LED (Green)
CPU TX/RX	CPU data stream indicators TX LED (Green) RX LED (Yellow)
COM TX/RX	Communications data stream indicators TX LED (Green) RX LED (Yellow)
SEAR TX/RX	SEAR data stream indicators TX LED (Green) RX LED (Yellow)
Echelon® LAN	Echelon® LAN data indicators TX LED (Green) RX LED (Yellow)
Ethernet 1 (powered) ¹	Ethernet Power indicator LED (Green) Ethernet 1 data indicators (embedded in connector) Data:TX LED (Green) RX LED (Yellow)
Ethernet 2 ¹	Ethernet 2 data indicators (embedded in connector) TX LED (Green) RX LED (Yellow)
CONNECTORS	
Ethernet 1 ¹	RJ-45 powered connector (See note)
Ethernet 2 ¹	RJ-45 connector
Diag (Diagnostics)	DB-9, Female Serial connector, RS-232
USB	USB 2.0 Type A connector
Laptop	RJ-45 connector

¹ Ethernet 1 and Ethernet 2 ports are not available on the GCP 4000, therefore these ports on the Display module are not useable.

NOTE**NOTE**

The Ethernet 1 powered connector is designed specifically for Siemens Ethernet Spread Spectrum Radios and may not power other Power-Over-Ethernet (POE) devices.

1.2 RESOURCE DOCUMENTS

The GCP manuals and guidelines listed in Table 1-2 will provide complete and detailed information for the configuration and operation of your GCP unit. This quick start guide is a supplemental document to be used in concert with the product manuals listed in Table 1-2.

Table 1-2 Resource Documents

DOCUMENT NUMBER	TITLE
SIG-00-17-03	GCP 3000+ Installation & Instruction
SIG-00-17-04	GCP 3000+ Application Guidelines
SIG-00-18-01	GCP 3000+ Field Manual
SIG-00-08-06	GCP 4000 Application Guidelines
SIG-00-08-10	GCP 4000 Field Manual
SIG-00-10-05	GCE 4000 Application Guidelines
SIG-00-12-68	GCP 4000 Plus Field Manual
SIG-00-13-03	GCP 5000 Field Manual
SIG-00-13-04	GCP 5000 Application Guidelines
SIG-00-15-05	CPU III for GCP

SECTION 2 - CONFIGURATION

2.0 CONFIGURATION

The GCP Display module default settings will normally suffice for the majority of GCP installations. This section will show some of the initial display programming options to enable the user to customize the display serial and Ethernet ports.

2.1 DISPLAY MODULE MAIN SCREENS

The display module main screens serve as the starting point for setup and operation of the GCP system. The main screens for the GCP 4000 and GCP 5000 are shown in Figure 2-1 and the main screens for the GCP 3000+ are shown in Figure 2-2.

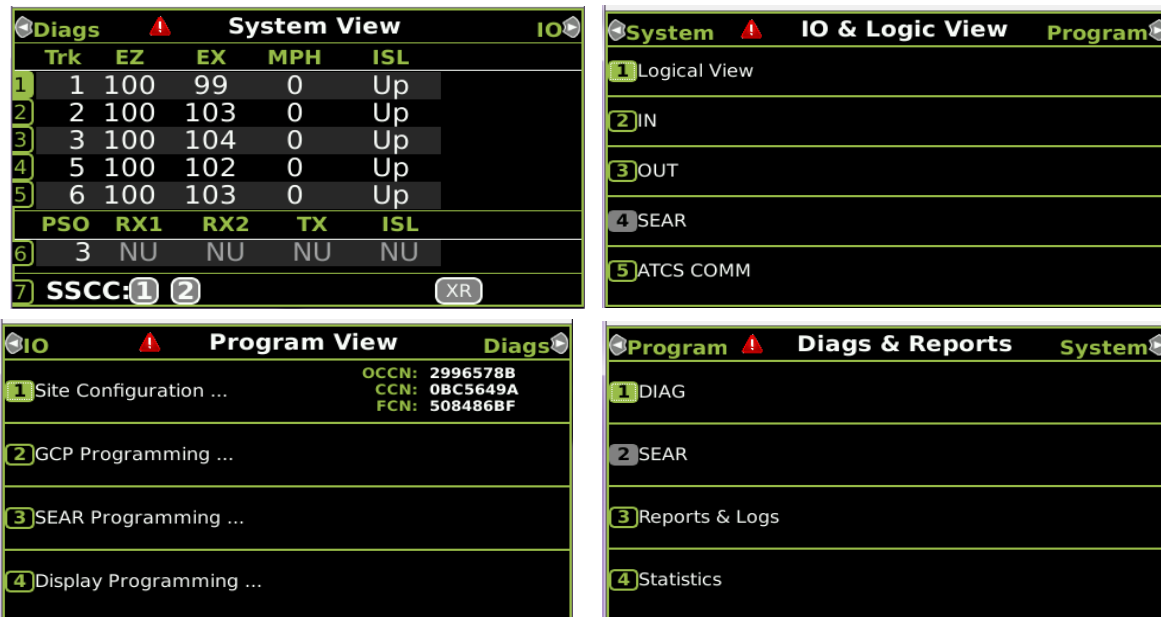


Figure 2-1 GCP4000 and GCP5000 Main Screens

NOTE

NOTE

The SEAR menu shown on the IO & Logic View menu, as well as the Diag & Reports menu, will appear grayed out if the display is being used in a GCP 4000 chassis. The Diag & Report menu items correspond to SEAR features such as: Maint on Site, CDL messages, WAMS Test message, Clear Alarms, SEAR Reset, etc. which are features only available on the GCP 5000.

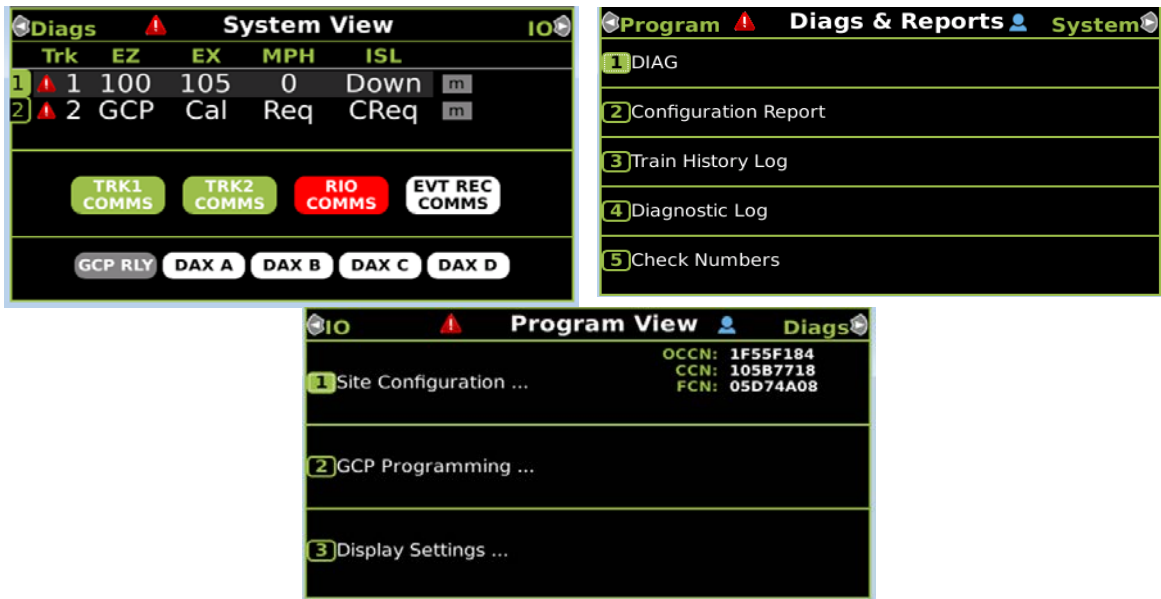


Figure 2-2 GCP3000+ Main Screens

2.2 KEYPAD/NAVIGATION CLUSTER

The Keypad and Navigation Cluster shown in Figure 2-3 is the local user interface to enter data and navigate through the display menu structure. The BACK key returns to one of the main screens. The HELP key will bring up Help screens to assist the user with hints and additional information when available.

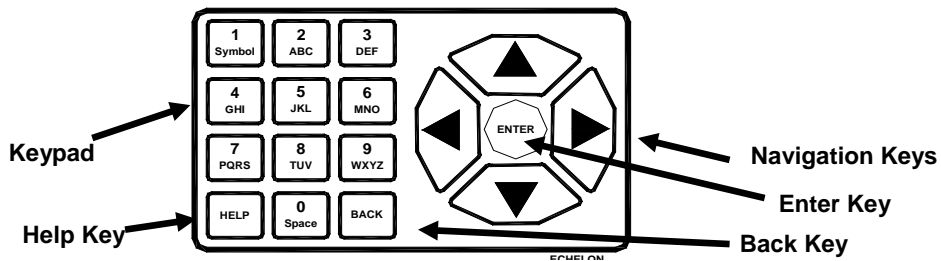


Figure 2-3 Keypad, and Navigation Cluster Keys

2.2.1 Keypad and Navigation Cluster Operation

The Display module keypad allows the user to select menus or enter data. Press the desired key multiple times to select a letter, number, or symbol. Figure 2-4 lists the alpha-numeric sequence of each key. The HELP key brings up a dialog box with instructions or information in some of the menus. The BACK key returns to one of the four main screens.

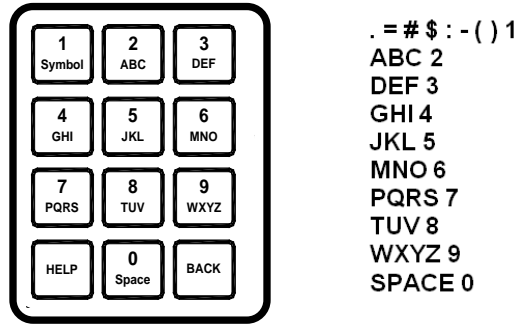


Figure 2-4 Keypad Operation

The Navigation Key Cluster shown in Figure 2-5 is used to navigate through menus and text. The ENTER key completes the transaction.

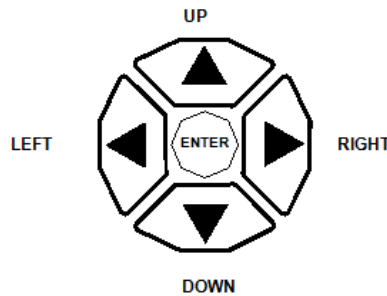


Figure 2-5 Navigation Key Cluster

NOTE

NOTE

Display screens vary between GCP models and unit configuration. The following screen examples in this quick start guide are shown for general reference purposes. Refer to the applicable manual listed in Section 1.2 for the screens used by your GCP model.

2.3 SERIAL PORT

The GCP Display has a serial port (Diag) used for diagnostic functions and transferring software updates to other modules in the GCP case. The serial port default settings are used for transferring software and therefore no serial port configuration is necessary.

2.3.1 Configuring the Serial Port

Should the user desire to change serial port settings, use the following procedure:

1. Navigate to the Program View screen using the left/right navigation keys.
2. Select Display Programming (press the 4 key or use the navigation keys to select Display Programming and then press the ENTER key).
3. From the Display screen, select Serial Port (press the 1 key or use the navigation keys and select Serial Port and then press the ENTER key).

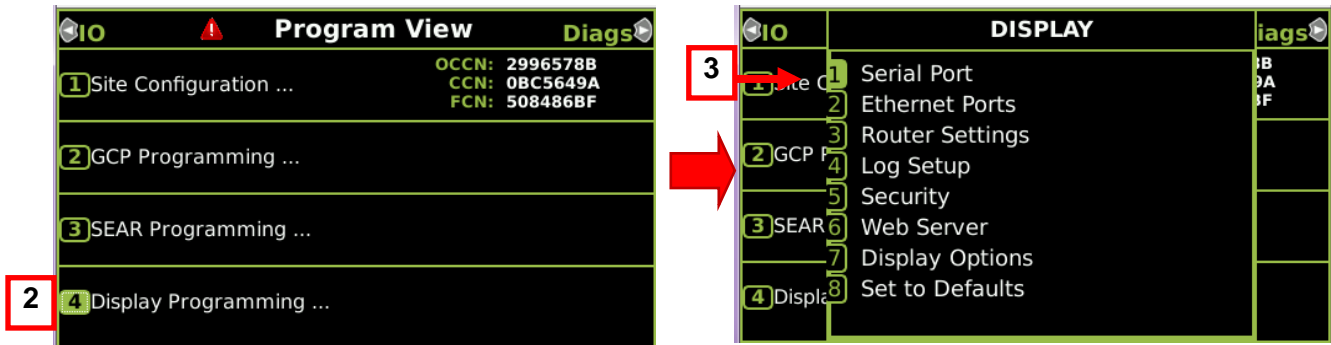
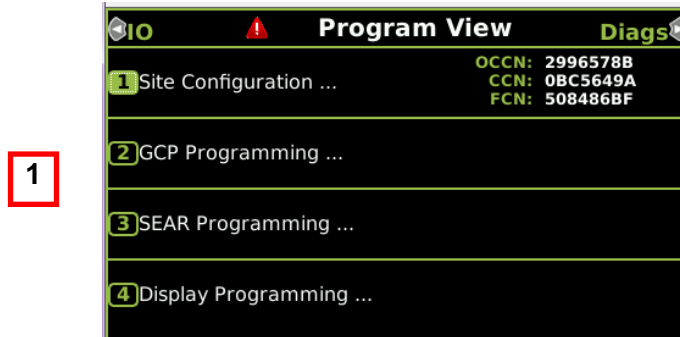


Figure 2-6 Configuring the Serial Port 1

4. From the Serial Port screen, press the ENTER key to bring up the serial port parameters screen.
5. Set the serial port parameters as required using the keypad and navigation keys.

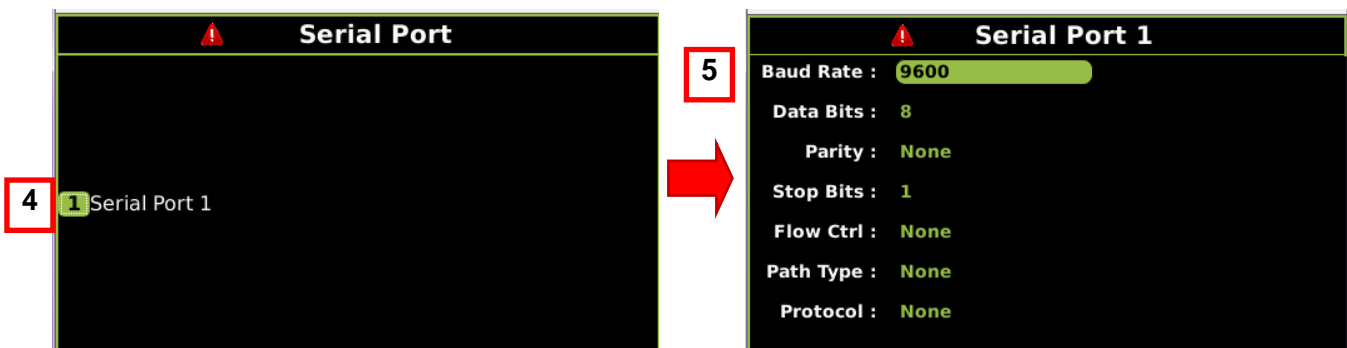


Figure 2-7 Configuring the Serial Port 2

2.4 ETHERNET PORTS

The GCP Display has three Ethernet ports: Laptop port, Ethernet 1 (powered), and Ethernet 2 (unpowered). The setting options for these ports are:

Laptop Port

Server*
Client
Disabled

Ethernet 1 and 2 Ports

Disabled*
Client

* Denotes default setting

NOTE

NOTE

The Ethernet 1 powered connector is designed specifically for Siemens Ethernet Spread Spectrum Radios and may not power other Power-Over-Ethernet (POE) devices.

2.4.1 Ethernet Port Configuration

The Laptop Ethernet port has three modes: Server, Client, and Disabled. The Ethernet 1 and Ethernet 2 ports have two modes: Disabled and Client. Ethernet ports 1 and 2 also have additional parameters for Path Type and Protocol, which are used in conjunction with PTC and ATCS Back Office communications. Consult the GCP manual for details and information on these settings.

2.4.1.1 Server Mode

The Server mode is only available on the Laptop port. When connecting a laptop to the display module, set the laptop's Ethernet DHCP as a client. The display module, acting as a DHCP server, will assign an IP address to the laptop and establish communications.

WARNING

WARNING

DO NOT CONNECT A NETWORK TO THE LAPTOP ETHERNET PORT IF THE PORT HAS BEEN CONFIGURED AS A SERVER (NOTE THIS IS THE DEFAULT SETTING), THIS WILL CAUSE DISRUPTION TO THE NETWORK. IF A NETWORK IS TO BE CONNECTED TO THE LAPTOP PORT, CONFIGURE THE LAPTOP PORT DHCP AS A CLIENT.

2.4.1.2 Client Mode

The Client mode is available on all three Ethernet ports. In the Client mode, the Display Ethernet port will be assigned an IP address from the external network server.

2.4.1.3 Disabled Mode

The Disabled mode shuts off the Ethernet port. Ethernet ports 1 and 2 default setting is the disabled mode, these ports may be configured as clients for use on a network and/or external Ethernet devices.

2.4.1.4 Laptop Ethernet Port Setup

If the user desires to change the DHCP setup of the Laptop port, use the following procedure:

1. From the Display screen (see section 2.3.1 on how to navigate to the Display screen), select Ethernet Ports (press 2 on the keypad or use the navigation keys and select Ethernet Ports then press the ENTER key).
2. Select Laptop (press 1 on the keypad or use the navigation keys and select Laptop and press the ENTER key).

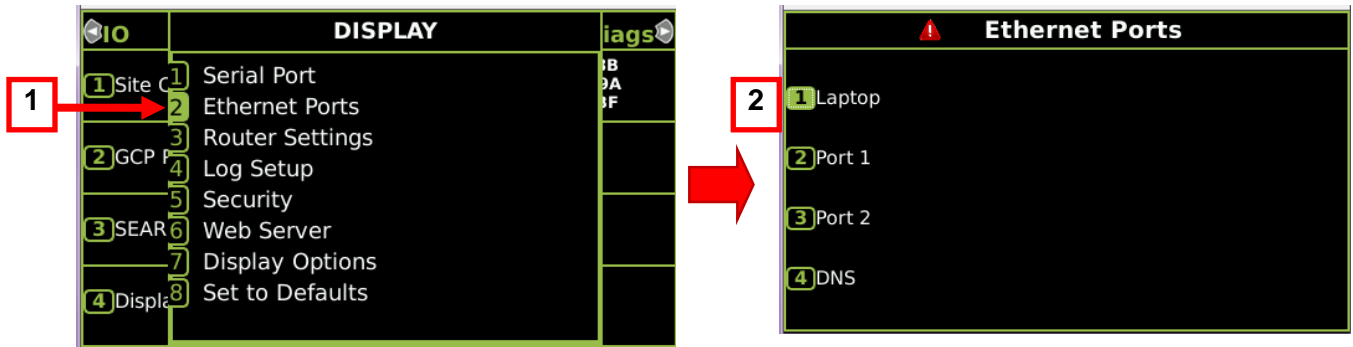


Figure 2-8 Laptop Ethernet Port Setup

NOTE

NOTE
On the GCP4000, Ethernet Ports 1 & 2 are disabled and will not be visible on the screen.

3. The Laptop DHCP Configuration default setting is Server. To Configure the port to either a client mode or to disable the port, press the ENTER key.
4. From the DHCP Configuration screen, select the desired mode using the navigation keys and press the ENTER key.

NOTE

NOTE
For Laptop operation it is recommended to use the Server mode and setting the laptop DHCP to Client.

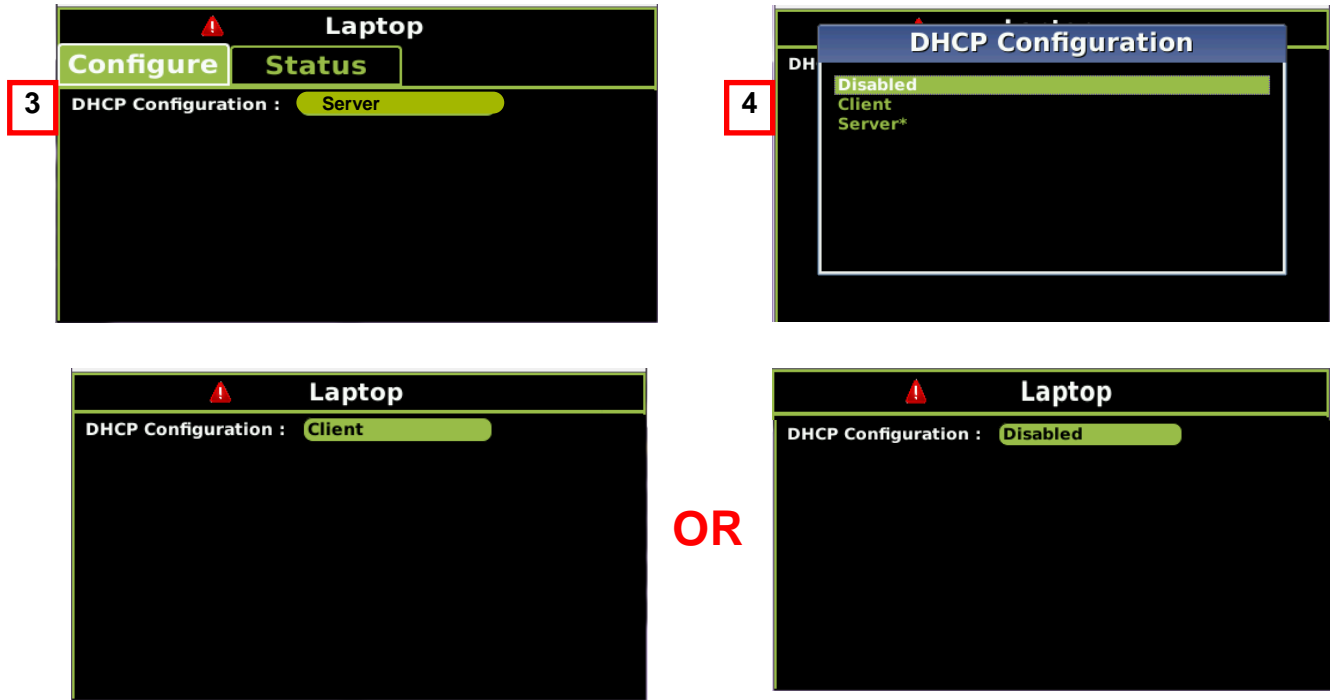


Figure 2-9 DHCP Configuration

5. In the Server mode the IP Address and Network Mask are pre-assigned from the factory and cannot be changed.

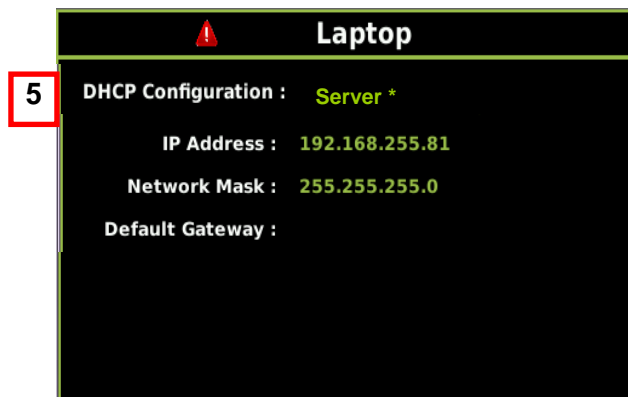


Figure 2-10 IP Address

2.4.1.5 Ethernet Ports 1 and 2 Setup (GCP3000+ and GCP5000 only)

Ethernet ports 1 and 2 have two modes available, Disabled and Client. The default setting is disabled. To reconfigure the Ethernet 1 or 2 ports, use the following procedure:

1. From the Program View main screen, select Display Programming (press 4 on the keypad or use the navigation keys and select Display Programming, then press the ENTER key).
2. From the Display screen, select Ethernet Ports (press 2 on the keypad or use the navigation keys and select Ethernet Ports and press the ENTER key).
3. From the Ethernet Ports screen, select either Port 1 or Port 2 (press 2 or 3 on the keypad or use the navigation keys and select Port 1 or Port 2, then press the ENTER key).
4. Highlight the DHCP Configuration text and press the ENTER key.
5. Select the desired mode, Disabled or Client, (highlight using the navigation keys and press the ENTER key).
6. The port is now set; refer to the GCP manual for further configuration of Path Type or Protocol.

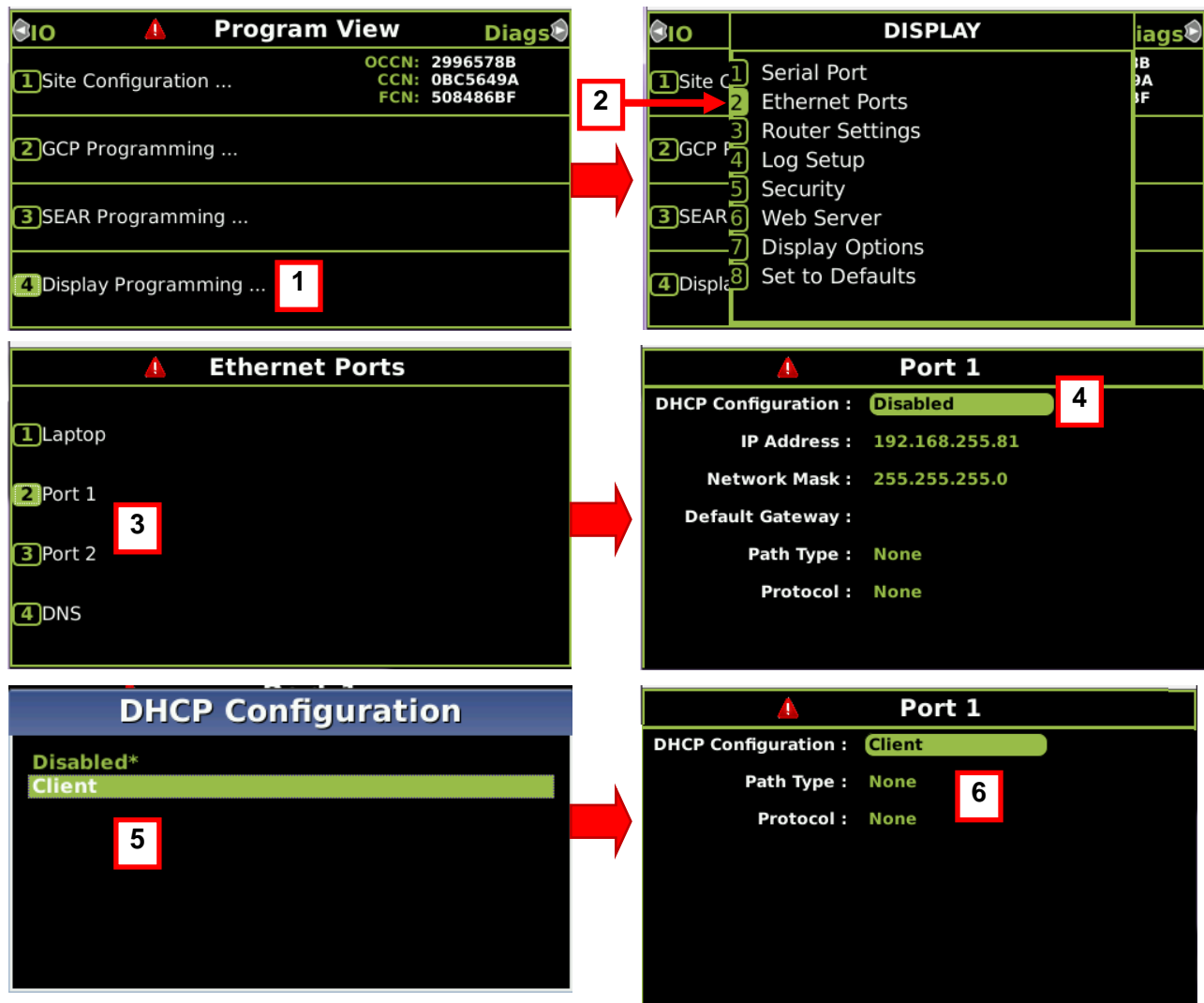


Figure 2-11 Ethernet Port Setup

2.4.1.6 DNS (Domain Name System) Setup

The Display DNS setup has three default server addresses. The user can reconfigure up to three of these addresses to match their network operations. Refer to the GCP manual for further instructions on setting DNS servers.

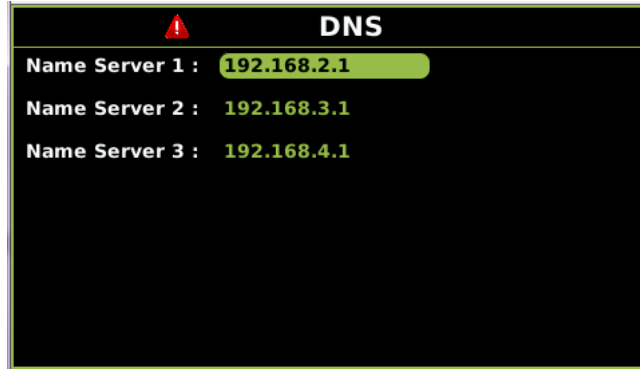


Figure 2-12 Display DNS

2.4.1.7 Ethernet Port Status

The status of the Display module Ethernet ports can be viewed by selecting the Status tab on the Laptop, Ethernet 1 or Ethernet 2 screen. The status of all three ports can be viewed regardless of which Ethernet port screen is selected.

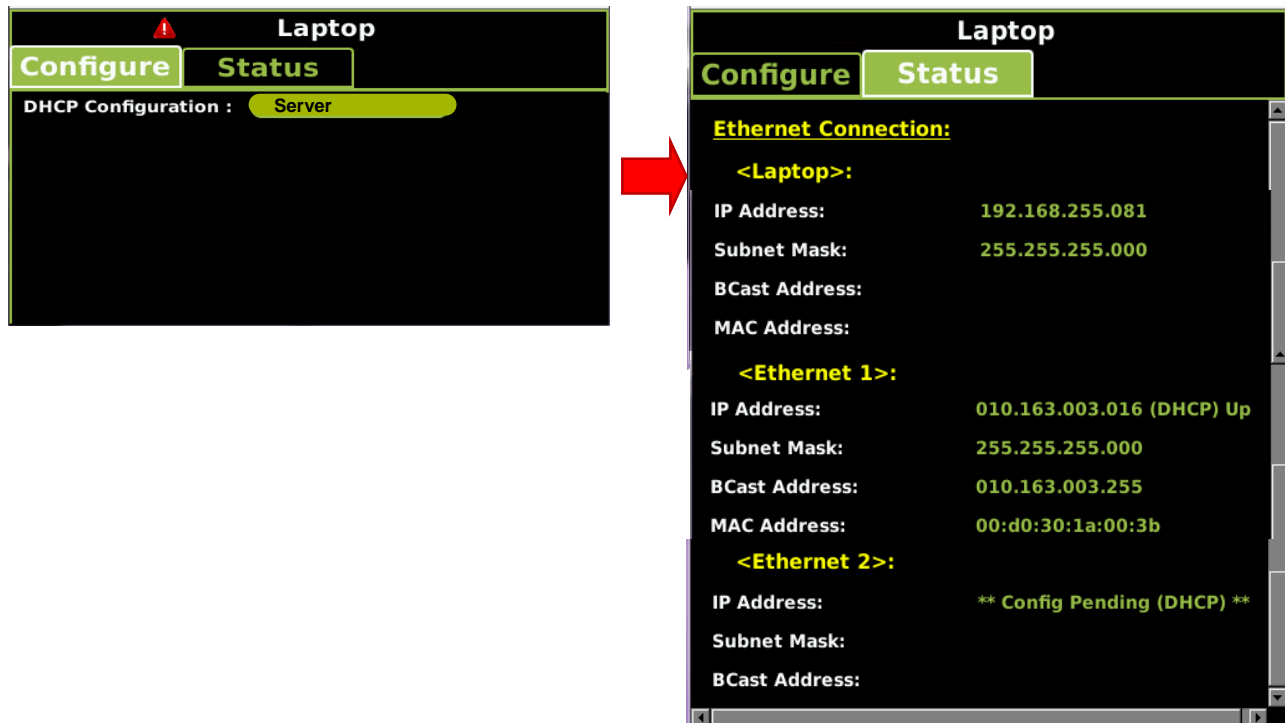


Figure 2-13 Ethernet Port Status

2.4.2 Display Options Settings

The Display Options not covered in this quick guide are detailed in the product manual for your specific GCP model. See Table 1-2.

SECTION 3 - OPERATION

3.0 OPERATION

This section will provide an overview of the Display module operation.

3.1 DISPLAY MODULE LAPTOP INTERFACE

The Display module Laptop port provides an interface for connecting a laptop to the GCP unit. The laptop port can also be used for other Ethernet functions when properly configured.

3.1.1 Display Module to Laptop Connection

To connect a laptop to the Display module, plug an RJ-45 to RJ-45 Ethernet cable from the Laptop port on the front panel of the Display module to any Ethernet port on the laptop. The Display module DHCP should be set up as a server and the laptop DHCP set up as a client. Using a web browser on the laptop, enter the Display IP address (192.168.255.81) in the browser address text box to connect to the display. The Siemens Web User Interface (WebUI) will appear on the computer web browser. Refer to the GCP manual for your GCP unit for further information on using the WebUI.



Figure 3-1 Display Module to Laptop Connection

3.2 USB OPERATION

The USB port on the front panel of the Display module is used to install software on the Display module or any of the modules in the GCP unit, as well as downloading logs and reports to a USB Drive.

3.2.1 USB Drive File Structure

The USB Drive requires that a specific file structure be created on the USB Drive prior to use on the Display USB port. The GCP system looks for specific file folders to locate, upload, or download files.

The file structure is as follows:

- SIEMENS
 - <DOT#>-<SITE NAME>
 - GCP4000
 - CONFIGURATIONS
 - .PAC FILES
 - REPORTS
 - <YYYY><MON>
- GCP4000
 - APPLICATIONS
 - .MCF
 - .PAC
 - EXECUTIVES
 - .MEF
 - .TGZ

PAC files or MCFs to be uploaded should be placed under the GCP4000\Applications. Executive software to be uploaded should be placed under the GCP4000\Executives. Downloaded files are placed under the Siemens\<DOT#>-<SiteName>\GCP4000 folder.

NOTE**NOTE**

Due to the software commonality, the USB Display device utilizes folders titled GCP4000 for all GCP models.

3.2.2 USB Menu

To activate the USB Menu, insert a USB drive, with the created file structure, into the USB port on the front of the Display module as shown in Figure 3-2.

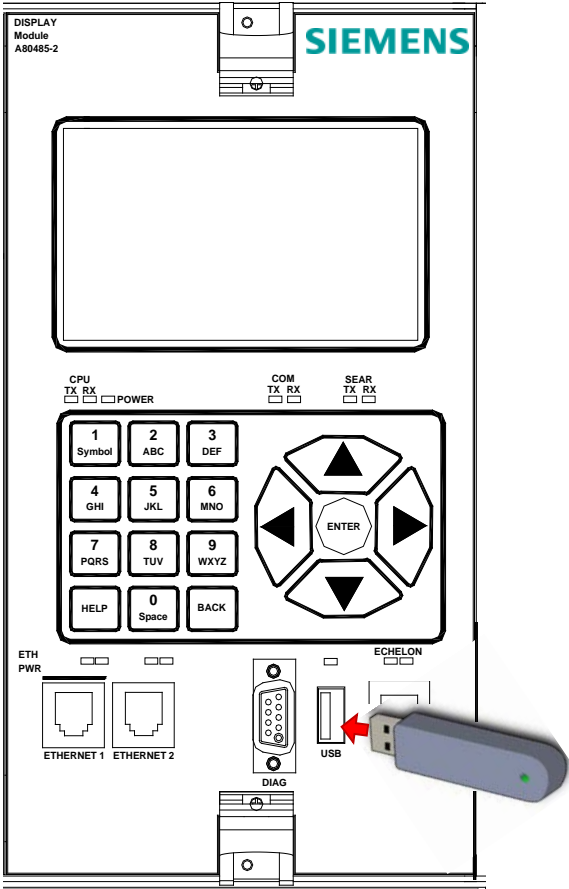


Figure 3-2 Inserting a USB Drive

3.2.3 USB Detection

When the USB drive is inserted into the USB port, the Display module will display a screen advising the USB drive has been detected. Press the ENTER key on the navigation key cluster, to bring up the USB Menu or press the BACK key on the keypad to exit.

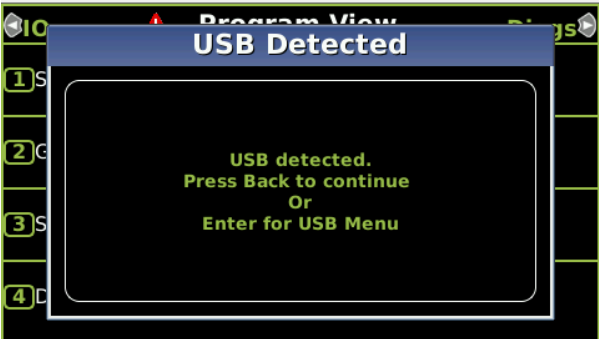


Figure 3-3 USB Detected Screen

3.2.4 USB Menu

The USB menu has eight sub-menus shown in Figure 3-4 and Figure 3-5. The Software Updates menu has two sub-menus, one for software updates for modules and the second for the Display module Executive software update. The other USB menu sub-menus provide for downloading of configuration reports, display/event logs, GCP logs, train history, and uploading or downloading configuration files. The GCP's current configuration information can be downloaded to the USB drive. A new configuration can also be uploaded to the GCP via the USB drive. Refer to the appropriate manual for your GCP unit for details for uploading and downloading configuration information into the GCP.

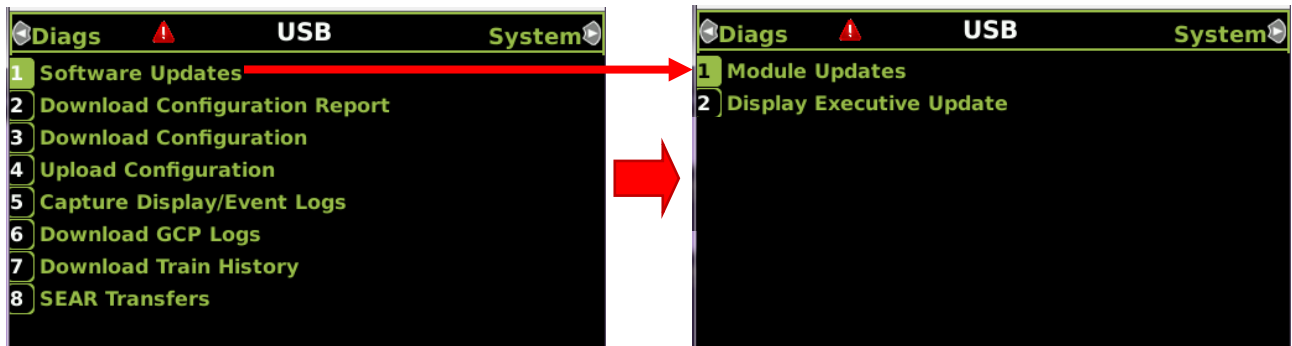


Figure 3-4 USB Menu Screens GCP4000 and GCP5000

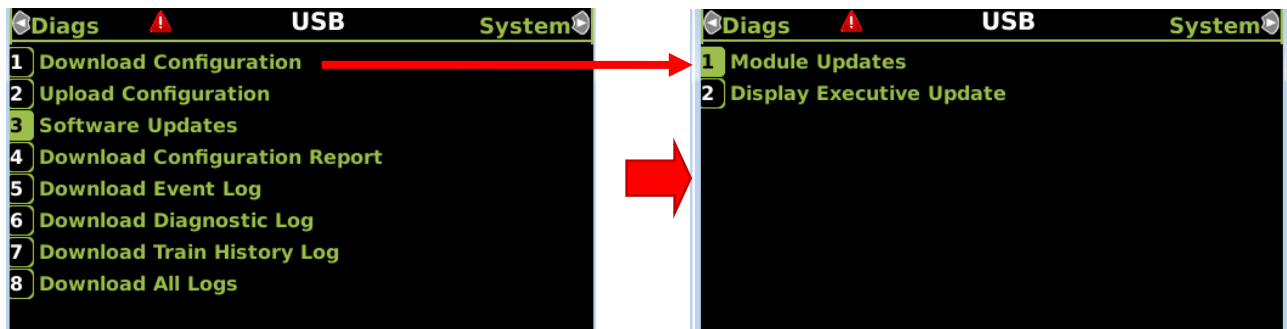


Figure 3-5 USB Menu Screens GCP3000+

3.3 MODULE SOFTWARE UPDATES

Module Software updates are performed using a USB Drive connected to the Display USB port or using a Laptop connected to the Display module Laptop port. Transfer of the software to individual modules is accomplished using the Display module Diag serial port. Connect a DB-9 male to DB-9 male serial cable with a Null Modem adapter between the Display module Diag port and the Diag port of the GCP module receiving the software update as shown in Figure 3-6. Refer to the appropriate manual for your GCP for further details on uploading software to GCP modules.

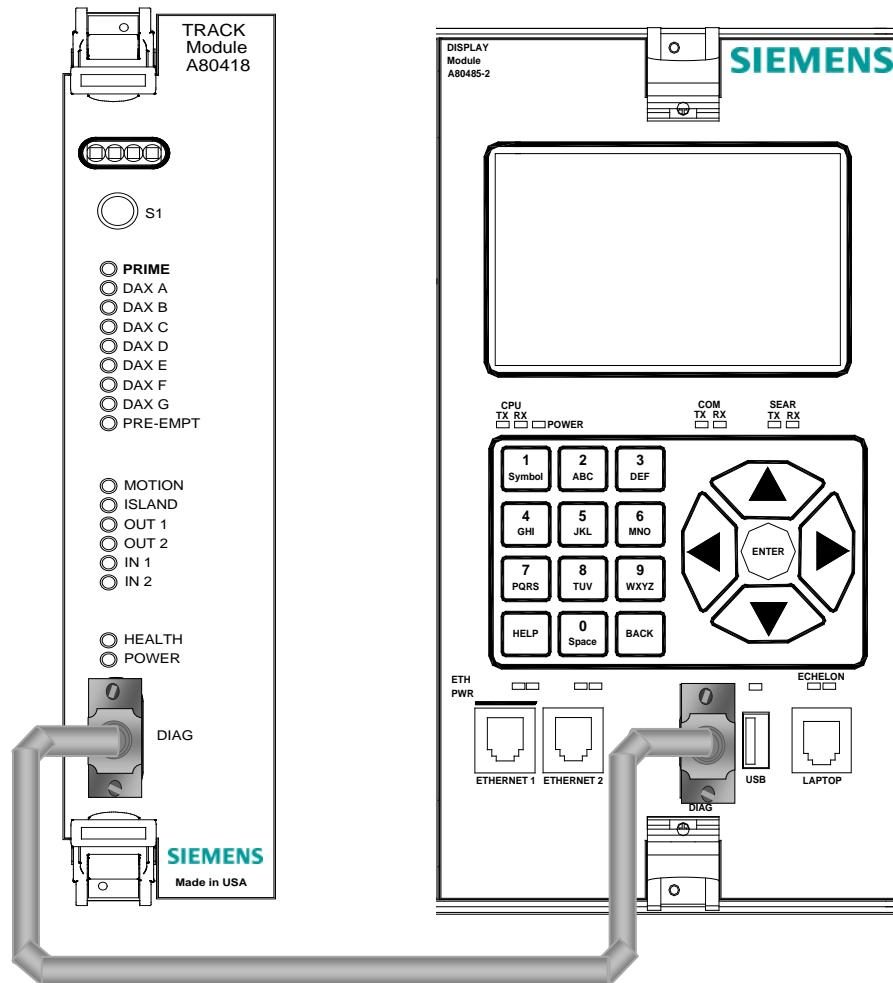


Figure 3-6 Display Module to GCP Module Serial Cable Connection

3.4 DISPLAY MODULE POWERED ETHERNET PORT

The Display module Ethernet 1 port is a powered port for external Ethernet devices that derive their power from an Ethernet connection.

NOTE**NOTE**

The Ethernet 1 powered connector is designed specifically for Siemens Ethernet Spread Spectrum Radios and may not power other Power-Over-Ethernet (POE) devices.

3.4.1 Display Module to Ethernet 1 Port Power-Over-Ethernet (POE) Device Connection

An example of an Ethernet 1 port Power-Over-Ethernet device connection using the Siemens Ethernet Spread Spectrum Radio is shown in Figure 3-7. Connection from the GCP Display to the Ethernet powered device is usually connected using an Ethernet cable that is provided with the Ethernet device. Refer to the Ethernet device instructions for further information.

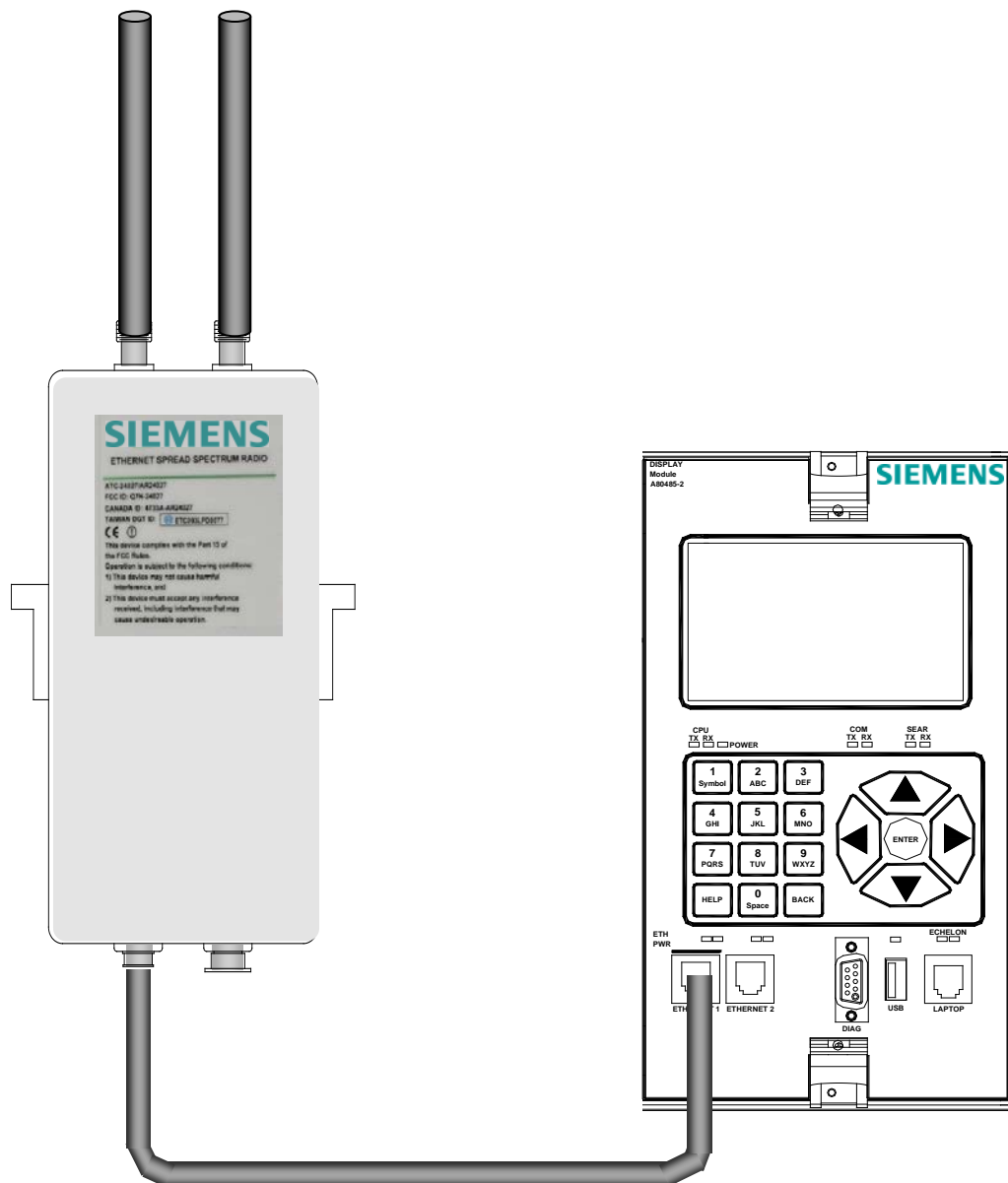


Figure 3-7 Display Module to Ethernet Power-Over-Ethernet Device Connection

3.5 ETHERNET NETWORK CONNECTION

The GCP unit can be remotely accessed using an Ethernet network connection. Ethernet 1 and Ethernet 2 ports on the Display module are generally used for such a connection, however, the Laptop port can be used for this purpose as well using a RJ-45 to RJ-45 Ethernet cable. Set the port to be used to the Client mode (see Section 2.4.1.5 for details or for the Laptop port see Section 2.4.1.4), the external network will assign the Display module an IP address and establish communications.



WARNING

DO NOT CONNECT A NETWORK TO THE LAPTOP ETHERNET PORT IF THE PORT HAS BEEN CONFIGURED AS A SERVER, THIS WILL CAUSE DISRUPTION TO THE NETWORK. IF A NETWORK IS TO BE CONNECTED TO THE LAPTOP PORT, CONFIGURE THE LAPTOP PORT DHCP AS A CLIENT.

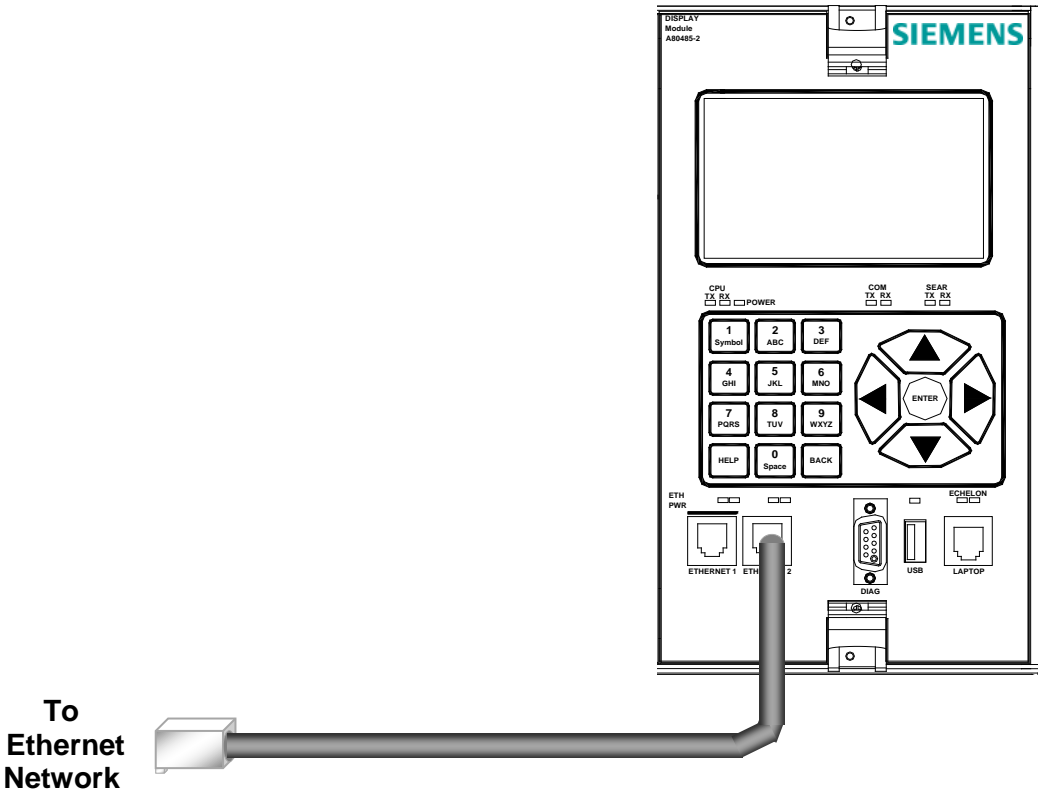


Figure 3-8 Display Module to Ethernet Network Connection

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