

QUICK START GUIDE

SIEMENS A80485-1 GCP DISPLAY MODULE CONFIGURATION AND OPERATION

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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		Section 2.1	Added note after Figure 2-1 indicating when the SEAR menu would appear grayed out.
A.2	JUN 2022	1.2 2.4.1.5 3.1.1 App. A	Updated manual listing in Table 1-2. Updated heading. Added note regarding HTTP protocol for Web UI. Added Appendix A - DT Connectivity Guide for GCP 5000, GCP 4000, GCP 3000+, and SGCP 4000/MS 4000.

PRO	PRIETARY II	NFORMATION	ii
TRAN	SLATIONS.		ii
WAR	RANTY INFO	ORMATION	ii
SALE	ES AND SER	VICE LOCATIONS	ii
FCC	RULES CON	/PLIANCE	ii
DOC	UMENT HIS	TORY	iii
ΝΟΤΙ	ES, CAUTIO	NS, AND WARNINGS	vi
ELEC	CTROSTATIO	C DISCHARGE (ESD) PRECAUTIONS	vii
GLO	SSARY		viii
SEC	TION 1 - INT	RODUCTION	1-1
1.1	GCP DIS	SPLAY MODULE	1-1
	1.1.1	GCP Display Module Controls, Indicators, Connectors, and Display	1-2
1.2	RESOU	RCE DOCUMENTS	1-4
SEC	TION 2 - COI	NFIGURATION	2-1
2.1	DISPLA	Y MODULE MAIN SCREENS	2-1
2.2	KEYPAD)/NAVIGATION CLUSTER	2-2
2	2.2.1	Keypad and Navigation Cluster Operation	2-3
2.3	SERIAL	PORT	2-3
2	2.3.1	Configuring the Serial Port	2-4
2.4	ETHERN	IET PORTS	2-5
2	2.4.1	Ethernet Port Configuration	2-5
	2.4.1.1	Server Mode	2-5
	2.4.1.2	Client Mode	
	2.4.1.3	Lisabled Mode	
	2.4.1.5	Ethernet Ports 1 and 2 Setup	2-0
	2.4.1.6	DNS (Domain Name System) Setup	2-9
	2.4.1.7	Ethernet Port Status	2-9
2	2.4.2	Display Options Settings	2-10
SEC	TION 3 - OPE	ERATION	3-1
3.1	DISPLA	Y MODULE LAPTOP INTERFACE	3-1
3	3.1.1	Display Module to Laptop Connection	3-1
3.2	USB OP	ERATION	3-2
3	3.2.1	USB Drive File Structure	3-2
3	3.2.2	USB Menu	3-3
3	3.2.3	USB Detection	3-3

Table of Contents

3.2	.4	USB Menu	3-4
3.3	MODULE	SOFTWARE UPDATES	3-5
3.4	DISPLAY	MODULE POWERED ETHERNET PORT	3-6
3.4	.1	Display Module to Ethernet 1 Port Power-Over-Ethernet (POE) Device Connection .	3-6
3.5	ETHERN	ET NETWORK CONNECTION	3-7
APPEN	DIX A - DT	Connectivity Guide for GCP 5000, GCP 4000, GCP 3000+ & SGCP/MS 4000	A-1

List of Figures

Figure 1-2 A80485 GCP Display Module Controls Indicators and Display	
Tigure 1-2 700400 001 Display module Controls, indicators, and Display	0.4
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	
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

Table 1-1	Display Module Controls, Indicators, Connectors, and Display Descriptions	1-3
Table 1-2	Resource Documents	1-4
Table A-1	User Information when using the DT	A-1

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 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

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

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/inserter 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 Inserter (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 highwayrailroad 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.





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				

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

¹ The GCP 4000 does not have Ethernet ports on the chassis, so the Ethernet 1 and Ethernet 2 ports are active on the display. The GCP 5000 and GCP 3000+ have Ethernet ports on the chassis so the display ports are disabled.

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

MANUAL TITLE
GCP 3000+ Installation & Instruction
GCP 3000+ Application Guidelines
GCP 3000+ Field Manual
GCP 4000 Application Guidelines
GCP 4000 Field Manual
GCP 4000 Plus Field Manual
GCP 5000 Field Manual
GCP 5000 Application Guidelines
CPU III for GCP User Manual
GCP 5000 GCE for Electrified Territory Installation & Instruction

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.

0	Diags	; 💧	Sy	stem \	/iew	108	System	<u> </u>	IO & Logic View	Program
	Trk	EZ	EX	MPH	ISL			iow		
1	1	100	99	0	Up		Logical			
2)	2	100	103	0	Up					
3	З	100	104	0	Up					
4	5	100	102	0	Up		3 OUT			
5)	6	100	103	0	Up					
	PSO	RX1	RX2	ТХ	ISL		4 SEAR			
6)	З	NU	NU	NU	NU					
7)	SSC	:C:1	2			XR	BAICS CO	MM		
31	0	4	Pro	gram \	/iew	Diags	Program		Diags & Reports	System®
1	Site Co	onfigura	tion		OCCN: CCN: FCN:	2996578B 0BC5649A 508486BF	DIAG	-		
2	GCP Pr	rogramr	ning				2 SEAR			
3	SEAR F	Program	ming				3Reports &	x Logs		
4	Display	y Progra	mming				4 Statistics			

Figure 2-1 GCP4000 and GCP5000 Main Screens



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.

NOTE



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



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.

NOTE

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).



ତ।ତ	💧 Progr	am View	Diags		<u></u> اں	DISPLAY	iags
1Site Co	nfiguration	OCCN: CCN: FCN:	2996578B 0BC5649A 508486BF	3	⊡.ne d	Serial Port Ethernet Ports	iB 9A IF
2GCP Pr	ogramming					Router Settings	
3SEAR F	Programming				3SEAR) Security) Web Server) Display Options	
4 Display	Programming				4 Displa	Set to Defaults	



- 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

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*

Disable

Client

* Denotes default setting

NOTE	Т
	S

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

A 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

- 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

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

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.





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.

<u> </u>	DNS	
Name Server 1 :	192.168.2.1)
Name Server 2 :	192.168.3.1	
Name Server 3 :	192.168.4.1	

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.

🔔 Laptop		Laptop
Configure Status	Configure	Status
DHCP Configuration : Server	Ethernet Conn	ection:
	<laptop>:</laptop>	
	IP Address:	192.168.255.081
	Subnet Mask:	255.255.255.000
	BCast Address:	
	MAC Address:	
	<ethernet 1<="" th=""><th>>:</th></ethernet>	>:
	IP Address:	010.163.003.016 (DHCP) Up
	Subnet Mask:	255.255.255.000
	BCast Address:	010.163.003.255
	MAC Address:	00:d0:30:1a:00:3b
	<ethernet 2:<="" th=""><th>>:</th></ethernet>	>:
	IP Address:	** Config Pending (DHCP) **
	Subnet Mask:	
	BCast Address:	

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 (Web UI) will appear on the computer web browser.



NOTE

From April 2022, the Web UI uses non-secure (http) as the default protocol unless the user has changed the setting to HTTP Secure (https). Units shipped prior to this date may be set to https.

Refer to the GCP manual for your GCP unit for further information on using the Web UI.



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:

- SAFETRAN
 - o <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 SAFETRAN\<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 3-5 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 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.





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.





Figure 3-8 Display Module to Ethernet Network Connection

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APPENDIX A - DT Connectivity Guide for GCP 5000, GCP 4000, GCP 3000+, and SGCP 4000/MS 4000

A.1 USING THE DIAGNOSTIC TERMINAL (DT)

The following table provides user information for using the DT when connected through either the CPU II+ or CPU III, for models: GCP 5000, GCP 4000, GCP 3000+, and SGCP 4000/MS 4000.

CPU II+		CPU III
GCP 3000+	Can view status, calibrate, download logs, and load MEFs. DT will not connect if display is connected. Refer to Notes 1 and 2 for restrictions.	Will not connect.
GCP 4000	Will connect with no restrictions. Display will disconnect if DT is connected.	Will connect via diag port on chassis. Can view status, download logs, and load MEFs. Display will disconnect if DT is connected. Refer to Note 3 for restrictions.
GCP 5000	Can view status, calibrate, download logs, and load MEFs. DT will not connect if display is connected. Refer to Note 2 for restrictions.	Will not connect.
SGCP 4000/ MS 4000	Will connect with no restrictions.	Will connect via diag port on chassis. Can view status, download logs, and load MEFs. Refer to Note 3 for restrictions.
Notes:		
1	User cannot view or edit site configuration (time, location) or CP configuration.	
2	User cannot edit MCF parameters.	
3	User cannot view or edit site configuration (time, location) or CP configuration. User cannot download the CP log.	
4	Where display is referred to above, this refers to either the 80407 touchscreen display or the 80485 keypad display.	

 Table A-1
 User Information when using the DT

A.2 WEB UI CONNECTIVITY GUIDE – GCP 5000, GCP 4000, GCP 3000+ & SGCP 4000/MS 4000

If a CPU III or 80485 Display is installed, the user can connect to any system via the Web UI. If there is both a CPU III and an 80485 Display installed in the system, the Web UI in the CPU III will have some limitations as described below.

Actions that the user will still be able to perform include:

- •The user can view the full status of the system.
- •The user can change MCF parameters through the CPU III.
- •The user can perform all calibrations with the CPU III.

Actions that are not possible with both a CPU III and an 80485 Display installed in the system are as follows:

- •The user cannot edit the site configuration on the CPU III if the display is in session.
- •The user cannot load a PAC file via the CPU III if the display is in session.
- •The user cannot perform any functions of the SEAR IIi with the CPU III. The 80485 Display is required to perform functions of the SEAR IIi.
- •The user cannot access any data on the display itself (e.g. display logs) from the CPU III.

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