

MVI94-GSC
Flex Platform
General Serial
Communication Module

Configuration/Debugger Port Users Guide

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Please Read This Notice Successful application of the MVI94-GSC module requires a reasonable working knowledge of the Allen-Bradley hardware and the application in which the combination is to be used. For this reason, it is important that those responsible for implementing the module satisfy themselves that the combination will meet the needs of the application without exposing personnel or equipment to unsafe or inappropriate working conditions.

This manual is provided to assist the user in interfacing with the MVI94-GSC module's configuration/debug port. Every attempt has been made to assure that the information provided is accurate and a true reflection of the product's functionality. In order to assure a complete understanding of the operation of the product, the user should read all applicable Allen-Bradley documentation on the operation of the A-B hardware.

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Additional resource documents are provided for the module. They include the following:

MVI94-GSC User Manual -- This reference provides a description of the module's functionality and an introduction to its applicability to applications. This reference should be read first for an understanding of the module's operating modes and configuration requirements. Data flow diagrams are provided to display the interface between the processor, the module and the serial network.

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1 INTRODUCTION

This document contains a description and lists the functionality provided on the configuration/ debugger port of the MVI94-GSC communication module. Use of this port can help in trouble-shooting problems that may exist with the module when interfacing with an Allen-Bradley processor or the serial interface network.

Facilities on the port provide the following functionality:

- Full view of the module's configuration data
- View of all the module's status data
- Version information
- Control over the module (warm boot and cold boot)
- Data analyzer to view message processing on each port
- Facility to upload and download the module configuration information

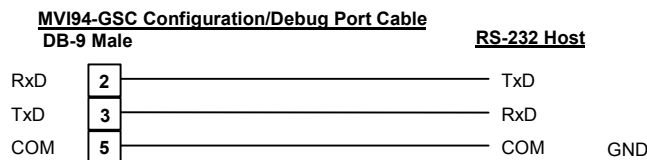
The sections below describe the required elements, connecting to the port and using the port. Following these sections is a detailed discussion of the menu options offered when using the port.

1.1 Required Hardware

The hardware requirements to interface with the configuration/debugger port are not too stringent. A personal computer with a standard serial port should suffice. For optimal performance, the minimum is required:

- 80468 based processor (Pentium preferred)
- 1 megabyte of memory
- At least one serial communications port available

Additionally, a null-modem cable is required between your PC and the port. The module's port has a DB-9 male connector at the end of a RJ-45 to DB-9 pigtail. The RJ-45 end of the cable is to be placed in the MVI94-GSC Port 1 connector (top port). The cable required is displayed below:



1.2 Required Software

The software required on your personal computer to interface with the configuration/debugger port is operating system dependent. Tested software include the following:

DOS	ProComm, PS-Term and several other terminal emulation programs
Windows 3.1	Terminal
Windows 95/98	HyperTerminal and PS-Term
Windows NT	HyperTerminal
Linux	Minicom

Any ASCII terminal emulation software package provided with your operating system should work as long as it can be configured as follows:

Baud Rate	57,600
Parity	None
Data Bits	8
Stop Bits	1

1.3 Using the Port

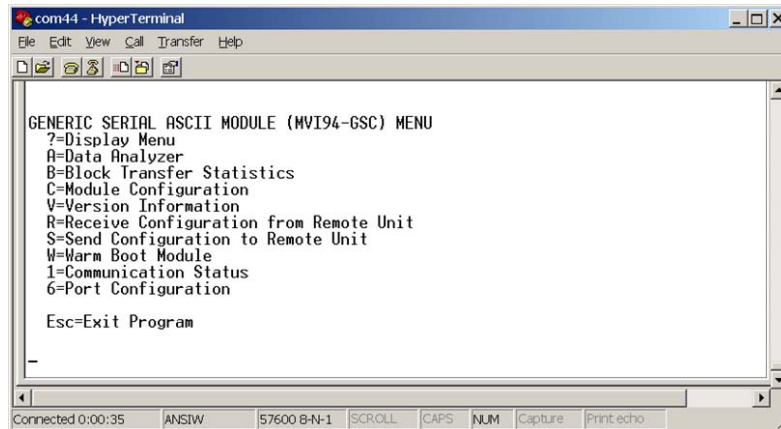
The following steps are required to interface with the configuration/debugger port:

- Connect your computer to the module's port using a null-modem cable.
- Start the terminal emulation program on your computer and configure the communication parameters to those shown in the Required Software section (57600, N, 8, 1).
- Enter the '?' character on your computer. If everything is set up correctly, the port's menu will be displayed.

If there is no response from the module, check the communication setup and the cable. In addition, make sure you are connected to the correct port on your computer and the module.

2 Menu Options

Features available through the use of the configuration/debug port on the MVI94-GSC module are all reached using single keystrokes on your computer. There is a single main menu and several sub-menus presented on the port. To view the current selections available, press the '?' key on your computer. If you are in main menu mode, the following menu will be displayed:



```

com44 - HyperTerminal
File Edit View Call Transfer Help
GENERIC SERIAL ASCII MODULE (MVI94-GSC) MENU
?=Display Menu
A=Data Analyzer
B=Block Transfer Statistics
C=Module Configuration
V=Version Information
R=Receive Configuration from Remote Unit
S=Send Configuration to Remote Unit
W=Warm Boot Module
I=Communication Status
6=Port Configuration

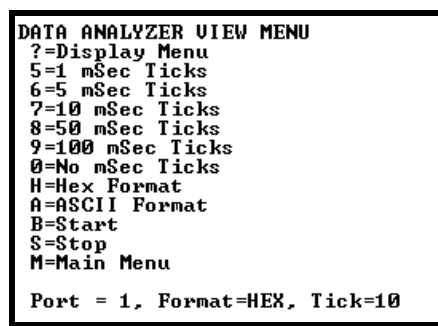
Esc=Exit Program
-
Connected 0:00:35 ANSIW 57600 8-N-1 SCROLL CAPS NUM Capture Print echo

```

If this menu is not displayed, press the 'M' key to display the main menu. All facilities offered by the configuration/debugger are shown on the main menu. Each option is discussed below:

2.1 A = Data Analyzer

Selection of this menu option places the program in analyzer menu mode. This mode of operation is used to display messages generated and received by the module. To view the menu options available in this mode, press the '?' key and the following menu will be displayed:



```

DATA ANALYZER VIEW MENU
?=Display Menu
5=1 mSec Ticks
6=5 mSec Ticks
7=10 mSec Ticks
8=50 mSec Ticks
9=100 mSec Ticks
0=No mSec Ticks
H=Hex Format
A=ASCII Format
B=Start
S=Stop
M=Main Menu

Port = 1, Format=HEX, Tick=10

```

This tool is extremely useful in determining the operation of the module and nodes on the network of each port. The parameters shown at the bottom of the display show the current analyzer settings. Each of the menu options is discussed in the sections below:

2.1.1 5=1 mSec Ticks

This option is used to generate 1-millisecond timing marks on the display. This may help when determining communication-timing characteristics.

2.1.2 6=5 mSec Ticks

This option is used to generate 5-millisecond timing marks on the display. This may help when determining communication-timing characteristics.

2.1.3 7=10 mSec Ticks

This option is used to generate 10-millisecond timing marks on the display. This may help when determining communication-timing characteristics.

2.1.4 8=50 mSec Ticks

This option is used to generate 50-millisecond timing marks on the display. This may help when determining communication-timing characteristics.

2.1.5 9=100 mSec Ticks

This option is used to generate 100-millisecond timing marks on the display. This may help when determining communication-timing characteristics.

2.1.6 0=No mSec Ticks

This option is used to turn the display of timing marks off.

2.1.7 H=Hex Format

This option is used to select the display of the data in hexadecimal format. This format is most useful when viewing binary protocol messages.

2.1.8 A=ASCII Format

This option is used to select the display of the data in ASCII format. This format is most useful when viewing ASCII protocol messages.

2.1.9 B=Start

This option is used to start the data analyzer. After the key is pressed, all data transmitted and received on the currently selected port will be displayed. An example display is shown below:

```
<R+><01><03><00><00><00><0A><C5><CD><R->_TT_[01][03][14][00][00][00][00][00][00]
_TT_[00][00][00][00][00][00][00][00][00][00][00][00][00][00][A3][67]_TT_<R+><01>
<03><00><00><00><0A><C5><CD><R->_TT_[01][03][14][00][00][00][00][00][00][00][00][00][00]
[00][00][00][00][00][00][00][00][00][00][00][00][00][A3][67]_TT_<R+><01><03><00>
<00><00><0A><C5><CD><R->_TT_[01][03][14][00][00][00][00][00][00][00][00][00][00][00]
[00][00][00][00][00][00][00][00][00][00][00][00][00][00][A3][67]_TT_<R+><01><03><00><00>
<0A><C5><CD><R->_TT_[01][03][14][00][00][00][00][00][00][00][00][00][00][00][00][00]
[00][00][00][00][00][00][00][00][00][00][00][00][00][00][A3][67]_TT_<R+><01><03><00><00><0A><C5>
<CD><R->_TT_[01][03][14][00][00][00][00][00][00][00][00][00][00][00][00][00][00][00]
[00][00][00][00][00][00][00][00][00][00][00][00][00][00][00][00][00][00][00][00]
[03][14][00][00][00][00][00][00][00][00][00][00][00][00][00][00][00][00][00][00]
[00][00][00][00][00][00][00][00][00][00][00][00][00][00][00][00][00][00][00][00]
[00][00][00][00][00][00][00][00][00][00][00][00][00][00][00][00][00][00][00][00]
[00][A3][67]_TT_<R+><01><03><00><00><0A><C5><CD><R->_TT_[01][03][14][00][00][00]
[00][00][00][00][00][00][00][00][00][00][00][00][00][00][00][00][00][00][00][00]
[67]_TT_<R+><01><03><00><00><0A><C5><CD><R->_TT_[01][03][14][00][00][00][00][00]
[00][00][00][00][00][00][00][00][00][00][00][00][00][00][00][00][00][00][00][00][A3][67]_TT_
```


Special characters used in the display are as follows:

[]	Data enclosed in these characters represent data received on the port.
< >	Data enclosed in these characters represent data transmitted on the port.
<R+>	These characters are inserted when the RTS line is driven high on the port.
<R->	These characters are inserted when the RTS line is dropped low on the port.
<CS>	These characters are displayed when the CTS line is recognized high.
TT	These characters are displayed when the timing mark interval has been reached. This parameter is user defined.

2.1.10 S=Stop

This option is used to stop the analyzer. Use this option to freeze the display so the data can be analyzed. To restart the analyzer, press the 'B' key.

WARNING -- When in analyzer mode, program execution will slow down. Only use this tool during a trouble-shooting session. Disable the analyzer before leaving the module to run in its normal mode.

2.1.11 M = Main Menu

This menu option is used to return to the main menu mode.

2.2 B = Block Transfer Statistics

This menu option is used to display the configuration and statistics of the backplane data transfer operations. After selecting this option, the following will be displayed. Selecting this option at one-second intervals can be used to determine the number of blocks transferred each second.

```

BACKPLANE STATISTICS:
DATA TRANSFER CONFIGURATION:
WRITE DATA TRANSFER:
  Last : 87
READ DATA TRANSFER:
  Last : 88
BLOCK COUNTS:
  Retry : 0      Failed: 0      Fail Cnt: 0
  Read  : 1881   Write : 1880   Parsing : 65203
  Error : 10441

```

2.3 C = Module Configuration

This option displays the general module configuration information for the MVI94-GSC module.

2.4 R=Receive Module Configuration from Remote Unit

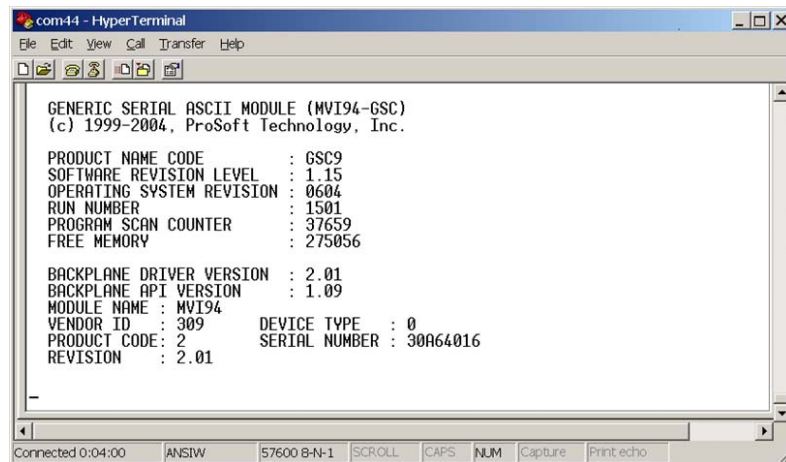
This option is used to send a configuration file from a remote PC to the ASCII module. After selecting the option, press the 'Y' key to confirm the operation. Now, transfer the file from the PC to the ASCII unit using the Ymodem file transfer protocol. When the module receives the configuration file, it will perform a warm-boot operation to load the new configuration parameters into the module.

2.5 S=Send Module Configuration to Remote Unit

This option is used to send the configuration information stored in the module to a remote unit (PC). After selecting the option, press the 'Y' key to confirm the operation. Now, transfer the file to the remote PC using the Ymodem file transfer protocol. After the file is uploaded, it can be viewed using any text editor program. You can alter the configuration and select the receive menu option to transfer the new configuration to the module.

2.6 V = Version Information

This option is used to view the current version of the software for the module and other important values. After selecting the option, the following will be displayed:



```
com44 - HyperTerminal
File Edit View Call Transfer Help
GENERIC SERIAL ASCII MODULE (MVI94-GSC)
(c) 1999-2004, ProSoft Technology, Inc.

PRODUCT NAME CODE      : GSC9
SOFTWARE REVISION LEVEL : 1.15
OPERATING SYSTEM REVISION : 0604
RUN NUMBER              : 1501
PROGRAM SCAN COUNTER    : 37659
FREE MEMORY             : 275056

BACKPLANE DRIVER VERSION : 2.01
BACKPLANE API VERSION   : 1.09
MODULE NAME             : MVI94
VENDOR ID               : 309   DEVICE TYPE : 0
PRODUCT CODE           : 2     SERIAL NUMBER : 30A64016
REVISION                : 2.01

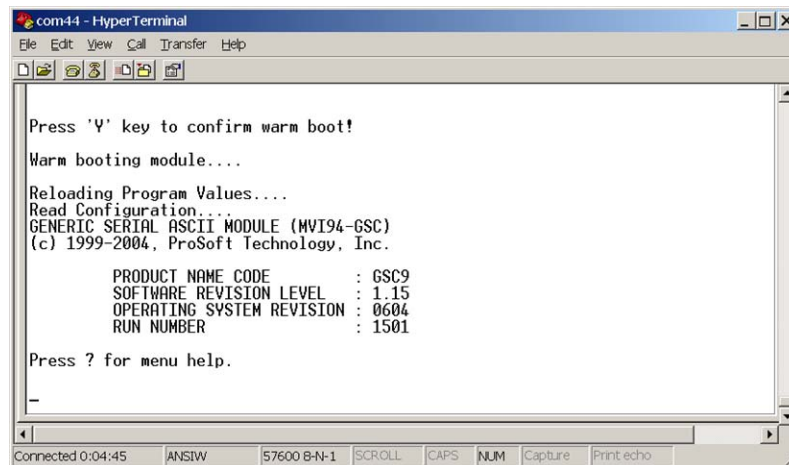
-

Connected 0:04:00  ANSIW  57600 B-N-1  SCROLL  CAPS  NUM  Capture  Print echo
```

This information may be requested when calling for technical support on the product. Values at the bottom of the display are important in determining module operation. The **Program Scan Counter** value is incremented each time a module's program cycle is complete. This value can be used to determine the frequency of program execution by pressing the 'V' key at one-second intervals.

2.7 W = Warm Boot Module

This option is selected when a warm-boot operation is required of the module. This request is usually made after configuration changes are set or to reset the module. After selecting the option, the following will be displayed:



```

com4-1 - HyperTerminal
File Edit View Call Transfer Help
Press 'V' key to confirm warm boot!
Warm booting module....
Reloading Program Values....
Read Configuration....
GENERIC SERIAL ASCII MODULE (MVI94-GSC)
(c) 1999-2004, ProSoft Technology, Inc.
      PRODUCT NAME CODE : GSC9
      SOFTWARE REVISION LEVEL : 1.15
      OPERATING SYSTEM REVISION : 0604
      RUN NUMBER : 1501
Press ? for menu help.
-
Connected 0:04:45 ANSIV 57600 B-N-1 SCROLL CAPS NUM Capture Print echo

```

2.8 1 = Communication Status (Port 1)

This option is used to display the communication status and statistics of the specified port. This information can be informative when trouble-shooting communication problems. After selecting the option, the following information will be displayed:

```

PORT 1 STATUS:
Enabled : Y
Rec Data Len : 0          Receive State : -1
Characters Rec : 0        Messages Rec : 0
Transmit Len : 0          Transmit State : 0
Characters Tx : 0         Messages Tx : 0

```

2.9 6 = Port Configuration (Port 1)

This option is used to display the configuration information for the selected port. After selecting the option, the following information will be displayed:

```

PORT 1 CONFIGURATION:
Enabled : Y      Port Type : (1) - TERM
COMMUNICATION PARAMETERS:
Baud: 19200    Parity: NONE    Databits: 8    Stopbits: 1
RTS On: 0     RTS Off: 1
Handshaking: N (Y=RTSCTS,D=DTRDSR,X=XONXOFF,N=NONE)
RECEIVE CONFIGURATION:
Term Char Count: 2      Swap Code : 1
Term Char(s) : 0a 0d 00 00 00 00 00 00 00 00 00
Packet size : 10       Message Timeout : 70    Char Timeout : 500
SEND CONFIGURATION:
Minimum Delay: 0       Timeout : 5000    Swap Code : 1

```

2.10 Esc = Exit Program

This option is used to exit the program and to display the operating system prompt. This option should only be selected if instructed by the ProSoft Technical Support Group. If you select the option, the module will cease operation. Data will no longer be transferred between the ports and the module and between the Allen-Bradley processor and the module. This might cause an upset to a currently running process.

