

CHAPTER 3 HOST COMMUNICATIONS

COMMS PROTOCOL OPTIONS

GEM

This configuration implements the SMEMA standard for communications for Surface Mount Equipment. GEM (Generic Equipment Model) is a standard subset of the SECSII protocol. GEM is specifically designed for implementing equipment automation in a production environment.

In this configuration, a host computer running GEM compatible software talks to the machine via a Network cable.

If the Host is a PC, DEK's Off-line editor software can be used to modify product files. The Event Log can be read by a text editor. The flexibility of the GEM interface allows data collection to be customized to meet the users requirements.

Net_Files

This configuration allows users to redirect files away from the machines local hard drive to a remote directory on a file server. The machine is configured to access a 'product' directory for a product file and a 'data' directory for output data files.

At the machine when a product file is loaded it is read from the 'product' directory on the network file server. When it is saved it is saved to the 'product' directory on the file server. Files cannot be read from the printer or sent to the printer across the network.

Once the files are present on the server, they can be accessed from a networked PC without interfering with the machine.

At a networked PC, DEK's Off-line Editor software can be used to modify product files. QC-Calc software can be used to access SPC data in the 'READ-INGS.DEK' file. The Event Log can be read with a text editor.

Selecting Comms Protocol Options

The Comms Protocol Set Preference SECS, GEM, and NET_FILE options each display additional menu parameters if they are selected in the Set Preferences window.

On selecting GEM the following menu bar is displayed:

Enable Comms			Next	Previous	Incr.	Decr.	Exit
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On selecting NET_FILE the following menu bar is displayed:

Enable Comms	Edit Comms		Next	Previous	Incr.	Decr.	Exit
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If the **Enable Comms** key is pressed the following menu bar is displayed:

Confirm							Exit
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The user is given the option to **Confirm** or **Exit** their selection.

The NET_FILE option may cause a further window to appear requesting the Network Password.

Editing NET_FILE Comms Options The NET_FILE comms editing window allows the user to change IP addresses, user ID, file paths etc.

To enter the Edit Comms window from the set preferences window, select NET_FILE from the Comms Protocol set preference and press the Edit Comms menu bar option.

The Edit Comms window appears as follows:

Network Parameters	
Remote Drive	C:
User ID	
Products Path	
Data Path	
Auto Login	DISABLED
Local Copies	DISABLED
Reconnect Period	60
Timeout	30

To edit the Edit Comms window the following menu bar appears:

		Edit	Next	Previous	Left	Right	Exit
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The **Next** and **Previous** keys are used to move the cursor up and down the current column.

The **Left** and **Right** keys move the cursor between the two parameter columns.

The **Edit** keys makes the parameter under the cursor editable. When editing a parameter the cursor keys and the delete keys can be used as well as the normal alphanumeric keys. While editing a parameter (the cursor is still flashing), pressing the Exit key finishes the current parameters editing.

The **Exit** key is used to leave the Edit Comms window.

IP ADDRESS CONFIGURATION

For a machine to function in a network environment, correct setting of its IP Address is necessary. The IP Address (Internet Protocol Address) provides a unique global address for both the machine and the network.

NOTE

IP Addresses must be provided by the sites Line or Network Manager.

TCP/IP Driver (GEM and NET_FILES)

Windows NT Network Configuration option can be set up using the Network icon in Control Panel. Select Protocols and highlight TCP/IP Protocol. From Properties choose the appropriate adaptor and either obtain or specify a IP address for the printer.

SDR Driver (GEM Only)

The IP address of the printer must be set up in the SDR driver. To do this edit the SDR configuration file 'c:\printer\conf170.cfg' (see next page) using a text editor. The DOS program EDIT is suitable and can be used by typing the following from the DOS prompt:

```
EDIT C:\printer\conf170.cfg
```

Set the PASSIVE ENTITY IPADDRESS to the printers 'IP address'.

If there is more than one printer communicating with the GEM Host, set the DEVICEID differently for each printer. The default value is 0x109 (265). Alternative DEVICEID values should be chosen within the range 0x0000 - 0x7FFF (0 - 32767).

Configuration File

/* SDR-DOS-170 Sample Configuration File*/

PORT 0:

PROTOCOL HSMS94

EQUIPMENT

PASSIVE ENTITY

PASSIVE ENTITY IPADDRESS 192.100.20.51

PASSIVE ENTITY TCPPORT 5265

T3 30

T5 5

T6 10

T7 5

T8 6

CONNECTION ESTABLISHMENT 5

CIRCUIT ASSURANCE 20

TGRACE 15

MEMORY STALL 5

WRITE STALL 7

START

DEVICE 0:

DEVICEID 0x109

PORT 0

START

Definitions of Fields

The majority of the fields in the SDR configuration file never need to be changed. They are described here to give an understanding of how to configure the driver when changing IP addresses, Device ID's or some of the timer values.

Port 0:	Defines this port as SECS port 0.
Protocol HSMS94	Selects the protocol that the SDR driver uses.
Equipment	Defines that the printer end of the link is the equipment end.
Passive Entity	Defines that the printer is the passive entity and that the host is expected to establish the TCP/IP connection. A GEM host is almost always the active entity.
Passive Entity IP Address	Sets the IP address of the printer.
Passive Entity TCP Port	Specifies a TCP Port number at which the passive entity waits for a connection on this HSMS link. Typically a number beginning at 5000.
T3 30	Sets the HSMS-SS T3 reply time-out to 30 seconds. If the printer does not receive a reply within this time a S9F9 Transaction time-out error message is transmitted.
T5 5	The HSMS-SS T5 Connect separation Timer value. Only used by an 'ACTIVE' entity.
T6 10	The HSMS-SS T6 Control Message Reply Timer value. should be less than T3 10 is a typical value.
T7 5	The HSMS-SS T7 Connect time-out value. The time that the PASSIVE Entity waits to receive a HSMS Select.req control message after a TCP/IP connection has been established. If the time is exceeded the TCP/IP link is terminated.
T8 6	The HSMS-SS T8 Inter-character Timer value. The maximum time that SDR driver waits for a TCP/IP recv operation to complete. If the time is exceeded the TCP/IP link is terminated.
Connection Establishment 5	Only used by an 'ACTIVE' entity.
Circuit Assurance 20	Defines the frequency at which the SDR Driver initiates a HSMS Linktest control transaction.
T Grace 15	A period during the start up of the link. when the SDR Driver accepts and buffers messages from the printer software.
Memory Stall 5	This limits how long the SDR Driver tolerates a situation where all of its buffers are full and the host is attempting to send more data. If the time is exceeded the TCP/IP link is terminated.
Write Stall 7	This limits the amount of time that the SDR driver waits for TCP/IP to accept data. If the time is exceeded the TCP/IP link is terminated.

Start	This statement automatically enables the port when the printer starts up.
Device 0:	This defines the printer as device 0.
Device ID 0x109	This allocates an ID to Device 0 (the printer). it is specified as a hexadecimal number. The default is 0x109 (265 decimal).
Port 0	This defines the port that device 0 uses. In this case Port 0. This refers to the configuration data previously defined for port 0 above.
Start	This statement automatically enables the device when the printer starts up.

HOST COMMS

The machine provides the user with access to certain Host Comms options without accessing the maintenance function. The user is able to send and receive messages to and from the host computer via the Terminal Services option, upload product data files to the host computer, download product data files from the host computer and alter the equipment control level.



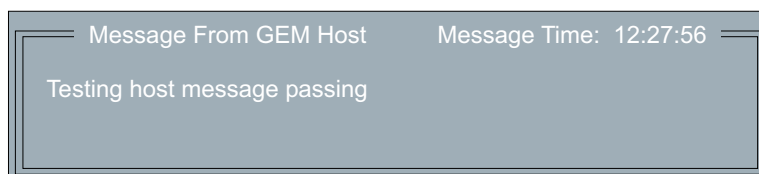
WARNING

HOST COMMUNICATIONS. BE AWARE THAT IF THE MACHINE SAFETY LOCKS ARE DEFEATED WHILST HOST COMMUNICATIONS ARE ACTIVE, A DANGER EXISTS WHEREBY MACHINE PARTS MAY MOVE UNEXPECTEDLY.

Terminal Services

Message From GEM Host

When a message is sent to the machine from the Host, the following window is displayed:



Select **Ack Message** to acknowledge the message and close the message window.



Accessing Terminal Services

To send and view messages to and from the Host proceed as follows:

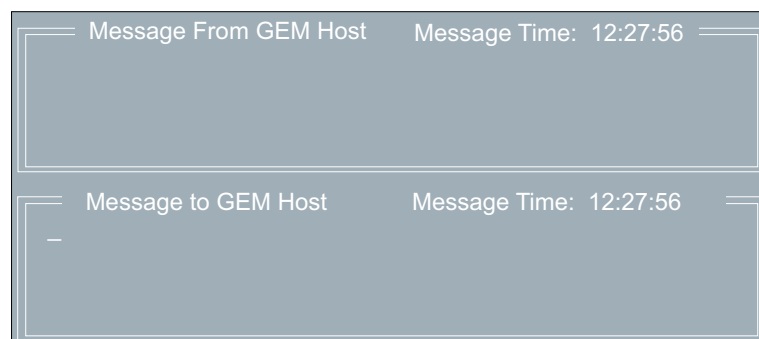
1. Select **Host Comms**.



2. Select **Terminal Services**.



The terminal services message windows are displayed as follows:



The most recent message from the Host is displayed in the upper window.

If a new message arrives while the window is open, the upper window displays the new message and the Ack Message key is visible. Select **Ack Message** to acknowledge to the Host that the message has been received.

							Ack Message
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- To send a message to the Host, type the message using the keyboard, the message appears in the lower window.
- Select **Send Message** to send the message in the lower window to the Host.

Send Message							Exit
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- Select **Exit**.

							Exit
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Upload a Product Data File

To upload a product data file from the Host proceed as follows:

- Select **Host Comms**.

Log On	Host Comms	Clear Batch	Batch Limit	Perform Display	Event Display	System Disable	Exit
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The Host Communications window is displayed as follows:

Host Communications	
Communications Protocol	GEM
Communications:	Enabled-Communications
Equipment Control	On-Line
On-Line Control	Remote

- Select **Transfer To Host**.

Terminal Services	Transfer To Host	Transfer To Equip	On-Line	Off-Line	Local/Remote		Exit
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The Upload Data File window is displayed as follows:

Upload Data File
CALIBRA
CIRCLE
CROSS
DEFAULT
DEK04
HASH
NEWFILE
NEWFILE2
ODDFILE
SQUARE
TEST
TEST2
TEST3
TRIANGL

3. Using the **Left**, **Right**, **Up** and **Down** keys, highlight the required data file.

Upload File			Left	Right	Up	Down	Exit
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4. Select **Upload File**, the chosen product data file is transferred to the Host.

Upload File			Left	Right	Up	Down	Exit
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5. Select **Exit**.

Upload File			Left	Right	Up	Down	Exit
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6. Select **Exit**.

Terminal Services	Transfer To Host	Transfer To Equip	On-Line	Off-Line	Local/Remote		Exit
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Download a Product Data File

To download a product data file from the Host proceed as follows:

1. Select **Host Comms**.

Log On	Host Comms	Clear Batch	Batch Limit	Perform Display	Event Display	System Disable	Exit
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The Host Communications window is displayed as follows:

Host Communications	
Communications Protocol	GEM
Communications:	Enabled-Communications
Equipment Control	On-Line
On-Line Control	Remote

2. Select **Transfer To Equip**.

Terminal Services	Transfer To Host	Transfer To Equip	On-Line	Off-Line	Local/Remote		Exit
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The Download Data window is displayed as follows:

Download Data	
File Name:	_____

3. Enter the name of the required product data file to download from the Host, via the keyboard.

4. Select **Download**, the chosen product data file is transferred from the Host.

Download							Exit
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5. Select **Exit**.

Terminal Services	Transfer To Host	Transfer To Equip	On-Line	Off-Line	Local/Remote		Exit
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Equipment Control Level

To change the equipment control level proceed as follows:

1. Select **Host Comms**.

Log On	Host Comms	Clear Batch	Batch Limit	Perform Display	Event Display	System Disable	Exit
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The Host Communications window is displayed as follows:

Host Communications

Communications Protocol	GEM
Communications:	Enabled-Communications
Equipment Control	On-Line
On-Line Control	Remote

2. Select the required equipment control level from the three options:
On-Line, Off-Line or Local/Remote.

Terminal Services	Transfer To Host	Transfer To Equip	On-Line	Off-Line	Local/Remote		Exit
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3. Select **Exit**.

Terminal Services	Transfer To Host	Transfer To Equip	On-Line	Off-Line	Local/Remote		Exit
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4. Select **Exit**.

Log On	Host Comms	Clear Batch	Batch Limit	Perform Display	Event Display	System Disable	Exit
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