

USER MANUAL

MODEL 2120 RS-232 Single Port Terminal Server



PATTON
Electronics Co.



**An ISO-9001
Certified Company**

Part# 07M2120-UM
Doc# 08302U2-001,
Rev. D
Revised 10/27/06

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1.0 WARRANTY INFORMATION

Patton Electronics warrants all Model 2120 components to be free from defects, and will—at our option—repair or replace the product should it fail within one year from the first date of shipment.

This warranty is limited to defects in workmanship or materials, and does not cover customer damage, abuse or unauthorized modification. If this product fails or does not perform as warranted, your sole recourse shall be repair or replacement as described above. Under no condition shall **Patton Electronics** be liable for any damages incurred by the use of this product. These damages include, but are not limited to, the following: lost profits, lost savings and incidental or consequential damages arising from the use of or inability to use this product. **Patton Electronics** specifically disclaims all other warranties, expressed or implied, and the installation or use of this product shall be deemed an acceptance of these terms by the user.

1.1 FCC INFORMATION

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 in which case the user will be required to correct the interference at his own expense. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and receiver
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected

1.2 CE NOTICE

The CE symbol on your Patton Electronics equipment indicates that it is in compliance with the Electromagnetic Compatibility (EMC) directive and the Low Voltage Directive (LVD) of the European Union (EU). A Certificate of Compliance is available by contacting Technical Support.

Note THIS DEVICE IS NOT INTENDED TO BE CONNECTED TO THE PUBLIC NETWORK.

1.3 SERVICE

All warranty and nonwarranty repairs must be returned freight prepaid and insured to Patton Electronics. All returns must have a Return Materials Authorization number on the outside of the shipping container. This number may be obtained from Patton Electronics Technical Services at:

Tel: **(301) 975-1007**

E-mail: **support@patton.com**

URL: **www.patton.com**

Note Packages received without an RMA number will not be accepted.

Patton Electronics' technical staff is also available to answer any questions that might arise concerning the installation or use of your Patton Model 2120. Technical Service hours: **8AM to 5PM EST, Monday through Friday.**

2.0 GENERAL INFORMATION

Thank you for your purchase of this **Patton Electronics** product. This product has been thoroughly tested and is warranted for One Year parts and labor. If any questions or problems arise during installation or use of this product, please do not hesitate to contact **Patton Electronics Technical Support** at **(301) 975-1007**.

2.1 PRODUCT FEATURES

- Enables control of any RS-232 asynchronous serial device over a LAN or via the Internet
- Asynchronous data rates up to 115.2 kbps
- DTE/DCE-selectable serial port
- RS-232 status indicators
- RS-232 serial connection via DB-25 male and female, DB-9 male and female, and RJ-45 female connector options
- 802.3 10Base-T LAN connection via RJ-45 female connector
- Ethernet Link and System Status Indicators
- User-configurable session options
- Supports standard protocols including TCP, UDP, IP, ICMP, TELNET, ARP, DHCP, FTP, SLIP, PPP, and PAP
- Comes with 1 Mbyte RAM and 512 kbytes FLASH
- Small package attaches directly to terminal equipment
- AC or DC power options
- Software updates via Patton's FTP site
- Can be used as single-port remote access server

2.2 SOFTWARE FEATURES

RS-232 Serial Interface

- Selectable asynchronous data rates from 50 bps to 115.2 kbps
- Selectable serial port options of DCE, DTE
- DCE/DTE on configuration reset (SW2)

- Selectable RS-232 character length options of 5, 6, 7, 8
- Selectable RS-232 flow control options of none, hardware, xonxoff
- Selectable RS-232 parity options of none, odd, even, high
- Selectable RS-232 stop length options of 1, 2
- Selectable RS-232 interface protocol options of Telnet, Raw-TCP, SLIP, and PPP
- Ability to display the current active user on the serial interface
- Ability to disable the user interface at the serial interface when using Telnet or Raw-TCP
- Receive Buffer Length and Receive Idle Character Triggering support
- Selectable serial interface inactivity timeout (minutes) with disable option

PPP/SLIP

- Enables devices connected to the serial interface with Ethernet connectivity using either PPP or SLIP protocols
- Proxy ARP provides the device connected to the serial interface with a virtual Ethernet connection
- DHCP enable/disable for static or dynamic IP addressing for PPP operations
- Configurable DHCP PPP hardware address
- Optional IP addressing from the PPP client device connected to the serial interface instead of using static or dynamic IP addressing
- Optional PAP user authentication protocol for PPP operations
- Supports Primary and Secondary Domain Name Server (DNS or WINS) functionality
- Supports DNS address static configuration in the PPP client device
- Ability to configure either 16 or 32-bit FCS when using PPP (previously fixed at 16)
- Ability to configure receive and transmit ACCM (Async-Control Character Map) when using PPP (previously fixed at 0xFFFFFFFF).

- DHCP:
 - DHCP enable/disable for static or dynamic IP addressing of the unit
 - Permit the use of the DHCP offered IP address in the IP address destination field
 - DHCP Client support for Default Gateway

IP Forwarding/NAT

- Ability to forward IP packets from multiple Ethernet devices across its serial interface in both SLIP and PPP mode
- NAT support for a single device connected on the Ethernet interface when IP Forwarding is enabled
- FTP/Port command support when NAT is enabled
- NAT algorithm conforms to RFC 1624

Raw TCP/TELNET

- Permits automatic connection request to a remote device
- Permits incoming connection requests from remote devices on the serial interface
- Selectable frequency (in seconds) of the automatic connection requests to remote device
- Selectable TCP port number for serial interface
- Selectable destination IP address for sending automatic connection requests to a remote device
- Selectable TCP port number for sending automatic connection requests to a remote device
- Optional User ID & Password capability when sending automatic connection requests to remote device
- Selectable serial interface session termination character
- Flexible Telnet session NVT configuration
- Serial Port TCP Inactivity Support
- Ability to specify TCP port number for the user interface

System Features

- Ability to display boot message on the serial interface
- Selectable default gateway IP address for use when the destination IP address cannot be found
- DHCP enable/disable for static or dynamic IP addressing of the unit
- Selectable unit IP address
- Ability to change factory assigned unit MAC Address, MAC Address preserved when configuration is default
- Ability to enable/disable unit management/configuration via remote Telnet session
- Ability to display the current active user on the serial interface
- Ability to disable the user interface at the serial interface when using Telnet or Raw-TCP
- Selectable unit management inactivity timeout (minutes) with disable option
- Ability to change the preset system command prompt (TS>) to uniquely identify the unit
- Selectable unit Subnet Mask
- RAW UDP protocol support

User Database

- Fully integrated 64-user database with Telnet, RawTCP and PPP operation
- All user security accessed through database
- Telnet and RawTCP operations support multiple users

Utilities

- Ability to remotely perform a soft boot of the unit
- Configuration reset to factory default configuration via SW1 (Will not reset MAC Address)
- Ability to clear configuration changes prior to being activated/written to memory

- Ability to reset non-volatile configuration parameters
- Ability to remotely close the serial interface connection
- Ability to FTP to a remote device
- Ability to Ping to a remote device
- Ability to Raw-TCP to a remote device
- Ability to Telnet to a remote device
- Ability to download software using FTP and write/activate to flash memory
- Ability to display ARP Table

View (Show) Features

- Ability to view all current serial interface related parameters
- Ability to view current setting of each individual serial interface related parameter
- Ability to view all current Raw-TCP related parameters
- Ability to view current setting of each individual Raw-TCP related parameters
- Ability to view all current system related parameters
- Ability to view current setting of each individual system related parameters
- Ability to view TCP connection state
- Ability to view DHCP state, passed lease time (seconds), renew lease time (seconds), rebind lease time (seconds), and expire lease time (seconds)
- Ability to view current software version
- Ability to view all current PPP/SLIP related parameters
- Ability to view current setting of each individual PPP/SLIP related parameter

2.3 DESCRIPTION

The Model 2120 Single Port Terminal Server (see Figure 1) provides a quick, easy to use solution for connecting traditional RS-232 terminals and devices to the Local Ethernet/IP Network. The Model 2120 can also function as a very cost effective single port remote access server. Serial asynchronous device connectivity across the LAN is provided using Telnet/TCP, Raw-TCP, SLIP, or PPP protocols. The versatile and feature-rich Model 2120 can literally be used in thousands of different applications and environments, including:

- Factory floor machinery
- Security systems
- Printers
- Scales
- Barcode scanners
- Various instruments
- Climate control systems
- ASCII terminals
- Vending machines
- Cash registers and other point-of-sale (POS) devices
- RS-232 control/console ports (PBX, switches, etc.)

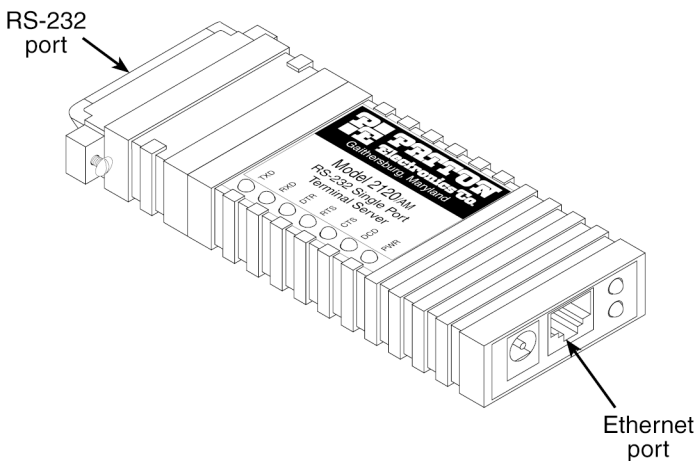


Figure 1. Model 2120 showing location of Ethernet and RS-232 ports.

The Model 2120 is initially configured via the serial interface using a dumb terminal or terminal emulation software in VT-100 mode. The serial interface factory default asynchronous setting is 9600 bits/second, 8 bits per character, no parity, and 1 stop bit. All configuration parameters can be set via the serial interface using the 2120's menu-driven command system. Once initial configuration is complete with a static or dynamically assigned IP address and the 2120 is connected to the LAN, configuration parameters can be modified, configuration parameters and operational status can be viewed, and utilities can be performed over the LAN using a Telnet session.

The Model 2120 can use DHCP (Dynamic Host Configuration Protocol) to dynamically obtain the unit IP address over the LAN from a DHCP server. The 2120 sends the DHCP server MAC address information and dynamically obtains its IP address based on the unit MAC address. This feature reduces the numbers of IP addresses on the network and minimizes network administration.

Telnet/TCP operation provides an asynchronous device connected to the Model 2120 serial interface with connectivity to a remote device/application over the LAN. Asynchronous data received at the Model 2120 serial interface is sent to the remote device using the Telnet/TCP protocol. Asynchronous data received from the Telnet/TCP connection is sent to the device connected to the Model 2120 serial interface. When the remote device accessed over the LAN performs the same type of operation, an asynchronous connection is formed between the two devices.

Raw-TCP operation is identical to Telnet/TCP operation with one exception. The data passed between the 2120's serial interface and the remote device/application is directly passed using TCP (Telnet is not used). Aside from this one exception, Raw-TCP contains all the features and functionality as Telnet/TCP.

PPP operation provides an asynchronous device connected to the Model 2120 serial interface with LAN connectivity. The Model 2120 and the device connected to its serial interface exchange IP packets where each IP packet is PPP encapsulated. The Model 2120 uses proxy ARP to provide the device connected to the serial interface with a virtual LAN connection. The Model 2120 optionally provides PAP as a user authentication protocol. PAP security can be used to validate a user trying to establish a LAN connection from the device connected to the Model 2120 serial interface. The Model 2120 IP address for PPP operations can be either configured statically or dynamically using a DHCP server. Further, the PPP IP address may be obtained from the PPP client device connected to the serial interface.

SLIP operation provides a device connected to the Model 2120 serial interface with LAN connectivity. The Model 2120 and the device connected to the serial interface exchange IP packets where each IP packet is SLIP encapsulated. The Model 2120 uses proxy ARP to provide the device connected to the serial interface with a virtual Ethernet connection. The Model 2120 serial interface IP address must be configured with the same static IP address as the device connected to the serial interface.

When operating in PPP mode and accessing the Internet through the Model 2120, the unit can be configured for DNS and/or WINS. These are client name server options for Internet domain name resolution. When operating in SLIP mode, the Model 2120 must be configured to obtain the name server addresses from the SLIP client device.

The Model 2120 features a flexible user database with security for up to 64 users. This enables security access to the Model 2120 serial interface and administrative management of the Model 2120 over the LAN. Each user is assigned a user name, password and privilege for accessing the serial interface (User), administration management features (Admin), or both. If the Model 2120 is configured for PPP (and PAP security is enabled), the user may connect from a remote PPP client through a modem connected to the serial port of the Model 2120 and receive / transmit data over the LAN.

The Model 2120 uses an integrated FTP (File Transfer Protocol) client to obtain new program images and communicate with an FTP server. The FTP client logs onto the FTP server and then can browse and display files located on the FTP server. The FTP client can also obtain a new program image (software release) from the FTP server. The program image is first obtained from the FTP server across the LAN and then stored in FLASH memory. This enables the Model 2120 to obtain new functionality both easily and quickly. The latest Model 2120 software release is available for download via upgrades.patton.com.

The Model 2120 features integrated utility features to perform a variety of functions. These include utilities to activate new software images (activateimage), remotely boot the Model 2120 over the LAN (boot), remotely close the connection to the Model 2120 serial interface (eiaonclose), test connectivity with another IP device (ping), establish a Telnet session with another IP device with Telnet/TCP support (telnet), establish a Raw-TCP session with another IP device with TCP support (rawtcp), and display the Model 2120 ARP Table (za).

Last, the Model 2120 features the ability to view any or all configuration parameter settings and operational status of the Model 2120 unit.

3.0 CONFIGURATION

3.1 CONFIGURATION SWITCHES

SW1 is a set of four internal DIP switches (see Figure 2) that are used for configuration reset purposes only. To access switch set SW1, use a small flat blade screwdriver to open the Model 2120's case as shown in Figure 3.

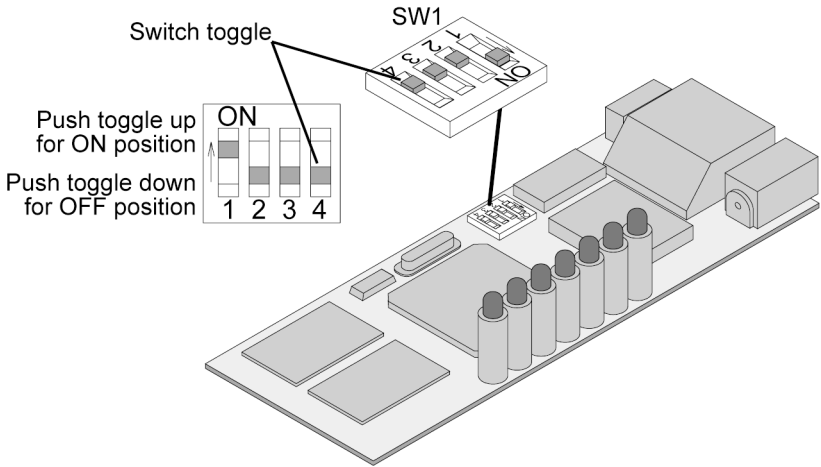


Figure 2. Switch set SW1 location

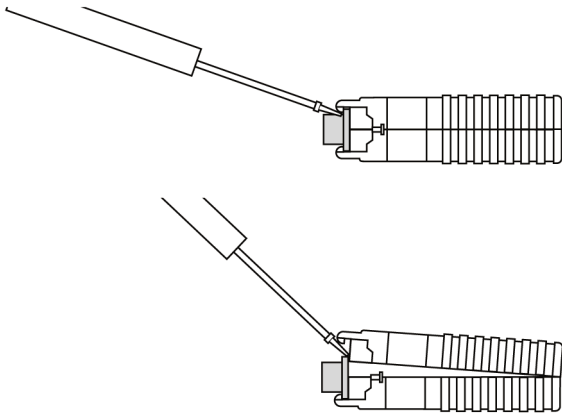


Figure 3. Opening the Model 2120 case

To configure the DIP switches, use a small screwdriver and gently push each switch to its proper setting. The ON and OFF positions are shown in Figure 2.

Default Settings

Default settings for the DIP switches are as follows:

Table 1: Default Settings

Position	Function	Factory Default
SW1	Configuration Reset	OFF
SW2	DCE/DTE on Config Reset	OFF
SW3	Not Used (Must Be OFF)	OFF
SW4	Not Used (Must Be OFF)	OFF

Detailed Switch Settings

This section provides detailed information about the function of each DIP switch and lists all possible settings.

- Switch 1: Configuration Reset. Set this switch to the ON position and power cycle the unit to reset to the factory default configuration parameters.

Note This will not change the factory assigned NIC/MAC address.

- Switch 2: DCE/DTE on Configuration Reset. When a configuration reset is being performed via Switch 1 (above), set this switch to the ON position to force the serial interface to DTE or to the OFF position to force the serial interface to DCE.

Note This switch is ONLY read when the configuration is reset through Switch 1 (above).

- Switch 3: Not Used. This switch is not used and must remain in the OFF position.
- Switch 4: Not Used. This switch is not used and must remain in the OFF position.

3.2 SOFTWARE CONFIGURATION

The Model 2120 features a menu-driven command system that enables the configuration of the 2120 software via the serial interface using a VT-100 terminal or emulation session or over the LAN using a Telnet session. Since the Model 2120 is not pre-configured with an IP address for your network, initial configuration of the Model 2120 is performed via the serial interface (See “Initial Unit Configuration” on page 21.). Once initial configuration is complete with a static or dynamically assigned IP address and the Model 2120 is connected to the LAN, configuration parameters can be modified over the LAN using a Telnet session. The

management enable command is factory set to yes, which allows the remote configuration of the Model 2120 over the LAN.

Model 2120 Software Command System

The Model 2120 Software Command System is designed with a series of help menus and commands derived from the actual function descriptions. Once a session has been established with the 2120 and the system prompt (TS>) appears, the main help menu (see Figure 4) will be displayed by pressing the <Enter> key.

```
*** Help Menu ***

activateimage - Activate Image Acquired With FTP Get
boot         - Boot System
configure    - Configure Parameters
eiaconclose  - EIA232 Connection Close
ftp          - FTP To Remote Device
ping         - Ping Remote Device
rawtcp       - Raw-TCP To Remote Device
show         - Show Parameters and Statistics
telnet       - Telnet To Remote Device
```

Figure 4. Main Help Menu

The "configure" and "show" commands are used to access system, eia232 and user database related parameters. Commands other than "configure" and "show" result in executing an operation or utility and thus do not have menus associated with them.

Model 2120 Help Menu/Command Hierarchy

The help menu/command hierarchy is shown in Figure 5 on page 18.

Note For a detailed definition of all Model 2120 system commands, valid entries, and defaults see Appendix B on page 59.

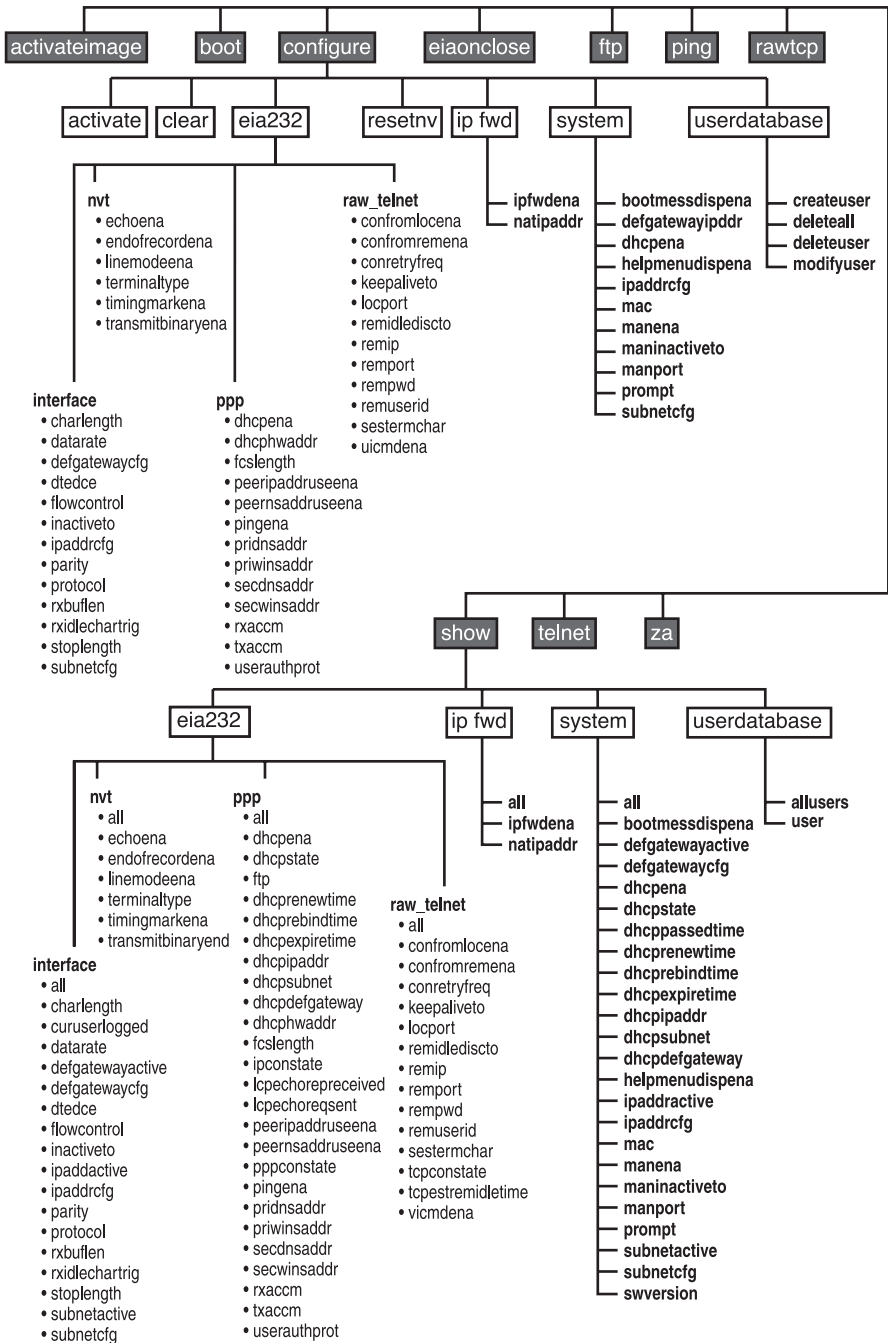


Figure 5. Model 2120 Help Menu/Command Hierarchy

Entering Commands

Commands are executed by typing the appropriate command or commands at the system prompt (TS>) followed by a valid entry (if applicable) and the <Enter> key. If entering multiple commands, they must be entered in hierarchy order (See “Model 2120 Help Menu/Command Hierarchy” on page 17) and separated by a space. For example, the following command string is entered to set the serial interface data rate to 115.2 kbps:

```
TS>configure eia232 interface datarate 115200<Enter>
```

For a single entry command such as “boot”, the following command is entered to remotely boot the Model 2120:

```
TS>boot<Enter>
```

Commands entered are matched against the commands available for that menu. Commands are accepted when the characters entered for a command can only match one command for that menu. Thus shortcuts are permitted when entering commands. The following examples show how shortcut commands can be used to enter the same configure and boot commands as listed above:

```
TS>c e i da 115200<Enter>  
TS>b<Enter>
```

Activating Configuration Commands

The Model 2120 configuration parameters can be changed by using the “configure” command and associated sub-commands. Immediately after the necessary “configure” command string is entered, the “configure activate” command **must be entered in order to activate the changes and write them to flash memory**. For example, the command string used to set the serial interface data rate to 115.2 kbps (see section “Entering Commands”) must be immediately followed by the following command:

```
TS>configure eia232 interface datarate 115200<Enter>  
TS>configure activate<Enter>
```

If successfully activated, the message “Activate is complete!” will display.

Note The “configure activate” command MUST be entered after each configuration change!

3.3 DEFAULT CONFIGURATION PARAMETERS

The Model 2120 software is pre-configured with the following factory default settings.

EIA232 Interface Defaults

- Character Length: **8** (bits)
- Datarate: **9600** (bits per second)
- DTE/DCE Physical Port: **DCE**
- Flow Control: **none**
- Inactive Timeout: **15** (minutes)
- Serial Interface IP Address: **5.5.5.5**
- Parity: **none**
- Serial Interface Protocol: **Telnet**
- Stop Length: **1** (bits)
- Serial Interface Subnet Mask: **255.255.255.0**

PPP Defaults

- PPP DHCP Enable: **no**
- Peer IP Address Use Enable: **no**
- Peer Name Server Address Use Enable: **no**
- Primary DNS Address: **0.0.0.0**
- Primary WINS Address: **0.0.0.0**
- Secondary DNS Address: **0.0.0.0**
- Secondary WINS Address: **0.0.0.0**
- User Authentication Protocol: **none**

RawTCP/Telnet Defaults

- Connection From Local Enable: **no**
- Connection From Remote Enable: **yes**

- Connection Retry Frequency: **0** (seconds)
- Local Port: **404**
- Remote IP Address: **1.1.1.8**
- Remote Port: **23**
- Remote Password: **UNDEFINED** (no entry)
- Remote User ID: **UNDEFINED** (no entry)
- Session Termination Character: **0x04** (Control-D)

System Defaults

- Boot Message Display Enable: **yes**
- Default Gateway IP Address: **0.0.0.0** (disabled)
- Unit DHCP Enable: **yes**
- Unit IP Address: **5.5.5.5**
- Unit MAC Address: **(Factory Assigned MAC/NIC Address)**
- Management Enable: **yes**
- Management Inactive Timeout: **15** (minutes)
- Prompt: **TS>**
- Unit Subnet Mask: **255.255.255.0**

User Database Defaults

- user database empty!

Note To reset the Model 2120 software to factory default settings, set internal dip switch #1 to the ON position and power cycle the Model 2120 unit. Once powered on, set switch #1 back to the OFF position. This will reset all settings, with the exception of the unit MAC address, to the above listed factory defaults.

3.4 INITIAL UNIT CONFIGURATION

Unless pre-configured with an IP address for your LAN (not standard), the Model 2120 must be initially configured via the serial interface using the menu-driven command system and required terminal equipment as described below:

1. Verify that the four internal DIP switches are set to the OFF position (factory default).
2. Using ribbon cable or other similar cable, connect the serial RS-232 port of a VT-100 ASCII terminal or similar DTE with terminal emulation software to the RS-232 port of the Model 2120.
3. Power up the emulation device and configure its RS-232 port as follows:
 - 9600 Baud
 - 8 data bits, 1 stop bit, no parity
 - ANSI, VT100 emulation
4. Power up the Model 2120.
5. After the Model 2120 is powered on, the ASCII terminal or emulation device should display the following message:

```
Model 2120 Terminal Server
Software Version ?.?.? (will display current version)
TS>
```

Note If you are unable to connect with the Model 2120 and you have rechecked your terminal emulation settings, it is recommended that a configuration reset (to factory defaults) be performed on the Model 2120 by setting internal dip switch #1 to the ON position and power cycling the Model 2120. Once powered on, set switch #1 back to the OFF position. If still unable to establish a connection, please contact Patton Electronics Technical Support at (301) 975-1007.

6. Press the <Enter> key to see the main help menu screen.

```
*** Help Menu ***
```

```
activateimage - Activate Image Acquired With FTP Get
boot          - Boot System
configure     - Configure Parameters
eiaconclose   - EIA232 Connection Close
ftp           - FTP To Remote Device
ping          - Ping Remote Device
rawtcp        - Raw-TCP To Remote Device
show          - Show Parameters and Statistics
telnet        - Telnet To Remote Device
```

```
TS>
```

7. Before proceeding with the configuration of the Model 2120 for your application, it is suggested that the following "show all" commands be executed in order to view the current system, eia232, and user database configuration parameters:

```
TS>show system all<Enter> (or "s s a<Enter>")
```

```
Boot Message Display Enable      : yes
Default Gateway Active           : 0.0.0.0
Default Gateway Configured       : 0.0.0.0
DHCP Enable                      : yes
DHCP State                      : initialize
DHCP Passed Lease Time (sec)     : 0
DHCP Renew Lease Time (sec)     : 0
DHCP Rebind Lease Time (sec)    : 0
DHCP Expire Lease Time (sec)    : 0
DHCP IP Address                  : 0.0.0.0
DHCP Subnet Mask                  : 0.0.0.0
DHCP Default Gateway             : 0.0.0.0
Help Menu Display Enable         : yes
IP Address Active                 : 192.168.200.1
IP Address Configured            : 192.168.200.1
MAC Address                      : 0x00A0BA000D95
Management Enable                : yes
Management Inactive Timeout (min) : 15
Management Port                  : 23
Prompt                           : TS>
Subnet Mask Active                : 255.255.255.0
Subnet Mask Configured           : 255.255.255.0
Software Version                  : 4.0.19
```

```
TS>show eia232 interface all<Enter> (or "s e i a<Enter>")
```

```
Character Length                 : 8
Current User Logged              : (UNDEFINED)
Datarate                         : 9600
Default Gateway Active           : 0.0.0.0
Default Gateway Configured       : 0.0.0.0
DTE / DCE Physical Port         : dce
Flow Control                     : none
Inactive Timeout (min)          : 15
IP Address Active                 : 192.168.200.1
IP Address Configured            : 8.8.8.8
Parity                           : none
Protocol                         : telnet
Receive Buffer Length (num char)  : 1
Receive Idle Char For Trig (num char) : 1
Stop Length                      : 1
Subnet Mask Active                : 255.255.255.0
Subnet Mask Configured           : 255.255.255.0
```

TS>show eia232 ppp all<Enter> (or "s e p a<Enter>)

```
DHCP Enable : no
DHCP State : initialize
DHCP Passed Lease Time (sec) : 0
DHCP Renew Lease Time (sec) : 0
DHCP Rebind Lease Time (sec) : 0
DHCP Expire Lease Time (sec) : 0
DHCP IP Address : 0.0.0.0
DHCP Subnet Mask : 0.0.0.0
DHCP Default Gateway : 0.0.0.0
DHCP Hardware Address : 0x000000000000
FCS Length : 16
IP Connection State : closed
LCP Echo Reply Received : 0
LCP Echo Request Sent : 0
Peer IP Address Use Enable : no
Peer Name Server Address Use Enable : no
PPP Connection State : closed
Ping Enable : yes
Primary Domain Name Server Address : 0.0.0.0
Primary Windows Name Server Address : 0.0.0.0
Secondary Domain Name Server Address : 0.0.0.0
Secondary Windows Name Server Address : 0.0.0.0
Receive Async-Control Character Map : 0xFFFFFFFF
Transmit Async-Control Character Map : 0xFFFFFFFF
User Authentication Protocol : none
```

TS>show eia232 rawtcp_telnet all<Enter> (or "s e r a<Enter>)

```
Connection From Local Enable : no
Connection From Remote Enable : yes
Connection Retry Frequency (sec) : 0
Keepalive Timeout (sec) : 0
Local Port : 404
Remote Idle Disconnect Timeout (sec) : 0
Remote IP Address : 1.1.1.8
Remote Port : 23
Remote Password : (UNDEFINED)
Remote User ID : (UNDEFINED)
Session Termination Character : 0x04
TCP Connection State : listen
TCP Established/Remote Idle Time (sec) : 0
User Interface Command Enable : yes
```

TS>show userdatabase all<Enter> (or "s u a<Enter>)

user database empty!

8. You are now ready to configure the Model 2120 for your application. Configuration parameters will vary based upon the requirements of each application.

For a detailed definition of all 2120 system commands, valid entries, and defaults see Appendix B on page 59.

Note Contact your Network Administrator if you have questions regarding configuration parameters required for your application and/or LAN.

3.5 REMOTE CONFIGURATION OF THE UNIT

Once you have performed the initial configuration and the Model 2120 is connected to and communicating with a LAN, the configuration parameters can be changed remotely from anywhere on the LAN using an FTP Client (i.e. Windows Command Mode) on a computer that can communicate over the LAN.

1. From the Windows "Run" prompt at your computer, type: **command** and click **OK**.
2. At the DOS prompt, Telnet into the 2120 by typing:
telnet <the IP address of the 2120>
and pressing **<Enter>**.
3. When connected to the 2120, the computer should display the following message:

```
Model 2120 Terminal Server - Telnet Session
Software Version ?..? (will display current version)
TS>
```

4. Press the "Enter" key to see the main help menu screen.

```
*** Help Menu ***
```

```
activateimage - Activate Image Acquired With FTP Get
boot          - Boot System
configure     - Configure Parameters
eiaconclose   - EIA232 Connection Close
ftp           - FTP To Remote Device
ping          - Ping Remote Device
rawtcp        - Raw-TCP To Remote Device
show          - Show Parameters and Statistics
telnet        - Telnet To Remote Device
```

```
TS>
```

5. You are now ready to change the configuration of the Model 2120 for your application.

For a detailed definition of all 2120 system commands, valid entries, and defaults see Appendix B on page 59.

Note Contact your Network Administrator if you have questions regarding configuration parameters required for your application and/or LAN.

3.6 SAMPLE 2120 CONFIGURATIONS

The Model 2120 features and functionality allow it to operate in thousands of different applications; however, this section is not intended to cover all the possibilities. The configuration samples provided below will describe some of the typical 2120 applications and the configuration settings required for proper operation and serve as a useful reference when configuring the Model 2120 for your own application. This section will not discuss in detail the serial devices connected to the Model 2120 and related operating systems and/or applications. Actual configurations will vary from application to application based on the requirements and configuration of the serial device and related operating systems and applications.

Telnet/TCP Operation

In the typical Telnet/TCP application (see Figure 6), the user has a need to remotely connect to a serial device located on the LAN for administration, configuration, monitoring, troubleshooting, data collection, etc. To enable the remote connection via Telnet session, the Model 2120 is usually assigned a static IP address. The user then launches a Telnet/TCP session from their Computer specifying the IP Address of the Model 2120 and port number and remotely connecting to it over the LAN. Once connected, the Telnet/TCP client converts the asynchronous data into TCP packets and sends it over the LAN to the IP address of the Model 2120. When received, the Model 2120 converts the packets back to asynchronous data and forwards the data to the device connected to the serial interface. The serial device sends asynchronous data back to the Model 2120 and the Model 2120 converts the data into TCP packets and sends it over the LAN back to the originating Telnet/TCP client and is converted to asynchronous data to complete the cycle. Once the desired tasks are performed, the Telnet session is usually terminated.

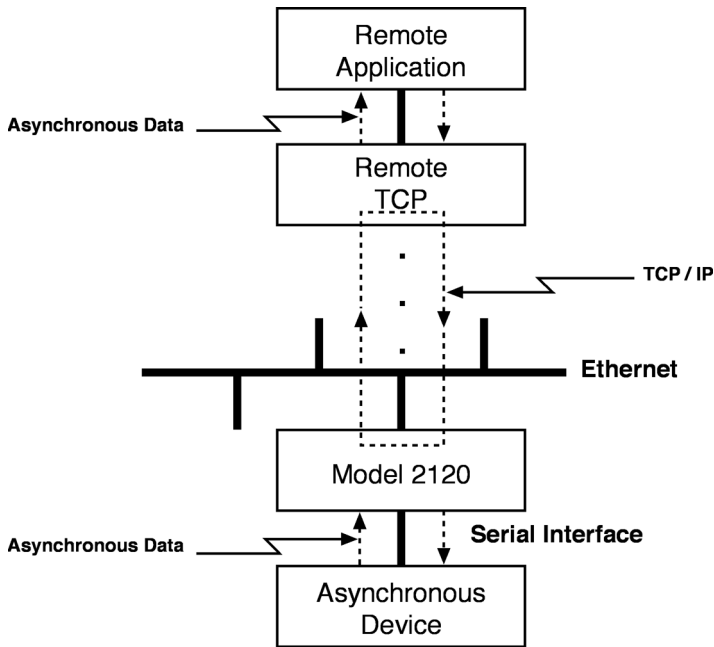


Figure 6. Telnet / TCP Operation

System Settings

Boot Message Display Enable: **yes**

Default Gateway IP Address: **<IP Address of Default Gateway of 2120 LAN>**

DHCP Enable: **no**

IP Address Configured: **<IP Address Assigned by Network Admin>**

MAC Address: **<Factory Assigned>**

Management Enable: **yes** (or preferred)

Management Inactive Timeout (min): **15** (or preferred)

Prompt: **TS>** (or preferred)

Subnet Mask Configured: **<Subnet Mask of 2120 LAN>**

EIA232 Interface Settings

Character Length: **8** (or setting required by serial device)

Datarate: **9600** (or setting required by serial device)

DTE / DCE Physical Port: **dce** (or setting required by serial device)

Flow Control: **none** (or setting required by serial device)

Inactive Timeout (min): **15** (or preferred)

IP Address Configured: **<Same as System IP Address>**

Parity: **none** (or setting required by serial device)

Protocol: **telnet**

Stop Length: **1** (or setting required by serial device)

Subnet Mask Configured: **<Same as System Subnet Mask>**

EIA232 PPP Settings

DHCP Enable: **no**

Peer IP Address Use Enable: **no**

Peer Name Server Address Use Enable: **no**

Primary Domain Name Server Address: **0.0.0.0**

Primary Windows Name Server Address: **0.0.0.0**

Secondary Domain Name Server Address: **0.0.0.0**

Secondary Windows Name Server Address: **0.0.0.0**

User Authentication Protocol: **none**

EIA232 Raw-TCP/Telnet Settings

Connection From Local Enable: **no**

Connection From Remote Enable: **yes**

Connection Retry Frequency (sec): **0**

Local Port: **404** (or required setting)

Remote IP Address: **1.1.1.8**

Remote Port: **23**

Remote Password: **(UNDEFINED)**

Remote User ID: **(UNDEFINED)**

Session Termination Character: **0x04** (or preferred)

User Database Settings

user database empty! (or add users and corresponding passwords and privileges)

RawTCP Operation

In the typical RawTCP application (see Figure 7), the user has a need to connect a network enabled software application to a remote serial device over the LAN for standard operation of the device. To enable the software application to communicate with the remote serial device, the Model 2120 is usually assigned a static IP Address and the IP Address is configured within the software application. When the software application is launched, it sends data in TCP packets over the LAN to the IP Address of the Model 2120. When received, the Model 2120 converts the packets to asynchronous data and forwards the data to the device connected to the serial interface. The serial device sends asynchronous data back to the Model 2120 and the Model 2120 converts the data into TCP packets and sends it over the LAN back to the originating location/application to complete the cycle. In this type of application, the RawTCP connection between the software application and Model 2120 is configured so that it does not timeout/disconnect.

Note Legacy software applications that are not network enabled will require a Comm Port Redirector application to communicate with the Model 2120 and the remote serial device over the LAN. A Comm Port Redirector is used to map serial communication ports to the IP address and port number of the 2120 connected to the remote serial device. This application resides on the computer hosting the legacy software application and basically tricks the legacy application into packetizing the asynchronous data into TCP packets and sending the data over the LAN to the IP Address of the remote 2120/device, thus creating a transparent serial connection.

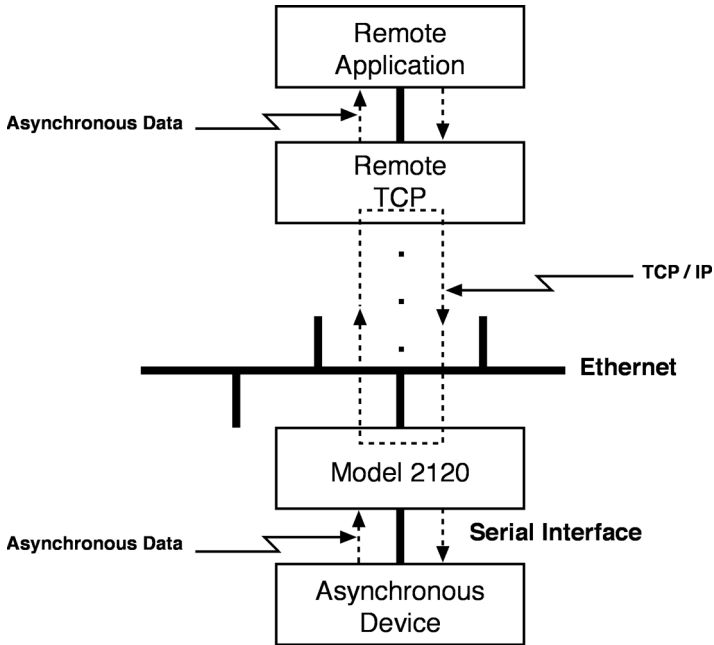


Figure 7. Raw - TCP Operation

System Settings

Boot Message Display Enable: **yes**

Default Gateway IP Address: **<IP Address of Default Gateway of 2120 LAN>**

DHCP Enable: **no**

IP Address Configured: **<IP Address Assigned by Network Admin>**

MAC Address: **<Factory Assigned>**

Management Enable: **yes** (or preferred)

Management Inactive Timeout (min): **15** (or preferred)

Prompt: **TS>** (or preferred)

Subnet Mask Configured: **<Subnet Mask of 2120 LAN>**

EIA232 Interface Settings

Character Length: **8** (or setting required by serial device)

Datarate: **9600** (or setting required by serial device)

DTE / DCE Physical Port: **dce** (or setting required by serial device)

Flow Control: **none** (or setting required by serial device)

Inactive Timeout (min): **0**

IP Address Configured: **<Same as System IP Address>**

Parity: **none** (or setting required by serial device)

Protocol: **rawtcp**

Stop Length: **1** (or setting required by serial device)

Subnet Mask Configured: **<Same as System Subnet Mask>**

EIA232 PPP Settings

DHCP Enable: **no**

Peer IP Address Use Enable: **no**

Peer Name Server Address Use Enable: **no**

Primary Domain Name Server Address: **0.0.0.0**

Primary Windows Name Server Address: **0.0.0.0**

Secondary Domain Name Server Address: **0.0.0.0**

Secondary Windows Name Server Address: **0.0.0.0**

User Authentication Protocol: **none**

EIA232 Raw-TCP/Telnet Settings

Connection From Local Enable: **yes**

Connection From Remote Enable: **yes**

Connection Retry Frequency (sec): **<Preferred connection retry setting>**

Local Port: **404** (or required setting)

Remote IP Address: <**IP Address of Software App. Host**>

Remote Port: <**TCP Port Number of Software App. Host**>

Remote Password: **UNDEFINED** (or required setting)

Remote User ID: **UNDEFINED** (or required setting)

Session Termination Character: **0x04** (or preferred)

User Database Settings

user database empty! (or add users and corresponding passwords and privileges)

PPP Operation

In the typical PPP application (see Figure 8), the user has a need to remotely connect to a LAN for general access to the LAN (e-mail, applications, etc.) or for access to the Internet. To make this connection, the user typically uses a dial-up modem with standard POTS line and launches a PPP application to connect with a dial-up (or ISDN) modem connected to the LAN. Once the connection is made between the PPP dial-up peer and the modem, the Model 2120 serial interface will typically obtain its operating IP address from an active DHCP server on the LAN and then establishes a connection with the LAN. Once connected to the LAN, the user is typically prompted to enter a user name and password through the enabling of PAP user authentication protocol. When the correct user name and password are entered, the user is permitted access to the LAN for general or Internet access. The data from the PPP application and LAN is converted into PPP packets and the data is moved back and forth through the established PPP connection and over the LAN. For domain name resolution, the Model 2120 is typically configured for DNS with the addresses of a primary and secondary DNS. In this type of application, the PPP connection is usually terminated once the user is finished accessing the LAN/Internet.

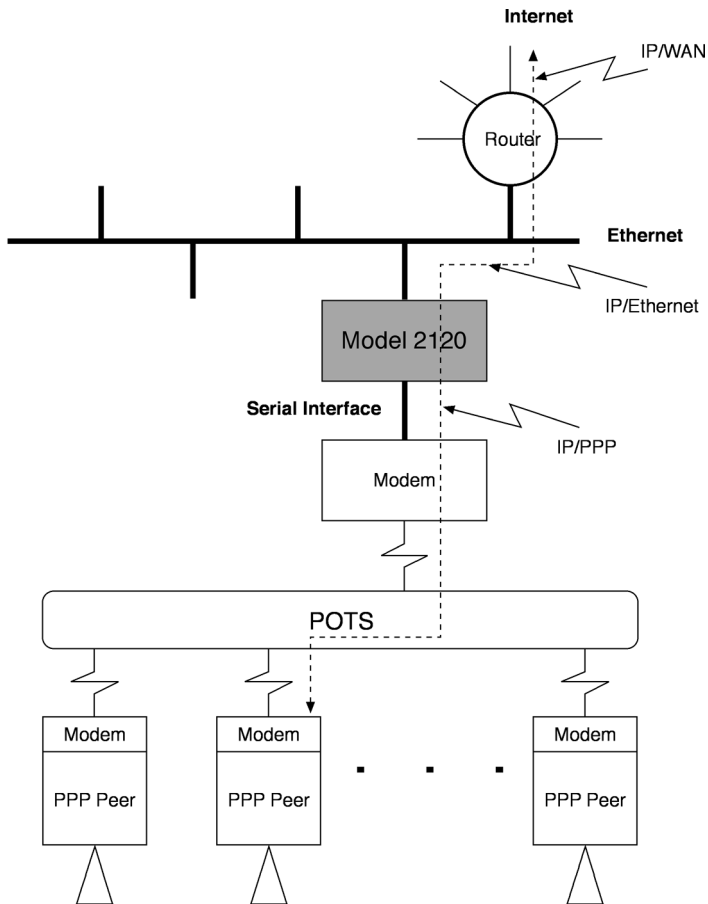


Figure 8. PPP Terminal Server

System Settings

Boot Message Display Enable: **no**

Default Gateway IP Address: **<IP Address of Default Gateway of 2120 LAN>**

DHCP Enable: **no**

IP Address Configured: **<IP Address Assigned by Network Admin>**

MAC Address: **<Factory Assigned>**

Management Enable: **yes** (or preferred)

Management Inactive Timeout (min): **15** (or preferred)

Prompt: **TS>** (or preferred)

Subnet Mask Configured: **<Subnet Mask of 2120 LAN>**

EIA232 Interface Settings

Character Length: **8** (or setting required by modem)

Datarate: **115200** (or setting required by modem)

DTE / DCE Physical Port: **dte** (or setting required by modem)

Flow Control: **none** (or setting required by modem)

Inactive Timeout (min): **15** (or preferred)

IP Address Configured: **8.8.8.8** (default/active address obtained using DHCP)

Parity: **none** (or setting required by modem)

Protocol: **ppp**

Stop Length: **1** (or setting required by serial device)

Subnet Mask Configured: **255.255.255.0** (default/active mask obtained using DHCP)

EIA232 PPP Settings

DHCP Enable: **yes**

Peer IP Address Use Enable: **no**

Peer Name Server Address Use Enable: **no**

Primary Domain Name Server Address: **<Address of primary DNS>**

Primary Windows Name Server Address: **<Address of secondary DNS>**

Secondary Domain Name Server Address: **0.0.0.0**

Secondary Windows Name Server Address: **0.0.0.0**

User Authentication Protocol: **pap**

EIA232 Raw-TCP/Telnet Settings

Connection From Local Enable: **no**

Connection From Remote Enable: **yes**

Connection Retry Frequency (sec): **0**

Local Port: **404** (or required setting)

Remote IP Address: **1.1.1.8**

Remote Port: **23**

Remote Password: **(UNDEFINED)**

Remote User ID: **(UNDEFINED)**

Session Termination Character: **0x04** (or preferred)

User Database Settings

Should include user names, passwords, and privileges of all users and administrators

SLIP Operation

In the typical SLIP application (see Figure 9), the user has a need to remotely connect to a LAN for general access to the LAN (e-mail, applications, etc.) or for access to the Internet. To make this connection, the user typically uses a dial-up modem with standard POTS line and launches a SLIP application to connect with a dial-up (or ISDN) modem connected to the LAN. Once the connection is made between the SLIP and the modem, the Model 2120 will establish a connection with the LAN using a static IP address assigned by the Network Administrator. Once connected to the LAN, the user is permitted access to the LAN for general or Internet access (SLIP will require user name put in 2120 database if there is one). The data from the SLIP client application and LAN is converted into SLIP packets and the data is moved back and forth through the established SLIP connection and over the LAN. For domain name resolution, the Model 2120 must obtain name server addresses from the SLIP client device connected to the serial interface. In this type

of application, the SLIP connection is usually terminated once the user is finished accessing the LAN/Internet.

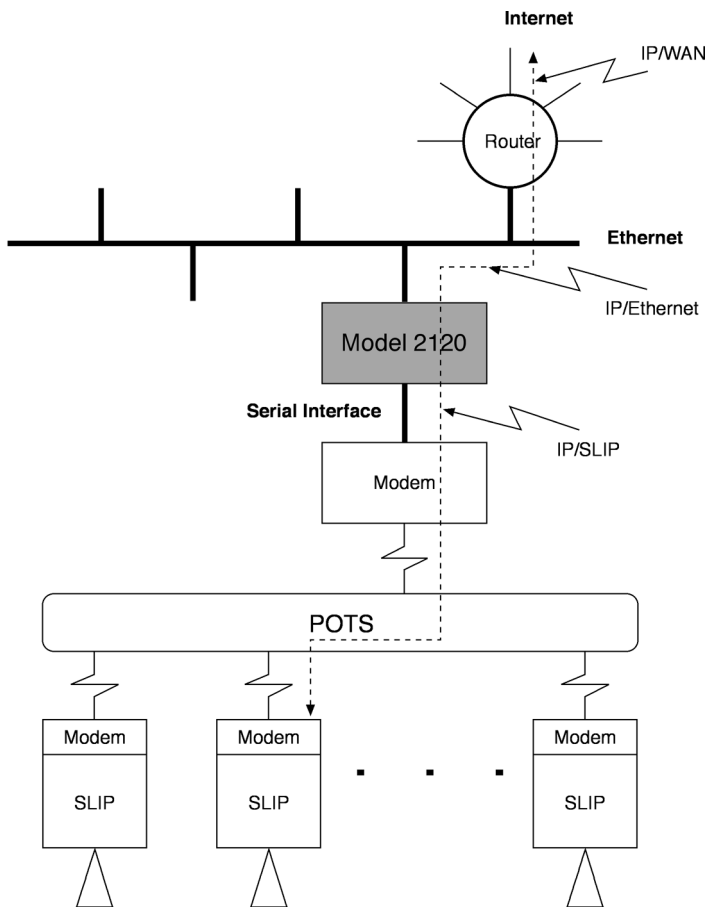


Figure 9. SLIP Terminal Server

System Settings

Boot Message Display Enable: **no**

Default Gateway IP Address: **<IP Address of Default Gateway of 2120 LAN>**

DHCP Enable: **no**

IP Address Configured: **<2120 Unit IP Address Assigned by Network Admin>**

MAC Address: **<Factory Assigned>**

Management Enable: **yes** (or preferred)

Management Inactive Timeout (min): **15** (or preferred)

Prompt: **TS>** (or preferred)

Subnet Mask Configured: **<Subnet Mask of 2120 Unit LAN>**

EIA232 Interface Settings

Character Length: **8** (or setting required by modem)

Datarate: **115200** (or setting required by modem)

DTE / DCE Physical Port: **dte** (or setting required by modem)

Flow Control: **none** (or setting required by modem)

Inactive Timeout (min): **15** (or preferred)

IP Address Configured: **<Serial Interface IP Address Assigned By Network Admin>**

Parity: **none** (or setting required by modem)

Protocol: **slip**

Stop Length: **1** (or setting required by serial device)

Subnet Mask Configured: **<Subnet Mask of Serial Interface LAN>**

EIA232 PPP Settings

DHCP Enable: **no**

Peer IP Address Use Enable: **no**

Peer Name Server Address Use Enable: **yes**

Primary Domain Name Server Address: **0.0.0.0**

Primary Windows Name Server Address: **0.0.0.0**

Secondary Domain Name Server Address: **0.0.0.0**

Secondary Windows Name Server Address: **0.0.0.0**

User Authentication Protocol: **none**

EIA232 Raw-TCP/Telnet Settings

Connection From Local Enable: **no**

Connection From Remote Enable: **yes**

Connection Retry Frequency (sec): **0**

Local Port: **404** (or required setting)

Remote IP Address: **1.1.1.8**

Remote Port: **23**

Remote Password: **(UNDEFINED)**

Remote User ID: **(UNDEFINED)**

Session Termination Character: **0x04** (or preferred)

User Database Settings

user database empty! (or add users and corresponding passwords and privileges)

3.7 USER DATABASE

The Model 2120 features a flexible user database with security for up to 64 users. This enables security access to the Model 2120 serial interface and administrative management of the Model 2120 over the LAN. Each user is assigned a user name, password and privilege for accessing the serial interface (User), administration management features (Admin), or both.

User Name

The user name uniquely identifies each user in the 2120 user database. The user name may be up to 32 characters long.

Password

Each user in the 2120 user database is assigned a password for security purposes. The password may be up to 32 characters long.

Privilege

Each user in the 2120 user database is assigned a privilege that identifies how each user may interact with the Model 2120. The three types of privileges that exist in the Model 2120 are defined as follows:

User - The User privilege permits a user to access only the serial interface. If the Model 2120 is configured for Telnet / TCP or Raw-TCP operation, the user may connect to serial interface over the LAN and receive/transmit data. If the Model 2120 is configured for PPP (and PAP security is enabled), the user may connect from a remote PPP client through a modem connected to the serial interface of the Model 2120 and receive / transmit data over the LAN.

Admin - The Admin privilege permits a user to access only the administrative management and configuration/status functions of the Model 2120 over the LAN via Telnet session.

Both - The Both privilege provides a user with both User and Admin privileges.

Creating Users

Creating a user is accomplished by executing the following command at the 2120 command system prompt:

```
TS>configure userdatabase createuser username,password,privilege<Enter>
```

Some examples of creating users are as follows:

```
TS>configure userdatabase createuser
john,1234abc,user<Enter>
TS>configure userdatabase createuser
al,blue,admin<Enter>
TS> configure userdatabase createuser
tom,98lk12,both<Enter>
TS>configure activate<Enter>
```

```
activate is complete!
```

Viewing the active users in the 2120 user database is accomplished by executing the following command at the 2120 command system prompt:

```
TS>show userdatabase all<Enter>

--> User Database <--
john,1234abc,user
al,blue,admin
tom,98lk12,both
```

```
Total Users = 3
```

```
TS>
```

Deleting All Users

Deleting all users is accomplished by executing the following commands at the 2120 command system prompt:

```
TS>configure userdatabase deleteall<Enter>
TS>configure activate<Enter>
```

```
activate is complete!
```

Verifying that all active users have been deleted from the user database is accomplished by executing the following command at the 2120 command system prompt:

```
TS>show userdatabase all<Enter>
```

```
user database empty!
```

```
TS>
```

Deleting A Single User

Deleting a single user is accomplished by executing the following commands at the 2120 command system prompt:

```
TS>show userdatabase all<Enter>
```

```
--> User Database <--
```

```
john,123abc,user
al,blue admin,user
tom,98lk12,both
```

```
Total Users = 3
```

```
TS> configure userdatabase deleteuser al<Enter>
TS> configure activate<Enter>
```

```
activate is complete!
```

Verifying that the user has been deleted from the user database is accomplished by executing the following command at the 2120 command system prompt:

```
TS>show userdatabase all<Enter>
```



```
--> User Database <--  
  
john,123abc,user  
tom,98lk12,both  
  
Total Users = 2  
  
TS>
```

Modifying A User

Modifying a user's password or privilege is accomplished by executing the following commands at the 2120 command system prompt:

```
TS>show userdatabase all<Enter>  
  
--> User Database <--  
  
john,123abc,user  
tom,98lk12,both  
  
Total Users = 2  
  
TS>configure userdatabase modifyuser  
tom,98lk12,admin<Enter>  
TS>configure activate<Enter>  
  
activate is complete!  
  
TS>
```

Verifying that the user password and/or privilege has been modified is accomplished by executing the following command at the 2120 command system prompt:

```
TS>show userdatabase all<Enter>  
  
--> User Database <--  
  
john,123abc,user  
tom,98lk12,admin  
  
Total Users = 2  
  
TS>
```

3.8 IP ADDRESSING

Unit IP Address

The IP address used to manage the Model 2120 unit can be configured statically or dynamically. The Model 2120 is defaulted to use DHCP (Dynamic Host Configuration Protocol) to dynamically obtain the unit IP address over the LAN from an active DHCP server. When using DHCP, the 2120 sends the DHCP server MAC address information and dynamically obtains its IP address based on the unit MAC address (factory configured). This feature reduces the number of IP addresses on the network and minimizes network administration.

Enabling DHCP to dynamically obtain the unit IP address is accomplished by executing the following commands at the 2120 command system prompt:

```
TS>configure system dhcpena yes<Enter>
TS>configure activate<Enter>

activate is complete!

TS>
```

For applications that require a static IP address for the Model 2120 unit, an assigned IP address is obtained from your Network Administrator, and is configured by executing the following commands at the 2120 command system prompt:

```
TS>configure system ipaddrcfg <assigned IP
address><Enter>
TS>configure system dhcpena no<Enter>
TS>configure activate<Enter>

activate is complete!

TS>
```

Serial Interface IP Address

When operating in Telnet and Raw-TCP modes, the Model 2120 uses the active unit IP address (static or dynamic) as the serial interface IP address. These modes use a TCP port number to differentiate between the unit and serial interface and do not consume a second IP address.

When operating in PPP mode, the serial interface IP address can be configured statically or dynamically using a DHCP server. Further, the PPP IP address may be obtained from the PPP dial-up device connected to the serial interface.

For PPP applications that require a static IP address for the serial interface, an assigned IP address is obtained from your Network Administrator, and is configured by executing the following commands at the 2120 command system prompt:

```
TS>configure eia232 interface ipaddrcfg <assigned IP
address><Enter>
TS>configure eia232 ppp dhcpena no<Enter>
TS>configure activate<Enter>

activate is complete!

TS>
```

The Model 2120 is configured for PPP applications that require the serial interface IP address to be dynamically assigned by a DHCP Server by executing the following commands at the 2120 command system prompt:

```
TS>configure eia232 ppp dhcpena yes<Enter>
TS>configure activate<Enter>

activate is complete!
```

The Model 2120 may also obtain the serial interface IP address from the PPP client device connected to the serial interface. In this scenario, every time a PPP client establishes a PPP connection, the Model 2120 will use the IP address provided by the PPP instead of a static or dynamic IP address. PPP IP addressing is configured by executing the following commands at the 2120 command system prompt:

```
TS>configure eia232 ppp peeripaddruseena yes<Enter>
TS>configure activate<Enter>

activate is complete!
```

When operating in SLIP mode, the serial interface IP address must be configured the same as the IP address assigned to the device connected to the serial interface. The static serial interface IP address for SLIP operations is configured by executing the following commands at the 2120 command system prompt:

```
TS>configure eia232 interface ipaddrcfg <IP address of
device connected to serial interface><Enter>
TS>configure eia232 ppp dhcpena no<Enter>
TS>configure activate<Enter>

activate is complete!

TS>
```

Subnet Mask

The Subnet Mask settings that correspond with the 2120 unit and serial interface IP addresses should be configured with the appropriate Subnet Mask for the LAN where the IP addresses reside.

The Subnet Mask for the Model 2120 unit is configured by executing the following commands at the 2120 command system prompt:

```
TS>configure system subnetcfg <Subnet Mask of
LAN><Enter>
TS>configure activate<Enter>

activate is complete!

TS>
```

The Subnet Mask for the Model 2120 serial interface is configured by executing the following commands at the 2120 command system prompt:

```
TS>configure eia232 interface subnetcfg <Subnet Mask of
LAN><Enter>
TS>configure activate

activate is complete!

TS>
```

3.9 NAME SERVERS

When operating in PPP mode and accessing the Internet through the Model 2120, the several options are available and supported for Internet domain name resolution. When operating in SLIP mode, the Model 2120 must be configured to obtain the name server addresses from the SLIP client device.

Domain Name Server (DNS)

The Model 2120 supports DNS address exchange with the PPP device. Primary and secondary DNS addresses can be configured for the PPP client device. The primary and secondary DNS addresses are configured by executing the following commands at the 2120 command system prompt:

```
TS>configure eia232 ppp pridnsaddr <Address of Primary
DNS><Enter>
TS>configure eia232 ppp secdnsaddr <Address of Secondary
DNS><Enter>
TS>configure eia232 ppp peernsaddruseena no
TS>configure activate
```

```
activate is complete!
```

```
TS>
```

Windows Name Server (WINS)

The Model 2120 supports WINS address exchange with the PPP device. Primary and secondary WINS addresses can be configured for the PPP client device. The primary and secondary WINS addresses are configured by executing the following commands at the 2120 command system prompt:

```
TS>configure eia232 ppp priwinsaddr <Address of Primary  
DNS><Enter>
```

```
TS>configure eia232 ppp secwinsaddr <Address of Second-  
ary DNS><Enter>
```

```
TS>configure eia232 ppp peersaddruseena no
```

```
TS>configure activate
```

```
activate is complete!
```

```
TS>
```

Obtaining Name Server Addresses From PPP Client

The Model 2120 may also obtain name server addresses from the PPP device connected to the serial interface. Every time a PPP establishes a connection, the Model 2120 will use the name server addresses provided by the PPP instead of the other configured name server addresses (DNS and WINS). Obtaining name server addresses from the PPP/SLIP is configured by executing the following commands at the 2120 command system prompt:

```
TS>configure eia232 ppp peersaddruseena yes
```

```
TS>configure activate
```

```
activate is complete!
```

```
TS>
```

Obtaining Name Server Addresses From SLIP Client

When operating in SLIP mode, the Model 2120 must obtain name server addresses from the SLIP device connected to the serial interface. Every time a SLIP establishes a connection, the Model 2120 will use the name server addresses provided by the SLIP. Obtaining name server addresses from the SLIP is configured by executing the following commands at the 2120 command system prompt:

```
TS>configure eia232 ppp peernsaddruseena yes
TS>configure activate

activate is complete!

TS>
```

3.10 SOFTWARE INSTALLATION INSTRUCTIONS

Because the Model 2120 stores its software in FLASH Memory, obtaining the latest software release is both quick and easy. Using the integrated FTP (File Transfer Protocol) client, new software releases can be obtained over the LAN from your own FTP server or Patton's FTP Server via upgrades.patton.com.

Software Installation Procedures Using Your Own FTP Server

Requirements

The following conditions must be met before loading new operational software on your Model 2120:

- You must have a valid IP address assigned to the Model 2120 and the Model 2120 must be connected to the LAN
- You must have an FTP Client (i.e. Windows Command Mode) on a computer that can communicate over the LAN
- You must load the most current version Model 2120 software in a valid directory on your FTP Server

Procedures

To load new software into the 2120, execute the following steps:

1. From the Windows "Run" prompt at your computer, type: **command** and click **OK**.
2. At the DOS prompt, Telnet into the 2120 by typing **telnet <the IP address of the 2120>** and pressing **<Enter>**.
3. At the Terminal Server prompt (TS>), FTP into the FTP Server where the 2120 software resides by typing **ftp <the IP address of the FTP Server>** and pressing **<Enter>**.
4. If prompted for Username, type: **<assigned Username>** and press **<Enter>**.

5. If prompted for Password, type: *<assigned Password>* and press **<Enter>**.
6. At the FTP prompt, type: *get <current 2120 software file-name>* and press **<Enter>**.
7. If completed, type: *quit* and press **<Enter>** to return to the TS prompt
8. At the TS prompt, type: *<activateimage>* and press **<Enter>**.
9. Once the image is activated, you will lose your connection to the Model 2120.

To verify new software version, TELNET back into the 2120 by typing *telnet <the IP address of the 2120>* and press **<Enter>**. The new software version should be listed at the top of the screen.

Software Installation Procedures Using Patton's FTP Server

Requirements

The following conditions must be met before loading new operational software on your 2120:

- You must have a valid IP address assigned to the Model 2120 and the 2120 must be connected to the LAN with Internet access
- You must have an FTP Client (i.e. Windows Command Mode) on a computer that can communicate over the LAN
- You must obtain a Patton Username and Password and obtain the IP address of Patton's FTP Server and current 2120 software version file-name from *upgrades.patton.com*.

Procedures

To load new software into the 2120, execute the following steps:

1. From the Windows "Run" prompt at your computer, type: *command* and click **OK**.
2. At the DOS prompt, Telnet into the 2120 by typing: *telnet <the IP address of the 2120>* and pressing **<Enter>**.
3. At the Terminal Server prompt (TS>), FTP into Patton's FTP Server by typing: *ftp <the IP address of Patton's FTP Server>* and pressing **<Enter>**.
4. Enter FTP Username by typing: *<ftp>* and pressing **<Enter>**.

5. Enter your FTP Password by typing: *<your e-mail address>* and pressing **<Enter>**.
6. At the FTP prompt, type: **get** *<current 2120 software file-name>* and press **<Enter>**.
7. When completed, type: **quit** and press **<Enter>** to return to the TS prompt.
8. At the TS prompt, type: **<activateimage>** and press **<Enter>**.
9. Once the image is activated, you will lose your connection to the Model 2120.

To verify new software version, TELNET back into the 2120 by typing **telnet** *<the IP address of the 2120>* and pressing **<Enter>**. The new software version should be listed at the top of the screen.

4.0 INSTALLATION

Once the Model 2120 is configured, it is ready to connect to the serial interface of the RS-232 device, to the Ethernet interface, and to the power source. The Model 2120 is designed to connect an asynchronous RS-232 device to other devices via the LAN/10Base-T interface. This section describes how to install the 2120.

4.1 MODEL 2120 CONNECTION

The Model 2120 features DB-25 (Male or Female), DB-9 (Male or Female), and RJ-45 serial interface connectors and a standard RJ-45 Female Ethernet interface connector. With the DB-25 connector and connector screws, the 2120 conveniently attaches and secures to the serial port of the RS-232 device. The DB-9 version features an RJ-45 Female connector and 6" adapter cable with DB-9 (M or F) connector on the serial side, which allows the 2120 to conveniently attach to the DB-9 serial port of the RS-232 device and can be mounted/secured on or near the RS-232 device. The RJ-45 connector on the serial side allows for a convenient connection with a patch cable (not provided with 2120) to RS-232 control ports and other devices with RJ-45 serial ports. The 2120 connects to any standard LAN connection (usually an RJ-45F connector) using a standard LAN patch cord (not provided with 2120).

In Figure 10, the Model 2120 is attached directly to a card reader and will use its individually assigned IP address so that the host PC can communicate with the card reader over the Ethernet LAN. Using a communications protocol such as Telnet or Raw-TCP, the host PC will poll and monitor the card reader for various types of data.

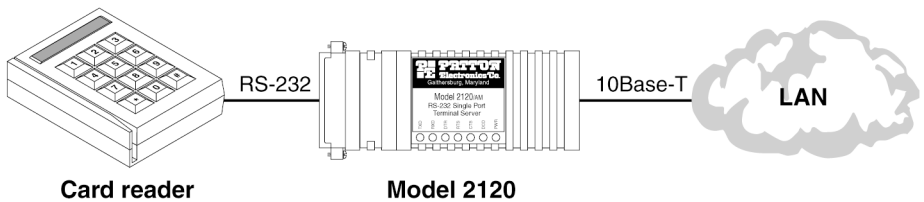


Figure 10. A Typical RS-232 to 10BaseT Ethernet Installation

4.2 AC POWER CONNECTION

The Model 2120 is offered with either an AC or DC power supply. This section briefly describes the power supplies and connections to the Model 2120 and the power source. The Model 2120 is powered-up as soon as it is plugged into an AC outlet (there is no power switch). The 2120 features an LED indicator for Power and when lit, the 2120 is receiving power from the power supply.

AC Power Supply (100-240VAC)

The Model 2120/??/UI uses a +5VDC, 2A universal input, power supply that is equipped with a male IEC-320 power entry connector and supports a voltage range of 100-240VAC. This power supply connects to the Model 2120 by means of a cannon jack on the rear panel. There are a variety of domestic and international power cords available for power entry.

DC Power Supply (36-60VDC)

The 36-60 VDC DC to DC adapter is supplied with the DC version of the Model 2120. The black and red leads plug into a DC source (nominal 48VDC) and the barrel power connector plugs into the barrel power supply jack on the 2120 (see Figure 11).



Figure 11. Connecting DC Power to the 2120 DC Power Supply



There are no user-serviceable parts in the power supply section of the Model 2120. Contact Patton Electronics Technical support at +1 (301) 975-1007, via our web site at www.patton.com, or by E-mail at support@patton.com, for more information.

5.0 OPERATION

After configuring and installing the Model 2120, you are ready for operation. This section describes the operation of the Model 2120 Single Port Terminal Server.

5.1 LED STATUS INDICATORS

The Model 2120 features seven top panel LEDs and two rear panel LEDs. The figures below show the their position. A description of each LED follows each figure.

Rear Panel LEDs

Figure 12 shows the LEDs on the rear panel, Table 2. lists the LED definitions.

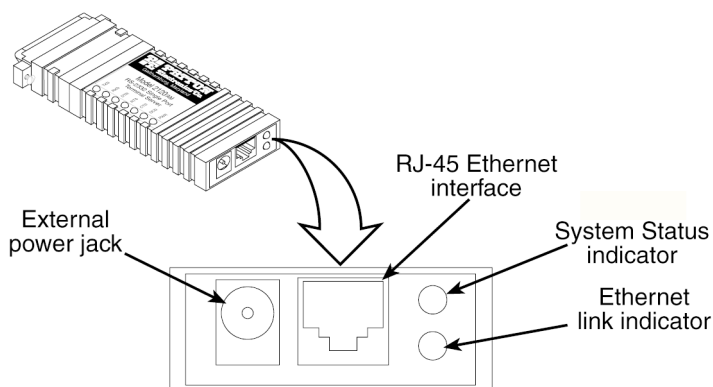


Figure 12. Model 2120 Rear Panel LEDs

Table 2: Model 2120 Rear Panel LED definitions

LED	Description
Link	Glows green to indicate that the Ethernet signal from the LAN is active.
Status	Blinks yellow indicating the system status as follows:
2 Blinks:	TCP Connection Established (Telnet and Raw-TCP operation only)
3 Blinks:	TCP Connection Not Established
4 Blinks:	DB25 Data Rate Is 50 BPS
5 Blinks:	DB25 Data Rate Is 75 BPS
6 Blinks:	DB25 Data Rate Is 110 BPS
7 Blinks:	DB25 Data Rate Is 150 BPS
8 Blinks:	DB25 Data Rate Is 300 BPS
9 Blinks:	DB25 Data Rate Is 600 BPS
10 Blinks:	DB25 Data Rate Is 1200 BPS
11 Blinks:	DB25 Data Rate Is 2400 BPS
12 Blinks:	DB25 Data Rate Is 4800 BPS
13 Blinks:	DB25 Data Rate Is 9600 BPS
14 Blinks:	DB25 Data Rate Is 19200 BPS
15 Blinks:	DB25 Data Rate Is 38400 BPS
16 Blinks:	DB25 Data Rate Is 57600 BPS
17 Blinks:	DB25 Data Rate Is 115200 BPS

Top Panel LEDs

Figure 13 shows the location of the LEDs on the top panel; Table 3 lists descriptions for each LED.

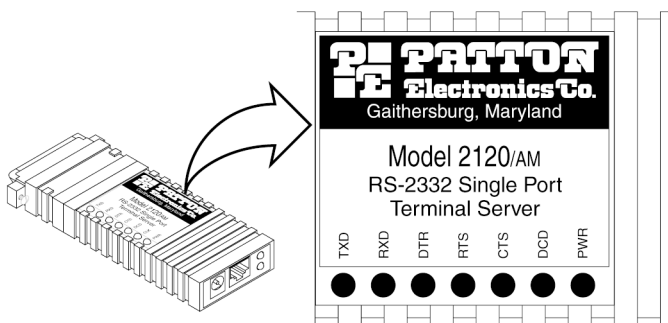


Figure 13. Model 2120 Top Panel LEDs

Table 3: Model 2120 Top Panel LED definitions

LED	Description
TXD	Blinks green to show that data is being transferred through the unit.
RXD	Blinks green to show that data is being received.
Note The TXD and RXD LED's indicate activity on either pin 2 or pin 3 on the DB-25 connector depending on DTE/DCE mode.	
DTR	Glow yellow to indicate that the Data Terminal Ready signal is being detected by the Terminal Server.
RTS	Glow yellow to indicate that the Request to Send signal is being detected by the Terminal Server.
CTS	Glow yellow to indicate that the Clear to Send signal is being detected by the Terminal Server.
DCD	Glow yellow to indicate that the Data Carrier Detect signal is being detected by the Terminal Server.
Note When there is no connection to the DB-25 side of the unit, the CTS, RTS, and DCD LED's stay lit at all times.	
PWR	Glow green to indicate that power is applied to the unit.

Note The DCD LED is an indicator of whether the 2120 is configured for DCE or DTE operation. When configured for DCE, the DCD LED will glow constantly except for when a session is being terminated. When configured for DTE, the DCD LED will only glow when a connection is established with the serial interface.

5.2 FLOW CONTROL AND SESSION CONTROL

Flow Control

Flow control settings control the flow of data between the Model 2120 and the device connected to the serial interface. The Model 2120 can be configured for DCE or DTE operation.

With hardware flow control selected, the RTS (Request To Send) and CTS (Clear To Send) signals control the flow of data between the Model 2120 and the device connected to the serial interface. RTS originates from the DTE and is an input to the DCE. CTS originates from the DCE and is an input on the DTE. When the Model 2120 is configured for DCE operations, the DTE will turn RTS ON to indicate the 2120 to send data to the DTE and OFF to stop the 2120 from sending data before the DTE receive buffers overflow. The 2120 (DCE) will turn CTS ON to allow the DTE to transmit data and OFF to stop the DTE from sending data before the 2120 receive buffers overflow. The opposite is true when the 2120 is configured for DTE operations.

With xon/xoff (software) flow control selected, the flow of data between the Model 2120 and the device connected to the serial interface is con-

trolled by two ASCII characters, 0x11 (XON) and 0x13 (XOFF). These characters are fixed and not configurable in the Model 2120. The XON and XOFF characters are simply sent through the data stream, in other words, they look like data. To stop receiving data, XOFF is sent to the sender and the sender stops sending data until it receives an XON (in most cases).

When no (none) flow control is selected, the flow of data between the Model 2120 and the device connected to the serial interface is not managed, therefore, it is possible for the buffers to overflow causing the loss of data.

Session Control

Session control is essential for PPP and SLIP applications. A PPP/SLIP session must be terminated before the user leaves, otherwise another user may continue in that same session, which is not good from a security standpoint. The DTR (Data Terminal Ready) and DSR (Data Set Ready) control signals are used for terminating a SLIP or PPP session. If the user is configured for DTE operations and wishes to disconnect the session, the DTE will turn DTR off for 2 seconds. If the user configured is for DCE operations, the DCE will turn DSR off for 2 seconds to terminate SLIP and PPP connections.

5.3 USING "SHOW" COMMANDS FOR 2120 STATUS

The Model 2120 features the ability to remotely execute and view any or all configuration parameter settings and operational status of the Model 2120 unit by using the system "show" commands. For a detailed definition of all 2120 system show commands, see Appendix B on page 59.

5.4 2120 UTILITIES

The Model 2120 features integrated utility features to perform a variety of functions from the Model 2120 command system prompt.

Boot

The "boot" command allows the Model 2120 to be rebooted remotely over the LAN. When performed, the remote connection to the Model 2120 is lost. The following illustrates how to issue the "boot" command:

```
TS> boot<Enter> (or "b<Enter>")
```

EIA232 Connection Closure

The "eiaconclose" allows an administrative user to manually disconnect or close a user connection on the Model 2120 serial interface. The following illustrates how to issue the "eiaconclose" command:

```
TS> eiaconclose<Enter> (or "e<Enter>")
```

```
EIA connection close complete!
```

Ping

The "ping" command allows connectivity to be tested between the Model 2120 and a remote IP device. The following illustrates using the "ping" command:

```
TS> ping <IP address of remote device><Enter>  
OR "p <IP address of remote device><Enter>"
```

```
pinging ...
```

```
Reply from <IP address of remote device>: bytes=64 SN=0  
TTL=128 time<10msec
```

```
Reply from <IP address of remote device>: bytes=64 SN=1  
TTL=128 time<10msec
```

```
Reply from <IP address of remote device>: bytes=64 SN=2  
TTL=128 time<10msec
```

```
Reply from <IP address of remote device>: bytes=64 SN=3  
TTL=128 time<10msec
```

```
Reply from <IP address of remote device>: bytes=64 SN=4  
TTL=128 time<10msec
```

```
Reply from <IP address of remote device>: bytes=64 SN=5  
TTL=128 time<10msec
```

```
Reply from <IP address of remote device>: bytes=64 SN=6  
TTL=128 time<10msec
```

```
Reply from <IP address of remote device>: bytes=64 SN=7  
TTL=128 time<10msec
```

```
Reply from <IP address of remote device>: bytes=64 SN=8  
TTL=128 time<10msec
```

```
TS>
```

Raw-TCP

The "rawtcp" command allows the Model 2120 to establish a Raw-TCP session with a remote IP device supporting TCP. The following illustrates how to issue the "rawtcp" command:

```
TS> rawtcp <IP address of remote device><Enter> (or "r
<IP address of remote device><Enter>")

connecting ...

Session Started
```

Telnet

The "telnet" command allows the Model 2120 to establish a Telnet session with a remote IP device supporting Telnet server functionality. The following illustrates how to issue the "telnet" command:

```
TS> telnet <IP address of remote device><Enter> (or "t
<IP address of remote device><Enter>")

connecting ...

Telnet Session Started
```

Display ARP Table

The "za" command allows the display of the Model 2120 ARP Table, which includes the MAC/NIC Address and associated IP Address of all remote IP devices communicating with the Model 2120 over the same LAN. The following illustrates how to issue the "za" command:

```
TS> za<Enter>

<MAC/NIC Address of remote device1>,<IP Address of
remote device1>
<MAC/NIC Address of remote device2>,<IP Address of
remote device2>
<MAC/NIC Address of remote device3>,<IP Address of
remote device3>
<MAC/NIC Address of remote device4>,<IP Address of
remote device4>

TS>
```


APPENDIX A

MODEL 2120 SINGLE PORT TERMINAL SERVER SPECIFICATIONS

A.1 SERIAL INTERFACE

DB-25 male or female, DB-9 male or female (RJ-45F jack with 6" RJ-45 to DB-9 adapter cable), and RJ-45 Male connector options

A.2 SERIAL TRANSMISSION

RS-232 Asynchronous, 50 to 115.2 kbps (software selectable)

A.3 DCE/DTE

DCE or DTE (software selectable)

A.4 RS-232 STATUS INDICATORS

TXD, RXD, DTR, RTS, CTS, DCD, and Power

A.5 ETHERNET INTERFACE

RJ-45 female connector

A.6 ETHERNET STANDARD

10Base-T (IEEE 802.3)

A.7 SYSTEM STATUS INDICATORS

Ethernet Link and System Status

A.8 PROTOCOLS SUPPORTED

TCP, UDP, IP, ICMP, TELNET, ARP, DHCP, FTP, SLIP, PPP, and PAP

A.9 MANAGEMENT SERVICES

Monitoring, control, and diagnostics via serial interface or TELNET session

A.10 MEMORY

1 Mbyte RAM; 512 kbytes FLASH

A.11 POWER SUPPLY OPTIONS

External, universal AC (100–240 VAC) or -48 VDC (36–60 VDC)

A.12 TEMPERATURE

32–122°F (0–50°C)

A.13 ALTITUDE

0 to 15,000 feet (0 to 4,572 meters)

A.14 HUMIDITY

Up to 95% non-condensing

A.15 DIMENSIONS

3.5L X 2.1W X 0.78H in. (9.0L X 5.3W X 1.9H cm)

A.16 WEIGHT

0.2 lbs (0.09 kg)

APPENDIX B MODEL 2120 SINGLE PORT TERMINAL SERVER SOFTWARE COMMAND DEFINITIONS

In the commands defined below, X = Valid entry/setting for that configuration parameter.

Note Contact your Network Administrator if you have questions regarding configuration parameters required for your application and/or LAN.

B.1 ACTIVATE IMAGE COMMANDS

activateimage

Activates software downloaded to 2120 via FTP. Once new software is activated, session is lost.

Accessibility: N/A

Default: N/A

Valid Entries: N/A

Note Command will not work unless SW has been downloaded to unit.

B.2 BOOT COMMANDS

boot

Remotely performs a soft boot of the 2120. When performed, session is lost.

Accessibility: N/A

Default: N/A

Valid Entries: N/A

B.3 CONFIGURE COMMANDS

configure

Returns the Configure Help Menu.

Accessibility: N/A

Default: N/A

Valid Entries: N/A

Note Needs to be entered first in all "configure" command strings.

configure activate

Activates/writes changes in configuration parameters permanently in Flash memory of the 2120.

Accessibility: N/A

Default: N/A

Valid Entries: N/A

Note MUST be entered immediately after each “configure” command string to activate configuration changes.

configure clear

Clears changes in configuration parameters prior to “activating” them and reverts back to the previous settings.

Accessibility: N/A

Default: N/A

Valid Entries: N/A

Note Once changes in parameters are activated/written to flash memory using the “configure activate” command, the clear function will have no effect and you must go back in and undo any undesired changes.

configure eia232

Returns the Configure EIA232 Help Menu.

Accessibility: N/A

Default: N/A

Valid Entries: N/A

Note Needs to be entered first in all “configure eia232” command strings.

configure eia232 interface

Returns the Configure EIA232 Interface Help Menu.

Accessibility: N/A

Default: N/A

Valid Entries: N/A

Note Needs to be entered first in all “configure eia232 interface” command strings.

configure eia232 interface charlength X

Sets the RS-232 Character Length (in bits) of the serial interface.

Accessibility: READ/WRITE

Default: 8 (bits)

Valid Entries: 5, 6, 7, 8

configure eia232 interface datarate X

Sets the RS-232 Datarate (in bits per second) of the serial interface.

Accessibility: READ/WRITE

Default: 9600 (bits per second)

Valid Entries: 50, 75, 110, 150, 300, 600, 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200

configure eia232 interface defgatewaycfg

Default gateway configured.

configure eia232 interface dtedce X

Sets the RS232 Physical Port of the serial interface.

Accessibility: READ/WRITE

Default: DCE

Valid Entries: DCE, DTE

configure eia232 interface flowcontrol X

Sets the RS-232 Flow Control of the serial interface.

Accessibility: READ/WRITE

Default: none

Valid Entries: none, hardware, xonxoff

configure eia232 interface inactiveto X

Sets the period of time (in minutes) that the 2120 will close an inactive connection to the serial interface.

Accessibility: READ/WRITE

Default: 15 (minutes)

Valid Entries: 0-10080

Note Entering a 0 for this parameter will disable this feature and allow a connection to the serial interface for an unlimited period of time.

configure eia232 interface ipaddrcfg X

Sets the static IP address used to conduct PPP or SLIP operations.

Accessibility: READ/WRITE

Default: 8.8.8.8

Valid Entries: Any in IP address format

Note For SLIP operations, this IP address must be configured with the same IP address configured in the device connected to the serial interface.

configure eia232 interface parity X

Sets the RS-232 Parity of the serial interface.

Accessibility: READ/WRITE

Default: none

Valid Entries: none, odd, low, even, high

configure eia232 interface protocol X

Sets the protocol used by remote devices to communicate with the 2120's serial interface over the LAN.

Accessibility: READ/WRITE

Default: telnet

Valid Entries: telnet, rawtcp, PPP, SLIP

configure eia232 interface rxidlechartrig X

Receive idle character for trig <num char>.

configure eia232 interface rxbuflen X

Receive buffer length <num char>.

configure eia232 interface stoptlength X

Sets the RS-232 Stop Length (in bits) of the serial interface.

Accessibility: READ/WRITE

Default: 1 (bit)

Valid Entries: 1, 2

configure eia232 interface subnetcfg X

Sets the Subnet Mask used to conduct PPP or SLIP operations.

Accessibility: READ/WRITE

Default: 255.255.255.0

Valid Entries: Any in Subnet Mask format

Note Must match the Subnet Mask of the LAN used to conduct PPP or SLIP operations.

configure eia232 nvt echoena X

Echo Enable

configure eia232 nvt endofrecordena X

End-Of-Record Enable

configure eia232 nvt linemodeena X

Line Mode Enable

configure eia232 nvt terminaltype X

Terminal Type

configure eia232 nvt timingmarkena X

Timing Mark Enable

configure eia232 nvt transmitbinaryena X

Transmit Binary Enable

configure eia232 ppp

Returns the PPP Help Menu

Accessibility: N/A

Default: N/A

Valid Entries: N/A

Note Needs to be entered first in all "configure eia232 ppp" command strings.

configure eia232 ppp dhcpena X

Permits DHCP client operations to obtain an IP address for PPP.

Accessibility: READ/WRITE

Default: no

Valid Entries: yes, no

Note When set to YES, the 2120 will automatically request and use an IP address assigned by the DHCP Server for PPP operations. This feature will not function unless there is an active DHCP Server on the LAN.

configure eia232 ppp fcslength X

FCS length

configure eia232 ppp dhcpwaddr X

DHCP hardware address

configure eia232 ppp peeripaddruseena X

Permits the 2120 to obtain an IP address from the PPP client device connected to the serial interface for PPP operations.

Accessibility: READ/WRITE

Default: no

Valid Entries: yes, no

configure eia232 ppp peernsaddruseena X

Permits the Model 2120 to obtain name server addresses from the PPP client device connected to the serial interface.

Accessibility: READ/WRITE

Default: no

Valid Entries: yes, no

configure eia232 ppp pridnsaddr X

Sets the address of the primary DNS used to support DNS address exchange with the client device connected to the serial interface.

Accessibility: READ/WRITE

Default: 0.0.0.0

Valid Entries: Any in IP address format.

configure eia232 ppp priwinsaddr X

Sets the address of the primary WINS used to support WINS address exchange with the client device connected to the serial interface.

Accessibility: READ/WRITE

Default: 0.0.0.0

Valid Entries: Any in IP address format.

configure eia232 ppp secdnsaddr X

Sets the address of the secondary DNS used to support DNS address exchange with the client device connected to the serial interface.

Accessibility: READ/WRITE

Default: 0.0.0.0

Valid Entries: Any in IP address format.

configure eia232 ppp secwinsaddr X

Sets the address of the secondary WINS used to support WINS address exchange with the client device connected to the serial interface.

Accessibility: READ/WRITE
Default: 0.0.0.0
Valid Entries: Any in IP address format.

configure eia232 ppp rxaccm X
Receive async contrl character map

configure eia232 ppp txaccm X
Transmit async contrl character map

configure eia232 ppp userauthprot X
Permits the use of PAP as a user authentication protocol with PPP operations.
Accessibility: READ/WRITE
Default: none
Valid Entries: none, pap

configure eia232 rawtcp_telnet
Returns the Configure EIA232 RawTCP/Telnet Help Menu.
Accessibility: N/A
Default: N/A
Valid Entries: N/A

Note Needs to be entered first in all "configure eia232 rawtcp_telnet" command strings.

configure eia232 rawtcp_telnet confromlocena X
Permits the automatic connection request to a remote device over the LAN.
Accessibility: READ/WRITE
Default: no
Valid Entries: yes, no

Note To activate the auto connection feature, this must be set to YES, "configure eia232 rawtcp_telnet conretryfreq" must be set to any number (up to 65535) other than 0, and a valid IP address must be entered into "configure eia232 rawtcp_telnet remip".

configure eia232 rawtcp_telnet confromremena X
Permits incoming connection requests to the serial interface from a remote device over the LAN.
Accessibility: READ/WRITE
Default: yes
Valid Entries: yes, no

configure eia232 rawtcp_telnet conretryfreq X
Sets the connection retry frequency (in seconds) that automatic connection requests are sent to a remote device.
Accessibility: READ/WRITE

Default: 0 (Disabled)
Valid Entries: 0–65535

Note To activate the auto connection feature, this must be set to any number (up to 65535) other than 0, “configure eia232 rawtcp_telnet confromlocena” must be set to YES, and a valid IP address must be entered into “configure eia232 rawtcp_telnet remip”.

configure eia232 rawtcp_telnet keepaliveto X

Keepalive timeout <sec>

configure eia232 rawtcp_telnet locport X

Sets the TCP port number used to establish a connection with the serial interface over the LAN.

Accessibility: READ/WRITE

Default: 404

Valid Entries: 0–65535

Note This TCP port number must be used as the TCP destination port number by any device attempting to connect to the 2120's serial interface over the LAN.

configure eia232 rawtcp_telnet remidlediscto X

Remote idle disconnect timeout <sec>

configure eia232 rawtcp_telnet remip X

Sets the destination IP address used when automatic connection requests are sent to a remote device over the LAN.

Accessibility: READ/WRITE

Default: 1.1.1.8

Valid Entries: Any in IP address format

Note To activate the auto connection feature, “configure eia232 rawtcp_telnet confromlocena” must be set to YES and “configure eia232 rawtcp_telnet conretryfreq” must be set to any number (up to 65535) other than 0.

configure eia232 rawtcp_telnet remport X

Sets the destination TCP port number used when automatic connection requests are sent to a remote device over the LAN.

Accessibility: READ/WRITE

Default: 23 (Telnet)

Valid Entries: 0–65535

Note This is used in conjunction with the automatic connection feature.

configure eia232 rawtcp_telnet rempwd X

Sets/activates the password sent with automatic connection requests to a remote device/application over the LAN.

Accessibility: READ/WRITE

Default: UNDEFINED (no entry)

Valid Entries: Any alphanumeric entry with a string size up to 32 bytes

configure eia232 rawtcp_telnet remuserid X

Sets/activates the User ID sent with automatic connection requests to a remote device/application over the LAN.

Accessibility: READ/WRITE

Default: UNDEFINED (no entry)

Valid Entries: Any alphanumeric entry with a string size up to 32 bytes

configure eia232 rawtcp_telnet sestermchar X

Sets character string that is required to terminate a connection to the serial interface.

Accessibility: READ/WRITE

Default: 0x04 (Control-D)

Valid Entries: Hexadecimal entry for desired session termination character.

configure eia232 rawtcp_telnet uicmdena X

User Interface Command Enable

configure ipfwd ipfwdena X

IP forwarding enable

configure ipfwd natipaddr X

NAT IP address

configure resetnv

Performs a software reset (to factory defaults) of all non-volatile configuration parameters. When performed, session is lost.

Accessibility: N/A

Default: N/A

Valid Entries: N/A

Note Will not reset factory assigned MAC/NIC address, but will reset the IP address.

configure system

Returns the Configure System Help Menu.

Accessibility: N/A

Default: N/A

Valid Entries: N/A

Note Needs to be entered first in all “configure system” command strings.

configure system bootmessdispena X

Permits the display of the Boot Message (Model 2120 Terminal Server Software Version ?.?.?) on the serial interface.

Accessibility: READ/WRITE

Default: yes

Valid Entries: yes, no

Note Set to NO if the serial device is affected/confused by the boot message.

configure system defgatewayipddr X

Sets the IP address of the default gateway.

Accessibility: READ/WRITE

Default: 0.0.0.0 (disabled)

Valid Entries: Any in MAC address format

Note The 2120 will attempt to find and use the MAC address of the default gateway when the MAC address of the destination IP address cannot be found.

configure system dhcpena X

Permits DHCP client operation.

Accessibility: READ/WRITE

Default: yes

Valid Entries: yes, no

Note When set to YES, the 2120 will automatically request and use an IP address assigned by a DHCP Server as the IP Address of the 2120 unit. This feature will not function unless there is an active DHCP Server on the LAN.

configure system helpmenudispena X

Help menu display enable

configure system ipaddrcfg X

Sets IP address of the 2120 unit.

Accessibility: READ/WRITE

Default: 5.5.5.5

Valid Entries: Any in IP address format.

Note If there is an active DHCP Server on the LAN, "configure system dhcpena" must be set to NO or the IP address of the 2120 unit entered here will be overwritten with the IP address assigned by the DHCP server.

configure system mac X

Changes MAC address of the 2120.

Accessibility: READ/WRITE

Default: Factory assigned MAC/NIC address.

Valid Entries: Any in MAC address format.

Note MAC address can be changed, but will not reset when hard (Dip Switch #1) or soft (configure resetnv) configuration resets are performed.

configure system manena X

Permits access to the Model 2120 Software Command System via a remote Telnet session over the LAN.

Accessibility: READ/WRITE

Default: yes

Valid Entries: yes, no

Note If disabled, access to the Model 2120 Software Command System can be only possible via the serial interface.

configure system maninactiveto X

Sets the period of time (in minutes) that the 2120 will close an inactive Telnet session.

Accessibility: READ/WRITE

Default: 15 (minutes)

Valid Entries: 0 – 10080

Note Entering a 0 for this parameter will disable this feature and allow a Telnet session for an unlimited period of time.

configure system manport X

Management port

configure system prompt X

Sets system command prompt.

Accessibility: READ/WRITE

Default: TS>

Valid Entries: Any alphanumeric entry with a string size up to 32 bytes

Note The system prompt may be changed to uniquely identify multiple 2120 units.

configure system subnetcfg X

Sets the Subnet Mask of the 2120 unit.

Accessibility: READ/WRITE

Default: 255.255.255.0

Valid Entries: Any in Subnet Mask format

Note Must match the Subnet Mask of the LAN that the 2120 unit is connected to.

configure userdatabase

Returns User Database Help Menu.

Accessibility: N/A

Default: N/A

Valid Entries: N/A

Note Needs to be entered first in all "userdatabase" command strings.

configure userdatabase createuser X

Creates new users in the user database by specifying a user name, password, and privilege.

Accessibility: READ/WRITE

Default: user database empty!

Valid Entries: user name (up to 32 characters), password (up to 32 characters), privilege (user, admin, both)

configure userdatabase deleteall

Deletes the entire user database with a single command.

Accessibility: N/A

Default: N/A

Valid Entries: N/A

configure userdatabase deleteuser X

Deletes individual users in the user database by specifying the user name.

Accessibility: N/A

Default: N/A

Valid Entries: user name (up to 32 characters)

configure userdatabase modifyuser X

Modifies the password or privilege of individual users in the user database.

Accessibility: N/A

Default: N/A

Valid Entries: user name (up to 32 characters), new or current password (up to 32 characters), new or current privilege (user, admin, both).

B.4 EIAONCLOSE COMMANDS

eiaonclose

Remotely closes the connection to the serial interface.

Accessibility: N/A

Default: N/A

Valid Entries: N/A

Note This may be needed if the inactivity timeout feature is disabled.

B.5 FTP COMMANDS

ftp

Enables the 2120 to communicate with FTP servers over the LAN for viewing and downloading files (i.e. new 2120 software releases).

Accessibility: N/A

Default: N/A

Valid Entries: N/A

Note See "Software Installation Instructions" on page 46.

B.6 PING COMMANDS

ping

Enables the 2120 to ping other devices on the LAN.

Accessibility: N/A

Default: N/A

Valid Entries: N/A

B.7 RAWTCP COMMANDS

rawtcp

Enables the 2120 to initiate a Raw-TCP session with remote devices over the LAN.

Accessibility: N/A

Default: N/A

Valid Entries: N/A

B.8 SHOW COMMANDS

show

Returns the Show Help Menu.

Accessibility: N/A

Default: N/A

Valid Entries: N/A

Note Needs to be entered first in all “show” command strings.

show eia232

Returns the Show EIA232 Help Menu.

Accessibility: N/A

Default: N/A

Valid Entries: N/A

Note Needs to be entered first in all “show eia232” command strings.

show eia232 interface

Returns the Show EIA232 Interface Help Menu.

Accessibility: N/A

Default: N/A

Valid Entries: N/A

Note Needs to be entered first in all “show eia232 interface” command strings.

show eia232 interface all

Returns all current EIA232 interface settings.

Accessibility: READ ONLY

show eia232 interface charlength

Returns current RS-232 Character Length setting.

Accessibility: READ ONLY

show eia232 interface curuserlogged

Returns the user name of the current active user on the serial interface.

Accessibility: READ ONLY

show eia232 interface datarate

Returns current RS-232 Datarate setting.

Accessibility: READ ONLY

show eia232 interface defgatewayactive X

Default gateway active

show eia232 interface defgatewaycfg X

Default gateway configured

show eia232 interface dtedce

Returns current RS-232 DTE/DCE Physical Port setting.

Accessibility: READ ONLY

show eia232 interface flowcontrol

Returns current RS-232 Flow Control setting.

Accessibility: READ ONLY

show eia232 interface inactiveto

Returns the current Inactive Timeout setting (in minutes) for closing an inactive connection to the serial interface.

Accessibility: READ ONLY

show eia232 interface ipaddactive

Returns the current active IP address for the serial interface.

Accessibility: READ ONLY

Note In Telnet and RawTCP modes, the active serial interface IP address will be the same as the 2120 unit IP Address configured with the "configure system ipaddrcfg X" command or obtained by an active DHCP Server on the LAN. In PPP mode, the active serial interface IP address will be the same as the static IP address configured with the "configure eia232 interface ipaddrcfg X" command, obtained by an active PPP related DHCP Server, or obtained from a remote PPP client. In SLIP mode, the active serial interface IP address will be the same as the static IP address configured with the "configure eia232 interface ipaddrcfg X" command.

show eia232 interface ipaddrcfg

Returns the static IP address configured for PPP or SLIP operations.

Accessibility: READ ONLY

show eia232 interface parity

Returns current RS-232 Parity setting.

Accessibility: READ ONLY

show eia232 interface protocol

Returns current RS-232 Protocol setting.

Accessibility: READ ONLY

show eia232 interface rxbufen

Receive buffer length <num char>

show eia232 interface rxidlechartrig

Receive idle char for trig <num char>

show eia232 interface stoptlength

Returns current RS-232 Stop Length setting.

Accessibility: READ ONLY

show eia232 interface subnetactive

Returns the current active Subnet Mask for the serial interface.

Accessibility: READ ONLY

Note This will match the Subnet Mask of the LAN where the active serial interface IP address resides.

show eia232 interface subnetcfg

Returns the Subnet Mask configured for PPP or SLIP operations.

Accessibility: READ ONLY

show eia232 nvt all

Show All

show eia232 nvt echoena

Echo Enable

show eia232 nvt endofrecordena

End-Of-Record Enable

show eia232 nvt linemodeena

Line Mode Enable

show eia232 nvt terminaltype

Terminal Type

show eia232 nvt timingmarkena

Timing Mark Enable

show eia232 nvt transmitbinaryena

Transmit Binary Enable

show eia232 ppp

Returns the PPP Help Menu.

Accessibility: N/A

Default: N/A

Valid Entries: N/A

Note Needs to be entered first in all "show eia232 ppp" command strings.

show eia232 ppp all

Returns all current PPP settings.

Accessibility: READ ONLY

show eia232 ppp dhcpena

Returns current PPP related DHCP enable setting.

Accessibility: READ ONLY

show eia232 ppp dhcpstate

Returns current PPP related DHCP client state.

Accessibility: READ ONLY

Default: initialize

Possible States: bound, initialize, rebind, renew, request, select

Note The bound state should appear when DHCP is successfully operating.

show eia232 ppp dhcppassedtime

Returns the amount of time (in seconds) since the lease on the PPP related IP address started.

Accessibility: READ ONLY

Default: 0 (seconds)

Possible Values: 0-65535

show eia232 ppp dhcprenewtime

Returns when (in seconds) the lease on the current PPP related IP address must be renewed.

Accessibility: READ ONLY

Default: 0 (seconds)

Possible Values: 0-65535

show eia232 ppp dhcprebindtime

Returns when (in seconds) rebind must occur between the PPP related IP and MAC address.

Accessibility: READ ONLY

Default: 0 (seconds)

Possible Values: 0-65535

show eia232 ppp dhcpexpiretime

Returns when (in seconds) the lease on the current PPP related IP

address will expire.

Accessibility: READ ONLY

Default: 0 (seconds)

Possible Values: 0-65535

show eia232 ppp dhcpipaddr

Returns the current PPP related IP address obtained from the active DHCP Server.

Accessibility: READ ONLY

Default: 0.0.0.0

Possible Values: Any in IP address format

show eia232 ppp dhcpsubnet

Returns the current PPP/DHCP related Subnet Mask.

Accessibility: READ ONLY

Default: 0.0.0.0

Possible Values: Any in Subnet Mask format

Note This will match the Subnet Mask of the LAN where the active serial interface IP address (assigned by the DHCP Server) resides.

1. show eia ppp dhcpdefgateway

DHCP Default Gateway

2. show eia ppp dhcphwaddr

DHCP Hardware Address

3. show eia ppp fcslength

FCS Length

show eia232 ppp ipconstate

Returns the current PPP related IP connection state.

Accessibility: READ ONLY

Default: closed

Possible Values: ack rcvd, ack sent, closed, closing, initialize, opened, req sent, starting, stopped, stopping

show eia232 ppp lcpchorepreceived

Returns the number of LCP Echo Replies received from the PPP client.

Accessibility: READ ONLY

Default: 0

Possible Values: 0 to 4294967296

Note This number increments with each LCP Echo Reply received from the PPP client.

show eia232 ppp lcpchoreqsent

Returns the number of LCP Echo Requests received from the PPP client.

Accessibility: READ ONLY

Default: 0

Possible Values: 0 to 4294967296

Note This number increments with each LCP Echo Requests received from the PPP client.

show eia232 ppp peeripaddruseena

Returns the current setting of the Peer IP Addressing Use Enable feature.

Accessibility: READ ONLY

show eia232 ppp peernsaddruseena

Returns the current setting of the Peer Name Server Address Use Enable feature.

Accessibility: READ ONLY

show eia232 ppp pppconstate

Returns the current PPP related IP connection state.

Accessibility: READ ONLY

Default: closed

Possible Values: ack rcvd, ack sent, closed, closing, initialize, opened, req sent, starting, stopped, stopping

show eia ppp pingena

Ping Enable

show eia232 ppp pridnsaddr

Returns the current address of the primary DNS used to support DNS address exchange with the client device connected to the serial interface.

Accessibility: READ ONLY

show eia232 ppp priwinsaddr

Returns the current address of the primary WINS used to support WINS address exchange with the client device connected to the serial interface.

Accessibility: READ ONLY

show eia232 ppp secdnsaddr

Returns the current address of the secondary DNS used to support DNS address exchange with the client device connected to the serial interface.

Accessibility: READ ONLY

show eia232 ppp secwinsaddr

Returns the current address of the secondary WINS used to support WINS address exchange with the client device connected to the serial

interface.

Accessibility: READ ONLY

show eia ppp rxaccm

Receive Async-Control Character Map

show eia ppp txaccm

Transmit Async-Control Character Map

show eia232 ppp userauthprot

Returns the current User Authentication Protocol setting.

Accessibility: READ ONLY

show eia232 rawtcp_telnet

Returns Raw-TCP/Telnet Help Menu.

Accessibility: N/A

Default: N/A

Valid Entries: N/A

Note Needs to be entered first in all "show eia232 rawtcp_telnet" command strings.

show eia232 rawtcp_telnet all

Returns all current EIA232 Raw-TCP/Telnet settings.

Accessibility: READ ONLY

show eia232 rawtcp_telnet confromlocena

Returns current Connection From Local Enable setting.

Accessibility: READ ONLY

show eia232 rawtcp_telnet confromremena

Returns current Connection From Remote Enable setting.

Accessibility: READ ONLY

show eia232 rawtcp_telnet conretryfreq

Returns current Connection Retry Frequency setting.

Accessibility: READ ONLY

show eia232 rawtcp_telnet keepaliveto

Keepalive Timeout (sec)

show eia232 rawtcp_telnet locport

Returns current Local Port setting.

Accessibility: READ ONLY

show eia232 rawtcp_telnet remidlediscto

Remote Idle Disconnect Timeout (sec)

show eia232 rawtcp_telnet remip
Returns current Remote IP Address setting.
Accessibility: READ ONLY

show eia232 rawtcp_telnet remport
Returns current Remote Port setting.
Accessibility: READ ONLY

show eia232 rawtcp_telnet rempwd
Returns current Remote Password setting.
Accessibility: READ ONLY

show eia232 rawtcp_telnet remuserid
Returns current Remote User ID setting.
Accessibility: READ ONLY

show eia232 rawtcp_telnet sestermchar
Returns current Session Termination Character setting.
Accessibility: READ ONLY

show eia232 rawtcp_telnet tcpconstate
Returns current TCP Connection State.
Accessibility: READ ONLY
Default: listen
Possible States: listen, established

show eia232 rawtcp_telnet tpestmidletime
TCP Established/Remote Idle Time (sec)

show eia232 rawtcp_telnet uicmdena
User Interface Command Enable

show ipfwd all
Show All

show ipfwd ipfwdena
IP Forwarding Enable

show ipfwd natipaddr
NAT IP Address

show system
Returns System Help Menu.
Accessibility: N/A
Default: N/A
Valid Entries: N/A

Note Needs to be entered first in all "show system" command strings.

show system all

Returns all current System settings.

Accessibility: READ ONLY

show system bootmessdispena

Returns current Boot Message Display Enable setting.

Accessibility: READ ONLY

show system defgatewayactive

Default Gateway Active

show system defgatewaycfg

Default Gateway Configured

show system dhcpena

Returns current DHCP Enable setting.

Accessibility: READ ONLY

show system dhcpstate

Returns current DHCP client state.

Accessibility: READ ONLY

Default: select

Possible States: bound, initialize, rebind, renew, request, select

Note The bound state should appear when DHCP is successfully operating.

show system dhcppassedtime

Returns the amount of time (in seconds) since the lease on the IP address started.

Accessibility: READ ONLY

Default: 0 (seconds)

Possible Values: 0–65535

show system dhcprenewtime

Returns when (in seconds) the lease on the current IP address must be renewed.

Accessibility: READ ONLY

Default: 0 (seconds)

Possible Values: 0–65535

show system dhcprebindtime

Returns when (in seconds) rebind must occur between the IP and MAC address.

Accessibility: READ ONLY

Default: 0 (seconds)

Possible Values: 0–65535

show system dhcpexpiretime

Returns when (in seconds) the lease on the current IP address will expire.

Accessibility: READ ONLY

Default: 0 (seconds)

Possible Values: 0–65535

show system dhcpipaddr

Returns the current unit IP address obtained from the active DHCP Server.

Accessibility: READ ONLY

Default: 0.0.0.0

Possible Values: Any in IP address format

show system dhcpsubnet

Returns the current unit/DHCP related Subnet Mask.

Accessibility: READ ONLY

Default: 0.0.0.0

Possible Values: Any in Subnet Mask format

Note This will match the Subnet Mask of the LAN where the active unit IP address (assigned by the DHCP Server) resides.

show system dhcpdefgateway

DHCP Default Gateway

show system helpmenudispena

Help Menu Display Enable

show system ipaddractive

Returns the current active IP address for the Model 2120 unit.

Accessibility: READ ONLY

Note This will be the same as the 2120 unit IP Address configured with the "configure system ipaddrcfg X" command or obtained by an active DHCP Server on the LAN.

show system ipaddrcfg

Returns the current IP address configured for the Model 2120 unit.

Accessibility: READ ONLY

show system mac

Returns current MAC/NIC address setting.

Accessibility: READ ONLY

show system manena

Returns current management enable setting.

Accessibility: READ ONLY

show system maninactiveto

Returns current management inactive timeout setting.

Accessibility: READ ONLY

show system prompt

Returns current system command prompt setting.

Accessibility: READ ONLY

show system subnetactive

Returns current active Subnet Mask for the Model 2120 unit.

Accessibility: READ ONLY

show system subnetcfg

Returns current Subnet Mask configured for the Model 2120 unit.

Accessibility: READ ONLY

show system swversion

Returns current software version.

Accessibility: READ ONLY

show userdatabase

Returns the User Database Help Menu.

Accessibility: N/A

Default: N/A

Valid Entries: N/A

Note Needs to be entered first in all "show userdatabase" command strings.

show userdatabase allusers

Returns all current user names, passwords, and privileges defined in the User Database.

Accessibility: READ ONLY

show userdatabase user X

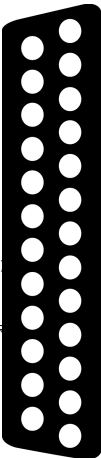
Returns the user name, password, and privilege of a specified user in the User Database.

Accessibility: READ ONLY

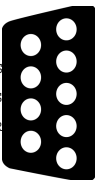
Note X equals the user name of the specified user.

APPENDIX C PIN CONFIGURATIONS

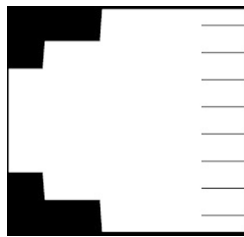
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DIRECTION	DCE STANDARD SETTING	DIRECTION
		
	1 - (FG) Frame Ground 2 - (TD) Transmit Data 3 - (RD) Receive Data 4 - (RTS) Request to Send 5 - (CTS) Clear to Send 6 - (DSR) Data Set Ready 7 - (SG) Signal Ground 8 - (DCD) Data Carrier Detect	----- Input Output Input Output Output ----- Output
Input	Data Term. Ready (DTR)	
Output	Ring Indicator (RI)	

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DIRECTION	DCE STANDARD SETTING	DIRECTION
Output		
Input	1 - (DCD) Data Carrier Detect 2 - (RD) Receive Data 3 - (TD) Transmit Data 4 - (DTR) Data Term. Ready 5 - (SG) Signal Ground	Output Output Input Input -----
Output	Data Set Ready (DSR)	
Input	Request to Send (RTS)	
Output	Clear to Send (CTS)	
Output	Ring Indicator (RI)	

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DCE STANDARD SETTING	DIRECTION
	
1 - DSK 2 - DCD 3 - DTR 4 - SG 5 - RD 6 - TD 7 - CTS 8 - RTS	Output Output Input ----- Output Input Output Input

