

DANTEL NEXCON X.25 CONCENTRATOR



Table of Contents

Ordering Information	2
General Description	2
Circuit Description	3
Application Information	7
Installation	8
Operation	17
Printer Syntax	17
Technical Specifications	28
Warranty	30

About this Practice:

This practice has been reissued to:

- Change the title.
- Change all occurrences of input voltage requirements from -42 to -56 VDC, to -20 to -60 VDC.

Updated and new content can be identified by a banner in the right margin.

UPDATED

Issue date: October 1997

CAUTION

- Install or remove modules from the shelf only when the power is off. If you install a module in the shelf with the power on, the internal circuitry may suffer damage and the product warranty will be void.
- Remove and install circuit boards only in a static-safe environment (use anti-static wrist straps, smocks, footwear, etc.).
- Keep circuit boards in their anti-static bags when they are not in use.
- Do not ship or store circuit boards near strong electrostatic, electromagnetic, magnetic, or radioactive fields.
- For more complete information on electrostatic discharge safety precautions, refer to Bellcore™ Technical Reference # TR-NWT-000870.

ORDERING INFORMATION

NOTE: This section lists the different options available for this product. To order any of the available options, contact Dantel Inside Sales through our toll-free number, 1-800-432-6835.

OPTION NUMBER	FEATURES
A11-46095-00	NEXCON Async/Synch Multi Port Processor.
A11-46095-01	NEXCON Async/Synch Multi Port Processor with increased memory for use with NEXCON software version 3.0.
Glossary Utility Disk	Defines the terms used in Dantel's product documentation.

GENERAL DESCRIPTION

The 46095 NEXCON provides X.25 Packet Network functions within Dantel's 460 Alarm and Control System (460 ACS). The NEXCON converts data at remote locations to X.25 format for transmission to operation centers.

The NEXCON has eleven input/output ports:

- Eight data ports
- A printer/configuration port
- A co-locator/data port
- An X.25 port

The NEXCON fits into any Dantel 400-type or similar equipment shelf. The NEXCON requires two slots in the shelf and operates on -20 to -60 VDC.

The 46095 comes in two options: the 46095-00 and the 46095-01. The difference between the two is the amount of Back-end (BE) memory they each have and the baudrate at which the Printer Port can transfer data.

The 46095-00:

- Contains 512KB of BE
- Has a maximum Printer Port baud-rate of 19.2K
- Requires X.25 software with a version lower than 3.0

The 46095-01:

- Contains 2MB of BE
- Has a maximum Printer Port baud-rate of 115.2K
- Requires X.25 software version 3.0 to enable all available features

NOTE:

The eight data ports can communicate through an asynchronous or synchronous RS-232 Interface

NOTE:

The printer port and co-locator/data port (when available) communicate through an asynchronous RS-232 Interface only.

NOTE:

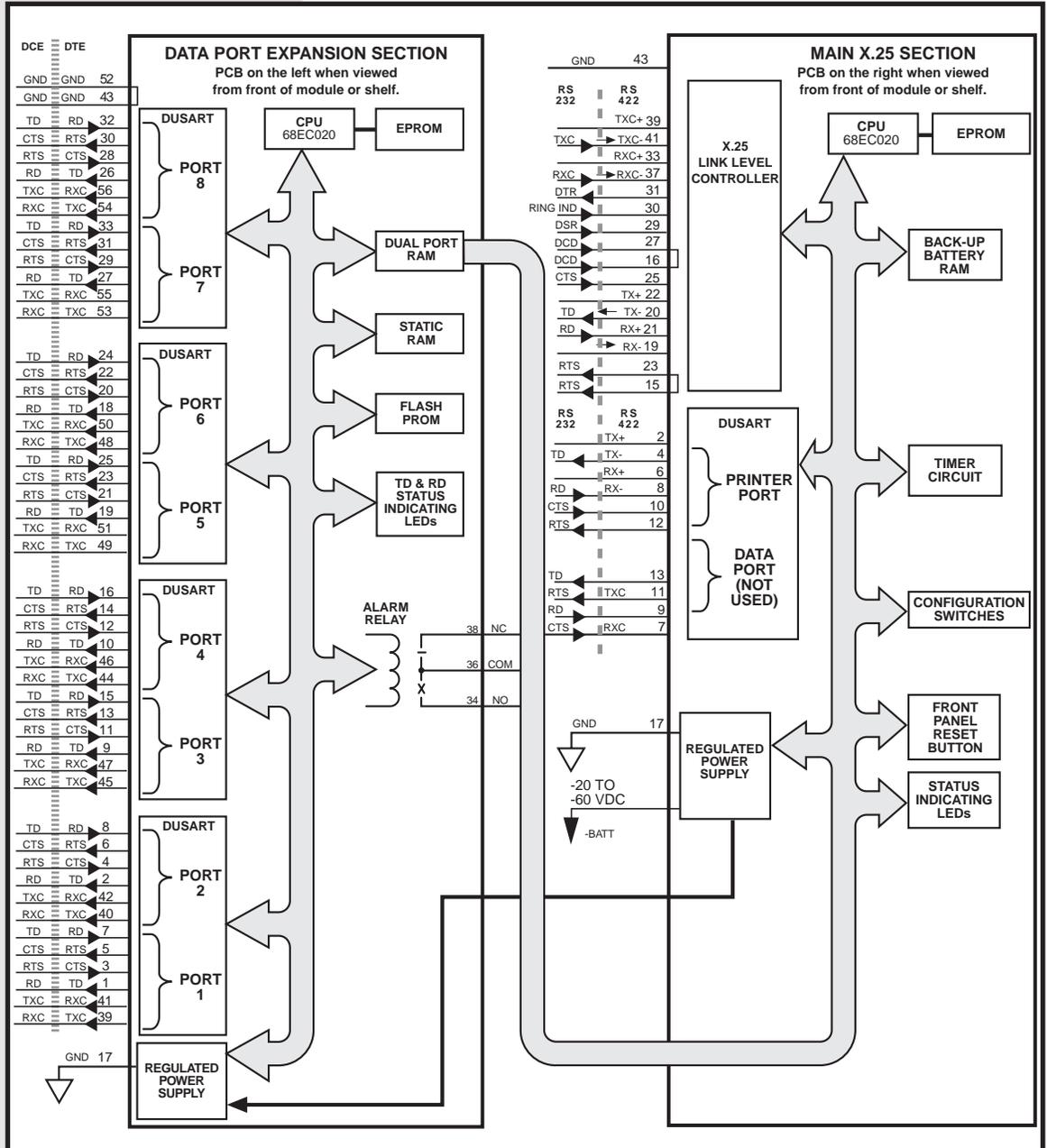
The X.25 port can communicate through a synchronous RS-232 Interface or through a V.35 Interface.

UPDATED

CIRCUIT DESCRIPTION

Fig. 1 shows the functional schematic for the 46095 NEXCON module. The MPP has two sections: the X.25 section (back end) and the data port expansion section (front end). The two sections interconnect through the dual port RAM (Random Access Memory).

FIG. 1 - FUNCTIONAL SCHEMATIC



UPDATED

CIRCUIT DESCRIPTION

X.25 SECTION (BACK END)

The X.25 section circuitry consists of:

- A CPU (Central Processing Unit)

The CPU is a 32-bit microprocessor that operates at a frequency of 20 MHz.

- Battery backed-up RAM

A lithium battery backs up data stored in RAM.

- An X.25 link level controller

The X.25 link level controller:

- Interfaces the X.25 port directly to the CPU.
- Provides all frame formatting and frame check sequence (FCS) generation and detection.
- Includes buffer management of multiple packets.

Contained in the buffer management is a dual channel direct memory access (DMA) controller with one receive channel and one transmit channel.

The DMA controller transfers received packets directly from the controller receiver buffer into memory. At the same time, the DMA controller transfers packets that transmit from memory to the controller transmit buffer.

- A timer circuit

The timer circuit generates periodic interrupts to the CPU and control circuits.

- A DUSART (Dual Universal Synchronous/Asynchronous Receiver/Transmitter)

The CPU controls the DUSART which provides handshaking control for the printer and data ports.

- Front panel reset button

Three eight-lever DIP switches provide module configuration. The front panel reset button is recessed which prevents accidental resets.

- Status indicating LEDs

A group of three status indicating LEDs are in the lower right hand corner of the front panel. The top LED, labeled X.25, lights up when a link is established and the X.25 port transmits data. The middle LED, labeled DATA, flashes when the co-locator port is active and transmitting data. The bottom LED, labeled PRINTER, indicates when the printer port transmits data.

CIRCUIT DESCRIPTION

UPDATED

- A regulated power supply

The regulated power supply provides +5 VDC and ± 12 VDC output power for the module's circuits which operate on -20 to -60 VDC input power. The power input routes to a second regulated power supply located on the dataport expansion section.

DATA PORT EXPANSION SECTION (FRONT END)

The circuitry in this section consists of:

- A CPU

The CPU is a 32-bit microprocessor that operates at a frequency of 20 MHz.

- Four DUSARTs

Each DUSART provides synchronous or asynchronous data communications for two of the eight data ports. The CPU controls each DUSART, and each DUSART is configured for an RS-232 interface only.

- Status indicating LEDs

The front panel green LEDs indicate TXD and RXD status and are located on the left side of the module's front panel. Each group of two LEDs is labeled 1 to 8. The upper LED in each group is labeled TXD and the lower LED labeled RXD.

When the TXD LED lights up, data transmits from the port that corresponds to the LED number. When the RXD LED lights up, the corresponding port receives data.

The STATUS LED is a two-color LED that indicates the status of the unit. When the LED is green, the unit is operating properly. When the LED is red, the unit is in a reset condition.

- Dual port RAM

The dual port RAM supports communication between the two MPP sections and provides electrical separation for the two microprocessor buses. The microprocessors in each MPP section have independent access to the RAM.

CIRCUIT DESCRIPTION

PORT DESCRIPTION

Each port can handle up to a maximum of 32 channels, depending upon the protocol interface and/or database requirements. A port can have any combination of PVC LCNs or SVC addresses. For example, if the packet size is 128, a port can have 15 PVC LCNs and 17 SVC addresses. You do not have to define all 32 port entries. Refer to Table A.

SVC Operation

A pool assigns LCNs to a call depending on whether the unit is DTE or DCE. The NEXCON routes the call based on the called address. Once the call is established the NEXCON routes data based on LCN mapping. When the call clears the LCN is no longer assigned to the port.

Logical Channel Translation

Logical channel translation lets the NEXCON communicate with external equipment types that require identical LCN assignments. Fig. 2 shows two network elements (NEs) using LCN 1. The NEXCON can send information from the NEs to the NMA. The NEXCON cannot route information from the NMA to the NEs.

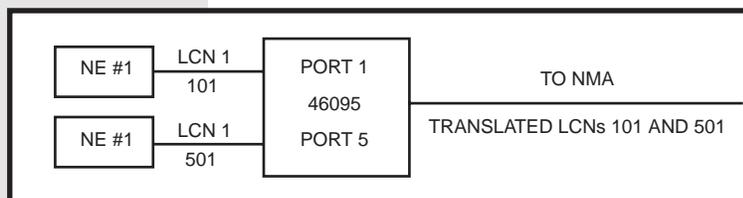
Route information from the NMA to the NEs by defining entries in an LCN translation table. For example, you can define LCN 1 of port 1 as 101 and LCN 1 of port 5 as 501.

The NEXCON accepts incoming calls on any LCN channel defined as SVC and assigned to the module database. You can select any LCN in the range of 1 to 4,095.

TABLE A - PACKET SIZE AND NUMBER OF ENTRIES

PACKET SIZE	NUMBER OF ENTRIES
	(PCN LCNS OR SVC ADDRESSES)
128	32
256	32
512	32

FIG. 2 - LOGICAL CHANNEL TRANSLATION



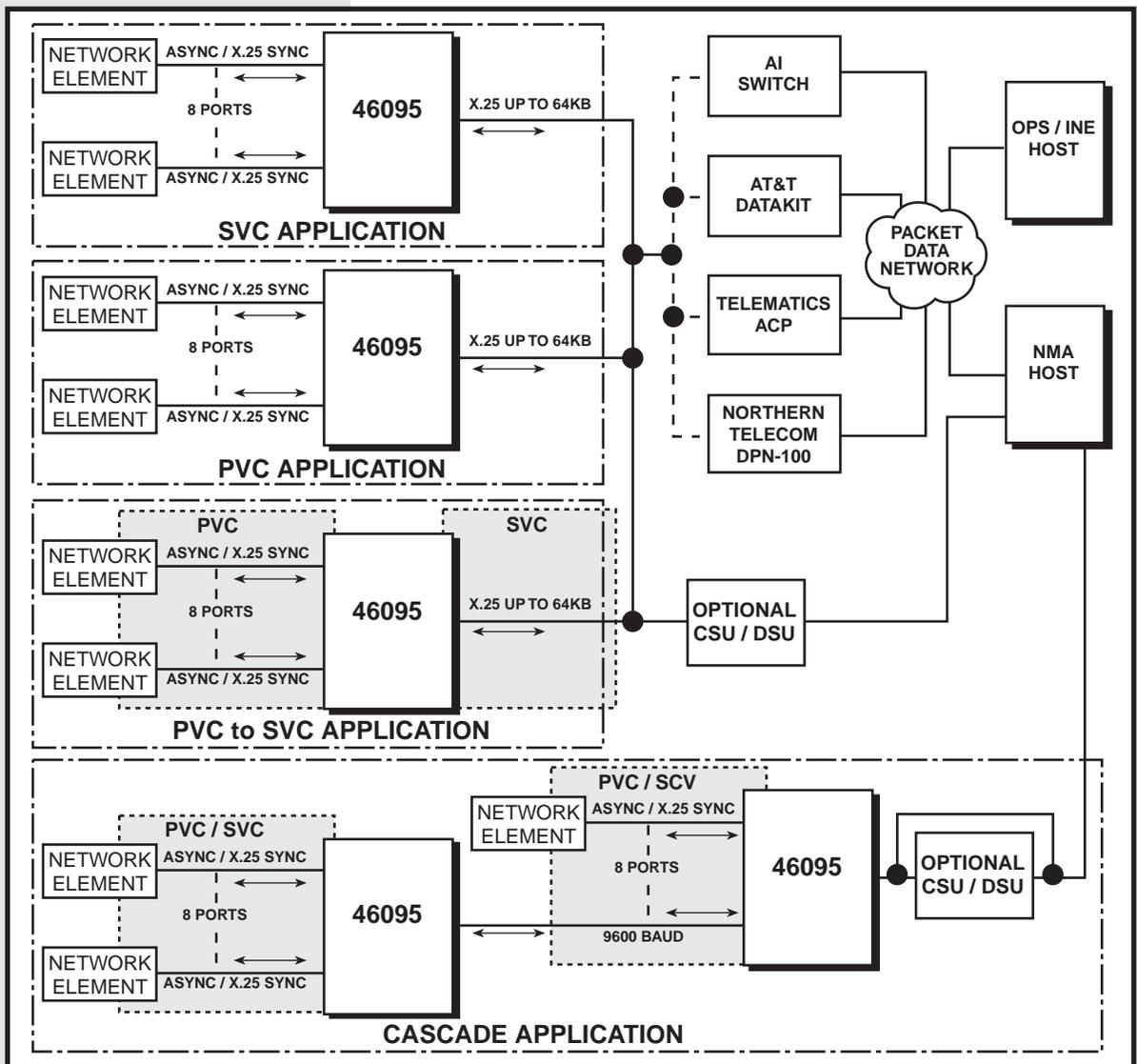
APPLICATION INFORMATION

The 46095 module interfaces multiple network elements to an X.25 network. The module combines multiple ports of TL1 asynchronous equipment and X.25 synchronous equipment into a single high-speed X.25 network port. The network port interfaces to an X.25 packet data network through a V.35 or RS-232 interface and communicates at speeds up to 64 kilobits per second.

Refer to Fig. 3 for an example application. The 46095 module combines multiple ports of network elements into a single X.25 port. The single port from the 46095 module communicates with an AI Switch, AT&T Datakit, Telematics ACP, etc.

The PVC-to-SVC conversion application shows the SVC side going either to other manufacturer's equipment or to the NMA center. Straight SVC or PVC applications can be connected directly into the NMA center. In the cascade application, eight 46095 modules can be connected to the data ports of one 46095 module. This increases the number of data ports to 64. (Only one cascade module is shown.)

Fig. 3 - EXAMPLE APPLICATION



INSTALLATION

Installation consists of setting the straps and switch settings, wiring the pin connectors, installing the NEXCON in the shelf and configuring the NEXCON.

1. SET THE STRAPS.

Set the straps by removing the top power supply subassembly from the module. Remove the four mounting screws and pull upward on the subassembly.

Refer to Table B and Fig. 4. Set straps A to G, which are for the X.25 port. Straps H, I and P are reserved. Do not change these straps from the factory settings. Strap R is for battery backup. Use position 12 for battery backup and position 23 for storage.

After you set the straps, reinstall the power supply subassembly. Be sure all the pins are lined up properly in the sockets. Be sure not to bend any pins. Replace the four screws.

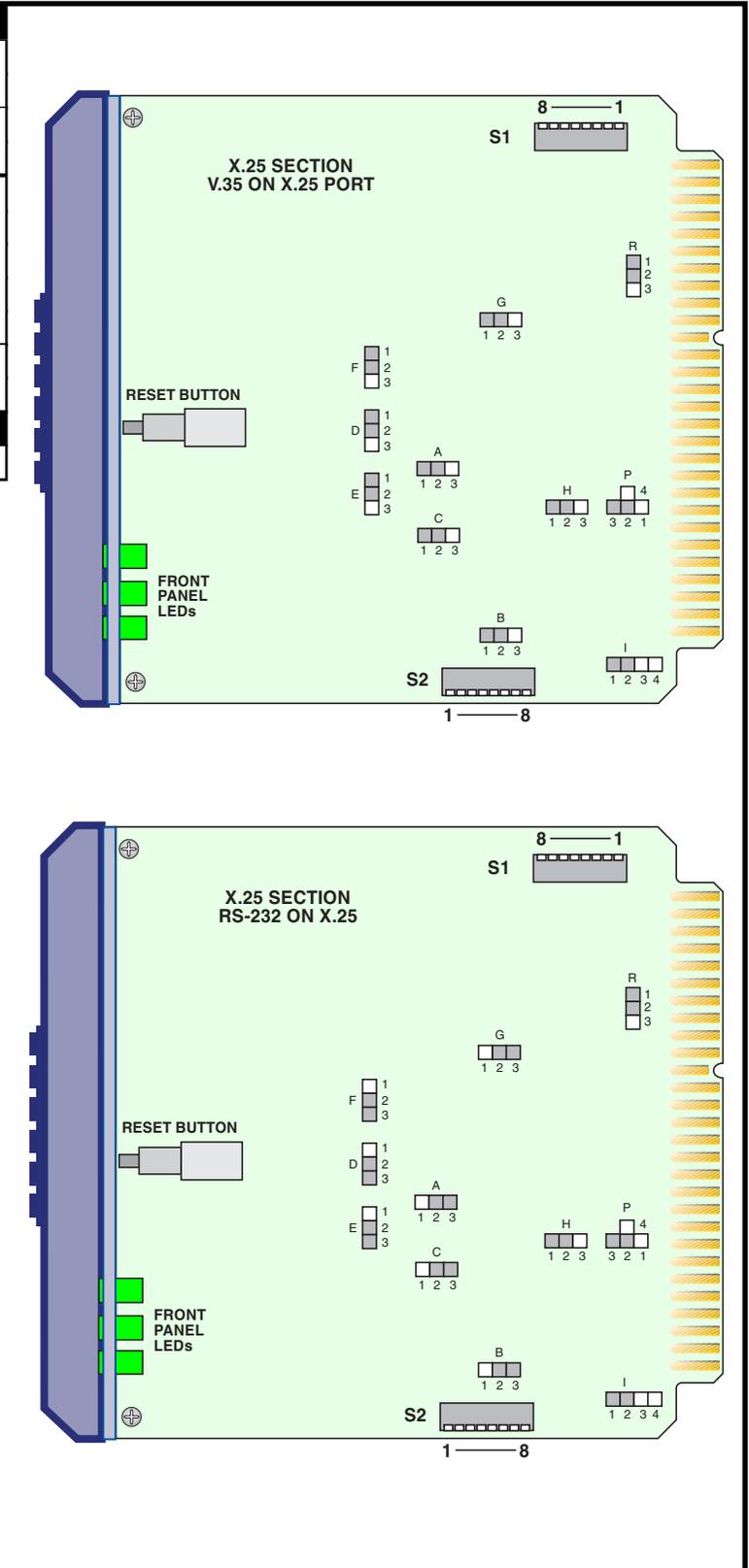
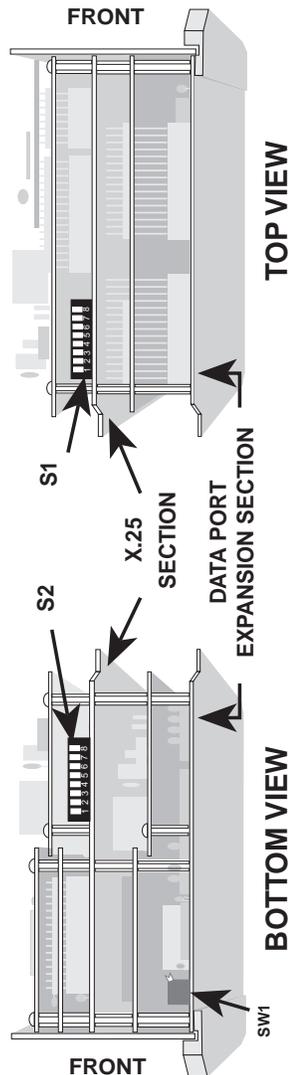
TABLE B - STRAP OPTIONS (-00 / -01)

X.25 PORT			
INTERFACE	DESCRIPTION	STRAP POSITIONS	EDGE CONNECTOR PINS
TD	RS-232 Transmit Data	A23	20
RD	RS-232 Receive Data	C23 & B23	21
RTS	RS-232 Request to Send	none	15 & 23
CTS	RS-232 Clear to Send	none	25
DCD	RS-232 Data Carrier Detect	none	16 & 27
DSR	RS-232 Data Set ready	none	29
DTR	RS-232 Data Terminal Ready	none	31
RING IND	RS-232 Ring Indicator Input	none	30
RXC	RS-232 Receive Clock Input	E23 & D23	37
TXC	RS-232 Transmit Clock Input	G23 & F23	41
TX-	V.35 Transmit Output	A12	20
TX+	V.35 Transmit Output	none	22
RX+	V.35 Receive Input	C12 & B12	21
RX-	V.35 Receive Input	B12	19
RXC+	V.35 Receive Clock Input	none	33
RXC-	V.35 Receive Clock Input	E12 & D12	37
TXC+	V.35 Transmit Clock Input	none	39
TXC-	V.35 Transmit Clock Input	G12 & F12	41

INSTALLATION

FIG. 4 - SWITCH AND STRAP LOCATIONS

X.25 SECTION STRAPPING	
Printer/Data Port	RS-232
X.25 Port	V.35 Synchronous (Factory Setting)
<p>Note: Strap R is for battery back-up.</p> <ul style="list-style-type: none"> - Unit ships strapped 2&3 (battery disconnected) - Change strap to 1&2 to connect battery and enable back-up. <p>Note: Refer to Tables C and D for Switch Settings</p>	
DATA PORT EXPANSION SECTION STRAPPING	
None	



INSTALLATION

2. SET THE SWITCHES.

Refer to Fig. 4 and Tables C (46095-00), D (46095-01), E (-00 and -01). These tables contain settings for switches S1 and S2 on the main section. The data port expansion section also has one eight-lever DIP switch. All switches on this eight-lever DIP switch should be left OFF.

TABLE C - 46095-00 SWITCH SETTINGS (UP IS OFF)

X.25 SECTION / A11-46095-00			
DIP SWITCH 1:			
S1-1 Through S1-4	NOT USED		
S1-5, S1-6	Baud Rate for Co-locator/Data Port	S1-5	S1-6
	1200	OFF	OFF
	2400	ON	OFF
	9600	OFF	ON
	19200	ON	ON
S1-7, S1-8	Baud Rate for Printer Port	S1-7	S1-8
	1200	OFF	OFF
	2400	ON	OFF
	9600	OFF	ON
	19200	ON	ON
DIP SWITCH 2:			
S2-1 Through S2-6	DCPF Address	Refer to Table E	
S2-7	Printer Port Mode		
	DCPF (Default Setting)	OFF	
	Printer Syntax	ON	
S2-8	Normal Operation	OFF	
	Erases Entire Memory	ON	
Note:	DIP switches S2-1 through S2-6 are used for downloading the Operating and T/Shell Software through the printer port		
Note:	DIP switch S2-8 operates in conjunction with the front panel reset button		
DATA PORT EXPANSION SECTION / A11-46095-00			
DIP Switch 1 (SW1)	Clear front-end memory by setting Switch S1-1 ON (DOWN) Otherwise all switches should remain in the OFF (UP) position		

INSTALLATION

TABLE D - 46095-01 SWITCH SETTINGS (UP IS OFF)

X.25 SECTION / A11-46095-01			
DIP SWITCH 1:			
S1-1 Through S1-2	NOT USED		
IF S1-3 OFF:			
S1-5, S1-6	Baud Rate for Co-locator/Data Port	S1-5	S1-6
	1200	OFF	OFF
	2400	ON	OFF
	9600	OFF	ON
	19200	ON	ON
IF S1-3 ON:			
S1-5, S1-6	Baud Rate for Co-locator/Data Port	S1-5	S1-6
	9600	OFF	OFF
	19.2k	ON	OFF
	38.4k	OFF	ON
	115.2k	ON	ON
IF S1-4 OFF:			
S1-7, S1-8	Baud Rate for Printer Port	S1-7	S1-8
	1200	OFF	OFF
	2400	ON	OFF
	9600	OFF	ON
	19200	ON	ON
IF S1-4 ON:			
S1-7, S1-8	Baud Rate for Printer Port	S1-7	S1-8
	9600	OFF	OFF
	19.2k	ON	OFF
	38.4k	OFF	ON
	115.2k	ON	ON
DIP SWITCH 2:			
S2-1 Through S2-6	DCPF Address	Refer to Table E	
S2-7	Printer Port Mode		
	DCPF (Default Setting)	OFF	
	Printer Syntax	ON	
S2-8	Normal Operation	OFF	
	Erases Entire Memory	ON	
Note:	DIP switches S2-1 through S2-6 are used for downloading the Operating and T/Shell Software through the printer port		
Note:	DIP switch S2-8 operates in conjunction with the front panel reset button		
DATA PORT EXPANSION SECTION / A11-46095-01			
DIP Switch 1 (SW1)	Clear front-end memory by setting Switch S1-1 ON (DOWN) Otherwise all switches should remain in the OFF (UP) position		

INSTALLATION

TABLE E - DCPF ADDRESS SWITCH SETTINGS

129 1 2 3 4 5 6 7 8	142 1 2 3 4 5 6 7 8	155 1 2 3 4 5 6 7 8	168 1 2 3 4 5 6 7 8	181 1 2 3 4 5 6 7 8
130 1 2 3 4 5 6 7 8	143 1 2 3 4 5 6 7 8	156 1 2 3 4 5 6 7 8	169 1 2 3 4 5 6 7 8	182 1 2 3 4 5 6 7 8
131 1 2 3 4 5 6 7 8	144 1 2 3 4 5 6 7 8	157 1 2 3 4 5 6 7 8	170 1 2 3 4 5 6 7 8	183 1 2 3 4 5 6 7 8
132 1 2 3 4 5 6 7 8	145 1 2 3 4 5 6 7 8	158 1 2 3 4 5 6 7 8	171 1 2 3 4 5 6 7 8	184 1 2 3 4 5 6 7 8
133 1 2 3 4 5 6 7 8	146 1 2 3 4 5 6 7 8	159 1 2 3 4 5 6 7 8	172 1 2 3 4 5 6 7 8	185 1 2 3 4 5 6 7 8
134 1 2 3 4 5 6 7 8	147 1 2 3 4 5 6 7 8	160 1 2 3 4 5 6 7 8	173 1 2 3 4 5 6 7 8	186 1 2 3 4 5 6 7 8
135 1 2 3 4 5 6 7 8	148 1 2 3 4 5 6 7 8	161 1 2 3 4 5 6 7 8	174 1 2 3 4 5 6 7 8	187 1 2 3 4 5 6 7 8
136 1 2 3 4 5 6 7 8	149 1 2 3 4 5 6 7 8	162 1 2 3 4 5 6 7 8	175 1 2 3 4 5 6 7 8	188 1 2 3 4 5 6 7 8
137 1 2 3 4 5 6 7 8	150 1 2 3 4 5 6 7 8	163 1 2 3 4 5 6 7 8	176 1 2 3 4 5 6 7 8	189 1 2 3 4 5 6 7 8
138 1 2 3 4 5 6 7 8	151 1 2 3 4 5 6 7 8	164 1 2 3 4 5 6 7 8	177 1 2 3 4 5 6 7 8	190 1 2 3 4 5 6 7 8
139 1 2 3 4 5 6 7 8	152 1 2 3 4 5 6 7 8	165 1 2 3 4 5 6 7 8	178 1 2 3 4 5 6 7 8	191 1 2 3 4 5 6 7 8
140 1 2 3 4 5 6 7 8	153 1 2 3 4 5 6 7 8	166 1 2 3 4 5 6 7 8	179 1 2 3 4 5 6 7 8	192 1 2 3 4 5 6 7 8
141 1 2 3 4 5 6 7 8	154 1 2 3 4 5 6 7 8	167 1 2 3 4 5 6 7 8	180 1 2 3 4 5 6 7 8	

3. WIRE THE PIN CONNECTORS.

NOTE:

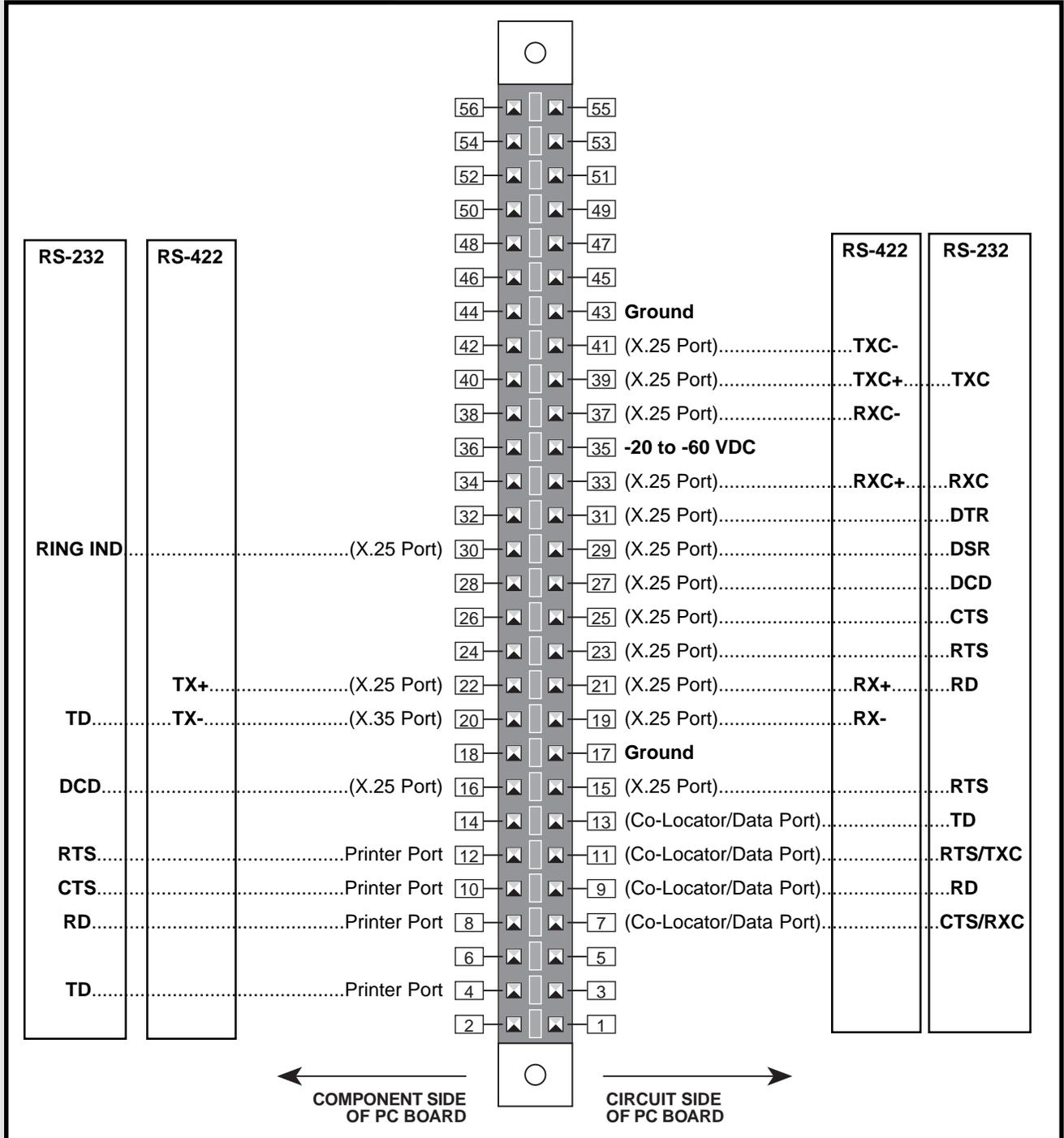
When you wire the X.25 circuit board, you can use pin 16 or 27 for the X.25 port DCD. You can use pin 15 or 23 for the X.25 port RTS. Pin 17 is a required ground even though there is more than one ground on both circuit boards.

Normally the factory wires the 56-pin edge connectors for the slot. If you wire the connectors, refer to Figs. 4 and 5 for module pin wiring assignments.

When you wire the data ports 1 to 8 to external equipment, use TXD, RXD, RTS and CTS for proper asynchronous communication. Use TXD, RXD, RTS, CTS, TXC and RXC for proper synchronous communication.

INSTALLATION

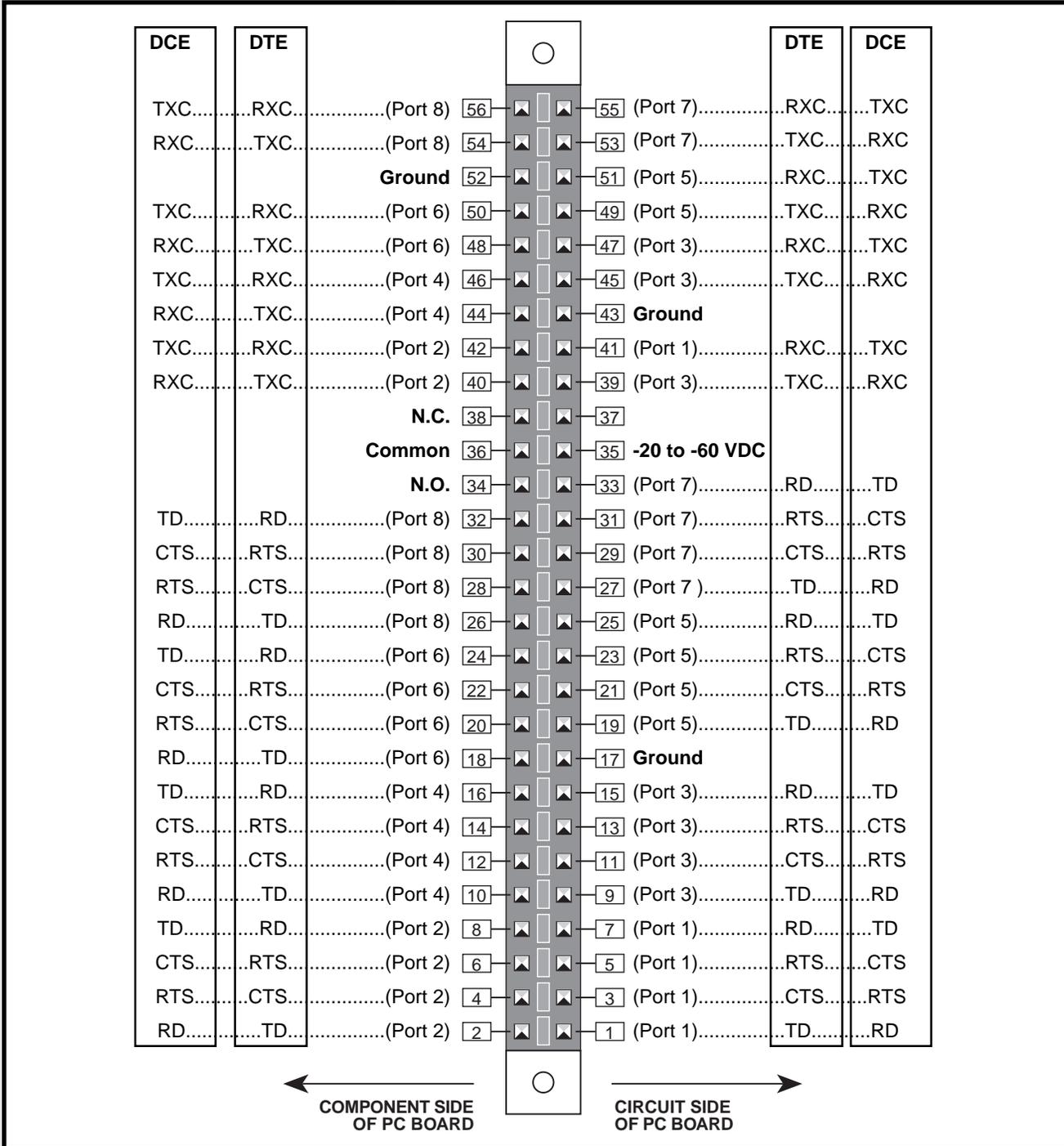
FIG. 5 - EDGE CONNECTOR PIN ASSIGNMENTS (CONNECTOR ON LEFT WHEN VIEWED FROM REAR OF SHELF)



UPDATED

INSTALLATION

FIG. 6 - EDGE CONNECTOR PIN ASSIGNMENTS (CONNECTOR ON RIGHT WHEN VIEWED FROM REAR OF SHELF)



UPDATED

INSTALLATION

4. CONFIGURE THE NEXCON.

1. Configure the NEXCON as follows:
2. Install the 46606 Asynchronous/Synchronous Multi-Port X.25 Interface Editor (46606) on your computer hard drive as instructed in the 46606 manual.
3. Exit the T/Shell program and return to DOS.
4. Insert the 46606 operating software disk in your computer diskette drive. Make sure the DOS prompt shows you are in the TSHELL directory.

Copy the 46606 files by typing **COPY A:*.*** then press Enter. (If the disk is in a different drive, type the letter of the drive instead of drive A.) After you copy the 46606 files, remove the disk from the drive and store the disk in a safe place.

Start the T/Shell program by typing **TSHELL** (make sure you are in the **TSHELL** directory) then press Enter. Select the **X.25 Sync/Async Editor** option from the Master Menu. Configure the NEXCON by referring to the 46606 manual.

5. Connect your computer to the X.25 module printer port. Refer to the block diagram of the shelf you installed the printer port in. Return to the X.25 System menu.

Select the **Parameters** option and make sure you select the correct COM port. Set the baud rate at the same rate you selected with switches S1-4, S1-7 and S1-8. Refer to Tables C and D. Leave all other parameters set to their default settings.

Select the **System Definition** option from the X.25 System menu. Select **Edit Password/Config** then select **Edit X.25 Address**. Make sure the address is the same as the module DIP switch settings (switches S2-1 to S2-6).

Return to the X.25 System menu and select **Transfer**. Select **BE**. A list of the operating software pops up. Select the **X25VXXXX.ABS** file from the release disk for downloading the back-end operating instructions.

When you finish downloading the Transfer window pops up. Select **FE**. A list of Flash software pops up. Select the **FLASH.HEX** file for downloading the front-end operating instructions. When you finish downloading the two operating software programs, download the database created with T/Shell.

6. When you complete the transfer, the NEXCON begins communicating.

NOTE:

You must download the back-end operating software, the front-end operating software and database in that order.

NOTE:

If there is more than one file, select the **X25VXXX.ABS** file. If there is more than one **X25VXXX.ABS** file, choose the one with the highest number where the Xs are.

INSTALLATION

TROUBLESHOOTING

If the back-end software (.ABS file) or the front-end software (.HEX) file does not download to the 46095 NEXCON, clear the back-end or front-end memory and download again.

If the T/Shell database file does not download to the 46095 NEXCON, clear the back-end memory, redownload the back-end software and download again.

You can clear the back-end and front-end memories individually or at the same time.

TO CLEAR BACK-END MEMORY:

1. Turn off power to the module.
2. Remove the module from the shelf. Place switch S2-8 in the ON (down) position. Refer to Fig. 4.
3. Put the module back in the shelf and turn on the power. After about ten seconds, turn the power off again.
4. Remove the module from the shelf and place switch S2-8 in the OFF (up) position.
5. Put the module back in the shelf and turn on the power.

TO CLEAR FRONT-END MEMORY:

1. Turn off power to the module.
2. Remove the module from the shelf. Place switch S1-1 in the ***data port expansion section*** in the ON (down) position. Refer to Fig. 4.
3. Put the module back in the shelf and turn on the power. After about ten seconds, turn the power off again.
4. Remove the module from the shelf and place switch S1-1 in the OFF (up) position.
5. Put the module back in the shelf and turn on the power.

OPERATION

Operation of the 46095 NEXCON mostly consists of observing the front panel LEDs.

The front panel green LEDs indicate TXD and RXD status and are located on the left side of the NEXCON front panel. Each group of two LEDs is labeled 1 to 8. The upper LED in each group is labeled TXD and the lower LED labeled RXD.

When the TXD LED lights up, data transmits from the port that corresponds to the LED number. When the RXD LED lights up, the corresponding port receives data.

The STATUS LED is a two-color LED that indicates the status of the unit. When the LED is green, the unit is operating properly. When the LED is red, the unit is in a reset condition or there is a CPU failure.

A group of three status indicating LEDs are in the lower right hand corner of the front panel. The top LED, labeled X.25, flashes when a link is established and the X.25 port transmits data. The middle LED, labeled DATA, flashes when the co-locator port is active and transmitting data. The bottom LED, labeled PRINTER, indicates when the printer port transmits data.

The reset button is recessed which prevents accidental resets.

Use the NEXCON printer syntax for maintenance and monitoring. See the *Printer Syntax* chapter for printer syntax commands.

NOTE:

On an asynchronous port, the TXD and RXD LEDs are off until data is transmitted or received.

On a synchronous port, the LEDs are on steady as long as a clock signal is being transmitted or received. When data is transmitted or received, the LEDs flash.

PRINTER SYNTAX

To monitor and maintain of the 46095 NEXCON, use Printer Syntax.

GETTING STARTED

PRINTER SYNTAX MODE

NOTE:

Be sure the 46095 NEXCON has the S2-7 DIP switch in the OFF (default) position. Verify that the baud of the computer (refer to the X.25 Parameters chapter) is the same as switch settings S1-7 and S1-8 on the 46095 NEXCON.

To use Printer Syntax commands to communicate directly with the 46095 NEXCON, you must set DIP switch S2-7 in the ON position (down). You can then use a dumb terminal or the T/Shell Terminal Emulator to communicate to the 46095 NEXCON. Refer to Table C and D for DIP switch settings.

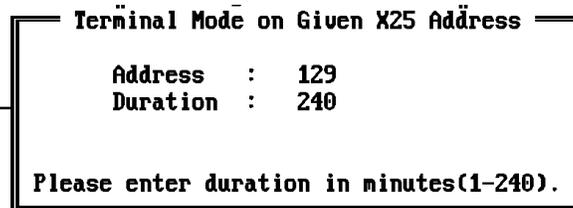
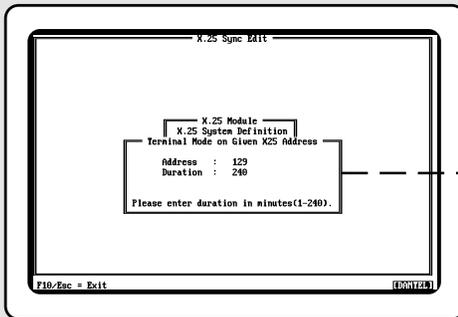
PRINTER SYNTAX

DCPF ADDRESSING MODE

The Switch command in the 46606 Asynchronous/Synchronous Multi-Port X.25 Interface Editor software allows you to communicate with a 46095 NEXCON using DCPF mode addressing.

To use the DCPF addressing mode:

1. Start the 46606 software program.
2. Select the *X25sync Editor* option from the Master Menu.
3. Press F2. The Terminal Mode on Given X25 Address window appears:



4. In the *Address* field, enter the address of the 46095 NEXCON with which you want to communicate. Acceptable values are 129-192. The address must be the same as the address of the 46095 NEXCON as set by switches S2-1 through S2-6.
5. Press Enter.
6. In the *Duration* field, enter the length of time that you want to remain in the Printer Syntax mode. Acceptable values are 1-240 minutes. At the end of the time period, the mode returns to DCPF.
7. Press Enter.
8. Communicate with the 46095 NEXCON using the commands in this chapter.

ENTERING COMMANDS

After you type each command on the terminal, you must press the Enter key in order to execute the command. The screen displays an *X.25>* prompt to show it's ready for you to enter a command.

The first command you should enter is UNLOCK. This command unlocks the system so most of the other commands can be entered. Type UNLOCK and press Enter. If there is a password in the system, you must enter it at the prompt in order to unlock the system. If a password is not in the system, you may enter one at this time. Refer to the Password command in this section.

PRINTER SYNTAX

When a hyphen is used in a command, be sure you insert a space on each side of the hyphen. For example: LCN - SHD. When a hyphen is used in a command, you may also see an *n* for input at the prompt. Depending upon the application, enter the number of the port or channel number in place of the *n* character in the command. For example: LCN n SHD could be entered as LCN 5 SHD.

ERROR MESSAGE

If an incorrect command is issued to the system, the message *Invalid Command* appears on the terminal screen. When this happens, enter the correct command.

HELP SCREEN

To display a list of the commands available in the Printer Syntax, type HELP and press Enter.

PRINTER SYNTAX COMMANDS

The following is a list of printer syntax commands available through the 46095 NEXCON printer port with examples of output responses. After typing a command (Input at Prompt), press Enter.

COLTR ON/OFF

Purpose:	ACTIVATES/DEACTIVATES THE CO-LOCATOR PORT
Input At Prompt:	COLTR ON COLTR OFF
Output Response:	NONE

CONF

Purpose:	DISPLAYS THE SYSTEM CONFIGURATION OF THE 46095 NEXCON.
Input at Prompt:	CONF
Output Response:	PS Time (in seconds) : 0 DCPF Address : 129 TL1 TIME : 93-01-01 12:00:25 SID : DANTEL Int PVC TL1 : 4095 Svc TL1 (1) = NONE Svc TL1(2) = NONE

PRINTER SYNTAX

DATE (CURRENT DATE)

Purpose: Displays the current date.
Input at Prompt: DATE
Output Response: Date 15-APR-1996

DATE (CHANGE DATE)

Purpose: Changes the date.
Input at Prompt: DATE 09-SEP-1993
Output Response: None

DTE SHD

Purpose: Displays the current SVC addresses assigned to the synchronous X.25 ports.
Input at Prompt: DTE SHD
Output Response: PORTS WITH X25 AND PS PROTOCOL AND THEIR ASSOCIATED SVC ADDRESSES
FORMAT-> OFFSET,ADDRESS,LCN,STATE
PORT 0 :
PORT 1 : (2) 5551000, 0, RESET
(3) 5552000, 0, RESET
PORT 2 :
PORT 3 :
PORT 4 :
PORT 5 :
PORT 6 :
PORT 7 :
PORT 8 :

DTE SYS

Purpose: Displays SVC asynchronous port assignments.
Input at Prompt: DTE SYS
Output Response: ADDRESS DISPLAY FORMAT : DTE.EXTENSION
PORT LOCAL DTE ADDRESS : 5551000.0
3 REMOTE DTE ADDRESS : 7771000.0
PORT LOCAL DTE ADDRESS : 5552000.0
4 REMOTE DTE ADDRESS : 7772000.0

PRINTER SYNTAX

FRM STA

Purpose: Displays the current link (frame) layer status (layer 2).

Input at Prompt: FRM STA

Output Response: Local frame V(s),V(r) : 1, 1
Local station state : Normal data transfer [0]
Remote station state : Normal data transfer [0]
Data link state : Information transfer [0]
Last ack. frame seq. : 1
Unack. frame count : 0

FRM SYS

Purpose: Displays the current link (frame) layer configuration (layer 2). This is a key command for link status troubleshooting.

Input at Prompt: FRM SYS

Output Response: WINDOW T1 T2 T3 T4 N1 N2 UNIT_TYPE OPERATING_MODE
2 3 0.0 12 0 1080 7 DTE(3/A) NORMAL OPERATION

IDLE LINK DISCONNECTION : NOT ALLOWED
LINK SETUP INITIATOR : ACTIVE
FRM TRANSMITTER BUFFER : NOT FULL
LEVEL 2 LAYER : READY

HELP

Purpose: Displays available commands.

Input at Prompt: HELP

Output Response: ***** AVAILABLE COMMANDS *****
DTE :- DTE address table LCN :- logical channel table
PAD :- port data table FRM :- link layer attribute table
SWI :- display dip switches VER :- displays software version
DBG :- diagnostics on/off MDM :- x25 port modem control
LOC :- lock the system PKT :- packet layer optional parameters
UNL :- unlock the system ERR :- errors
DATE :- current date CONF :- X25 configuration
TIME :- current time COLTR :- Co-Locator Port on/off

PRINTER SYNTAX

LCN - POOL

Purpose: Displays the pool of available LCNs for each port.

Input at Prompt: LCN - POOL

NOTE: *Displays all defined ports.*

Input at Prompt: LCN n POOL

NOTE: *Enter the port number in place of the n character in the command. The range of the port number (n) is between 1 and 8. The port number entered must be defined in the database.*

Output Response: SVC POOLS { * = Not Available }

```
PORT # : 1
3( ) 4( ) 0( ) 0( ) 0( ) 0( ) 0( ) 0( )
0( ) 0( ) 0( ) 0( ) 0( ) 0( ) 0( ) 0( )
0( ) 0( ) 0( ) 0( ) 0( ) 0( ) 0( ) 0( )
0( ) 0( ) 0( ) 0( ) 0( ) 0( ) 0( ) 0( )

PORT # : 2
3( ) 4( ) 0( ) 0( ) 0( ) 0( ) 0( ) 0( )
0( ) 0( ) 0( ) 0( ) 0( ) 0( ) 0( ) 0( )
0( ) 0( ) 0( ) 0( ) 0( ) 0( ) 0( ) 0( )
0( ) 0( ) 0( ) 0( ) 0( ) 0( ) 0( ) 0( )
```

LCN - SHD

Purpose: Displays the LCN Translation Table.

Input at Prompt: LCN - SHD

NOTE: *Displays all defined ports.*

Input at Prompt: LCN n SHD

NOTE: *Enter the port number in place of the n character in the command. The range of the port number (n) is between 1 and 8. The port number entered must be defined in the database.*

Output Response: LCN TRANSLATION TABLE

```
PORT # : 1
0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0
```

CONTINUED . . .

PRINTER SYNTAX

```

PORT # : 2
3  4  0  0  0  0  0  0
0  0  0  0  0  0  0  0
0  0  0  0  0  0  0  0
0  0  0  0  0  0  0  0
    
```

LCN - STA

Purpose: Displays the logical channel status.
 Input at Prompt: LCN - STA

NOTE: *Displays all defined channels.*

Input at Prompt: LCN n STA

NOTE: *Enter the channel number in place of the n character in the command. The range of the channel number (n) is between 1 and 4,096. The channel numbers entered must be defined in the database.*

Output Response: Tx/Rx Parameters :- RNR:P(s):unack pkts>window:pkt_size
 Timers :- timer:remaining time:retransmit count

LCN	STATE	TYPE	MODE	TX PARAMETERS	RX PARAMETERS	ACTIVE TIMERS
1	d1	PVC	Idle	0:0:0:2:128	0:0:0:2:128	NONE

POOL SIZE 4240 [8320]; LVL3 1 - SYS RESET: 1; NMA: N

LCN - SYS

Purpose: Displays the LCN channel configuration.
 Input at Prompt: LCN - SYS

NOTE: *Displays all defined channels.*

Input at Prompt: LCN n SYS

NOTE: *Enter the channel number in place of the n character in the command. The range of the channel number (n) is between 1 and 4,096. The channel numbers entered must be defined in the database.*

Output Response: LOGICAL CHANNEL CONFIG. DATA

Total number of channels = 4

LCN	TYPE	CLASS	TX-WINDOW	TX-PKT	RX-WINDOW	RX-PKT	THROUGHPUT
1	PVC	BOTHWAY	2	128	2	128	1200
2	PVC	BOTHWAY	2	128	2	128	1200
3	SVC	BOTHWAY	2	128	2	128	1200
4	SVC	BOTHWAY	2	128	2	128	1200

PRINTER SYNTAX

LOCK

Purpose: To lock the system. No user interaction is processed until the system is unlocked.

Input at Prompt: LOCK

Output Response: SYSTEM IS LOCKED!

MDM SYS

Purpose: Displays the current configuration for interfacing with a modem.

Input at Prompt: MDM SYS

Output Response:

MODEM	CONTROL	SIGNAL	STATUS
RTS	CTS	DTR	DSR
OFF	OFF	OUTPUT	INPUT

PAD - STA

Purpose: Displays PAD port status.

Input at Prompt: PAD - STA

NOTE: *Displays all defined ports.*

Input at Prompt: PAD n STA

NOTE: *Enter the port number in place of the n character in the command.*

Output Response:

PORT	CHANNEL	TYPE	STATE
0	0		Not in Service
1	1	(PVC)	DATA FLOW
2	0	(SVC)	Idle
.	.		Not in Service
.	.		Not in Service
8	0		Not in Service

PRINTER SYNTAX

PAD - SYS

Purpose: Displays the current configuration for the PAD port parameters.

Input at Prompt: PAD - SYS

NOTE: *Displays all defined ports.*

Input at Prompt: PAD n SYS

NOTE: *Enter the PAD port number in place of the n character in the command.*

PAD - SYS Output Response on Async ports:

```
PORT 0 IS NOT INITIALIZED!  
1 BAUD : 9600      RTS/CTS : OFF      PROTOCOL : TL1  
  PARITY: NO      XON/XOFF TX : OFF      MSG_SIZE : 128  
  DATA  : 8      XON/XOFF RX : OFF      TIMEOUT  : 50  
  STOP  : 1      EOM          : 59 , 0 , 0 , 0
```

USED LCN(S) : (0) 1

```
PORT 2 IS NOT INITIALIZED!  
PORT 3 IS NOT INITIALIZED!  
PORT 4 IS NOT INITIALIZED!  
PORT 5 IS NOT INITIALIZED!  
PORT 6 IS NOT INITIALIZED!  
PORT 7 IS NOT INITIALIZED!  
PORT 8 IS NOT INITIALIZED!
```

PAD - SYS Output Response on Sync ports:

```
PORT 0 IS NOT INITIALIZED!  
1 BAUD : 9600  PROTOCOL : X25  PKT : 512  LVL3: READY  
  ADDRESS: DCE  MODE : ACT  WIN : 7  CLOCK : INT  LVL2 : READY  
  T1 : T2 : T3 : N1 : N2 :: 3 : 0 : 120 : 4152 : 7  T20 : 0  
  USED LCN(S) : 1  2  
2 BAUD : 9600  PROTOCOL : X25  PKT : 512  LVL3: READY  
  ADDRESS: DCE  MODE : ACT  WIN : 7  CLOCK : INT  LVL2 : READY  
  T1 : T2 : T3 : N1 : N2 :: 3 : 0 : 120 : 4152 : 7  T20 : 0  
  USED LCN(S) : 3  4
```

PORT 3 IS NOT INITIALIZED!

```
4 BAUD : 9600  PROTOCOL : X25  PKT : 512  LVL3: READY  
  ADDRESS: DCE  MODE : ACT  WIN : 7  CLOCK : INT  LVL2 : READY  
  T1 : T2 : T3 : N1 : N2 :: 3 : 0 : 120 : 4152 : 7  T20 : 0  
  USED LCN(S) : 5  6  7
```

```
PORT 5 IS NOT INITIALIZED!  
PORT 6 IS NOT INITIALIZED!  
PORT 7 IS NOT INITIALIZED!  
PORT 8 IS NOT INITIALIZED!
```

NOTE: *The last line gives information about the LCNs assigned to the port. For example: ports 1 and 2 have entry 0 (zero) assigned as LCN channel 1.*

PRINTER SYNTAX

PAS (with new password added)

Purpose: Allows entering a password for the first time.

NOTE: *Enter a password of up to 8 characters.*

Input at Prompt: PAS
Output Response: Enter New Password: **** (enter password)
Re-Enter New Password: **** (verify password)
PASSWORD ACCEPTED!

PAS (WITH PASSWORD CHANGE)

Purpose: Allows changing an existing password to a new password.

NOTE: *Enter a password of up to 8 characters.*

Input at Prompt: PAS
Output Response: Enter Old Password : **** (enter original pwd)
Enter New Password : **** (enter new password)
Re-Enter New Password: **** (verify new pwd)
PASSWORD ACCEPTED!

NOTE: *The password is entered twice to verify that the first entry is the password entry that you intended.*

PKT STA

Purpose: Displays the system packet layer performance (layer 3).

Input at Prompt: PKT STA
Output Response: X.25 PERFORMANCE DATA (No. OF PACKETS)
TYPE SENT RECEIVED RESET CALL_REQUEST REJ_RCVD ERR_DATA_RCVD
1 0 0 0 0 0 0
HOUR COUNTER : 0

PKT SYS

Purpose: Displays the current packet layer configuration (layer3).

Input at Prompt: PKT SYS
Output Response: AUTO CALL REQUEST : REFUSED
EXTENSION ADDRESS CODING METHOD : CCITT X.25 FORMAT

PRINTER SYNTAX

SWITCH

Purpose: Displays settings of switches S1 and S2 on the X.25 section of the 46095 NEXCON. Switch S1 on the data port expansion section is not used so those switch positions are not shown.

Input at Prompt: SWI

Input at Prompt: SWITCH

Output Response:

	8	7	6	5	4	3	2	1
SW1	1	1	0	0	0	0	0	0
SW2	0	1	0	0	0	0	0	0

TIME (CURRENT TIME)

Purpose: Displays the current time.

Input at Prompt: TIME

Output Response: time 00:00:00

TIME (CHANGE TIME)

Purpose: Changes the time.

Input at Prompt: TIME 10:51:57

Output Response: None

UNLOCK

Purpose: Unlocks the system so that it will accept commands.

Input at Prompt: UNL

Output Response: NO PREVIOUS PASSWORD - SYSTEM IS UNLOCKED

VERS

Purpose: Displays the 46095 NEXCON software version.

Input at Prompt: VERS or VER

Output Response: Software 46606-02 for unit 46095-00

B A C K E N D
Software Revision Major 1
Software Revision Minor 0.0

F R O N T E N D
Software Revision Major 1
Software Revision Minor 0.0

TECHNICAL SPECIFICATIONS

UPDATED

DESCRIPTION		VALUE
PHYSICAL		
	Input Voltage Range Input Current (maximum) Heat Dissipation Weight Physical Dimensions Operating Temperature Range	-20 to -60 VDC 330 mA 54.8 Btu/Hr. 2 lbs. 1.5 oz. 2.8"W x 6"D x 5.6"H 0 to 55 Degrees C.
X.25 PHYSICAL LEVEL		
	Interfaces Speeds V.24 (RS-232-C) V.35	V.24 (RS-232-C), V.35, full duplex, continuous carrier, DTE 1200, 2400, 4800, 19.2K bps, auto selectable 1200, 2400, 4800, 19.2K, 38.4K, 48K, 56K, 64K bps, auto selectable
X.25 LINK LEVEL		
	Framing Addressing Procedure Parameters	HDLC DTE or DCE LAPB (CITT 1984 X.25) K = 1 to 7, default 2 (Modulo 8) N1 = 1080-4152, default 1080 N2 = 2-16, default 7 T1 = 2-20 seconds in 1 sec. increments T2 = Always 0 T3 = 4-32 seconds
X.25 PACKET LEVEL		
	Services Numbering Data Fields LGN and LCN Max. VCS Address Format Max. Packet Size "T" Parameters	SVC and PVC, mixed per trunk Transparent (Modulo 8) Octet aligned In - will accept a call on any LCN Out - user definable in range 1-4095 256 system wide X.121 (up to 15 digits) 512 bytes All relevant DTE/DCE parameters are supported at values stated in 1984 CCITT X.25 recommendations
PERFORMANCE		
	Throughput Flags	1000 packets per second based on 128-byte packet size Single flag between frames
DATA PORTS		
	Number of Ports Interface Speeds LCNs per Port	8 V.24 (RS-232-C) Asynchronous/Synchronous (LAPB) Mode 1200, 2400, 4800, 9600 bps Up to 32 (see Table A)
PRINTER PORT		
	Interface Speeds Format	V.24 (RS-232-C) Asynchronous Mode 1200, 2400, 9600, 19.2K, 38.4K, 115.2K bps 8 data bits, 1 stop bit, no parity
INDICATORS AND DIP SWITCHES		
	Three status indicating LEDs 16 status indicating LEDs Two-color status LED Three DIP switches	X.25 port, data port, and printer port transmit LEDs Transmit and receive LEDs for eight data ports Unit normal operation (green), unit reset/power failure (red) DCPF address setting, printer mode and baud rate

NOTES

WARRANTY

LIMITED WARRANTY

The Seller warrants that the standard hardware products sold will be free from defects in material and workmanship and perform to the Seller's applicable published specifications for a period of 18 months for hardware, and 3 months for software, from the date of the original invoice. The liability of the Seller hereunder shall be limited to replacing or repairing, at its option, any defective products which are returned F.O.B. to the Seller's plant, (or, at the Seller's option, refunding the purchase price of such products). In no case are products to be returned without first obtaining permission and a customer return authorization number from the Seller. In no event shall the Seller be liable for any consequential or incidental damages.

Equipment or parts which have been subject to abuse, misuse, accident, alteration, neglect, unauthorized repair or installation are not covered by warranty. The Seller shall make the final determination as to the existence and cause of any alleged defect. No warranty is made with respect to custom equipment or products produced to the Buyer's specifications except as specifically stated in writing by the Seller in the contract for such custom equipment.

This warranty is the only warranty made by the Seller with respect to the goods delivered hereunder, and may be modified or amended only by a written instrument signed by a duly authorized officer of the Seller and accepted by the Buyer.

Warranty and remedies on products not manufactured by the Seller are in accordance with warranty of the respective manufacturer. **THE SELLER MAKES NO OTHER WARRANTY OF ANY KIND WHATSOEVER, EXPRESSED OR IMPLIED; AND ALL IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE WHICH EXCEEDS THE AFORESAID OBLIGATIONS IS HEREBY DISCLAIMED BY THE SELLER.**

IN CASE OF DIFFICULTY

If you experience difficulty with this equipment, check the following, as appropriate:

- 1. Switch settings**
- 2. Signal levels**
- 3. Software configuration**
- 4. Connections between Dantel's equipment and your equipment.**

If there is still a problem, substitute equipment that is known to be good. For additional assistance, call Dantel's Technical Field Service Department weekdays, 6 A.M. to 5 P.M. pacific time:

1-800-4DANTEL (1-800-432-6835).

If a thorough checkout shows a piece of equipment has malfunctioned, you may return it to the factory. For repairs and emergency replacements, obtain a Return Material Authorization (RMA) number from the Customer Service Representative at **1-800-4DANTEL (1-800-432-6835)**.

To ensure expedient processing of your order, provide a purchase order number and shipping and billing information when requesting an RMA number. Also, when the units are returned to Dantel, include a description of the failure symptoms for each unit returned. Send defective equipment to:

Dantel, Inc. • 2991 North Argyle Avenue • Fresno, California 93727-1388

