

## Chapter 4 Front Panel Operation

### GENERAL

The function of the LCD front panel is to provide easy real-time access to modem configuration and status. The LCD can be used at any time to modify modem options or obtain information about modem operation and status. All of the major options of the modem can be controlled through the LCD interface without an external terminal or phone line connection. Operation of the LCD can be secured using a password protection feature. A remote modem can even be configured using the local LCD through the use of the front panel remote configuration feature.

### LED DESCRIPTIONS

The V.3400 has six LED indicators: TR, CS, RS, CD, RD, and TD. The functions of these LEDs are as follows:

TR - Terminal Ready. This LED lights when the DTE asserts Data Terminal Ready. This signal is input on pin 20 (CCITT V.24/108.2).

CS - Clear to Send. This LED lights when the modem is ready to send data to the DTE. This signal is output on pin 5 (CCITT V.24/106).

RS - Request to Send. This LED lights when the DTE is ready to send data to the modem. This signal is input on pin 4 (CCITT V.24/105).

CD - Carrier Detect. This LED lights when the received audio carrier signal is detected or, if enabled, when error control protocol negotiation is complete. This signal is output on pin 8 (CCITT V.24/109).

RD - Received Data. This LED lights for a data space condition at the receive data output, indicating receive data output activity. This signal is output on pin 3 (CCITT V.24/104).

TD - Transmit Data. This LED lights for a data space condition at the transmit data input, indicating transmit data input activity. This signal is input on pin 2 (CCITT V.24/103).

## **LCD MENUS**

The V.3400 has seven main LCD menus that support modem operations. Table 4-1 lists them in the following sequence:

- MODEM STATUS
- DIAL STORED NUMBER
- DISPLAY STATUS
- SELECT TEST
- MODIFY CONFIGURATION
- CHANGE PHONE NUMBERS
- FRONT PANEL FEATURES

## **LCD MENU OPERATION**

The LCD menu is portrayed by a six column table (Table 4-1). The first column lists the seven main menu categories. The second column is the submenus, listing functions for each category in the main menu. The third column lists specific items for submenu functions. The fourth column lists option choices or status for the specific items in the third column. The fifth and sixth columns in the table show associated AT commands and S-registers as a cross reference.

Each column item has a corresponding header in the previous column. If an option setting is selected or if all settings have been scrolled through, the display will return to that header.

Because of the menu structure and option choices not all main menus use all four columns in Table 4-1. However, option selection and sequence are the same.

In general, while operating in the option menu, pressing NO scrolls vertically down the columns and pressing YES advances horizontally across the columns. However, responding to the LCD prompt is the best method to reach an option.

If the NO pushbutton is pressed and held, the LCD scrolls through the menus.

Press the TALK/DATA button to return to the previous menu.

**Table 4-1. Menu Options**

MAIN MENU		LCD MESSAGES			S-REG	
1	MODEM STATUS	V.34 28800 IDLE <i>Note: Shows the current modulation, bit rate, and modem status.</i>			(Press NO to advance to MAIN 2)	S91 S67
MAIN MENU	SUBMENU	SUBMENU ITEM	ITEM OPTION	AT COM.	S-REG	
2	DIAL STORED NUMBER?		DIAL #1-9	YES, NO	DSn (n-1-9)	---
3	DISPLAY STATUS? (status only)	DTE SIGNALS	QM ON/OFF DSR ON/OFF OH ON/OFF RI ON/OFF	DISPLAY STATUS	---	---
		PROTOCOL*	NONE MNP 2, 3, 4, or 5 LAPM	DISPLAY STATUS	---	---
		COMPRESSOR*	NONE MNP 5, V.42b	DISPLAY STATUS	---	---
		CARRIER DESCRIPTIONS*	RECEIVE LEVEL NEAR END ECHO LEVEL FAR END ECHO LEVEL FAR END ECHO DELAY FREQUENCY TRANSLATION BAUD RATE RX BIT RATE TX BIT RATE	DISPLAY STATUS	---	---
		LAST DISCONNECT REASON	DISPLAY STATUS		I5	
4	SELECT TEST?	(Offline test only)	LOCAL ANALOG LOOP	INITIATE, EXIT	&T1	S16
			LOCAL ANALOG LOOP WITH TP	INITIATE, EXIT	&T8	S16

\* When modem is not online, the display flashes and shows the status from the last connection.

**Table 4-1. Menu Options (Continued)**

MAIN MENU	SUBMENU	SUBMENU ITEM	ITEM OPTION	AT COM.	S-REG	
4 c o n t.	SELECT TEST? (continued)	(Online test)	LOCAL DIGITAL LOOP †	INITIATE, EXIT	&T3	S16
			REMOTE DIGITAL LOOP †	INITIATE, EXIT	&T6	S16
			REMOTE DIGITAL LOOP WITH TP †	INITIATE, EXIT	&T7	S16
			TEST PATTERN†	INITIATE, EXIT	%T	---
5	MODIFY CONFIGURATION?	CHANGE MODEM OPTIONS?	CHANGE LEASED/DIAL LINE?	2 WIRE/ 4 WIRE	&L1, &L	S27
		CHANGE MODULATION?	AUTOMODE	*MM *MM1 *MM2 *MM4 *MM5 *MM6 *MM8 *MM10 *MM11 *MM12	S88	
		CHANGE MAX DCE RATE?	28800 26400 24000 21600 19200 16800 14400 12000 7200 9600 9600U 4800 2400 1200 300 DTE SPEED	%B15 %B14 %B13 %B12 %B11 %B10 %B9 %B8 %B7 %B6 %B5 %B4 %B3 %B2 %B1 %B	S69	

† Modem must be online with protocols disabled

\* Lease line only

**Table 4-1. Menu Options (Continued)**

MAIN MENU	SUBMENU	SUBMENU ITEM	ITEM OPTION	AT COM.	S-REG	
5 c o n t.	MODIFY CONFIGU- RATION? (continued)	CHANGE MODEM OPTIONS? (continued)	CHANGE MIN	28800	%L15	S69
			DCE RATE?	26400	%L14	
				24000	%L13	
				21600	%L12	
				19200	%L11	
				16800	%L10	
				14400	%L9	
				12000	%L8	
				7200	%L7	
				9600	%L6	
	9600U	%L5				
	4800	%L4				
	2400	%L3				
	1200	%L2				
	DISABLED	%L1				
	DISABLED	%L				
		CHANGE V.34 RATE THRESH- OLD?	LOW BER MED BER HIGH BER	*TH *TH1 *TH2	---	
		V.34 ASYM RATES	ENABLE DISABLE	*AS1 *AS	S96	
		NORMAL ORIGINATE FORCED ANSWER*	NORMAL ORIG. FORCED ANS.	*OR *OR1	S14	
		V.22 GUARD TONE	DISABLE 550 Hz 1800 Hz	&G &G1 &G2	S23	
		V.32 FAST TRAIN	ENABLE DISABLE	*FT1 *FT	S29	
		SQ RETRAIN	ENABLE DISABLE	%E1 %E	S60	
		SQ AUTO RATE	HIGH BER MED BER LOW BER DISABLED	%R3 %R2 %R1 %R	S53	
		TRANSMIT CLOCK SELECT	INTERNAL EXTERNAL RECEIVE	&X &X1 &X2	S27	

\* Lease line only

**Table 4-1. Menu Options (Continued)**

MAIN MENU	SUBMENU	SUBMENU ITEM	ITEM OPTION	AT COM.	S-REG	
5 c o n f i g u r a t i o n ?	(continued)	CHANGE MODEM OPTIONS? (continued)	DIAL LINE JACK †	PER - RJ11 PROG - RJ15	%Z %Z1	S51
			DIAL TRANSMIT LEVEL	-9 dBm to -21 dBm	*TDn	S51
			LEASE TRANSMIT LEVEL*	0 to -21 dBm	*TLn	S52
			LINE CURRENT DISCONNECT †	OFF SHORT LONG	*LC, *LC1, *LC2	S32
			LONG SPACE DISCONNECT †	ENABLE DISABLE	Y1 Y	S21
			DIAL BACKUP*	MANUAL AUTO- MATIC	*DB *DB1	S32
			LOOKBACK TIME*	0 DISABLED to 255 MINUTES	---	S28
	CHANGE PROTOCOL OPTIONS?	LAPM PROTOCOL	ENABLE DISABLE	\N4, \N5, \N6, \N7 \N, \N1, \N2, \N3	S70	
		MNP PROTOCOL	ENABLE DISABLE	\N2, \N3, \N6, \N7 \N, \N1, \N4, \N5	S70	
		PROTOCOL FALLBACK	ENABLE DISABLE	\N3, \N5, \N6, \N7 \N, \N1, \N2, \N4	S70	
		DATA COMPRESSION	DISABLE NORM TX RX	%C %C1 %C2 %C3	S56	
		DTE SPEED	DTE=DCE CONSTANT DTE	\J1 \J	S70	

\* Lease Line only

† Dial Line only

† Dial Line only

**Table 4-1. Menu Options (Continued)**

MAIN MENU	SUBMENU	SUBMENU ITEM	ITEM OPTION	AT COM.	S-REG	
5 c o n t.	MODIFY CONFIGU- RATION? (continued)	CHANGE PROTOCOL OPTIONS? (continued)	DTE FLOW CONTROL	DISABLE XON/XOFF CTS RTS/CTS	\Q \Q1 \Q2 \Q3	S54
			DCE FLOW CON- TROL	DISABLE XON/XOFF CTS	\Q4 \Q5 \Q6, \Q7	S54
			XON/XOFF PASS THROUGH	ENABLE DISABLE	\X1 \X	S54
			INACTIVITY TIMER	OFF, 15, 30, 45, 60, 75, 90 MIN	\TLn	S58
			BREAK CONTROL	0, 1, 2, 3, 4, 5	\K, \K1, \K2, \K3, \K4, \K5	S59
			V.42 FAST DETECT	ENABLE DISABLE	\M1 \M	S70
		CHANGE DTE OPTIONS?	OPERATION	SYNC	&M1, 2, 3, 4, 5, 6 &M	S27
				ASYNC		S30
			DTE RATE (Async)	300, 600,1200, 2400, 4800, 7200, 9600, 12000, 14400, 16800, 19200, 38400, 21600, 24000, 26400, 28800, 57600, 115200	---	S80
			CHAR SIZE (Async)	7 BIT 8 BIT	---	S61
		PARITY (Async)	NO, EVEN, ODD	---	S61	

**Table 4-1. Menu Options (Continued)**

MAIN MENU	SUBMENU	SUBMENU ITEM	ITEM OPTION	AT COM.	S-REG	
5 c o n t.	MODIFY CONFIGURATION? (continued)	CHANGE DTE OPTIONS?	DIAL METHOD	ASYNC DTR, MANUAL, V.25 BISYNC, V.25 SDLC V.25 bis async	&M1,&M2 &M3 &M4 &M5 &M6	S27 S30
			AT COMMAND SET	ENABLE DISABLE	*NT1 *NT	S29
			CHARACTER TYPE (V.25 only)	ASCII, EBCDIC	---	S30
			SDLC DATA FORMAT	NRZ, NRZI	---	S30
			DTR STATE	IGNORE RECALL CMD DISCONNECT RESET	&D &D1 &D2 &D3	S21
			DSR STATE	NORMAL FORCED HIGH OFF 5 SEC ON DISCONNECT FOLLOWS OH	&S1 &S &S2 &S3	S21
			DCD STATE	NORMAL FORCED HIGH OFF 5 SEC ON DISCONNECT FOLLOWS REMOTE RTS	&C1 &C &C2 &C3	S21



**Table 4-1. Menu Options (Continued)**

MAIN MENU	SUBMENU	SUBMENU ITEM	ITEM OPTION	AT COM.	S-REG	
5 c o n t.	MODIFY CONFIGURATION? (continued)	CHANGE DTE OPTIONS? (continued)	CTS STATE	NORMAL FORCED HIGH CTS FOLLOWS DCD CTS=RTS	&R &R1 &R2  &R9	S21 S72
			RTS/CTS DELAY	0 to 150 ms (10 ms)	---	S26
			DTE COMMANDED FALLBACK	ENABLE DISABLE	*FB1 *FB	S53
			OPTIONS RES/RETND AT DISC	RESTORED RETAINED	*RO1 *RO	S29
		CHANGE TEST OPTIONS?	BILATERAL DIGITAL LOOP	ENABLE DISABLE	*DG1 DG	S34
			DTE LOCAL TEST	ENABLE DISABLE	*LA1 *LA	S34
			DTE REMOTE TEST	ENABLE DISABLE	*RD1, *RD	S34
			REMOTE COMMANDED	ENABLE DISABLE	&T4 &T5	S23
			TEST TIMEOUT	OFF, 60, 120, 180, 240 SEC	---	S18
		CHANGE DIAL OPTIONS?	DIAL TYPE	PULSE, TONE	P, T	S14
			AUTODIAL #	OFF, 1 - 9	*AUn (n=1-9)	---
			DIAL TONE	BLIND DIAL WAIT FOR DIAL TONE	X, X1, X3 X2, X4	S22
			WAIT DELAY (Blind Dial)	1, 2, 3, 4, 8, 16, 32 SEC	---	S6
			PAUSE DELAY	1, 2, 3, 4, 8, 16, 32 SEC	---	S8
			CALL TIMEOUT	15, 30, 45, 60, 75, 90, 105, 120 SEC	---	S7

**Table 4-1. Menu Options (Continued)**

MAIN MENU	SUBMENU	SUBMENU ITEM	ITEM OPTION	AT COM.	S-REG		
5 c o n t.	MODIFY CONFIGURATION? (continued)	CHANGE DIAL OPTIONS? (continued)	ANSWER RING #X	1, 2, 4, 8, 16	---	S0	
			AUTOCALLBACK	ENABLE, DISABLE	---	S72	
		CHANGE SPEAKER OPERATION?	VOLUME CONTROL	LOW MEDIUM HIGH	L1 L2 L3	S22	
			SPEAKER CONTROL	ON UNTIL CARR DETECT ALWAYS ON OFF WHILE DIALING ALWAYS OFF	M1 M2 M3 M	S22	
		LOAD/STORE OPTION SET?	LOAD FACTORY OPTION	NO, 1-9	&Fn (n=1-9)	---	
			LOAD USER OPTION SET	1 2	Z0 Z1	---	
			STORE PRESENT OPTIONS	1 2	&W &W1	---	
			USER OPTION AT RESET	1 2	&Y &Y1	---	
		6	CHANGE PHONE NUMBERS?	PHONE NUMBER	ENTER NUMBER 32 digits	&Zn (n= phone # and modifiers) *CNn,x	---
		7	FRONT PANEL FEATURES?	CHANGE RMT PASSWORD?	ENTER PASSWORD	%P	---
ENTER REMOTE CONFIGURATION	ENTER REM CFG PASSWORD			%T	---		
EXIT REMOTE CONFIGURATION	EXIT			&T	---		

**Table 4-1. Menu Options (Continued)**

MAIN MENU	SUBMENU	SUBMENU ITEM	ITEM OPTION	AT COM.	S-REG
7 c o n t.	FRONT PANEL FEATURES? (continued)	CHANGE FRONT PANEL PASSWORD	ENTER PASSWORD *	---	---
			ACTIVATE SECURITY	---	---

\* Password of 0000 disables front panel security.

## FRONT PANEL SECURITY

The Front Panel Security feature provides password protection for front panel menu access. The modem is shipped from the factory with this feature disabled.

The Front Panel Security password is a 4-digit string that can be set to any combination of digits from "0000" to "9999". Selecting a password of "0000" disables Front Panel Security; any other password enables it.

When this feature is enabled there are two ways it may be activated. It may be explicitly activated via a front panel screen under Main Menu #7, or the modem will activate it when no front panel buttons have been pressed for 3 minutes. When Front Panel Security is activated, the front panel menu will return to Main Menu #1 and the front panel will become secured.

While in this secured state, the Main Menu #1 screen continues to maintain modem status, but a password must be entered before other front panel screens may be accessed. Pressing any front panel button causes the modem to prompt for the front panel password. After the password has been entered, a message briefly displays the result of the password validation process and, depending on the result, Front Panel Security either becomes inactive or returns to its active state.

During password entry, the front panel buttons are interpreted as follows:

NO                      Pressing the NO button causes the character at the cursor to change to the next valid password character.

- YES Pressing the YES button while the cursor is on any of the first three password characters causes the cursor to advance to the next password character. When the cursor is on the last password character, pressing the YES button causes the modem to accept the displayed password.
- TALK/DATA Pressing the TALK/DATA button while the cursor is on the first password character causes the password entry to be aborted. When the cursor is on any other character, this button causes the cursor to move to the first password character.