Conrac
Data
Products

Model 480/25

Programable
Interactive
CRT Terminal

Features

- Microprocessor based (6800).
- Switchable to 9600 Baud.
- 80 characters/line
- 25 lines/screen
- RS232 or current loop interfaces.
- Programable keyboard.
- Add-on memory expandable up to 49K bytes.
- Character sets on plug-in PROMS.

Introduction

The 480/25, a new concept in programable terminals, utilizes unique logic partitioning to provide you with an exceptionally powerful processor based terminal. Due to the internal distributed processing concept, there is ample reserve computer time available for supervision of other peripherals in addition to the basic terminal function.

The 480/25 is fully buffered, stores and displays up to 25 80-character lines, and is modular and fully programable.

In addition, the cursor can be both addressed and sensed remotely. There is also a 26th line which displays up to 8 bright rectangles which are under program control and are generally utilized as status indicators.

Particular attention has been given to the physical appearance and mechanical design of the 480/25. Its understated modern styling blends into virtually any location.

Easily maintainable, the 480/25 can be opened and any component accessed in less than a minute.

Easy to Operate and Install

In addition to the keyboarding being sculptured and similar in appearance to a Selectric®. . . it is also programable. Most keys can be recoded and tailored to your specific requirements.

Careful attention has been given to the operator/480 interface. Such ergonomic considerations, glare reduction, placement of controls, and keyboard "feel" have been designed to allow long periods of operation with minimum operator fatigue.

BITS					NORMAL TEXT								PRECEDED BY ESC		
			B7		0	0	0	0	1	1	1	1	0	1	1
			B6		0	0	1	1	0	0	1	1	1	0	0
			B5		0	1	0	1	0	1	0	1	0	0	1
B4	B3	B2	B1	HEX	0	1	2	3	4	5	6	7	2	4	5
0	0	0	0	0	NUL	DLE	SP	0	@	P	`	p			ERASE UNPROTECT & HOME
0	0	0	1	1	SOH	DC1 (HTC)	!	1	A	Q	a	q		ERASE TO END OF DISPLAY	
0	0	1	0	2	STX	DC2 (HTS)	"	2	B	R	b	r		ERASE TO END OF LINE	
0	0	1	1	3	ETX	DC3	#	3	C	S	c	s	DELETE LINE	CHARACTER DELETE	
0	1	0	0	4	EOT	DC4	$	4	D	T	d	t	INSERT LINE	CHARACTER INSERT	BLOCK XMIT
0	1	0	1	5	ENQ	NAK	%	5	E	U	e	u		HOME	
0	1	1	0	6	ACK	SYN	&	6	F	V	f	v		CURSOR UP	JUMP CURSOR
0	1	1	1	7	BEL	ETB	'	7	G	W	g	w		CURSOR LEFT	
1	0	0	0	8	BS	CAN	(	8	H	X	h	x		CURSOR RIGHT	
1	0	0	1	9	HT	EM	)	9	I	Y	i	y		CURSOR DOWN	
1	0	1	0	A	LF	SUB	*	:	J	Z	j	z		START PROTECT FIELD	
1	0	1	1	B	VT	ESC	+	;	K	[	k	{		END PROTECT FIELD	
1	1	0	0	C	FF (CLR)	FS	,	<	L	\	l	:		START SUBDUE	
1	1	0	1	D	CR	GS	-	=	M	]	m	}		END SUBDUE	
1	1	1	0	E	SO	RS (SOE)	.	>	N	^	n	~		START BLINK	
1	1	1	1	F	SI	US	/	?	O	_	o	DEL		END BLINK	

NUL – Null
SOH – Start of Heading
STX – Start of Text
ETX – End of Text
EOT – End of Transmission
ENQ – Enquiry
ACK – Acknowledge
BEL – Bell
BS – Back Space
HT – Horizontal Tab
LF – Line Feed
VT – Vertical Tab
FF – Form Feed
CLR – Clear Entire Screen
CR – Carriage Return
SO – Shift-Out
SI – Shift-In
DLE – Data Link Escape
DC1 – Device Control 1
HTC – Tab Clear
DC2 – Device Control 2
HTS – Tab Set
DC3 – Device Control 3
DC4 – Device Control 4
NAK – Negative Acknowledge
SYN – Synchronous Idle
ETB – End of Transmission Block
CAN – Cancel
EM – End of Media
SUB – Substitute
ESC – Escape
FS – Field Separator
GS – Group Separator
RS – Record Separator
SOE – Start of Entry
US – Unit Separator
SP – Space
DEL – Delete

Character and Control Code Chart

Configuration

The Model 480/25 is available in two sizes, an eight slot version and a sixteen slot version. Both sizes contain the same four basic cards which comprise a minimal operating system.
These are:

- MPU card with 512 bytes of RAM and up to 4K bytes of PROM.
- I/O card which contains an RS232 and/or a current loop interface.
- 2K RAM Refresh Memory Card.
- CRT Driver card which contains pluggable PROM character generators, plus all logic and circuitry necessary to drive the CRT display.

The 4K bytes of PROM Memory on the MPU card normally contain the operating program which determines the operating characteristics of the 480/25.

The basic module is a "card cage." This cage contains space for either 8 or 16 cards, depending on the unit ordered. Since the minimal operating system requires 4 cards, this leaves either 4 or 12 card slot positions available for implementation of other features.

The microprocessor can directly address 65K bytes of memory. The upper 16K addresses (49,152 through 65,535) are reserved for internal functions such as programing, refresh memory, peripheral addresses, scratch pad, etc. The balance of the addresses is contiguously available from 0000 through 49,151.

Currently available additional feature cards are:

4K Extended Memory RAM Card . . . Utilized for application programs and/or data storage.

Edit Card . . . Allows edit functions to be implemented by hardware (as opposed to software), and thus speeds up the internal execution of edit commands by up to a factor of 300. This is particularly useful when the unit is to be utilized in an interactive telecommunications environment.

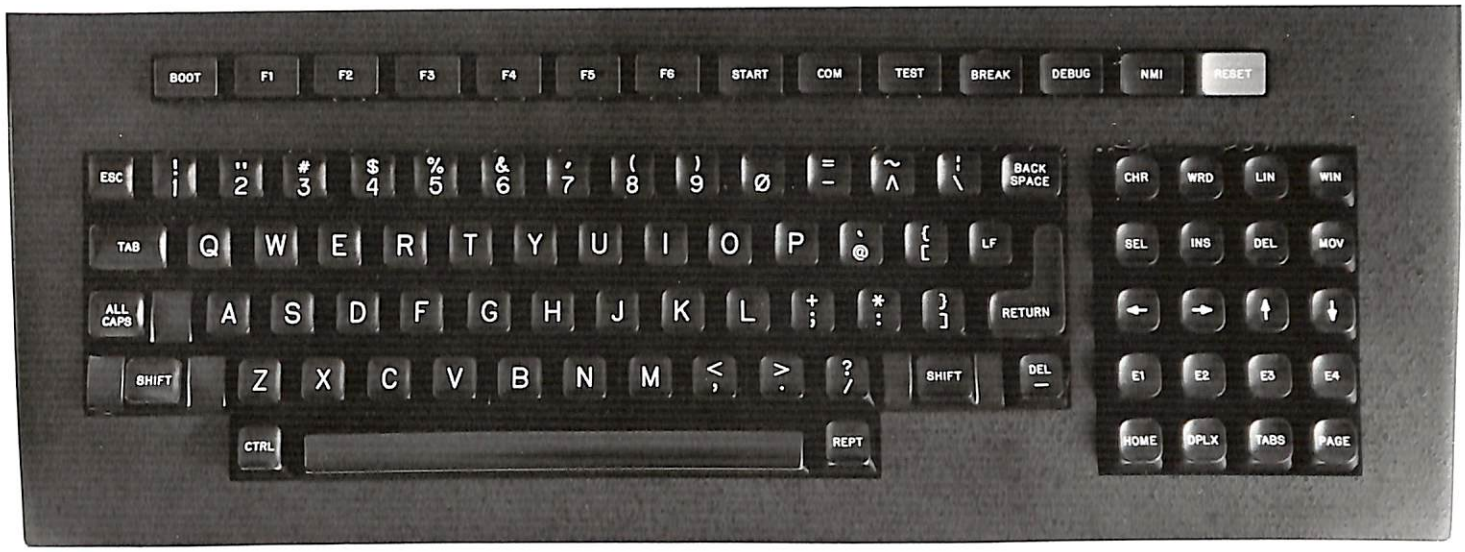
Debug Card . . . Used during program writing and debugging. It contains 4K of PROM, a 16-bit Programable Breakpoint register and 512 bytes of RAM. It can be utilized to display on the CRT the contents of all status and index registers, as well as specific memory locations.

Printer Interface Cards.

Floppy Disc Interface Card . . . Contains all logic necessary to interface a dual floppy disc operating system. It also contains both 165 CPS printer driver and high speed paper tape reader interfaces.

Remote Video Driver Card . . . Allows remote video displays to be utilized as repeaters.

Discrete Event Card . . . This provides a discrete signal when a specific coded message is received from a remote device.



Conrac Standard Programable Keyboard
(illustrated above with custom legends)

Compatibility

Communications interfaces available are half/full duplex, RS232 synchronous and asynchronous, plus 20ma and 60ma current loop. Line rate is switchable from 110 through 9600 Baud. Protocol emulations currently available are:

Standard TTY
Enhanced TTY with CRT edit features
Burroughs TD800 Series
Univac U100/U200

Additional programs will be made available as they are developed. The 480/25 emulates protocols through program control. The operating system program is contained in plug-in PROMS . . . simply changed.

Additional Capability

The self-contained microprocessor, when programmed as a TTY "look-alike," is loaded at less than 15% of its full capability. Thus, additional tasks can generally be accommodated. Floppy discs, various printers and additional RAM memories can be added, generally without any degradation of the basic terminal function.

An additional page of display refresh memory is also available. This feature allows storage of more than one screen (page).

When the 480/25 is configured with additional I/O cards, it can drive more than one communication line and/or printer.

Typical Applications

A minimal 4-card TTY "look-alike" configuration can be utilized anywhere a standard hard copy or "glass" teletype might be employed. Examples are:

Time Share Services
Order Entry
Database Interrogation
Stock Quotation Status
Upgrade of Simple Teletype

As additional RAM memory, extended memory and more complex programs are implemented, the 480/25 can be upgraded to function as a pre-transmission editing, or even a standalone, data processing system for business applications. Several examples are:

Text Editing
Word Processing
Accounts Receivable Status
Accounts Payable Status
Inventory Control
Computer Aided Instruction

Economy and Reliability

Conrac is a major OEM supplier of computer CRT terminals.

The 480/25 offers economy and attractive price performance. Conrac can show you how the 480/25 was designed with reliability and service in mind.

Specifications

General

Viewable CRT Area: 215.9mm x 165.1mm (8.5″x6.5″)
Characters/line: 80
Lines/screen: 25
Message line: 26th line with 8 bright rectangles, utilized as status indicators.
Character Set: ASCII 64 subset
Optional, ASCII 128
Phosphor: P4 (black and white), standard
Other phosphors available.
Character Size: 5x7 dot matrix.
Character Generation: Bipolar PROM.
Interface: RS232 and/or current loop
Half/full duplex
Asynchronous or synchronous
110 through 9600 Baud, switch selectable

Keyboard: 93 key; 59 key alphanumeric section sculptured and 34 function keys.
Cursor: Non-destructive blinking full block; addressable; readable.
Power Requirements: 105 to 260 V ac
50/60 Hz
200 watts
U.L. and C.S.A. Approvable.
Operating Temperature: +10° to +40°C
Non-Operating Temperature: −20° to +75°C.
Weight: 18.18 kg (40 lbs.), 8 slot version.
27.27 kg (60 lbs.), 16 slot version.

Emulations

TTY:
Upper case only; scroll or page; screen clear, full cursor control; half duplex or echo; standard TTY codes per code chart on page 3; limited edit features in firmware.

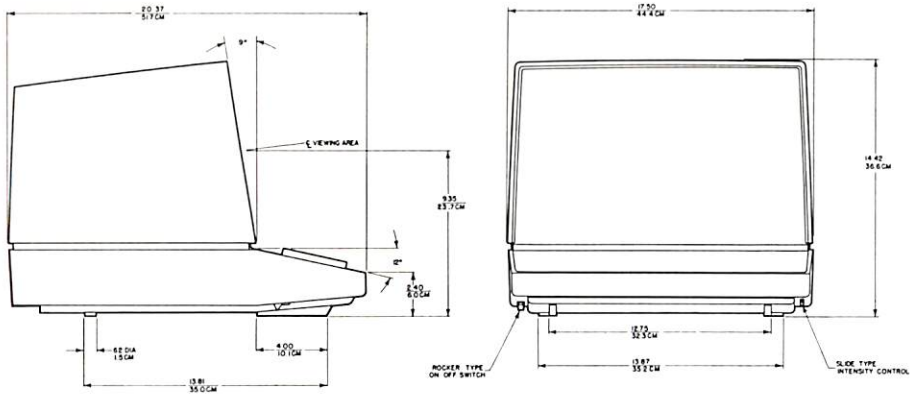
Enhanced TTY:
Upper and lower case; local/remote/block transmit; forward and reverse tab; read and write cursor; insert character/line; delete character/line; optional hardware edit card which accelerates execution of edit and clear commands.

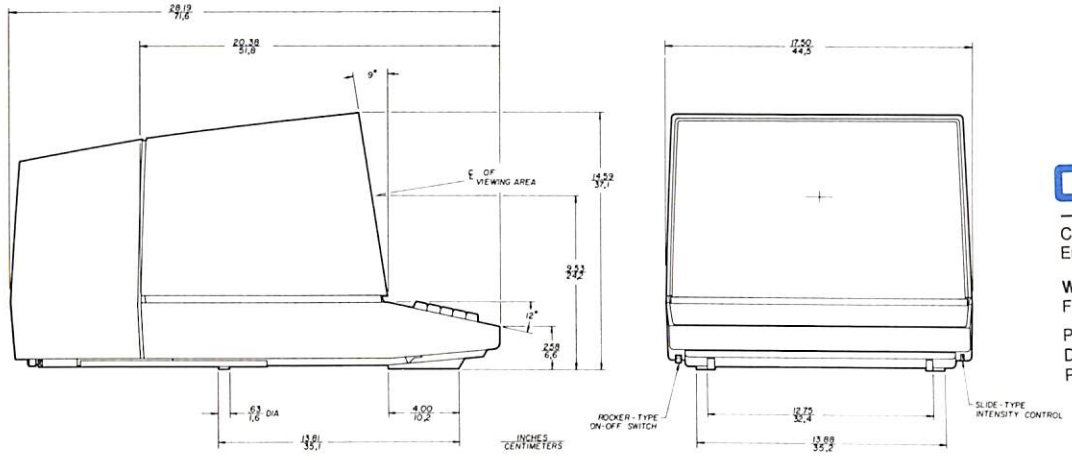
Burroughs:
Full compatibility with TD700/800 line protocols.

Univac:
Full compatibility with U100/U200 line protocols.

A two-day factory 480/25 programing course is available to those customers who wish to write either their own operating or application programs.

Outline Dimensions





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