TermiNet*300

Data Communications Terminal
Product Description

Information Systems

Data Communications
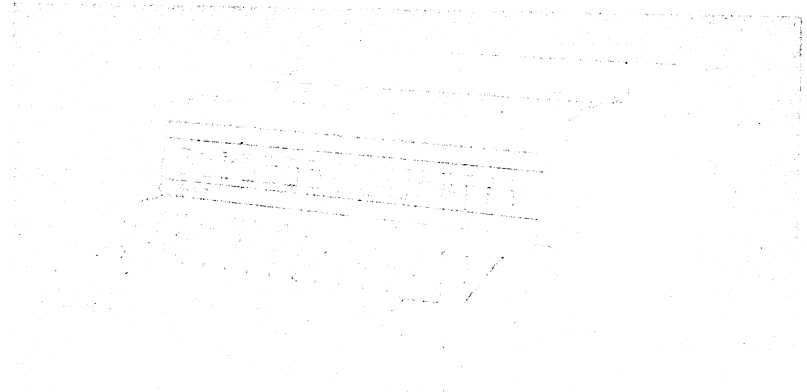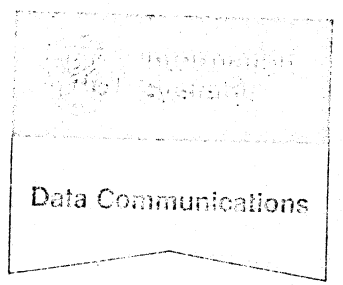
The quick, quiet one from General Electric

GENERAL ⊛ ELECTRIC

*Trademark of General Electric Co.

TermiNet 300 sets new standards in teleprinter speed, flexibility, quiet operation

The Terminet 300 teleprinter is specifically designed for operation with on-line and time-sharing computer systems.

The TermiNet 300 is quiet; so quiet that when it is in operation most of the other teleprinters can whisper and still be the ones that are heard. A key sound adjustment is included to give your machine operator audible assurance that the TermiNet 300 is actually running.

The TermiNet 300 is truly a business machine—it offers a ninety-four (94) alpha-numeric character set with both upper and lower case; a "REPEAT" key which when depressed will cause any other key depressed to repeat; print line length of 118 characters (ideal for tabular material and financial reports); and accommodates roll, fanfold or single-sheet paper with the ease of insertion comparable to that of an electric typewriter.

The TermiNet 300 has the design and color scheme necessary to complement the modern business office decor—similar in design and size to a modern electric typewriter.

The TermiNet 300 options provide the user with ability to fashion his device to suit his particular needs. A paper tape reader and punch with highly flexible editing controls, a "pin feed platen" option which proves the capability to handle a variety of business forms (e.g., payroll forms), and a "horizontal tabbing" option, which increases data formating capability, are all immediately available. Soon to follow will be vertical tabbing and form feed, teleprinter stand, tape reelers, and special type fonts. Acoustic couplers, integral modems, and other options will also be offered as future enhancements.

A simple flip of a switch permits the TermiNet 300 to print and transmit/receive at speeds of 10 cps, 15 cps, and even 30 cps. That's two times faster than most teleprinters currently on the market. And three times faster than the most frequently used terminal.

When in an off-line mode the TermiNet 300 can be operated much like an electric typewriter with adjustable single or double line spacing and is capable of producing an original—plus six copies of standard business forms.

Reliability

The electronics of the TermiNet 300 provide a higher reliability than most other similar devices by using logic based upon MOS/LSI integrated circuit technology. This advanced solid-state circuitry limits the number of moving, wearing parts to a minimum. And their plug-in circuit boards simplify troubleshooting and maintenance.

Modularity

Modularity is part of this terminal's basic design. The TermiNet 300 options that are available, or will be coming available, are "field installable". This enables the user to adapt his device to more complex functions when the need arises . . . with minimum effort and cost.

STANDARD FEATURES

The TermiNet 300 (SRT 301) consists of a typewriter keyboard, a printer mechanism, control indicators and switches, and control electronics.

Keyboard

The standard keyboard layout (see page 4) is capable of producing 128 discrete binary codes in USASCII format. It is easily detachable from the printing mechanism for ease of repair and replacement. It includes "repeat key" which, while depressed, will cause any other key depressed to repeat at the rate of five (5) cps.

Printer

The printer consists of the following requirements:

Printing Speed

The basic printing speed shall be thirty (30) cps. It also has the capability of operating at ten (10) cps and fifteen (15) cps.

Print Character Set

The TermiNet 300 character set is comprised of the ninety-four (94) alpha-numeric characters defined by USASCII.

Print Quality

The quality of printing of the terminal is better than existing teletypewriters.

Answerback

A message of up to 20 characters can be coded in the Answerback function. This positively identifies a remote terminal for time-sharing validation.

Horizontal Character Spacing

The character spacing is ten (10) per inch.

Vertical Line Spacing

The print lines of the TermiNet 300 are spaced at 6 lines per inch. An operator set adjustment is provided that allows double line spacing on receipt of one line feed code.

Print Line Length

Print Line Length is 118 characters.

Print Line Visibility

Characters on the line being printed are visible to the operator when using the keyboard at relatively low speeds.

Copies

The TermiNet 300 has the capability of producing an original, plus six copies of standard commercially available business forms.

End of Line Alarm

The right margin can be set to operate either at 75 or 118 characters depending on the width of paper to be used.

Back Space

The TermiNet 300 is capable of back spacing to the left one print position at a time from command of either the keyboard or from the incoming data line.

Print Line Entry Marker

A digital indicator describes exactly the column number where the next character will appear.

Paper

The printer is capable of handling roll, fanfold or single sheet paper.

Control Indicators and Switches

Local Control Button

When depressed, this control button energizes the keyboard and the terminal motor for off-line use. Such operation prohibits any interference from another source. (This procedure would most typically be used when coded tape or documents are to be prepared locally.)

Stand-By Control Button

When depressed, this lighted control button turns the motor power off and readies the terminal to receive data.

On-Line Control Button

When depressed, this button becomes lighted to signify that motor power has been activated.

Interrupt Control Button

When the "Interrupt" control button is depressed by the operator, a "break" is transmitted.

Alarm Control Button

When the alarm control button becomes lighted, it alerts the operator to one of several conditions: paper out, abnormal voltage, or a "belt speed" defect.

Ready Control Indicator

When the control indicator becomes lit the operator is notified that the system is ready for transmission from the terminal.

"Here Is" Control

This is a momentary control button that transmits the terminal Answerback code when depressed.

Transparency Control Switch

This two-position control switch functions only on terminals with tape reader and punch options (TRP 300).

Note: This device is included on all SRT 301 teleprinters for interchangeability. When the switch is in the "normal" position, the terminal responds to control codes. When it is in the "transparent" position, all control codes are ignored and the page printer is blinded so that no print action takes place. Thus, the terminal is permitted to send and receive paper tapes in non-USASCII codes (i.e. BCD & EIA 244 numeric control codes).

Inhibit Control Switch

This three-position toggle control switch is located on the front panel. When the switch is in the center position the terminal is in normal operation. If the control switch is in the top (suppressed print) position, information generated by either keyboard or tape reader will be transmitted but not printed. When the control switch is in the bottom (suppressed transmission) position, information generated by either tape reader or keyboard will be printed or punched, but not transmitted even though the terminal is "on-line".

Rate Control Switch

This control switch permits the operator to select printing and transmission speeds of 110, 150, or 300 baud.

Line Feed Control Switch

When this control switch is in the "1" position the paper increments vertically one-sixth of an inch on the receipt of a lf (line feed) code. When the control switch is in the "2" position the paper will increment vertically one-third of an inch.

"Caps Only" Control Switch

When this control switch is placed in the "on" position the keyboard is conditioned to communicate and print using the reduced ASCII set of the #33 and #35 teletypewriters which does not include the lower case alphabet. When this switch is placed in the "off" position, the terminal has full upper and lower case capability. (Note: This switch is located inconspicuously on the rear side of the terminal.

On-Off Control Switch

This control switch regulates the input power to the terminal. It should normally be left in the "on" position except when the terminal is being moved or repaired. (Note: This switch is located inconspicuously on the under side of the terminal.)

Control Electronics

The control electronics of the TermiNet 300 provide the capability to interface with a communications facility and to exchange data with a control processor or another teleprinter.

Communications Interface
The TermiNet 300 conforms to the EIA standard RS-232B with respect to the interface between the terminal and the Data Communication Equipment (Modems).

Data Sets (Modems)

The TermiNet 300 is capable of operating with the Bell Data Set 103A, 103F, 103G, and 103H, 108, 109 or equivalent. The terminal is also compatible with equivalent General Electric data sets and acoustic couplers. (DigiNet 110, 111, 114, 115).

Type of Data Transmission

All transmission is asynchronous. Transmission mode is normal when the "Inhibit" switch is in the center position. Mode can be echoplex when the "Inhibit" switch is in the upper (inhibit print) position.

Variable Transmitting and Receiving Speed

The TermiNet 300 is capable of transmitting and receiving at 30 cps (300 baud), 15 cps (150 baud), or 10 cps (110 baud) by adjusting the rate control switch accordingly.

Transmission Code

The TermiNet 300 transmits and receives the standard 8-level (7-bit plus parity) ASCII code.

Teleprinter Adjustments

Key Sound Adjustment
An adjustment can be made that varies the audible sound which is generated on key depression.

Keyboard Angle Adjustment

The keyboard is adjustable to various keyboard angles of common office typewriter equipment.

End-of-Line Alarm Adjustment

An adjustment is provided that varies the volume of sound which is generated as the print nears the end of the line.

(Note: Both the keyboard angle and end-of-the-line alarm adjustments are not easily accessable to the operator and accordingly should be serviced by a service man.)

OPTIONAL FEATURES

Tape Reader and Punch (TRP 300)

A photoelectric tape reader is available which reads 8-channel tape at 10, 15 and 30 characters per second.

The tape reader is designed for versatile operation. It can be made to *read* or *omit* the next character, word, or line by simply pushing the appropriate buttons. The reader can also backspace and can be reversed from either a remote or local location.

A tape punch prepares 8-channel tape at 10, 15, and 30 cps. The punch is a solenoid-driven punch . . . reducing both wear and noise levels. It has no moving parts except those required for the actual punching operation. The punch can be backspaced and can automatically prepare a "leader" when punching a tape. The TRP 300 feature includes a desk to contain the reader and punch and support the teleprinter.

Horizontal Tabulation (HTF 300)

TermiNet 300 terminal can set tabs at any print position along the print line. This may be done from either a remote location or from the local keyboard. This gives the user ultimate freedom in formatting his output data.

Pin Feed (PFP 300)

TermiNet 300 terminal is also available with pin feed for rapid and accurate handling of multi-copy, 12 27/32-inch wide computer printer pin feed paper. (Pin feed platens for other paper widths will be offered later.)

KEYBOARD DESCRIPTION

An important part of any data communication device is the operator's keyboard. The GE TermiNet 300 data communication terminal keyboard was especially designed for:

- Ease of Operation
- Reliability
- No periodic maintenance
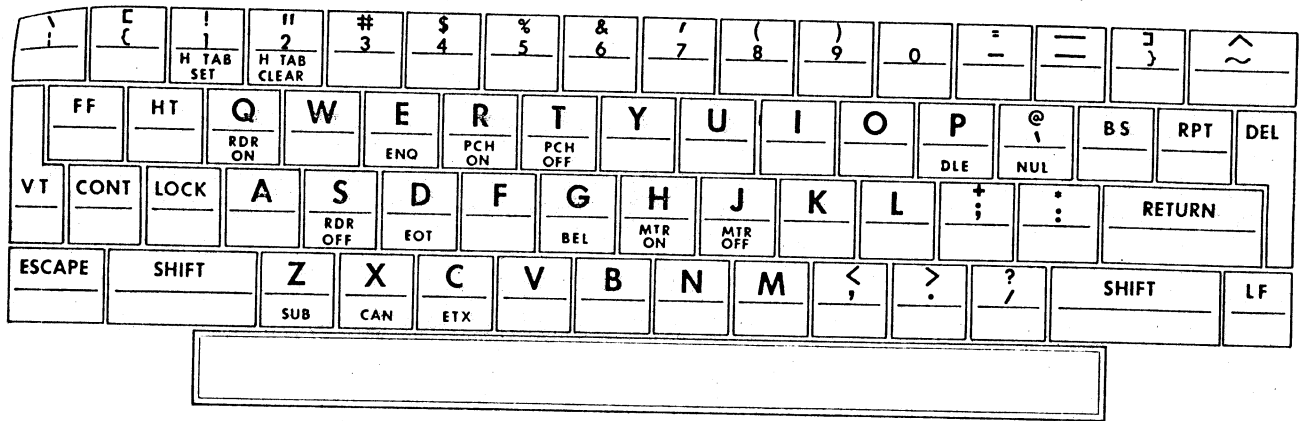
The resulting keyboard meets these goals by using an all-electronic approach.

Touch and Stroke

Similar to modern office typewriters with excellent "feel".

Carriage Return

With the automatic line feed "off" the carriage return key returns the printer to the first printing position. With the automatic line feed "on" the carriage return key automatically generates the line feed code as well as the carriage return code.

Repeat

Depressing this key will cause any other key to repeat at the rate of 5 characters per second.

Backspace

Depressing this key moves the printer one space to the left on the print line. If the terminal is "on line" the backspace code will be transmitted.

Shift and Shift Lock

The shift key causes the upper case characters to be printed and transmitted when other keys are operated. Shift lock mechanically locks the shift key until the adjacent shift key is depressed.

Two Key Depression

Electronically the keyboard will separate multiple key depressions for accurate keying of input data without using mechanical means that slow typing speed.

CONTROL CODES

The following information describes the operation of the General Electric TermiNet 300 Data Communications Terminal when various USASCII codes (see Figure below) are transmitted or received. Codes associated with the basic machine are described fully.

Unless otherwise noted the operations described for the codes will apply whether the codes are generated at the terminal or received from communication lines.

b4 b3 b2 b1 / Row	Column / 0	1	2	3	4	5	6	7
0 0 0 0 — 0	NUL	DLE	SP	0	@	P	`	p
0 0 0 1 — 1	SOH	DC1	!	1	A	Q	a	q
0 0 1 0 — 2	STX	DC2	"	2	B	R	b	r
0 0 1 1 — 3	ETX	DC3	#	3	C	S	c	s
0 1 0 0 — 4	EOT	DC4	$	4	D	T	d	t
0 1 0 1 — 5	ENQ	NAK	%	5	E	U	e	u
0 1 1 0 — 6	ACK	SYN	&	6	F	V	f	v
0 1 1 1 — 7	BEL	ETB	'	7	G	W	g	w
1 0 0 0 — 8	BS	CAN	(	8	H	X	h	x
1 0 0 1 — 9	HT	EM	)	9	I	Y	i	y
1 0 1 0 — 10	LF	SUB	*	:	J	Z	j	z
1 0 1 1 — 11	VT	ESC	+	;	K	[	k	{
1 1 0 0 — 12	FF	FS	,	<	L	\	l	¦
1 1 0 1 — 13	CR	GS	-	=	M	]	m	}
1 1 1 0 — 14	SO	RS	.	>	N	^	n	~
1 1 1 1 — 15	SI	US	/	?	O	_	o	DEL

Line Feed (LF)

This code advances the paper one print line if the unit is set for single spacing or two printed lines if the unit is set for double spacing.

Carriage Return (CR)

This code moves the printing to the first print position on the left of the paper.

Backspace (BS)

This code moves the printing position one position to the left without printing a character.

Space (SP)

This code moves the printing position one position to the right without printing a character.

End of Text (EOT)

This code will transfer the state of the TermiNet 300 terminal from local or on-line to standby.

Data Link Escape, EOT (DLE-EOT)

These two codes, in sequence, will initiate the disconnect sequence with the associated data set. This is done by turning the "Data Terminal Ready" lead to the data set off until the "Data Set Ready" lead goes off. The TermiNet 300 terminal is then automatically put in standby mode.

There are a few codes which are only acted upon when they are received by the TermiNet 300 data communications terminal, not when they are generated locally.

Enquiry (ENQ)

This code causes the Answerback or terminal identification to be transmitted.

Negative Acknowledge (NAK)

This code lights the interrupt light when received. The effect on the TermiNet 300 terminal is the same as receiving a "Break" or "Interrupt" signal.

Escape h (ESCh)

These two codes, when received in the proper sequence, turn the TermiNet 300 terminal motor on to permit printing.

Escape j (ESCj)

These two codes, when received in the proper sequence, turn the motor off. Printing stops.

Bell, (BEL)

Causes the audible alarm to be sounded when received.