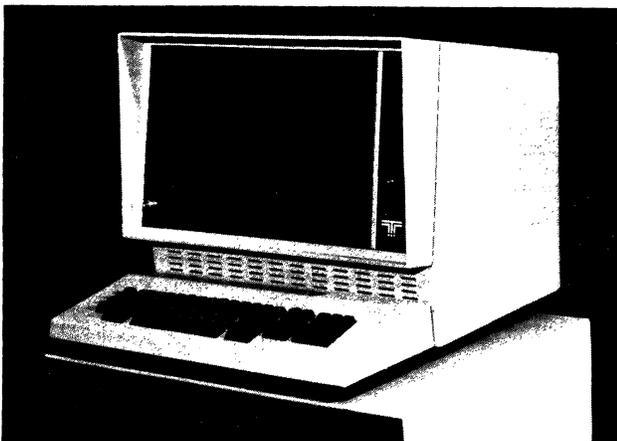


Terminal Communications 270 Information Display System



MANAGEMENT SUMMARY

Founded in 1969, Terminal Communications has dedicated itself to the IBM terminal replacement market with replacements for the IBM 2260 and 2265 Display Stations, 2740 and 2741 Communication Terminals, and more recently, the IBM 3270 Information Display System. The TCI 270 system is a plug-to-plug replacement for the BSC version of the IBM 3270 right down to the cables, and accommodates the same number (32) of display stations and printers (in any mix) as the IBM 3270. Furthermore, the TCI 270 provides complete compatibility with the IBM 3270 with respect to line discipline, commands and command-code structure, and addressing sequence. The TCI terminals also provide all the features and functions that are currently available with the IBM 3270. Display screen capacities are also identical with those available with the IBM 3270—430 and 1920 characters.

What's more, TCI's remote and local control units can accommodate any mix of IBM 3277 and TCI 277 display stations. TCI's local control unit is actually an IBM 3272; however, its remote control unit is its own.

Pricing is the key advantage of the TCI 270 over the IBM 3270. TCI's Model TC 277 display stations range in cost from 25 to 32 percent below IBM's monthly rental charge for its 3277 Display Stations, and TCI's Model TC 275 stand-alone display terminals range in cost from 22 to 28 percent below IBM's monthly rental charge for its 3275 terminals. Substantial savings can also be realized with TCI's printers, which include the popular Diablo HyType I printer mechanism. Further savings can be realized by TCI's discounts on quantities of 50 or more units.

The TCI printers offer full character printing with interchangeable type fonts. The rated print speed, 30 cps, is somewhat below the rated speeds of IBM's matrix printers (40 or 66 cps), but effective print speed can be as high as 60 cps. Like IBM, TCI offers printers with 120, 126, or 132 print positions and with tractor feed as an option. Lower case alphabets are also optional. ➤

Replaces the IBM 3270 Information Display System in a local or remote environment. Accommodates up to 32 display stations and printers in any combination.

Features are identical with the IBM 3270, plus additional keyboards are available and printed output quality is enhanced with 30-cps full-character printing.

A typical 8-station remote terminal with 1920-character displays, but without printers, leases for \$901 per month including maintenance on a two-year lease.

Complete compatibility with the IBM 3270 is provided, and existing IBM cables can be used.

CHARACTERISTICS

VENDOR: Terminal Communications, Inc., 3301 Terminal Drive, Raleigh, North Carolina 27611. Telephone (919) 834-5251.

DATE OF ANNOUNCEMENT: Not available.

DATE OF FIRST DELIVERY: TC 277 – March 1974; TC 275 – September 1973.

NUMBER DELIVERED: 3231 TC 277's and 340 TC 275's.

SERVICED BY: TCI.

CONFIGURATION

The TCI 270 system is a direct replacement for the IBM 3270 Information Display System in a local or remote cluster or remote stand-alone environment. The cluster configurations accommodate up to 32 devices, including any mix of TC 277 CRT keyboard/display stations and TC 284 printers. The control unit provides individual buffering for each device, which can be located up to 2000 cable-feet from the controller. An optional light pen is available for each display station.

Two models of control units are available: Model 271 for remote operation and Model 272 for local operation. The local controller, Model 272, contains a channel interface for direct connection (up to 200 cable-feet) to an IBM System/360 computer, Models 25 through 195, or an IBM System/370 computer, Models 115 through 195, via a Selector, Multiplexer, or Block Multiplexer channel. The data transfer rate can range from 10K to 650K characters per second. The remote controller, Model 271, is attached to a communications facility via a modem. The maximum cable length between controller and modem is 40 feet.

The basic Model 271 or 272 control unit contains one device adapter that can accommodate up to four devices. Two additional devices can be accommodated via each subsequent device adapter, up to a total of 15 device adapters. ➤

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▷ TCI plans to introduce a badge reader for delivery in February 1977. SDLC compatibility for its remote cluster configuration is planned for April 1977, and for its remote stand-alone terminal the following June.

USER REACTION

In Datapro's 1976 survey of alphanumeric display terminal users, 10 users reported on their experience with a total of 271 TCI 270 display terminals. Their ratings are presented in the following table.

	<u>Excellent</u>	<u>Good</u>	<u>Fair</u>	<u>Poor</u>	<u>WA*</u>
Overall performance	5	4	0	0	3.6
Ease of operation	7	3	0	0	3.7
Display clarity	6	4	0	0	3.6
Keyboard feel & usability	8	2	0	0	3.8
Hardware reliability	3	7	0	0	3.3
Maintenance service	2	4	4	0	2.8
Software & technical support	2	2	4	0	2.8

*Weighted Average on a scale of 4.0 for Excellent.

The ratings show that although these users are well satisfied with the product, they feel that improvements are needed for service and support. Low cost was almost unanimously cited as the key advantage, with reliability as the second key advantage. No specific disadvantages were indicated. □

▶ The control units are available with a buffer capacity of 480 or 1920 characters. A control unit with a 480-character buffer capacity can accommodate only display stations and printers having a 480-character buffer (TC 277-1 displays and TC 284-1 printers). A control unit with a 1920-character buffer capacity can accommodate any mix of display stations and printers with 480- and 1920-character buffers.

The TC 275 display station is a remote stand-alone terminal available in two models: Model 1 contains a 480-character buffer; Model 2 contains a 1920-character buffer. The TC 275 can accommodate an optional selector light pen and a TC 234 printer. Up to 20 TC 275 display stations can be attached to a communications line via a TC 905 Shared Modem, which requires one TC 905 Attachment, a no-cost item.

TRANSMISSION SPECIFICATIONS

Transmission is half-duplex synchronous. Transmission rates for the TC 271 Remote Control Unit are specified as 2400, 4800, 7200, or 9600 (optional) bits/second. Transmission rates for the TC 275 are specified as 2000, 2400, or 4800 bits/second. The 8-level ASCII (including parity) or EBCDIC transmission code and BSC protocol is used. An EIA Standard RS-232C interface provides for connection to a voice-grade line via a modem. Bell System modems that can be used include the Dataphone 2400, 4800, and 9600.

DEVICE CONTROL

The TCI 270 system operates under the control of the program stored at the computer and provides complete compatibility with the addressing sequence, command code structure, and line discipline employed by the IBM 3270

Information Display System. The TCI 270 system responds to and executes the full repertoire of IBM 3270 commands via a hard-wired processor.

Cursor control is functionally the same as in the IBM 3270. The controls position the cursor up, down, left, or right, either step-by-step or repetitively (if the key is held down). The cursor can also be backspaced one character position, moved to the beginning of the next line or the next unprotected data field, tabbed to the beginning of the next unprotected data field, and backtabbed to the beginning of the previous unprotected data field. Cursor addressability is standard.

Edit controls are the same as those for the IBM 3270 and include character insertion and deletion within a field, screen and field erasure, partial field erasure (specified by the cursor position), and duplication of data, which is specified by a unique code and displayed as an asterisk.

Structured data entry a la displayable formats is supported via attribute codes, which define protected fields, delimit data entry fields, and specify display parameters and tab stop positions. The use of the attribute codes is identical with the IBM 3270. Display parameters specify beam intensity (full or half) and beam blanking (for security purposes).

Program Function and Program Attention keys, standard features of the IBM 3270, are also standard in the TCI 270 system. Each of these keys generates a unique code that is recognized by the controlling software as a specific program request or data identifier. Program Function codes accompany the display data as it is transmitted to the computer, while Program Attention codes are transmitted separately.

A light pen is available as an option and functionally corresponds to IBM's Selector Pen, a 3270 option. Any one of several alphanumeric or numeric fields of fixed or variable formats can be selected by the pen, which transmits the address of the selected entry to the computer to initiate the programmed function.

COMPONENTS

DISPLAY STATION: A CRT display unit with a 15-inch (diagonal measurement), non-glare screen and detachable keyboard. The display area measures 8 inches high by 10 inches wide. A character set of 64 or 96 (optional) symbols including upper and lower (optional) case alphabets, numerics, and special symbols is displayed in white. Each character is formed by a matrix of 7-by-9 dots. Two models of display units offer different display arrangements:

	TC 275-1 or <u>TC 277-1</u>	TC 275-2 or <u>TC 277-2</u>
Characters/display:	480	1920
Lines/display:	12	24
Characters/line:	40	80

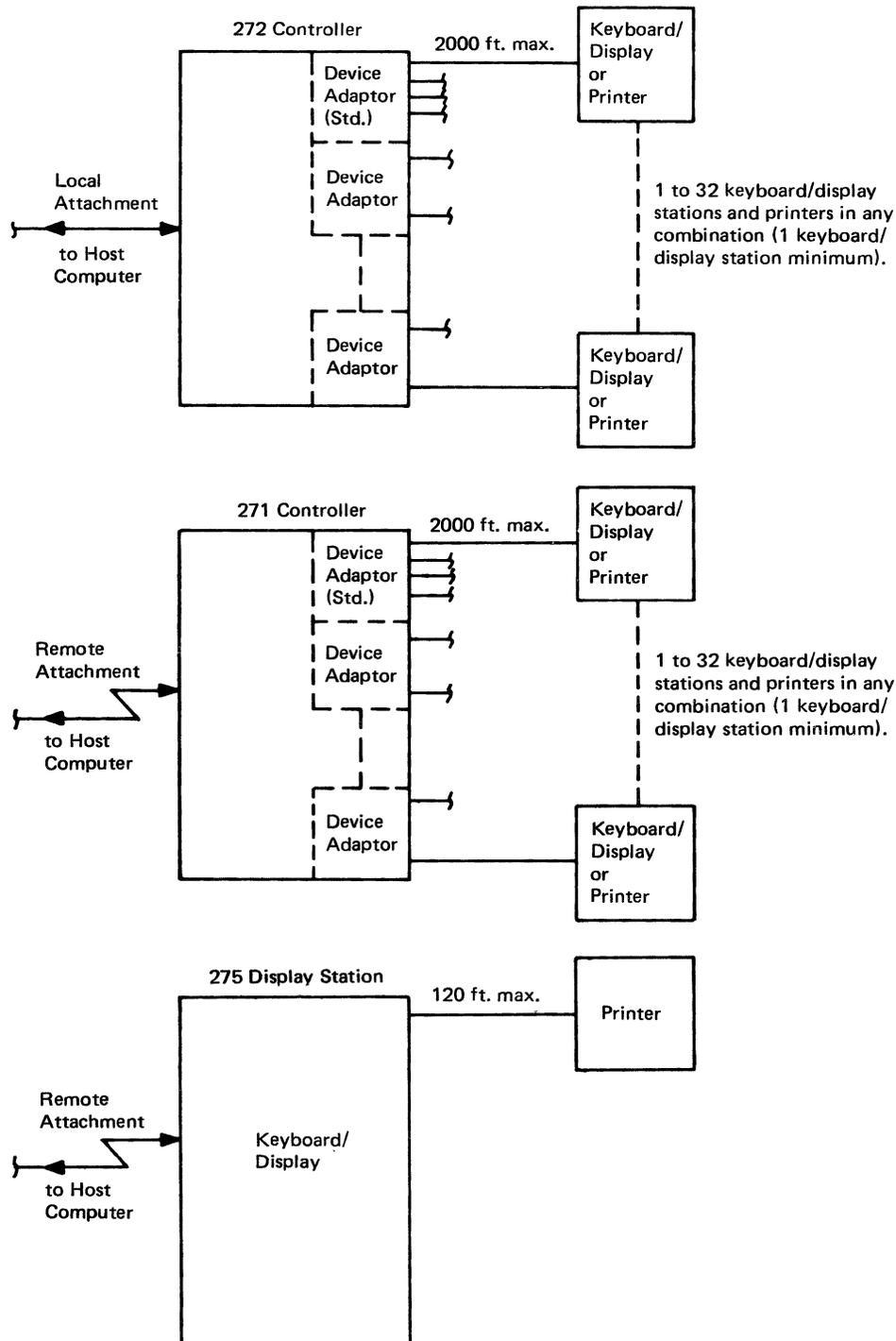
The cursor is displayed as a solid matrix in reverse video.

Nine keyboard models include five EBCDIC and four ASCII keyboards. The EBCDIC models include:

- 76-key data entry.
- 76-key data entry with keypunch layout.
- 76-key typewriter with numeric key pad.
- 78-key typewriter with function key pad.

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Configuration



► ● 78-key operator console.

The ASCII keyboard models include:

- 76-key typewriter with numeric key pad.
- 78-key typewriter with function key pad.

Either ASCII keyboard can be specified as ASCII A or B. ASCII A differs from the standard ASCII B character set by

two characters only; these include the logic symbols "OR" and "NOT" which are substituted for ASCII B's exclamation marks and circumflex, respectively.

The function key pad includes 12 Program Function keys. Models without the function key pad include three Program Function keys. Up to three Program Attention keys are provided.

SERIAL PRINTER: The printer mechanism is a Diablo HyType I printer with 120, 126, or 132 print positions and ►

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► a rated speed of 30 characters per second. The rated speed can be exceeded when passing over non-printer characters (Look Ahead feature) and can be as high as 60 characters per second. The impact printer features full-character printing via an interchangeable "daisy" wheel. EBCDIC, ASCII A, or ASCII B 64-character print sets can be specified. The basic printer features a friction feed platen; tractor feed is optional. Forms up to 15 inches (friction) or 14-3/4 inches (tractor) wide can be used. Pin feed platens can be specified as 13-1/8, 14-3/8, or 14-1/2 inches wide. Form Feed control is a no-cost option.

The TC 284 printer used in the cluster configuration is available in two models that differ only in buffer capacity. The TC 284-1 contains a 480-character buffer; the TC 284-2 contains a 1920-character buffer. The TC 234 printer

used in the stand-alone configuration with the TC 275 Display Station is bufferless.

PRICING

The TCI 270 system is available for purchase, rental, or on a two- or three-year lease including prime-shift maintenance. TCI offers quantity discounts on some devices. There are no installation charges for the TCI equipment. The investment tax credit is passed on to the customer where applicable. TCI does not schedule customer training; however, its field engineering personnel and customer representatives provide any necessary on-site training. Full service maintenance on a 24-hour-per-day, 7-day-per-week basis is available on negotiation.

	Monthly Cost*				
	Monthly Rental*	2-Year Lease	3-Year Lease	Purchase	Monthly Maint.
Cluster Configuration					
Display Station:					
TC 277-1 (480 chars.)	\$ 67	\$ 64	\$ 62	\$2,750	\$ 8.00
TC 277-2 (1920 chars.)	94	88	84	2,850	18.00
Remote Control Unit:					
TC 271 (480 chars.)	165	155	145	4,300	13.00
TC 271 (1920 chars.)	180	165	150	4,500	15.00
9600 bps Transmission Speed	14.50	13.50	12.50	650	1.00
Local Control Unit:					
TC 272-1 (480 chars.)	207	207	207	7,650	13.00
TC 272-2 (1920 chars.)	225	225	225	8,360	28.00
Device Adapter:					
TC 271 Remote Control Unit	18	16	14	200	0.50
TC 272 Local Control Unit	29	29	26	545	0.50
Stand-Alone Configuration					
TC 275-1 (480 chars.)	116.50	111.50	106.50	4,100	14.50
TC 275-2 (1920 chars.)	126.50	122.50	118.50	4,300	14.50
Keyboards (all display stations)					
Typewriter:					
76-key EBCDIC with numeric pad	15	15	12	450	5.00
78-key EBCDIC with function key pad	23	23	19	450	6.00
76-key ASCII (A or B) with numeric pad	15	15	12	450	5.00
78-key ASCII (A or B) with function key pad	23	23	19	450	6.00
Data Entry:					
76-key data entry	15	15	12	450	5.00
76-key data entry keypunch layout	17	17	14	450	5.00
78-key Operator Console	23	23	19	450	5.00
Display Station Options					
Audible Alarm	5	5	4	150	0.50
Security Keylock	30**	30**	30**	30**	—
Keyboard Numeric Lock	0	0	0	0	—
Selector Light Pen	21	20	19	600	1.50
TC 905 Attachment (TC 275 only)	0	0	0	0	—
Type 202, Modem Compatibility Feature (TC 275 only)	0	0	0	0	—
Printers					
TC 234 (bufferless)	127.50	122.50	117.50	4,100	24.50
TC 284-1 (480 chars.)	147.50	144.50	140.50	5,000	26.50
TC 284-2 (1920 chars.)	158	155	151	5,400	33.00
Printer Options					
Pin Feed Platen (all sizes)	115*	115**	115**	115**	—
Forms Tractor	15	10	7	175	***
Upper/Lower Case	27	27	23	1,220	1.00

* Includes prime-shift maintenance.
 ** Single use charge.
 *** Time and materials. ■