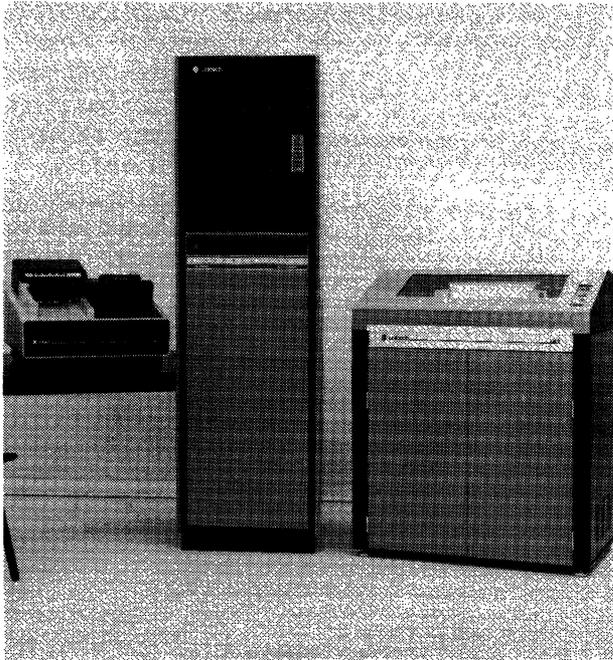


# Radian Corporation Unitech UT Series Remote Batch Terminals



Typical Unitech peripherals include (from left) a card reader, magnetic tape drive (UT-1 and UT-4 only), and line printer. The Data General minicomputer is housed in the central cabinet along with the tape drive.

## MANAGEMENT SUMMARY

Radian's Unitech product line provides terminals for remote batch, data entry, and combinations of these applications. They serve a broad spectrum of needs ranging from low-speed, low-volume usage to high-speed, high-volume usage.

Four models are currently offered: the UT-1, which is based on a Data General Nova minicomputer and provides for high-volume remote batch terminal operations; the UT-2, which is based on a Motorola 6800 microprocessor, is designed for use in low-volume remote batch terminal operations, and has no off-line processing capabilities; the UT-3, an enhanced version of the UT-2 that also includes support for key-to-diskette data entry and local applications processing in BASIC; and the UT-4, an enhanced version of the UT-1 that also provides for key-to-diskette data entry and local applications processing.

A typical terminal configuration for a Unitech terminal includes a card reader, a printer, a CRT used as an operator console, a synchronous communications interface, and a software emulation package that emulates the functions of a prominent remote batch terminal produced by one of the leading mainframe manufacturers. Additional emulation packages are available at extra cost. Transmission speeds up to 19,200 bits per second are supported; actual transmission speed is dependent on the

A series of four remote batch terminal systems based on the Data General Nova minicomputer (UT-1 and UT-4) or Motorola 6800 microprocessors (UT-2 and UT-3). Data General software is available for the Nova-based systems.

Configurations range from simple batch terminal (UT-2) to a full-blown data entry system with up to four workstations, up to eight diskette drives, and off-line processing capabilities (UT-4). Available peripherals include 7- and 9-track tape drives, disk storage, and incremental plotters.

A basic UT-1 with a 600-lpm printer and a 600-cpm card reader rents for less than \$1,460 per month, including maintenance, on a two-year lease.

A basic model UT-2 equipped with a 285-cpm card reader, a 300-lpm line printer, and a CRT rents for approximately \$940 per month, including maintenance, on a two-year lease.

## CHARACTERISTICS

**VENDOR:** Radian Corporation—Unitech Products, P.O. Box 9948, Austin, Texas 78766. Telephone (512) 454-4797.

**DATE OF ANNOUNCEMENT:** 1970 (UT-1); October 1975 (UT-2); June 1978 (UT-3); March 1981 (UT-4).

**DATE OF FIRST DELIVERY:** 1971 (UT-1); April 1976 (UT-2); September 1978 (UT-3); April 1981 (UT-4).

**NUMBER DELIVERED TO DATE:** 300 UT-1s; 75 UT-2s; 30 UT-3s.

**SERVICED BY:** Radian/Unitech.

## CONFIGURATION

**UT-1:** The standard UT-1 includes a Data General Nova minicomputer; 600-cpm card reader; 600-lpm chain printer; CRT display console; synchronous communications interface; and UTEX communications software, an emulator program for one of the prominent batch terminals produced by leading mainframe manufacturers. An optional 30-cps console teleprinter (DEC LA 36 DECwriter II) is available in place of the other standard consoles.

The Nova 2/10 minicomputer is typically used; however, other members of the Nova family, including the 800 and 1200 Series, can be substituted for the 2/10. Special configurations of the UT-1, tailored to user specifications, are available on a custom basis. The standard Nova 2/10-based UT-1 contains 8K words (16K bytes) of core memory, expandable to 32K words in 8K-word increments.

Optional peripherals that can be substituted for the standard peripherals include a 285- or 1000-cpm card reader; a 300-lpm

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▷ model, the communications program, and the clock rate of the external modem.

Though intended to serve primarily as a remote batch terminal, the Nova-based UT-1 can also be used to execute off-line programs using Data General's standard software for the Nova series minicomputers. User-written tasks can be linked to Radian's Unitech UTEX communications software to achieve background-mode operations.

Radian provides, at no extra charge, a basic Data General software package that can be run on a basic 8K-word UT-1 terminal; the package features a standard assembler and debugger. A more powerful set of Data General software is also available from Radian at added cost for UT-1 terminal configurations with expanded memory. This set features a FORTRAN IV compiler and a disk operating system. The user is advised to contact the Data General Computer Users's Group for a listing of user-developed applications software.

Unitech offers a host of peripherals for the UT-1. Optional peripherals include electrostatic printers and plotters, industry-standard 7- and 9-track magnetic tape drives, disk storage units, punched tape readers and punches, CRT display units, card punches, and incremental plotters. Software support for the optional peripherals is available at extra cost.

The UT-2 is a lower-cost alternative to the UT-1 for remote batch terminal users that do not require the versatility and high-speed capabilities of the UT-1. The UT-2 is microprocessor-based and limited in configuration to a card reader, line printer, and console. No off-line processing capabilities are provided.

The UT-3, a combination remote batch terminal and data entry configuration, uses up to four CRT keyboard display units as workstations, and up to eight IBM 3741-compatible diskette drives to capture the data. Each workstation can be assigned its own diskette, or all can share a single diskette via a primary/secondary station operating arrangement. Separate data entry and data communications programs control the operations.

The UT-4 combines the flexibility of the UT-1 with the data entry capabilities available on the UT-3. Radian also plans to add local FORTRAN and other high level language processing to the UT-4 by June 1981.

Installation and service of the Unitech systems are provided by Radian, or by third-party maintenance organizations in some remote locations. Radian provides technical direction and support to help ensure customer satisfaction.

Radian Corporation is a wholly-owned subsidiary of Hartford Steam and Boiler Inspection and Insurance Company of Hartford, Connecticut. The Hartford operation acquired Unitech, Inc., an Austin, Texas-based firm, and merged its operations with Radian, also located in Austin, in August 1978. ▷

▶ chain printer; and a 300- or 1000-lpm chain printer. A card punch can be added to the standard configuration. Other options include card punches, industry-standard 7- or 9-track magnetic tape drives, fixed or removable disk storage units with capacities of 2.5, 5, or 10 million bytes each, and a variety of incremental plotters and electrostatic printer/plotters, as well as interfaces for user-supplied plotters.

The minicomputer-based UT-1 is supported by Radian/Unitech and Data General software packages for applications, utilities, and other off-line processing tasks.

**UT-2:** The UT-2 is a fixed-configuration terminal that includes a microprocessor, a 285-cpm card reader, a 300-lpm chain printer, a CRT console, a synchronous communications interface that operates at up to 9600 bps, and UCX communications software (an emulator program for one of the prominent batch terminals produced by leading main-frame manufacturers).

The UT-2's microprocessor is a Motorola 6800. Main memory size is 12K bytes, expandable up to 52K bytes in two 20K-byte increments. The UT-2 does not have the capability to execute off-line user-written programs, and the memory size selected depends on the communications emulator and peripherals to be supported.

An LA 36 DECwriter II can be substituted for the standard CRT console; a 300-lpm dot matrix or 600-lpm chain printer, for the standard printer; and a 600-cpm card reader, for the standard card reader. An optional printer/punch port can be added that allows the UT-2 to be configured with two printers, or with a printer and a card punch.

**UT-3:** The UT-3 is an enhanced configuration of the UT-2 that provides for all standard and optional UT-2 components plus Radian/Unitech's Data Entry Station Cluster (DESC) capability. The DESC functions are controlled by a separate Motorola 6800 microprocessor that accommodates up to four CRT local or remote data entry workstations, up to eight IBM 3741-compatible diskette drives, and a second synchronous communications port. The second synchronous port operates at up to 4800 bps. The UT-3's UCN communications packages provide for emulation of the same devices as the UT-2's UCX packages, except that the Univac NTR emulator is not supported.

The DESC package provides a separate 20K to 60K bytes of main memory (expandable in two 20K-byte increments) that is used to support the DESC peripherals, the DESC data entry software, and user programs written in BASIC.

In addition to the peripheral substitutions permitted for the UT-2, the UT-3 can also handle a 300-lpm electrostatic printer/plotter (in lieu of either the first or second UT-2 printer), and an incremental plotter (in addition to other peripherals). Workstations are connected locally, or remotely via modems, via four asynchronous ports. Any CRT workstation may be replaced by an LA 36 DECwriter II.

**UT-4:** The UT-4 is an enhanced configuration of the UT-1 that provides for all the standard and optional UT-1 components plus the DESC data entry capability described above for the UT-3. Local FORTRAN and other high level languages can run concurrently with RJE operations (available June 1981).

### TRANSMISSION SPECIFICATIONS

Transmission is synchronous in the half- or full-duplex mode at speeds up to 9600 bits/second for the UT-2 and the UT-1's first port, up to 19,200 bits/second for the UT-1 and the UT-4's first port, and up to 4800 bits/second for the UT-3's and UT-4's second port. The communications interface is designed to EIA Standard RS-232-C. Transmission ▶

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### ➤ USER REACTION

Datapro conducted telephone interviews with five users of the Unitech UT Series in February, 1981. Three of these users each had one UT-3; two others had one UT-1 and one UT-3 each. The Unitech systems had been installed for an average of 3 years.

Their ratings are as follows:

	Excellent	Good	Fair	Poor	WA*
Overall performance	2	3	0	0	3.4
Ease of operation	1	3	0	1	2.8
Display clarity	2	2	0	1	3.0
Keyboard feel and usability	2	2	1	0	3.2
Ease of programming	1	1	0	0	**
Manufacturer's software	1	2	2	0	2.8
Hardware reliability	2	1	2	0	3.0
Maintenance service	2	1	2	0	3.0
Technical support	1	4	0	0	3.2

\*Weighted Average on a scale of 4.0 for Excellent.

\*\*Weighted Average is considered invalid if based on less than three responses.

In general, the users expressed satisfaction with the Unitech units. All felt that the terminals were reliable machines. Three of the users also recommended the UT Series for its adaptability. One commented that "you can get any bell or whistle on it you want and they'll (Radian) support it."

Two of the users felt that the cost of the equipment was one of the major disadvantages. One user, a member of a small firm, felt that the costs involved in renting and maintaining the unit were far too high. However, he also felt that the unit would be excellent if placed in a large-volume situation and praised it for its ability to perform numerous job functions simultaneously. □

➤ parameters such as speed, code, control codes, line discipline, blocking/deblocking, etc., are a function of the communications software (i.e., the emulator program).

### DEVICE CONTROL AND SOFTWARE

All operations are executed under the direction of the operating software, which is divided into three categories: UTEX (UT-1 and UT-4), UCN (UT-3), or UCX (UT-2) communications packages; UTEX control packages (for the UT-1, UT-3, and UT-4); and standard software produced by Data General for its Nova family of minicomputers. The UTEX, UCN, and UCX communications packages are emulation programs that simulate batch terminals produced by other manufacturers. UTEX control packages are a collection of control programs that support on- and off-line terminal operation and digital plotting.

The currently available UTEX, UCN, and UCX communications packages include:

- UTEX, UCN, or UCX HASP—Emulates the functions of an IBM System/360 Model 30 computer operating as a HASP multileaving terminal in an IBM System/360 or 370 HASP communications environment.
- UTEX, UCN, or UCX 2770—Emulates the functions of an IBM 2770 Data Communications System and

supports communications with an IBM System/360 or 370 computer or another Unitech UT terminal.

- UTEX, UCN, or UCX 2780/3780—Emulates the functions of an IBM 2780 or 3780 and supports communications with an IBM System/360 or 370 computer, an IBM 2780 or 3780, an IBM System/3, or another Unitech UT terminal.
- UTEX, UCN or UCX UVC—Emulates the functions of a UNIVAC 1004 with Phase II or RMS board and supports communications with a Univac 1106 or 1108 computer running under Exec II or Exec 8.
- UTEX, UCN, or UCX CDC—Emulates the functions of a Control Data 200 User Terminal and supports communications with a CDC 3000, 6000, or Cyber 70 Series computer under CDC Export/Import.
- UTEX/GRTS—Emulates Honeywell GE 115; for UT-1 and UT-4 only.
- UTEX and UCN NTR—Emulates remote Univac 9000; not available for UT-3.

UTEX control packages include:

- UTEX/MOS—The Unitech Terminal Multidevice Operating System is an operating system that controls the transmission and reception of data files between the host computer and the UT-1 and UT-4 peripherals.
- UTEX/UPLOT—This family of on-line and background-mode programs supports digital plotting. The programs permit transmission of compressed vector data from the host computer to the UT-1, UT-3, or UT-4 terminal, with vector-to-plotter command conversions performed in the terminal. Extensions of UTEX/UPLOT provide support for electrostatic printer.

The Data General-produced standard operating software, provided by Radian with each UT-1 and UT-4 at no extra cost, includes an assembler, symbolic debugger, single-user BASIC compiler, math subroutines, and diagnostics. Additional Data General software is available for UT-1 and UT-4 terminals with expanded memory at added cost. The added software includes a relocatable assembler, a relocatable linking loader, an editor, a floating-point interpreter, a FORTRAN IV compiler, time-sharing BASIC, and a disk operating system. FORTRAN for the UT-1 and UT-4 is a full implementation of the ANSI Standard X3.0-1966 language with extensions for its real-time application.

UT-3 and UT-4 DESC software includes USE, a package that emulates the data entry operations of the IBM 3741; EXUSE, which provides extended data entry and editing functions, such as prompting, mathematical operators, field totalizing, search and replacement commands, etc.; and a Unitech subset of BASIC that includes diskette I/O routines and permits user-written programs to be implemented.

Unitech software is normally provided on punched cards in hexadecimal format, whereas Data General's software is normally provided on punched tape. The Data General Computer Users' Group is also available to Unitech users as a source for a rapidly expanding library of customer-developed applications software.

### PERIPHERALS

A variety of *printers* provide the following speeds and print positions: ➤

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Print Speed	Print Positions	Printer Type
300 lpm	132/136	Chain; drum optional
600 lpm	132/136	Chain
1000 lpm	132/136	Chain
300 lpm	132	Dot matrix

A 64-character set of print symbols is standard; others are available as options.

The line printers are produced by Data Printer and Data-products, while the electrostatic printer/plotters are produced by Varian and Versatec.

Three *card readers* (Documentation) are available, which operate at speeds of 285, 600, and 1000 cards/minute. Two *card punches* provide rated speeds of 35 to 60 cards/minute (Univac) 1710 VIP) and 250 cards/minute (Univac 0604-99).

The *disk drives* are produced by Wangco, Caelus, or Diablo and use removable disk packs, similar to those of the IBM 2315, with a capacity of 2.5-, 5, or 10 million bytes.

The *diskette drive* for the UT-3 is produced by CDC and is format-compatible and interchangeable with the IBM 3741. Either 7- or 9-track industry-compatible *magnetic tape drives* can be attached to the UT-1 and UT-4. Recording densities are 200, 556, or 800 bits/inch for the 7-track units and 800 or

1600 bits/inch for the 9-track units. Tape speeds are 12.5, 25, 37.5 or 45 inches/second. The tape drives are produced by Wangco as the Model 10 series.

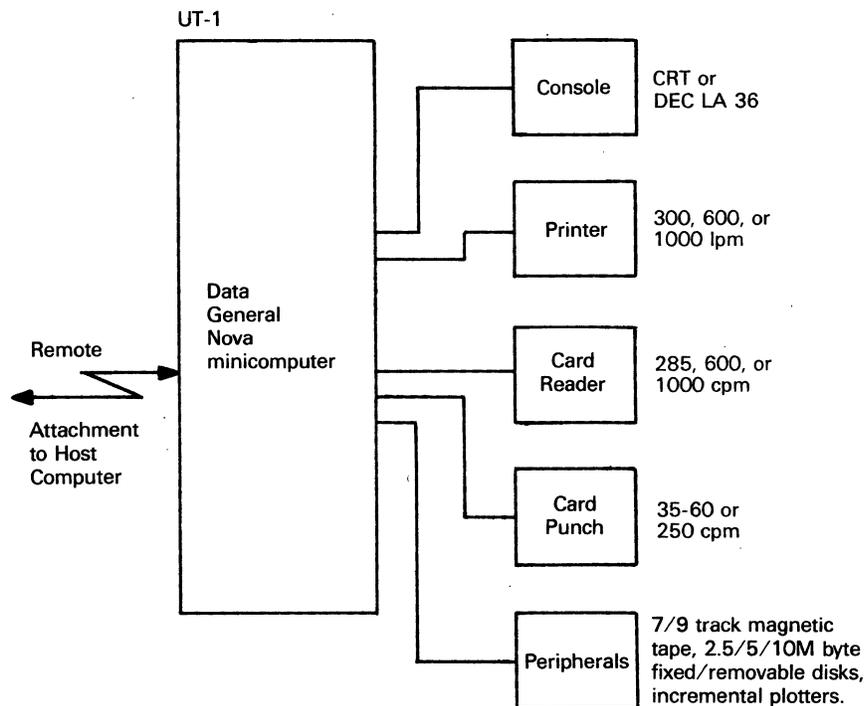
*Punched tape units* are available that will accommodate 5-, 6-, or 7-, or 8-level fanfold or reel-to-reel, paper or Mylar tape. Reader speeds are 150 or 300 characters/second. The punch operates at 75 characters/second.

A wide variety of *incremental plotters* is available, including the CalComp 500, 600, 700, 800, 900, 1051, and 103X series plotters; and the Houston Instruments Models DP-1, DP-3, DP-5, DP-7, DP-8, and DP-11. Electrostatic printers for graphic use include models produced by Varian and Versatec. Interfaces are provided for each of these units and are also available to accommodate user-supplied units.

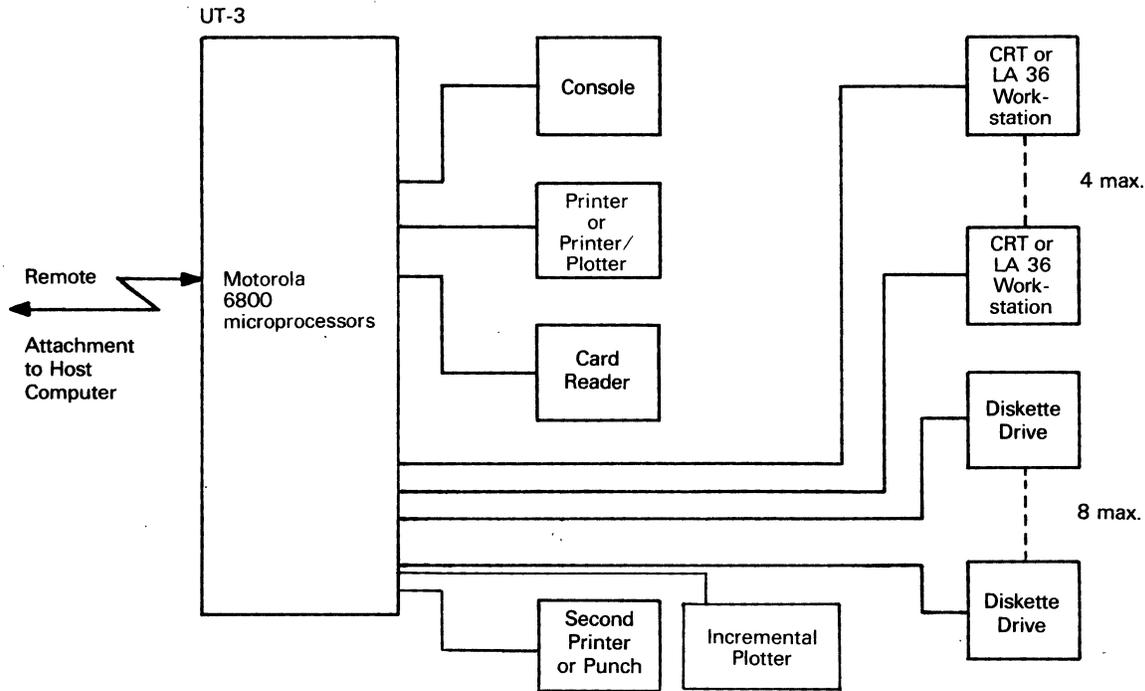
*Keyboard/display units*, produced by Radian (Model KB-1) provide a screen capacity of 1920 characters arranged in 24 lines of 80 characters each. The character set consists of 64 or 96 ASCII characters displayed in white against a dark background. Characters are formed via a 7-by-9 dot matrix.

### PRICING

Radian's Unitech terminals are available for purchase or on a two- to five-year lease that includes prime-shift maintenance. A separate maintenance contract is available for purchased units. Additional emulator programs may be rented for \$50 per month or licensed on a one-time basis for \$1,000 each.



**Radian Corporation**  
**Unitech UT Series Remote Batch Terminals**



	Monthly Rental*	Purchase	Monthly Maint.
▶ UT-1 (includes 600-cpm card reader, 600-lpm printer, CRT, synchronous communications interface, and one emulator program UT-1 Peripheral Options**—	\$1,456.55	\$39,500	\$441.50
Card Reader:			
285 cpm	-53.14	-1,650	-5.54
1000 cpm	403.29	1,600	140.99
Line Printer:			
1000-lpm chain	279.00	6,000	126.00
300-lpm chain	-181.51	-5,700	-36.16
Console teleprinter (30-cps LA 36 DECwriter II)	16.65	400	0
Card Punch Interface; for customer-supplied UNIVAC 1701/1710 VIP	110.52	3,000	34.02
Card Punch (Univac 1710 VIP)	426.22	9,415	186.16
Card Punch (Univac 0604-99)		Contact vendor	
UT-2 (includes 285-cpm card reader, 300-lpm printer, CRT, synchronous communications interface, and one emulator program	940.84	24,200	321.49
UT-3 Data Entry Station Cluster (includes one CRT workstation, two diskette drives, and a synchronous communications interface)—	552.41	13,650	189.76
Each additional CRT workstation (KB-1)	89.65	2,100	36.10
Each additional dual diskette drive	105.11	2,300	39.56
UT-2 and UT-3 Peripheral Options**—			
Teleprinter (30-cps LA 36 DECwriter II)	16.65	400	0
300-lpm dot matrix printer	-55.02	-2,000	-27.72
600-lpm chain printer	229.25	6,900	53.30
600-cpm card reader	122.91	3,500	28.16
UT-4—contact vendor for pricing.			

\*Monthly rental, including prime-shift maintenance, under a two-year lease.

\*\*Used in place of the standard peripherals; add (or subtract) the indicated prices to (or from) the standard configuration prices.■

