

TANDBERG DATA



TDV 2200



– for the requirements of the 80's.

Take: Experience in the OEM market
Add: The best of new technology
Result: Tandberg Data 2200 series

The Tandberg Data TDV 2200 is a family of Display Terminals designed for the OEM market of the 80's.

In the design concept of the TDV 2200 are provisions for:

- ★ Editing
- ★ Screen Formatting
- ★ Forms Handling
- ★ Semigraphic display
- ★ Different transmission modes
- ★ Print Handling functions

The TDV 2200 is developed by an experienced group of devoted people. The best of new technology is put to work where it serves the OEM and its user. Excellence in performance, adaptability to OEM and human design are carefully balanced with the value to the user, giving a product that is close to perfect.

Program defined performance to suit your application

Adaptability and flexibility, the key terms in terminal OEM business, are achieved through firmware stored in ROM/PROM defining the response of the terminal to a key or a line input.

Firmware control implies that the same piece of hardware in most cases can be used in several of your applications. Where you need **THREE** different terminals, use **ONE** with three different firmware chips, count your savings in flexibility and spare parts.



Expandable, but no extra for options not needed

You do not pay for optional features you do not need.

The cost of an option belongs to the option. This is an overriding philosophy.

The TDV 2200 can come with an asynchronous line interface and 2 K bytes of RAM. There is no card-cage with empty slots and connectors. Yet the TDV 2200 can be expanded in memory up to 64 K bytes

(RAM/ROM/PROM) and an additional line interface (V24 or X21) can be provided.

If you prefer to use your terminal table or an other location convenient to you, the TDV 2200 comes without the adjustable stand. You only pay for two threaded holes in the bottom plate of the terminal, since tilt, swivel and height adjustment are performed by the stand.

The terminal is the human interface to your system – often the only part the user sees

For Tandberg Data human design is a serious matter. It is considered as an important part of your (and our) success, to create a working environment where people feel well and do a good job.

People come in different sizes, a fact most terminal makers seem to reject. Tandberg Data provides an adjustable stand by which the TDV 2200 can be swivelled and tilted to cut interference from window and overhead lighting, and you can adjust the height for your viewing and sitting comfort.

The keyboard is movable, and has a low profile permitting use on standard office desks.

The large 15" diagonal screen treated to reduce reflection, shows 25 lines of 80 characters in a 9 x 14 dot cell.

By careful thermal engineering and low power consumption a cooling fan is not required. The TDV 2200 operation is completely silent.



Putting new technology to work for you

The TDV 2200 employs read only memory that the user can erase and program (EAROM). To give you the unique features: Soft switches and PUSH-keys. Infor-

mation stored in this non-volatile memory stays there for many years, regardless of power.

Soft switches define details in the operation PUSH-keys™ save time and operator mistakes

- ★ Transmission control
- ★ Modem control
- ★ Line interface baud rate
- ★ Line interface character format
- ★ Printer interface baud rate
- ★ Printer interface character format
- ★ Edit function control
- ★ Basic mode select

These operation mode details that previously were set by internal and external switches, are in the TDV 2200 stored in nonvolatile memory, and can be changed from keyboard or line (by special procedures). The savings in set-up, testing and changes are tremendous.

TDV 2200 provides 16 PUSH-button functions for user programmed strings.

PUSH, Programmable Utility for String Handling, is a unique feature of the terminals for the 80's. On TDV 2200 the user can program often used words or code sequences. Instead of typing these again and again, the operator simply touches the appropriate PUSH-key.

The keyboard of TDV 2200 has eight PUSH-keys that can be used with SHIFT to provide sixteen functions. A total of 480 characters can be programmed, divided on the 16 keys at your own convenience.

TERMINAL CHARACTERISTICS

- ★ Editing, screen formatting
- ★ Page, block or field transmission and print
- ★ Soft switches for easy set-up and test
- ★ PUSH-keys for often used words or code sequences
- ★ Semigraphic capability
- ★ Firmware controlled performance

SCREEN FEATURES

- ★ Excellent character definition
- ★ 25 x 80 characters in 9 x 14 dot cell
- ★ Upper/lower case with descenders
- ★ 15" diagonal bonded anti-reflex faceplate
- ★ Character by character display mode control
- ★ Blink, underline, inverse, invisible or combinations

KEYBOARD

- ★ Low profile
- ★ 122 keys maximum
- ★ 8 PUSH-keys for 16 functions
- ★ Non-glare keytops
- ★ Movable, with coiled flexible cable





COMPUTER

- ★ 8085 with up to 24 K bytes of PROM/ROM/RAM in basic version
- ★ Memory expansion boards

INTERFACES

- ★ V24 (RS 232-C), V11 (RS 422) and current loop
- ★ Circuits for asynchronous, synchronous and HDLC
- ★ Optional Dual Line Interface
- ★ Printer Interface

STAND

- ★ Height adjustment for viewing and sitting comfort
- ★ Swivel and tilt to cut interfering light
- ★ Cables hidden under snap-on cover

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Technical specifications

Display Characteristics

CRT:	15" diagonal with bonded anti-reflex faceplate.
Characters per line:	80.
Number of lines:	25.
Character matrix:	7 x 9 dot characters in a 9 x 14 dot cell.
Character set:	Full upper and lower case character set are available in international, German, Swedish, Norwegian and Danish versions. All standard sets contain semigraphic characters for line drawing, histograms plotting and numeric subscript/superscript. Custom character sets are also available on request.
Display modes:	The display mode can be controlled on a character-by-character basis. 16 display modes are available: Underline, blink, inverse video, low intensity. These can be combined. In addition double width-display and invisible are included.
Refresh rate:	50 Hz.
Cursor:	Underline blinking.

Keyboard Characteristics

Number of keys:	Maximum 122.
Number of codes per key:	Independent codes in NONSHIFT, SHIFT, CTRL and CTRL + SHIFT.
Interface:	Serial asynchronous communication is used between keyboard and terminal. Communication is bidirectional allowing commands to be sent to the keyboard.
Cable:	6 wire coiled flexible cable.
Indicators:	8 LEDs are available. They are all programmable to on, off or blinking.
Sound:	A bell and click transducer is included. This is controlled from the terminal.

Microcomputer

Processor:	8085.
Memory:	Basic version can have up to 24 K RAM/ROM/PROM in addition to the 2 K x 12 bit screen memory. Expansion boards of 16 K and 32 K bytes are available. 512 bytes of non-volatile memory are included for storing soft switches and PUSH-key strings.

Interfaces

Line interface:	Channel A (standard). Programmable to asynchronous, synchronous and HDLC. V24 and RS 422 are standard and current loop is available as a plug-in option. Channel B (option). Asynchronous. V24, RS 422 and current loop interface adapters are available.
Printer interface:	Serial bidirectional. Asynchronous. RS 422 is standard, current loop and V24 are available as plug-in options.

Mechanical Dimensions

Cabinet dimensions:	Width 380 mm. Height 310 mm. Depth 362 mm. Cable connectors and cables are all hidden behind covers at the rear of the terminal and the stand.
Keyboard dimensions:	Width 486 mm. Height 30 mm at middle row. Depth 235 mm. Slope 6 degrees. 4 mm stroke.
Stand:	The base is circular with diameter 340 mm. Minimum height 130 mm. Maximum height 220 mm. Maximum forward tilt 10 degrees. Maximum backward tilt 15 degrees. Maximum swivel 30 degrees both ways.

Electrical Specifications

Voltage:	220 V \pm 20%.
Current:	0.35 A (Standard version).
Safety and RFI standard:	The terminal is designed according to European safety and RFI standards.

Firmware structure

The TDV 2200 is optimized to support the OEM's requirements in the most effective way. This is reflected in the firmware structure, the documentation and the tools supplied with the TDV 2200 series.

Primitives

The primitives are a set of proven, well defined routines that serve as an interface to the hardware, thus relieving the programmer of the difficult task of understanding the fine details of the hardware. In designing the primitives we have taken into consideration both the simple and the complex operations needed in a terminal.

Tools

A special version of the TDV 2200 series is available for development purposes. This contains the primitives in ROM, a debugger, a loader that allows programs to be loaded through one of two serial interface and 32 K RAM. The combination of this and a TDV 2114 enables you to develop your firmware in the hardware environment it will finally run.

Functions

Within different terminal types, the action performed when a particular control code is received may be different. Conversely, two terminals might well have the same action, but using different control codes. From our experience, we know that many terminal implementations have a lot in common. We have created a library of functions so that already existing functions may be utilized in new implementations.

Support

If you do not want to get involved in any firmware development yourself or if you need some assistance with your own project, we have a group of skilled people that will be happy to help you.

Design discipline

A terminal is mainly an input-driven system. Control codes and control sequences which are received, lead to an action being performed for that specific code or sequence. We have designed a standard framework for linking codes and codesequences to functions, which greatly reduces required design for an implementation.



Tandberg Data A/S

It is Tandberg Data A/S' policy to improve products as new technology and components become available. About 10% of the company's turnover is used on development oriented tasks. The key words in the product philosophy are:

- ★ Excellent overall performance
- ★ Ease of operation
- ★ Reliability
- ★ Flexibility
- ★ Applicability
- ★ Strong vendor support



In production only the most up to date and efficient equipment is employed, like automated component insertion and computerized testing.

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Tandberg Data A/S

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Tandberg Data A/S reserves the right to change specifications at any time without further notice.

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