

VENTE EN FRANCE



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ITT 3210 Visual Display Unit

AC 71097

Köln 20 711

Düsseldorf

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Liefermit nach in diese Zeit

8 500 --- 10 000

Standard Telephones and Cables Limited

A British Company of ITT

The ITT 3210 VDU Data Terminal

The ITT 3210 Visual Display Unit (VDU) is a data terminal in a single desk-top unit comprising a cathode ray tube monitor screen and an operator's keyboard similar to that of a teletypewriter.

The VDU has been designed to transmit and receive data in the manner of a printer or telex machine, but is for use in data processing systems for which hard copy print-outs are not required. It incorporates control logic and a power supply unit and operates from normal A.C. mains. If required it may be used to drive extension monitors of up to 61 cm (24 in) screen size.

The unit is for such operations as program preparation, data entry and retrieval in association with computers or similar information stores. It may be used in conjunction with an acoustic coupler or with modems complying with CCITT recommendations.

The ITT 3210 is compatible with most teletypewriters and can be used to replace them in existing installations without modification to ancillary equipment or computer programs. It is ideal for use in offices, workshops, laboratories or classrooms – indeed for any environment involving the transmission and presentation of data.

The VDU is low cost, simple to operate and easy to read. Housed in an elegant white desk-mounting console it is robust and compact, the controls being preset and concealed, with the exception of the on-off switch/indicator and the brightness control which are mounted on the front of the unit for easy access. Other important advantages are silent operation, long term reliability and high transmission speed, the latter being limited only by the speed of the line to which the unit is connected, up to a maximum of

1200 bits per second.

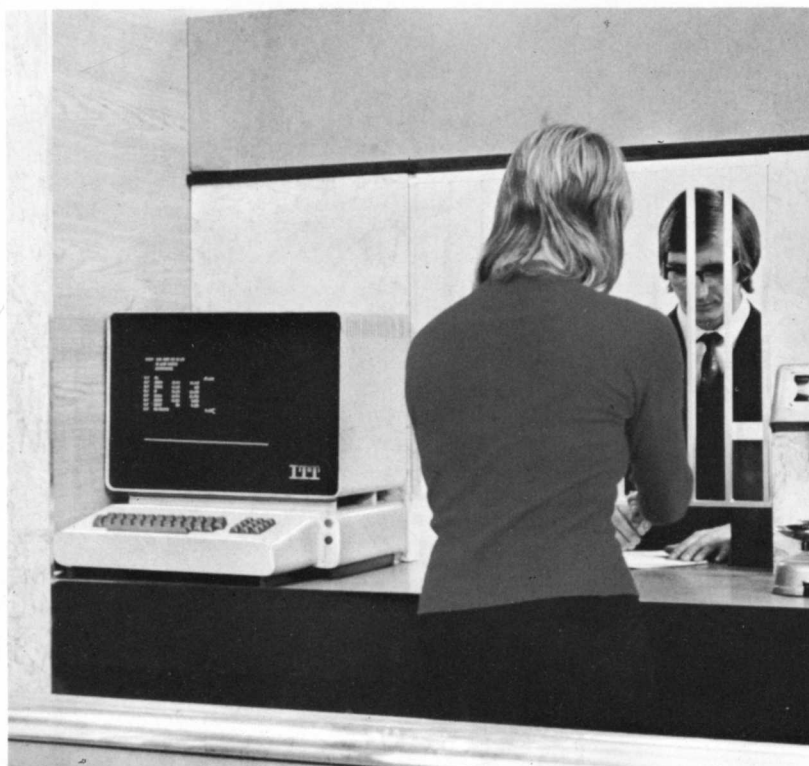
By the operation of a simple control, the unit may be set for operation in Character, Edit or Test modes.

In Character mode, each character is transmitted to line immediately it is generated on the keyboard. Operation of the VDU in Character mode is modified by selection to either Local Echoplex (Simplex) or Remote Echoplex (Duplex) working.

In Edit mode, a message keyed into the memory store is simultaneously displayed on the monitor, thus enabling the text to be read and altered if necessary prior to transmission. The VDU embodies a solid state MOS memory large enough to contain the entire display format.

The Test mode is used for systems fault location only.

For an equipment with a 'receive' facility only, the keyboard is not fitted.



Features

- Low cost.
- Silent electronic keyboard for faster data entry.
- 80 Characters of 6-18 lines on 28 cm (11 in) T.V. style screen.
- Teletypewriter compatible.
- Provision for Character, Edit or Test mode operation.
- Buffer storage for editing before transmission.
- Selective transmission in Edit mode.
- Speeds from 75 to 1200 bits per second. ● Single robust unit.
- Long term reliability minimises down-time.
- Elegant, space saving design for desk-top mounting.
- Automatic roll-up facility.
- Displays upper and lower case characters.
- High display contrast gives maximum legibility and minimum eyestrain. ● Parity checking options.
- Audio alarm at end of line.
- May be used to drive extension monitors.

- Modular construction facilitates rapid on-site repair.
- Only two front panel controls, on-off switch/indicator and brightness.
- On-line lamp indication.
- Worldwide ITT back-up services.

Display

The display is presented on a television type c.r.t. monitor screen having a viewing area of approximately 348 cm² (54 in²). The characters are clear and flicker-free with excellent legibility. A filter is embodied to improve contrast and minimise eyestrain.

The screen has 18 rows of 80 character positions providing a total of up to 1440 characters at any one time. The characters are generated by a 5 x 8 dot matrix and are refreshed at a rate of 50 or 60 times per second dependent upon the frequency of the power supply.

A comprehensive set of characters is used comprising letters, numbers and arithmetical and punctuation symbols taken from the USASCII character set.

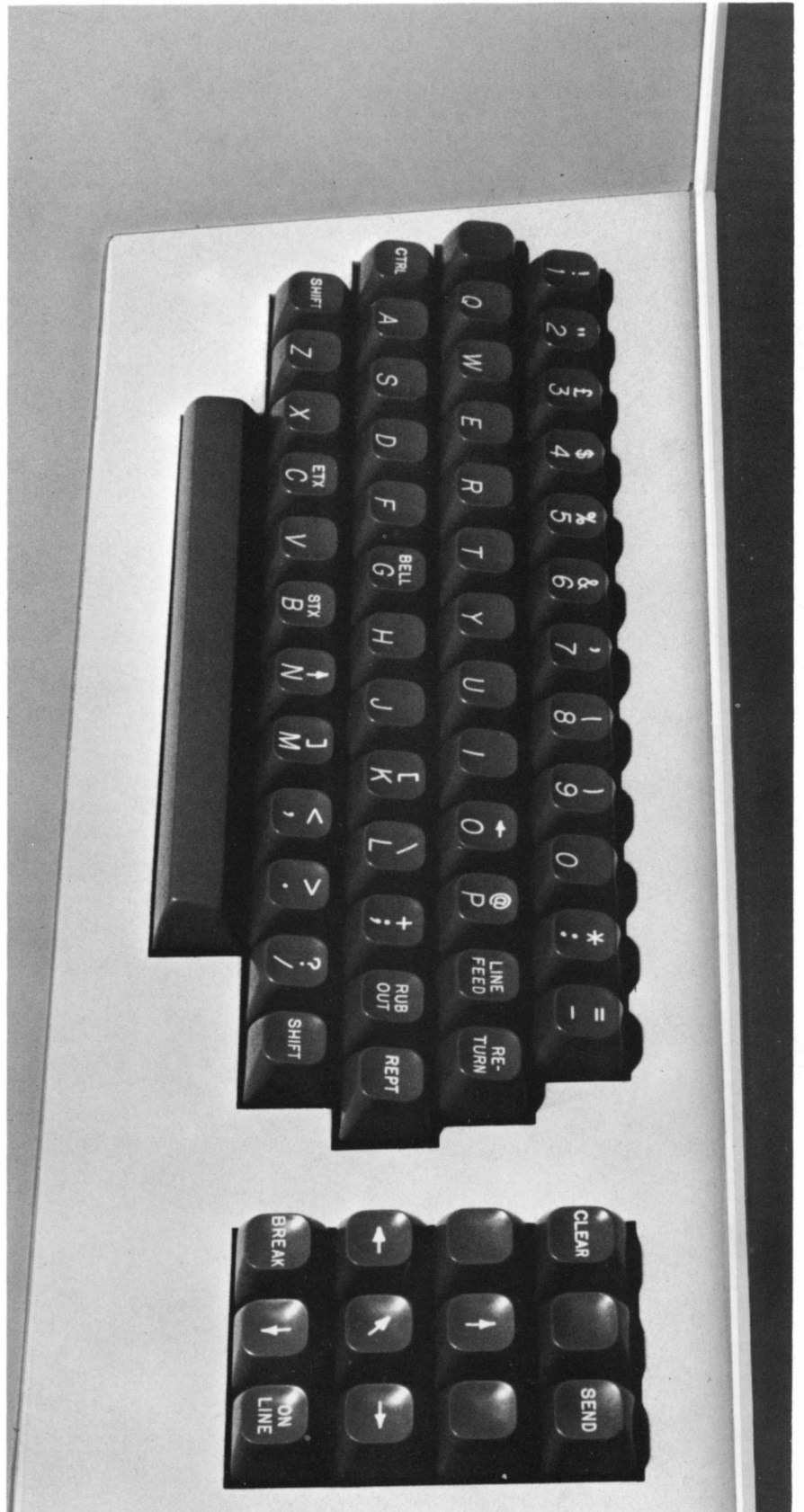
The display incorporates a continuous line denoting the lower limit of the display area and a cursor – in the form of two dashes – which indicates the position of the next character to be printed on the screen. By the operation of keyboard controls the cursor may be moved to any single character position within the display area. In normal operation both the cursor and the base line are always present on the display.

When the last line of the display scan is completed, an automatic roll-up signal causes the message to move up the display one row, losing the top row and making the bottom row available for further data. The cursor remains at the beginning of the vacant bottom line.

GOVERNMENT FINANCE		1963	1970	1971
EXPENDITURE	(£M)	7,198	14,086	15,549
OF WHICH: DEFENCE	(£M)	1,792	2,488	2,549
REVENUE	(£M)	7,288	2,488	16,932
OF WHICH: INCOME TAX	(£M)	2,745	5,728	6,433
CORPORATION TAX	(£M)	-	1,589	1,554
CUSTOMS AND EXCISE	(£M)	2,766	4,709	5,325
S.E.T. (NET)	(£M)	-	501	222
NET BORROWING (-), SURPLUS (+)	(£M)	-437	-196	-463
NATIONAL SAVINGS	(£M)	7,933	8,589	9,220

Keyboard

The keyboard consists of two groups of keys. The left hand group is the 'character keyset' and is similar to that of a teletype 33 teleprinter. The right hand group is the 'function keyset' used for cursor and VDU function control.



Character keyset

The character keyset is the standard alphanumeric teletype-writer layout producing all assigned USASCII uppercase codes plus RO (Rub Out) from the lower case set. The assignment of the key codes is shown in the keyboard illustration. Up to four assignments may be allocated per key, each assignment referring to the key conditions 'unshifted', 'shifted', 'control' and 'control and shifted'. These key conditions are selected by the SHIFT and CONTROL keys.

All upper case characters may be keyed on the standard keyboard: Upper and Lower case characters may be input from the processor.

The keyboard includes a spare key position which may be allocated to a particular character code as required. Keyboards with alternative layouts can be supplied to order.

Function keyset

The function keyset consists of a cluster of 12 keys. Five of these marked with arrows control the cursor, three are unallocated and the remaining four control the functions CLEAR, SEND, ON LINE and BREAK.

The cursor keys move the cursor in the direction shown by the arrow. The key with the diagonal arrow restores the cursor to the 'home' position, that is, the first character position at the top left hand corner of the display. Normal operation of the left or right keys moves the cursor one position in the direction indicated. Operation of the up and down keys moves the cursor up or down one line. If any of these four keys is held down the cursor will continue to move in the direction indicated approximately 9 steps per second.

The CLEAR key causes the display to be completely cleared except for the base line and the cursor which moves to the 'home' position.

The SEND key which is used only in the Edit mode causes all information between the STX (start of transmission) and ETX (end of transmission) on the display to be transmitted. The STX and ETX

symbols are input via the keyboard and bracket the data to be sent to line.

The ON LINE key connects the VDU to a telephone line which is initially established using a telephone handset. If the telephone handset is equipped with a 'data' key, the ON LINE key is not used. When connected to line the green indicator lamp on the unit front panel lights up.

The BREAK key causes the VDU to send a 'space' level, overriding any message characters which may be presented for transmission.

Local test facility

The VDU has a self test facility to check that the terminal is operating efficiently. When the mode selection switch is set to 'Test', the input and output of the system are connected via suitable built-in circuits. Keyed-in data is circulated through the logic and displayed on the screen. This procedure tests the keyboard, buffer, character generator and the monitor screen.

Communication

Modes of Operation

For Character mode working (Teletypewriter), either of two preset options can be supplied, viz:

- a) Local Echoplex (Simplex) operation, characters keyed in from the keyboard or input locally from an external source are displayed on the VDU screen and simultaneously sent to the transmit line via a modem adaptor. Data received from the line is given priority over data input locally.
- b) Remote Echoplex (Duplex) operation, characters keyed in from the keyboard or input locally from an external source are transmitted directly to line without being displayed on the monitor. Data 'echoed' back from the distant terminal on the receive line is displayed on the monitor.

In Edit mode, characters displayed on the screen may be individually selected using the cursor and changed as required. When sent to line, only the data on the screen bracketed by the Start-of-Text and End-of-Text symbols are transmitted.

Interface

The interface permits connection to any acoustic coupler or modem complying with CCITT recommendations V.21 or V.23 and having a communication interface to CCITT recommendation V.24.

The interface can be used in full or half duplex operation on private or public lines with an appropriate modem or acoustic coupler.

Data Rates

Send and Receive data rates may be set independently as follows by ITT installation staff:

- a) Send and Receive at 110 bits per second.
- b) Send at any one of following rates: 75, 150, 200, 300, 600 or 1200 bits per second.
- c) Receive at any one of the following rates: 75, 150, 200, 300, 600 or 1200 bits per second.

The unit may also be used on suitable acoustic couplers.

When used on a 600/1200 bits per second service the particular speed may be selected by a strap option.

Characters generated from the keyboard and displayed

NORMAL KEYING	+ SHIFT KEY	+ CONTROL KEY	+ SHIFT + CONTROL
1 2 3 4 5 6 7 8 9 0 : — Q W E R T Y U I O P A S D F G H J K L ; Z X C V B N M , / ▨ (RUB-OUT) SPACE	! " ' & £ \$ % & ' () * = ← @ [/ + ↑] < > ?	BELL (BLEEP) LF ␣ (SUB) ␣ (ETX) ␣ (STX) CR	not displayed DC1 ETB ENQ DC2 DC4 EM NAK HT SI DLE SOH DC3 EOT ACK BS VT FF CAN SYN SO US NUL ESC FS RS GS

Specification summary

Screen size:

11 in

Display area:

229mm x 152mm (9in x 6in)

Character generation:

5 x 8 dot matrix

Character size:

3.8mm x 2.3mm (0.15in high x 0.09 in wide)

Characters/line:

72 or 80

Number of lines:

12 (standard), 6 or 18 (optional)

Character repertoire:

64 character ASCII (lower case characters may be displayed)

Refresh rate:

50/60 frames/s

Keyboard:

Electronic QWERTY layout alpha-numeric

Cursor:

Two non-destructive bars placed centrally above and below the 5 x 8 matrix

Roll-up facility:

Cursor – Up, down, left, right, home up, clear

Controls:

Power – On/off

Data Set – On-line/off-line

Brilliance

Mode – Echoplex, edit test

Data send

Transmission:

Character by Character – full duplex

Edit mode – half duplex

I/O Data rates:

75, 110, 150, 200, 300, 600, 1200 bauds

Communications interface:

CCITT recommendation V.24

Power:

Voltages – 100-125V, 60 Hz

200-250V, 50 Hz

Consumption – 200 watts (approx.)

Environmental conditions:

Temperature 0°C – 40°C

Relative humidity – 90%

Normal office environment

Dimensions:

Overall Depth : 547mm (21.5in)

Overall Width : 450mm (17.7in)

Overall Height : 470mm (18.5in)

Finish:

Case : Newport White

Keyboard : Umber Grey

Keyboard keys : Plastic, Lavender Blue

Key engraving : White

Facts about STC/DESD & ITT

The Data Equipment and Systems Division of STC is a British associate of ITT with its Head Office at Cockfosters in Hertfordshire and a manufacturing plant at Enfield, Middlesex.

The division develops, manufactures and supplies systems and equipment for data communications and plant control. In addition to supplying the UK market it exports to many countries throughout the world.

DESD is part of the ITT Business Systems Group, a group which has been formed from local company divisions throughout Europe to build a multi-national capability. The resources and knowledge of the group are essentially built on the strong communications base of ITT's markets in Europe. This covers conventional telephone and telex communication equipment, inter-com products, data terminals and sophisticated voice/data communication systems.

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The logo for ITT, consisting of the letters 'I', 'T', and 'T' in a bold, stylized, blocky font.