

# TTX2000 TELETEXT ADAPTOR

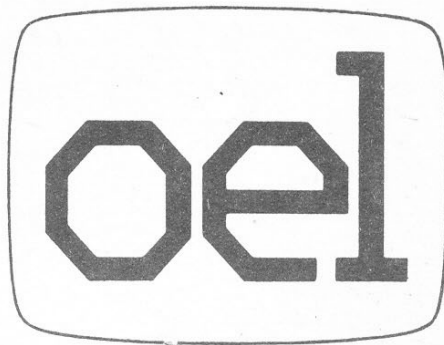
FOR

THE ZX SPECTRUM

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## USER GUIDE

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## Issue 2.0. versions of the TTX 2000

### 1. Hardware Changes

Units supplied complete with issue 2.0. software onwards (as displayed at the top right hand of the menu page) have lower power logic boards fitted. The only effect on the user is that the plug, for connecting a printer etc, no longer has any component mounted on it, and does not, therefore, get warm.

Accordingly you should ignore the reference in section 2.1 paragraph 3 to power supplies, and also ignore the final paragraph in this section (at the top of page 4).

Note that the above changes apply only to units which were supplied with issue 2.0 software. If you have fitted this yourself as a replacement ROM, or sent your adaptor back for upgrading you will still require the small printed circuit board as originally supplied.

### 2. Software Changes

As mentioned above the software issue number is displayed at the top right hand of the menu page (see section 2.2, Fig 2). Issue 2.0 has an extra option, 'T' for telesoftware.

## Telesoftware Downloading with the TTX 2000

### Introduction

The downloader to be supplied currently is designed to accept telesoftware broadcasts from the BBC.

The downloader, with full instructions, will be supplied on cassette (transferable to microdrive).

# **TTX 2000 – TELETEXT ADAPTOR FOR THE SINCLAIR SPECTRUM**

## **USER GUIDE**

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## 1.0 INTRODUCTION

- 1.1 Your TTX 2000 Teletext Adaptor gives you access to broadcast Teletext services within the U.K. It consists of the adaptor unit, which fits neatly beneath your Spectrum, and a separate power supply which provides 18V for the tuner inside the adaptor.  
  
\* NOTE The power supply output should ONLY be plugged into the TTX 2000. Under no circumstances plug this lead into your Spectrum as damage will result.
- 1.2 Always make sure that the Spectrum and TTX 2000 are not switched on when connecting them together, and always switch off before adding or removing a printer or other peripheral.
- 1.3 The TTX 2000 contains PROM-based software which 'takes over' from the BASIC ROM inside your Spectrum when the combination is switched on. The adaptor will thereby generate the first display page itself; subsequent display of Teletext information requires the TTX 2000 to be correctly set up and tuned into an off-air Teletext broadcast (see 2.0).
- 1.4 For satisfactory Teletext reception, you must have a good aerial installation giving clean, ghost-free normal television reception. If poor results are obtained, this is the first area to investigate.

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If you believe the TTX 2000 is faulty because certain rows of characters are 'missing' from the display, or wrong pages sometimes appear, it is most likely that the fault is with the quality and strength of aerial signal you have plugged into it, not the unit itself.

If difficulty is experienced in this area, we strongly suggest you contact a local T.V aerial supplier, to check the signal and renew the aerial installation if necessary.

Typical faults are:-

- a) download badly connected, e.g. not soldered to plug.
- b) aerial pointing in the wrong direction or broken.
- c) loft aerial used when roof aerial is essential.

## 2.0 SETTING UP

- 2.1 Place the TTX 2000 beneath your Spectrum Computer and interconnect the two using the ribbon connector supplied \* (see Fig. 1). If you wish to use microdrives, also plug in 'interface 1' in the normal manner, with the TTX 2000 underneath.

If you have a printer, connect this to the free end of the ribbon by means of the plug strip provided. Connect your UHF TV Aerial outlet to the coaxial socket marked AE at the back of the TTX 2000, and connect the TV socket at the back of your Spectrum to the AERIAL socket on your TV set.

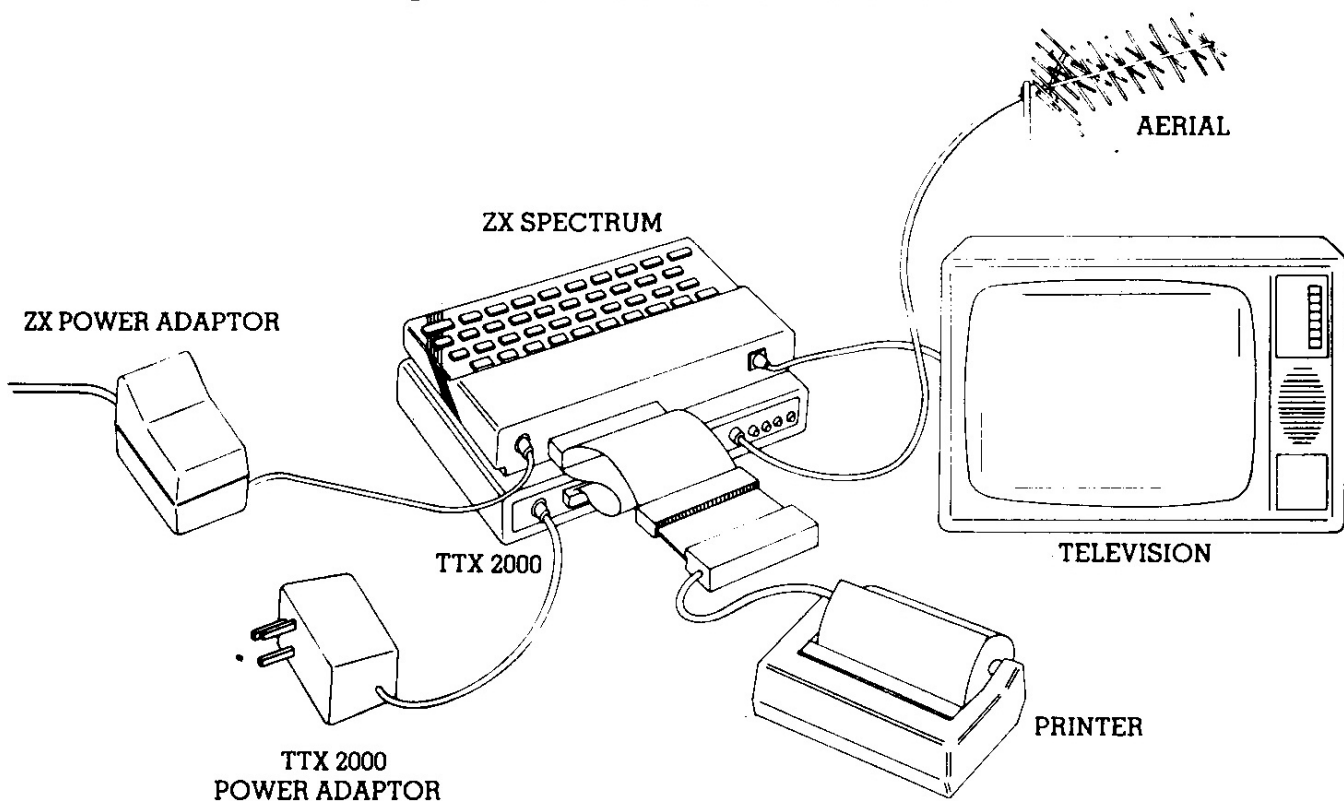
Connect the OEL TTX 2000 power supply lead into the 18V socket on the TTX 2000 rear panel (see Fig. 1).

Connect the Sinclair ZX power supply unit to your Spectrum in the usual manner. When using printer and microdrives, the standard ZX power supply is inadequate and should be replaced by a 1.7A unit.

**NOTE—YOU MUST ENSURE ADEQUATE VENTILATION OF THE TTX 2000. DO NOT OPERATE THE UNIT ON A CARPET OR DIRECTLY ABOVE ANY SOURCE OF HEAT.**

You are now ready to start receiving Teletext.

Fig. 1 LAYOUT OF PERIPHERALS

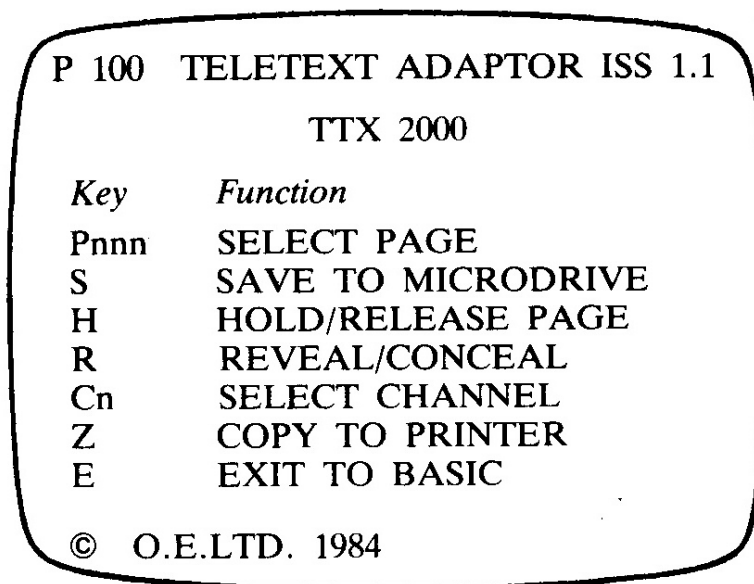


\* A small printed circuit board is provided to convert the 'free end' of the ribbon connector into a plug resembling the expansion port at the rear of the Spectrum. It is into this plug that a printer can be connected (those users already having a PRISM VTX 5000 will be familiar with this arrangement).

This special printed circuit board has a component fitted which gets warm in normal use. This is not a fault condition. Because of the extra power now connected, this special board must **ONLY** be fitted with the TTX 2000/Spectrum combination and must not be used with the PRISM VTX 5000, or the Spectrum and other peripherals alone.

- 2.2 Switch on the Spectrum, TTX 2000, and TV set. The menu page should appear almost immediately.

Fig. 2 TTX 2000 MAIN MENU



P 100 TELETEXT ADAPTOR ISS 1.1	
TTX 2000	
<i>Key</i>	<i>Function</i>
Pnnn	SELECT PAGE
S	SAVE TO MICRODRIVE
H	HOLD/RELEASE PAGE
R	REVEAL/CONCEAL
Cn	SELECT CHANNEL
Z	COPY TO PRINTER
E	EXIT TO BASIC
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Press ENTER when you have read the menu. Depending on the settings of the tuning controls, the top row of the screen (henceforth called the 'header') may display changing characters (probably nonsense). The first task then, is to tune the four preset controls on the TTX 2000 (marked 1 to 4) to your local TV channels. We suggest you assign the channels as follows:-

Channel 1 – BBC 1

Channel 2 – BBC 2

Channel 3 – IBA (ITV)

Channel 4 – IBA (CH4)

- 2.3 Press key C on the Spectrum Keyboard. This switches off the AFC (Automatic Frequency Control) inside the TTX 2000, making tuning easier. Turn Preset 1 fully anticlockwise until a faint clicking is heard; this means the control is at one extreme. Now **SLOWLY** turn the control clockwise whilst observing the header (see 2.2) until the word CEEFAX and page number, mainly in the range 100–199 appear. Tuning will be quite critical, and may be assumed to be correct when the right-hand portion of the header displays a continuously updated time of day. Press key 1 to restore AFC.

By now the CEEFAX page 100 may well have appeared since the TTX 2000 assumes that you have asked for page 100, in the absence of information to the contrary.

2.4 Press C, then 2, then C again.

This selects channel 2 then switches the AFC off again. Proceed in a similar manner to 2.3 but using preset 2. The header will now show page numbers in the region 200–299 for CEEFAX on BBC 2. When you have correctly tuned into the station, press 2 to restore AFC.

2.5 Press C, then 3, then C.

Follow the tuning procedure, with which you will be becoming familiar, to get ORACLE on ITV. Press 3 to restore AFC.

2.6 Press C, then 4, then C.

Adjust preset 4 for ORACLE on Channel 4 (sometimes called 4–Tel). Press 4 to finish.

You are now able to select channels at will and select pages as required; these and other functions will now be described.

## 3.0 KEY FUNCTIONS

### 3.1 C n

Selects channel 'n'. n must be 1,2,3 or 4.

Keying C alone disables AFC to allow finer tuning.

### 3.2 E

Exits to BASIC.

To return to the menu page (Fig. 2) and hence normal operation, key OUT 127,0.

### 3.3 H

Holds existing page on screen. Useful if the page is one of a group of 'rotating' (changing) pages, such as horoscopes or recipes which you want to read at your leisure. To return to normal operation press H again. While a page is held, the top left of the screen displays 'HOLD'.

### 3.4 P

Select the following page (3 digits)

Pages 0nn and 9nn are invalid and will never occur, that is to say, valid pages are in the range 100–899. If you enter a digit by mistake, complete the 3 digits, then press P followed by the correct page number required.

### 3.5 R

Reveal a concealed piece of text (eg. the answers to a quiz).

To conceal the result press R again.

### 3.6 S

Save the current display page to microdrive. The screen will go blank, except for the prompt 'pagename?'. Enter up to ten characters (for page identification) then press return. This name will appear on the microdrive catalogue.

See Appendix 4.4 to view stored frames.

### 3.7 Z

Copy the current display page to printer. Useful for, amongst other things, a record of the TV programmes to be shown later on in the day. If Z is pressed while the MENU is displayed, the printer will copy this. You may find this a useful summary of commands.

### 3.8 B

Brighten the display. Useful on certain TV's to enhance the picture clarity.



## 4.0 APPENDIX

- 4.1 The Teletext broadcasting system operated in the U.K. by the BBC and IBA uses some of the hitherto unused lines during the field blanking interval as Data lines, which may be decoded by suitable receiving apparatus to produce Teletext pages. The format of these is in fact identical to Prestel pages (40 columns  $\times$  24 rows).
- 4.2 Users of the PRISM VTX 5000 Prestel adaptor (also manufactured by OEL) should disconnect this unit before using the TTX 2000. The two units cannot be used simultaneously.
- 4.3 The TTX 2000 is designed to comply, as far as practicable, within the limits imposed by the Sinclair Spectrum, to the Broadcast Teletext Specification dated September 1976, published jointly by the BBC, IBA and BREMA. However, in practical terms, the presence of Data lines higher than line 19 (or 332 for the next field) is unlikely and so the TTX 2000 does not attempt to look for them.

Users wishing to use the TTX 2000 on private cable systems having 16 lines should contact OEL directly.

- 4.4 Viewing of stored frames may be accomplished, with or without the TTX 2000 connected, from BASIC. Frames are stored as a copy of the screen memory area.

*Key:*

BORDER 0:LOAD\*“M”;1;“pagename” CODE: PAUSE 0  
then ENTER. The frame called “pagename” will be displayed.

- 4.5 To print a copy of a stored frame,

*Key:*

BORDER 0:LOAD\*“M”;1;“pagename” CODE: COPY:PAUSE 0  
then ENTER. (again from BASIC).

In either case press ENTER a second time to return to BASIC command mode, and OUT 127,0 to return to the MENU (Fig. 2).



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