TTX 2000A TELETEXT/TELESOFTWARE ADAPTOR FOR AMSTRAD MICROCOMPUTERS
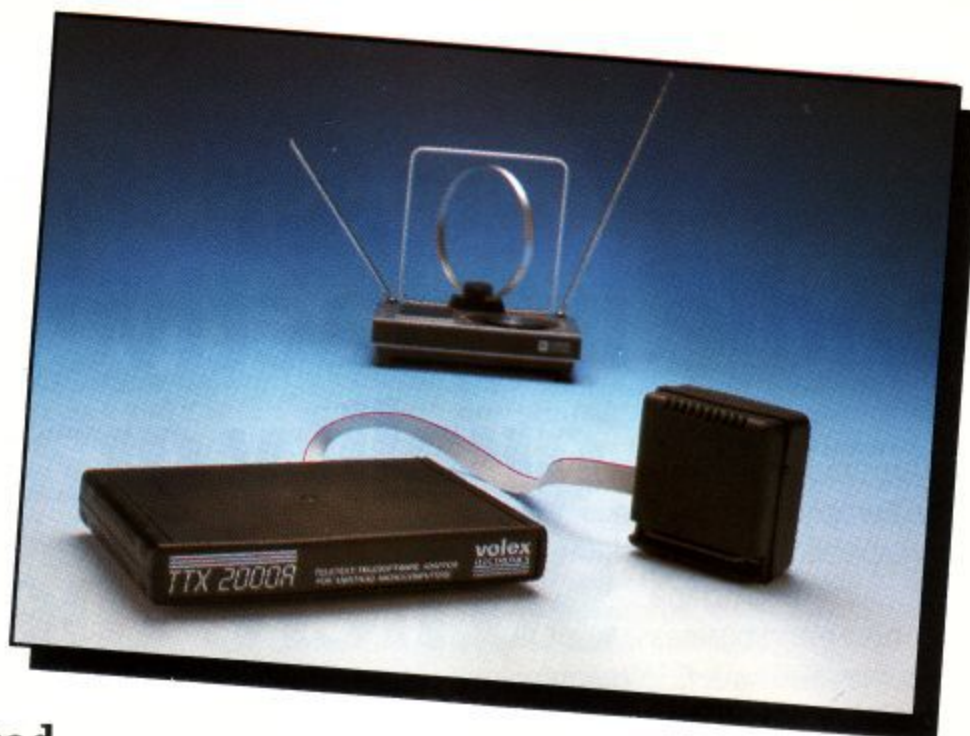
volex ELECTRONICS

VOLEX TTX 2000a

A friend of Arnold takes a close look at the device which allows you to twin your Amstrad into a Teletext receiver

"Yes, very nice dear, but what is it for?" must be one of those questions asked by generations of mothers as their sons wheel out their latest pride and joy. OK Arnold, what are you for? Well, in common with BBC TV and 'Trivial Pursuit' it could be said that personal computers were to inform and entertain.

Just as important, however, is their ability to provide the fundamental (I was trying not to say basic) computing engine for a wide range of domestic applications. In other words, its a bit like a food mixer, whose attachments turn it into a liquidiser or coffee grinder. Not usually as good or as convenient as the dedicated liquidiser or coffeee grinder, but nevertheless cheaper.

So what attachments are there for the home computer? Word processing is a typical and very popular software accessory, but there are also hardware accessories such as Prestel and Teletext. In these cases my theory is that if you already own the home computer it should be better to buy the add-on. Where computers have the edge on food mixers is that the result may also be more powerful and flexible (and even more available) than the dedicated machine. Prestel adapters made up of modems and interfaces obey these rules, but how does the Volex Teletext adapter stand up?

First impressions are important. Mine was that whatever my £150 was paying for it certainly wasn't the packaging. The adapter consists of a power supply, tuner, interface and user guide brown-sticky-taped into a motley collection of cardboard boxes probably intended for something slightly different. The plastic boxes, particularly the vacuum-formed case for the interface and the various stick-on labels, had an unmistakable home-made atmosphere, despite the construction of the printed circuit boards inside being a work of art.

Documentation

The 25 page user guide (a better choice of language in the circumstances than manual) is photocopied single-sided onto A5 paper and has to be taken from its very stiff binding before it can be used properly, at which point the lack of page numbers is a worry. There is also a single sheet containing fault-finding instructions for all the models in the range, BBC, Spectrum and Amstrad.

18 volts AC is supplied from the power supply which is moulded into a mains plug. The plug would fit into the power socket on the computer, with potentially disastrous results, although the Amstrad complete system approach makes this less likely than with computers which use an external power supply.

The tuner, which has no front panel controls or lights, not even an "on" indication, is in many ways analogous to a modem. A thin ribbon cable leads to the interface which then fits on to the computer's expansion interface. A clear diagram shows how it all fits together, including a note on how to fit a DDI-1 interface for those 464 owners. So far, none of the common problems here with the electrical arrangements for daisy chained add-ons. It's a shame though that it all flaps around so much on the back of a 464.

Explicit instruction is given on how to tune in the receiver, which has to be fed with a good quality signal from a suitable VHF antenna. The four tuning presets have knurled knobs, but you need to use a screwdriver as they do not protrude far enough out from the case to enable them to be turned by hand. Despite being able to turn off the automatic frequency control during the tuning process, there is no tuning indication.

Some sort of channel indicator would be nice and remove much of the guesswork, but the lack of "left/right" tuning lamps makes the whole chore most frustrating. An annoying little transformer inside the tuner reminds you that Snow White's Seven Dwarves do not have a monopoly on 'Whistling while they work'.

Meanwhile . . . back at the antenna. One of the reasons for buying the TTX 2000 rather than spending the extra on a teletext TV is so that you can watch a program from one channel at the same time as teletext on another. This is becoming increasingly important as each channel becomes more specialised in the information available.

The TTX 2000 has no 'UHF out' connection, so its down to the DIY superstore for an aerial splitter. Wrong again! Not enough signal left for either the TV or the teletext tuner to work properly, so its down to the DIY superstore again, this time for an aerial amplifier (muttering darkly that its probably cheaper than a new aerial anyway).

In use

The adapter has two fundamental modes of operation, as either a "terminal", much like a normal remote-control teletext TV, or as an "application" with all the functions programmed by external (bar) commands. Terminal mode is simplicity itself, with keyboard commands for familiar operations such as change channel, select page, hold and

reveal, plus extra facilities for saving pages to disc, tape or dumping to printer.

There is not enough room for tape prompts or disc error messages on the bottom line, so a little imagination (or a qualification in speed reading) is required. Screens, it says, are saved as 1,000 bytes, which takes up 2k of disc space under AmsDOS once the header has been constructed.

The display can be either Mode 1 with a restricted range of colours or can be seen in its full glory in Mode 0. In both modes it was accurate with full marks for readability; no problems here. There is no support however, for the "Update" feature very useful in spotting when a page such as the news headlines which is updated sporadically has changed and requires your renewed attention. When transmission errors occur the TTX 2000 has a tendency to clear the screen slightly more often than displaying corrupted data.

Mention is made in the user guide of sub-pages the individual frames making up a series of different screens with the same page number. The mechanism for accessing a particular sub-page was, it says, originally intended for time-controlled pages and it gives an example of using the alarm clock page on Ceefax. This worked, but even after considerable experimentation no control could be gained over "real" sub-pages, nor was any explanation given of how to attempt to do this. A warning states that only the BBC use sub-codes.

The implementation of wild cards in the page number, however, worked well. Setting the page to *** results in a continuous display of different pages, being refreshed every few seconds at the normal screen-update speed – a little like flicking through a magazine.

Application mode involves the skilful use of a number of external commands. Here the user guide falls down badly. Important commands are simply skipped over. For example, 11 words and a couple of incomplete examples in an appendix describe the |PAGE (page number) command around which most of the operation of the adapter hinges.

The operation of the adapter can be either in Direct mode, typing each command in turn, or from within a program, as follows. A 'selected' page is dumped into memory, from where it can be either displayed, stored or printed. First move HIMEM down out of the way, then choose Mode 0 or 1. The display adapts accordingly. Turn on applications mode with a |APPON. (The ROM also contains a |APPOFF command, but there are no clues as to if and when we should use it.)

Choose an area of RAM (1280 bytes) to store the page, informing the VTX 2000 with a |TRANSFER,[address] command. This command is unfortunately omitted from all but two of the worked examples, despite a warning that it should always precede a |PAGE command. Select the channel with a |CHANNEL,[n] command, remembering that although the Terminal mode calls the channels 1 to 4, (channel 4 = Channel 4 – get it?), the applications mode requires a parameter in the range 0 to 3. A byte or two of code inside the |CHANNEL command seems far too obvious a way to avoid this particular finger trouble (you just can't get ha'porths of tar these days!)

Software control

I could write a book about the |PAGE command. What a pity Volex haven't. Experiments indicate that the command initially clears the transfer buffer, and unlike a page selection in terminal mode, only grabs that page the first time it appears. What's more there is absolutely no way suggested of finding out if the page has arrived yet (the example programs simply wait for 30 seconds).

Obvious-looking programs made of |PAGE and |DISPLAY commands in small loops never worked. The |PAGE command returns control at once, and the mechanism, hard or soft interrupt or whatever, that controls the acquisition when the relevant page comes round is not described.

When the page has arrived it is sent to the screen (this time 960 bytes) with a |DISPLAY [address] command. All this means that it is very difficult to show a set of rolling pages or select a single sub-page. The best I could manage was to |PAGE, then sit in a loop staring at the point early on in the transfer buffer where the page number from the top line will appear, then if required check within the body of the buffer for the characters, for example "3/10" proclaiming the required sub-page, then |DISPLAY the page after a necessary (why?) short delay.

In this way I was able to write a program to find the Amstrad share price. Channel 4 (sorry, channel 3), Page 501, sub-page 3/10, bytes 496,7 and 8 at the time of writing. Beware, the bytes often have 128 added to the Ascii expected. Normal binary Save and Load commands can be used to swap pages from tape or disc and the transfer buffer and, with the possible use of multiple transfer buffers, can help create some really fancy effects.

One final point, |PAGE takes the page number as a text string and for this and all the other commands requiring text parameters the user guide assumes a 1.1 firmware ROM. Thus if you have a 464, for |PAGE,"501" read p$="501": |PAGE,@p$ etc, throughout the user guide. Two commands allow you to read back the page and channel settings, just in case you forgot. Now, if the |RD,PAGE only returned the page number and sub-code after the requested page had been received . . .

The adapter initialises, with no sign-on message, as ROM 5 (and 8 thro' 15 tut, tut!) grabbing just over 1,000 bytes of RAM. Tinkering with HIMEM is needed to find space for the transfer buffer and enough of the functions require memory in the absolute address range &8000 to &9000 for you to need to check that this will not clash with the memory requirements of other add-ons and RSXs or your Basic programs.

If you have a Maxam ROM Amstrad serial interface or other means to perform a ROM catalogue you will discover the command |HELP, which catalogues the TTX 2000 ROM. Typing |HELP then leads to speculation as to what the mysterious |HON, |HOFF and |HAMMING commands do, what their parameters are for, and how you use them (hamming is the error detecting and correction scheme used by Teletext).

Included are a number of commands for telesoftware and text downloading both in terminal and applications mode. Unfortunately I was unable to keep the dreaded CRC errors at bay long enough to confirm the operation of any of these. Maybe I do need the new aerial.

Conclusion

So is it all worth it? Is it a worthy component for our computerised home information and entertainment centre? I think telesoftware is over-rated, and Prestel is a more suitable medium at the moment. But as a telly and teletext addict I need this adapter. I can read in a selection of pages, on more than one channel, and in effect make my 'own' teletext service full of the information I require. I can even make completely new pages composed from titbits taken from here and there. (Can anyone advise on the copyright situation?). I can watch Terry Wogan while reading the film reviews on Channel 4. I can store all the share prices on disc, giving a more 'random' access the possibility of storing historical information on selected companies.

The price? The niggles? Well, it works, and as far as I know is the only model available for the Amstrad. In applications mode, it is not for the faint-hearted and if you only require the terminal mode then a teletext TV may be more practical and give a clearer picture, albeit from the same channel as the programme you are watching.