

**TeleText**

<b>COLLABORATORS</b>
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	<i>TITLE :</i> TeleText		
<i>ACTION</i>	<i>NAME</i>	<i>DATE</i>	<i>SIGNATURE</i>
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# Chapter 1

# TeleText

## 1.1 TeleText Documentation

TeleText V1.20 (29.12.1993)

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Documentation

Disclaimer  
Preface  
System Requirements  
Hardware  
Assembling  
Installation  
Software  
Acknowledgements  
Planned future enhancements  
How to reach the author  
Version information  
List of components  
Registration  
PCB Service

## 1.2 Preface

This project makes it possible to view Teletext (also know as Teletekst, Videotext, Ceefax, Skytext, Supertext etc.) on your Amiga. It is suitable for any PAL Amiga (read System requirements for more info, because it uses the parallel port to interface with the hardware. An electronic switch is provided to easily switch between the TeleText decoder and a printer.

The project consists of a small piece of hardware and some software.

The software is Shareware. This means that if you use to program longer than 3 weeks, you have to register or stop using it. Also all commercial use of the program without permission of the author (Jan Leuverink) is prohibited. The program may be freely distributed, and

a fee, covering the costs of distributing it, may be asked for.  
This fee, however, may not exceed US\$ 5,- or equivalent in your local money.

Read the Registration section for more information  
on how to register.

Some features will one be available to registered users.

Some features:

- fully localized  
languages currently supported: english, nederlands, deutsch, dansk,  
italiano and français
- needs KS2.04 or higher and a PAL Amiga to run
- can hold up to 4 teletext-pages, each page can contain a maximum  
of 50 subpages
- saves pages in IFF, ASCII, ANSI and its own TT format
- loads pages in TT format
- Arexx port (see Arexx.guide)
- uses regtools.library (included in archive) for requesters
- the hardware needs a PAL-encoded CVBS-videosignal containing  
teletext-information  
(can be obtained from the SCART/AV connector of a TV/VCR)

The PAL-system is used in the following countries:

Australia, Austria, Belgium, China, Denmark, Finland, Germany, Great  
Britain, Holland, Hong Kong, Italy, Kuwait, Malaysia, New Zealand,  
Norway, Portugal, Singapore, Spain, Sweden, Switzerland, Thailand,  
etc.

## 1.3 System requirements

Commodore Amiga (should work on any PAL Amiga)

(the program needs a 640x256 Hires screen, so you cannot use it on  
a NTSC Amiga)

Kickstart 2.04 or higher.

Workbench 2.0 or higher

Approximately 200kb of free memory (incl. 80k CHIP mem, without ViewScreen)

The software was tested on:

A500, A500/68030 accelerator, A2000, A4000/030 and A4000/040

Workbench 2.0, 2.1 and 3.0

Kickstart 2.04 and 3.0

This project was developed on:

A500 with KickStart 2.04 and 1MB Chip-RAM

A590 harddrive (20MB XT) + 2MB Fast-RAM

Yes, I know, it's sad.... ;-))

## 1.4 Disclaimer

Although this project was thoroughly tested on my Amiga 500, I cannot be  
held responsible for any damages caused by using/building this project.

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If you damage your Amiga, or have other problems, they're your problems. I may be able to offer some advice for your problems, but cannot 'repair' your board/Amiga. If you do not have any soldering-experience, don't even get started.

While every effort has been made to make these instructions as accurate and complete as possible, I (Jan Leuvenink) do not accept any responsibility arising from any inaccuracies contained herein.

## 1.5 Hardware

How it works:

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The hardware consists of two functional parts:

- CCT decoder (Schematic1.iff)
- I2C interface (Schematic2.iff)

The CCT decoder is a standard application of the single-chip decoder SAA5246 (made by Philips ®). The RAM-chip (U2, 6264-120ns) is used to store up to 8 teletext pages. The oscillator-circuit needs some extra attention. This circuit differs for the 2 types of SAA5246 chips. When using a SAA5246P/x (where x can be E,H,T,J,K,L,R,I or S) the circuit can be built as drawn. When a SAA5246AP/x is used (newer version), the alternative oscillator-circuit (as shown in the blue box) should be used. The PCB-design can handle both.

The SAA5246 chip is controlled by a I2C bus. This is a serial bus, that allows several standard chips to be connected. Example chips are: a 8-bit bi-directional IO-port, a real-time clock, a 8-bit AD/DA converter, EEPROM memory etc. The I2C bus uses a clock-line (SCL) and a data-line (SDA). The I2C standard also defines an interrupt-line, which is not implemented, because very few I2C-chips actually use it.

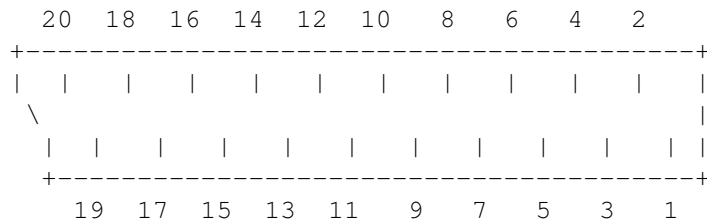
SW1 switches between the TeleText hardware and a printer. When SW1 is closed the printer (or any other parallel device that is connected at J1) is selected. When SW1 is open (as drawn) the TeleText hardware is active. Switching is done by a triple 2 channel analog multiplexer/demultiplexer, type 74HC(T)4053. It is absolutely essential that you use a HC or HCT version of the 4053. This is due to the high "ON" resistance of the normal CMOS types (250 ohm against 70 ohm at 5V supply voltage).

The only extra thing needed to get started is a CBVS (in Germany FBAS) videosegment containing teletext-information. Such a signal can be obtained from the SCART-connector of a TV/VCR etc. This signal must be connected to J3/J4.

Note that the fact whether or not the CVBS-signal contains TeleText information, has nothing to do with the TV/VCR being capable of displaying TeleText. It purely depends on the broadcast-station that is tuned in on.

Also note that previously recorded tapes do no longer contain TeleText information. An exception is made by the S-VHS and Hi-8 systems, which do record the TeleText information.

Solder-side of SCART-plug (male):



Videoground: pin 17

CVBS out : pin 19

See VideoCable.iff for information on how the cable should be connected.

Some sets have a special AV-output, which delivers a CVBS signal.  
Check your manual to find out.

Note that this CVBS signal has to be a PAL-encoded one !  
NTSC or SECAM will not work.

The PAL-system is used in the following countries:  
Australia, Austria, Belgium, China, Denmark, Finland, Germany, Great  
Britain, Holland, Hong Kong, Italy, Kuwait, Malaysia, New Zealand,  
Norway, Portugal, Singapore, Spain, Sweden, Switzerland, Thailand, etc.

## 1.6 Assembling

Building the TeleText hardware is a pretty straight forward job.  
I've included two HPGL plotter-files (TeleText/HPGL/Layout100.Hpgl and  
TeleText/HPGL/Layout200.Hpgl) of the PCB-layout (PCB=Printed Circuit  
Board). This file was created using a PCB-design package, plotting to a  
file at respectively 100% and 200%.  
The 100% is handy for people who can use a photoplotter to get a  
negative/positive for making the PCB.  
The 200% is handy for printing/plotting on paper and then use photo-  
technics to make a 100% negative/positive.  
You may try to make a 100% plot directly on paper, but I doubt it will  
work. (traces will probably overlap).  
The size of a 100% plot should be 80 x 96.5 mm and 160 x 193 mm for a 200%  
plot. I guess these files are only useful when using photo-technics for  
PCB-production.

The circuit isn't that big, so it should be easy to build on a  
prototype board. It took me about three hours to build  
my prototype (using an epoxy PCB board, with 3 holes/pad) and it  
worked at once !

You can also get PCB's directly from me.  
These are epoxy boards, drilled and the traces are tinned (?, I do not  
know the exact english word for it, but what I mean is that the traces  
are covered with tin to protect them, and make soldering a lot easier).  
See the PCB Service section for information about  
how to order, prices etc.

Note that the oscillator-circuit is different for the SAA5246P and the SAA5246AP, so check what type of decoder-chip you have !  
The PCB design can handle both, check the componentlist and the Assembly section to see which components should be installed.

(If you have already build the 'old' V1.10 board, check the last part of this section ("Adjusting your V1.10 board") to see how you can upgrade it.)

You need the following tools:

1. A small (15-25 Watt) soldering pencil
2. Good electronic quality 60/40 alloy rosin core solder
3. small needle-nose pliers
4. small diagonal cutters
5. wire stripper

Some general hints:

- use a few solder as possible
- be carefull not to overheat the components/solder-pads
- keep the soldering pencil tip clean and well tinned
- the components are intended to be inserted into the side of the printed circuit board that does not contain copper traces (called the component side)
- Integrated circuits, diodes, electrolytic capacitors, transistors and the voltage regulator can only be placed in one orientation, so read the description carefully.
- I strongly recommend that you place the integrated circuits in sockets. Do not use the low-cost types, it is better to spend a little more on quality sockets.
- Before placing the ic's in the sockets, carefully bend the pins to an approximately 90 degree angle. This can best be done by the use of a pin straightener. Alternatively you can use the small needlenose pliers for this job, be carefull to bend only one pin at a time. This in order to avoid electrical discharge, which may destroy the IC.

Start assembly

=====

For both types of U1 (SAA5246AP and SAA5246P):

- [ ] solder the 48 pin socket at U1
- [ ] solder the 28 pin socket at U2
- [ ] solder the 16 pin socket at U3
- [ ] solder the wire above R5
- [ ] solder R1 and R5, the 10k resistors
- [ ] solder R2, the 10 ohm resistor
- [ ] solder R3, the 27k resistor
- [ ] solder R6, the 4k7 resistor
- [ ] solder D1, the 1N4001 diode

Note that the cathode of D1 is marked by a white stripe on one side of the black body. This side should point towards U3.

- [ ] solder U4, the 7805 voltage regulator

The 'metal side' of U4 should face R3, the black body with the text on it should point towards U3.

- [ ] solder T1, the BC547 transistor
-

The shape of the transistor should match the shape of T1 in the picture Componentside.iff. So the round side towards U1, and the flat side towards R5.

- [ ] solder C5, C6, C7 and C9, the 100nF capacitors
- [ ] solder C8, the 10 $\mu$ F / 16V radial electrolytic capacitor  
The negative wire (mostly marked with a - (minus) sign) should point towards the edge of the board.  
The positive wire (mostly not marked) should point towards C2.

For SAA5246AP only:

- [ ] solder X2, the 27MHz crystal
- [ ] solder a wire for X1 (thus connecting the 2 pads for X1)
- [ ] solder R7, the 3k3 resistor
- [ ] solder C2, the 10pF capacitor
- [ ] solder C10, the 15pF capacitor
- [ ] solder C11, the 1nF capacitor
- [ ] solder L1, the 4 $\mu$ H coil (watch out: it looks like a resistor)

For SAA5246P only:

- [ ] solder X1, the 27MHz crystal
- [ ] solder a wire for X2 (thus connecting the 2 pads for X2)
- [ ] solder C2, the 22pF capacitor
- [ ] solder C1, the 22pF capacitor
- [ ] solder C3, the 22pF capacitor
- [ ] solder L1, the 3 $\mu$ H coil (watch out: it looks like a resistor)

For both:

- [ ] solder all soldering pins (16 pins)
- [ ] connect the pin marked GND (placed on the left side of U1) to pin 25 of J2 (25p-subd male (A1000: female) connector)
- [ ] connect the pin marked D2A to pin 4 of J2
- [ ] connect the pin marked POUTA to pin 12 of J2
- [ ] connect the pin marked SELA to pin 13 of J2
- [ ] connect the pin marked D2P to pin 4 of J1 (25p-subd female (A1000: male) connector)
- [ ] connect the pin marked POUTP to pin 12 of J1
- [ ] connect the pin marked SELP to pin 13 of J1
- [ ] connect pin 25 of J1 to pin 25 of J2 (\*)
- [ ] connect the pin 'x' of J1 to pin 'x' of J2 (\*)  
where 'x' is 1,2,3, 5-11, 14-24

(\*) the wires between J1 and J2 should be as short as possible, to avoid conflicts with long printercables. The total length of the cables (from Amiga to Printer) may not exceed approx. 5 metres.  
See ParCable.iff for more info.

- [ ] connect the positive wire of DC adapter (7.5 - 12 Volts) to the pin marked 7V5 (this pin is placed between GND and D2P on the left side of U1)
  - [ ] connect the negative or ground wire to the pin marked GND (placed on the (left side of U1)
-

Note: most (all ?) DC adapters have a connector attached to their output-wires.

You can use this connector to connect the adapter to the board, but you're on your own: because there are many kinds of plugs, I cannot give a general description.

You can also cut off the plug and strip the wires, so that you can solder them right on the pins.

Be sure that you have the positive and negative wires right.

Although D1 protects the board for this kind of errors, it is better not to rely on it.

You can check which wire is positive and which is negative by measuring it with a voltmeter. Just connect one wire to the - terminal of the meter and the other to the + terminal. If the connection is oke, the meter will show a positive value. If not, a negative value will be shown so the wires were switched.

Note that some adapters have a switch, allowing you the reverse the + and - wires.

[ ] connect the middle of the cinch chassis connector to the pin marked CVBS

[ ] connect the 'outside' of the cinch chassis connector to the pin marked GND (next to CVBS)

Note: keep these wires as short as possible (maximum of approx. 10 cm)

[ ] connect the switch SW1 to the pins marked SW1 using two wires (approx. 10cm long, depending on the case you build the board in)

Before continuing, you should test if the supply voltage is ok.

You can do this by plugging the DC adapter into the mains, switch it on (most adapters don't have a power-switch, just plug it in and it's on).

Note that the TeleText circuit must NOT BE CONNECTED to your Amiga yet !

Now measure between the following pins:

pin 7V5 (+) and GND (-), should be between 7.5 and 12 Volts

pin 8 (-) of U3 and pin 16 (+) of U3, should be 5 Volts

pin 25 (-) of U1 and pin 1 (+) of U1, should be 5 Volts

pin 14 (-) of U2 and pin 28 (+) of U2, should be 5 Volts

When this is oke, proceed. If not, check your board for component-misplacements, bad connections, connections between two pads that should not have been connected (e.g. too much solder) etc.

Especially check if the diode D1 and the regulator U4 are placed ok.

[ ] place U1 (SAA5246AP or SAA5246P) in the socket at U1

[ ] place U2 (6264) in the socket at U2

[ ] place U3 (74HC(T)4053) in the socket at U3

Note on placing these IC's:

On all IC's there is a mark on one of the short sides (not containing pins). This mark should be aligned with the mark (half a circle) as shown in the picture ComponentSide.iff.

If you do not place the IC's in the correct orientation, you most certainly will damage them ! So check !

[ ] Last thing to do: place the board and the connectors in a case of your choice.

[ ] Very last thing to do: make a cable to connect your video source

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(e.g. TV or VCR with Scart connector) to the decoder.  
See VideoCable.iff for more information.  
It is best to use shielded cable (the type used for audio) for this connection.

If everything went well, you can now connect your TeleText decoder to the parallel port of your Amiga.  
BE SURE TO TURN OFF THE POWER OF YOUR AMIGA AND THE DECODER BEFORE MAKING THE CONNECTION !!!  
If you do not power down, you will most certainly damage your Amiga.

After this, you can connect the video-source (e.g a VCR) to the decoder.  
Again: ONLY DO THIS WITH THE DECODER AND THE VCR SWITCHED OFF !!!!  
You can seriously damage the decoder chip (U1) when you don't !

Now you can power up the decoder and the Amiga.  
Start the TeleText program, and try to request a page.  
The best page to try is page number 100, because that one is always present.  
If you get an I2C error (status box below the page-box) check the decoder and the connections to the Amiga (power down !!). If everything is ok, check the "Bug in SAA5246 ?" section below.  
If you get a video poor / teletext poor message, check if your VCR is on, and that the cable from the vcr to the decoder is ok.  
When video is ok, but teletext is poor, the channel you have chosen does not transmit teletext information or is too weak.

Also check the A word about I2C-bus timing section  
before banging the decoder :-))

Bug in SAA5246 ?  
=====

There appears to be a bug in the SAA5246P IC's.  
Some decoders do not work even if they are build exactly as the schematics show. The TeleText software will occasionally reports I2C errors and the Video and TeleText status will be marked as poor, although the cable is ok, and the station does transmit teletext information. The problem is probably caused by the internal oscillator-circuit of the SAA5246; it does not always start. This bug is know by Philips (the manufacture) and should be fixed in the SAA5246AP IC's, but unfortunately some SAA5246AP decoders also have this problem. The fix is the same for both versions.

If you get the symptoms mentioned above, do not panic, there is a fix for this !

It has turned out that dropping the supply voltage of the decoder down to approximately 4 - 4.7 Volts fixes the problem, and the decoder will work alright !  
This can easily be done by mounting a 1N4001 diode in the 5V output of the voltage regulator U4. This is the rightmost pin of the 7805.  
The anode of the diode is connected to the output of U4, the cathode (white stripe) goes to the rest of the decoder.  
See the IFF picture "Decoder7805.iff" and the schematics for more information. (note that the wire, soldered to the 7805, is not part of

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the fix, but supplies some external stuff (future plans))

Lots of thanks goes to Marco Valk for reporting this bug and presenting the fix for it.

Ajusting your V1.10 board

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If you have already build the 'old' design (V1.10), don't panic. You can easily add the extra components. You'll need to get D1 (1N4001), U4 (7805) and a 7V5 DC adapter see List of components for more information. Connect the + wire of the DC adapter to the anode of D1 (side without the white stripe). Connect the cathode of D1 to the left pin of U4. (U4 lies with the text above and the pins pointing towards you). The - wire of the DC adapter goes to the middle pin of U4. This middle pin is also to be connected to the GND pin (to one near the crystal X1 or X2) on the PCB board. The right pin of U4 goes to the +5V pin (near D2P) of the 'old' V1.10 board.

## 1.7 Installation

Software:

-----

If you read this you have already unpacked the archive, so I can skip that part. :-)

Start the Install script by double-clicking the Install Icon. This script will install reqtools.library, tele.font and the catalogs for TeleText and Reqtools.

Manual installation:

- Copy TeleText/Fonts/ FONTS: all
- Copy TeleText/Catalogs/ Locale:Catalogs/ all
- Copy TeleText/Libs/ LIBS:

Copying Catalogs is only necessary if you have WB2.1 or higher and want to use TeleText localized.

Hardware:

-----

Plug the 25p-subd male (this is the female subd when you have a A1000) connector into your Amiga's parallel port.

ONLY DO THIS WHEN THE POWER OF BOTH THE AMIGA AND THE TELETEXT HARDWARE IS SWITCHED OFF !!!!

If you make this connection with the power on, you will most definately destroy the CIA (complex interface adapter) in your Amiga !  
Note that it is absolutely legal to switch between printer and decoder,

using SW1, during operation.

Connect the video-source to the TeleText decoder.

Note: only do this when the TeleText decoder and the video-source are both switched off !! You could destroy the SAA5246 chip if you don't.

Using TeleText with modems

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Due to the fact that some pins on the parallel port are shared with the serial port, you will get I2C errors when you have a modem connected to the serial port and the RI gets active (e.g. the phone rings). As far as I can see, this cannot damage your Amiga.

Some extra stuff

-----

If you want to check the communication with the decoder, you can build the circuit shown in I2Cindicate.iff.  
This little circuit monitors the SCL (clock) and SDA (data) lines of the I2C interface. When TeleText is active and has successfully allocated the parallel port, both LED's (Light Emitting Diode) should be on. During transfer these lights will flicker. For instance, when you have set Retry Delay to 500ms, the LED's will flicker every 0.5 seconds (=500ms) when searching for a page.  
There is no PCB for this little circuit, it's a gadget for who wants it / needs it. It is very simple to build on a small piece of prototype board.

## 1.8 Software

- Startup
- ToolTypes
- Commandline parameters
- A word about I2C-bus timing
- Menu's of TeleText
- Gadgets and keyboardcontrol

## 1.9 Startup

When TeleText is started it first checks if a preference file is present. It will check ENV:TeleText.prefs first, then ENVARC:TeleText.prefs. If no preference file is present it will use it's defaults.

After that the Tooltypes (Workbench start) or Commandline parameters (CLI start) will be checked. These will override the preferences.

Then TeleText will check for a keyfile (TeleText.Key) in it's homedirectory. If this keyfile is present and valid, TeleText will be fully functional. If not, some functions will be blocked. E.g. saving files is not possible.

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TeleText also tries to open it's own font, called 'tele.font', it should be present in FONTS: When this font is not found, TeleText will pop up a warning requester. The pages will then be shown as ASCII, so no graphics characters etc. are displayed.

If TeleText is started by a default tool of an icon, it will attempt to load that file into catalog 1. When multiple icons are selected, TeleText will attempt to load the first four into catalogs 1..4.

## 1.10 ToolTypes / I2C-bus timing

TIMEOUT=[0..300]

Value in seconds, to wait until a page arrives (default = 30 sec.)

RETRYDELAY=[0..1000]

Value in milli-seconds (1/1000 seconds) between checking if a page has arrived (default = 100 ms)

I2CDELAY=[0..2^32]

Delay value to control the timing on the I2C bus (default = 0)

TIMER=[YES/NO]

Use timer.device for controlling timing on the I2C bus  
(I2CDELAY will be ignored, default = NO)

VIEWSCREEN=[ON]

This tells TeleText to open een second screen (320x256x8 LORES)  
on which the current TeleText page will be displayed fullscreen

Note on timing:

On a plain A500/A600/A2000 (68000 at approx. 7MHz) you can set I2CDELAY=0 and TIMER=NO (or leave out).

For fast Amiga's (e.g. A4000/040) the TIMER=YES was build in.

However, it has turned out, that even on fast Amiga's the TIMER=NO and I2CDELAY=0 setting can be used without problems.

Generally spoken: first try TIMER=YES, when the speed of reading pages from the hardware is acceptable, do not change anything.

If everything gets very slow, choose TIMER=NO (or leave out) and specify I2CDELAY=0. If the pages are read ok, leave it that way. If not increase I2CDELAY until pages are read ok.

This ugly way was necessary, because using the timer.device on slow amiga's (as my own.. :-( ) causes so much overhead, that it slows down the performance of the I2C bus a lot. A plain Amiga (500/600/2000) can never reach the maximum speed allowed on a I2C bus, therefor I made it possible to ignore the timer.device.

## 1.11 Commandline parameters

See Tooltypes .

example: TeleText TIMEOUT=10 TIMER=YES

---

Starts TeleText with a Timeout of 10 sec. and I2C timing is done with timer.device

## 1.12 Menu's of TeleText

### Project Menu

-----

Open...	This menu-item pops up a file-requester, allowing you to select a TT-file. The file will be loaded in the current catalog.
Save as TT	Saves the page (and all subpages in it) from the current catalog using the TT-format. These files can later be loaded back into TeleText using Open...
Save as ASCII	Saves the page (and all subpages in it) from the current catalog using the ASCII-format. All graphics characters will be blanked (replace be spaces). When the Reveal option is on, the hidden information will also be saved.
Save as IFF	Saves the page (only the currently displayed one) in IFF graphics format.
Save as ANSI	Saves the page (only the currently displayed one) in ANSI format. (for use with BBS's etc.) When the Reveal option is on, the hidden information will also be saved.
About	Displays information about TeleText, registration info and some info about the current settings and the decoder chip that is being used.
Quit	Quits the program (an 'Are you sure ?' requester will pop up before quitting)

### TT Menu

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Show Status of CCT	Reads the status of the teletext decoder chip (CCT) This status will appear in the box below the teletext page.
Initialize	Clears all pages from memory and resets the decoder chip.
Clear Catalogs	Allows you to selectively clear the catalogs. The memory used by the catalogs that are cleared, will be freed.
Time->Amiga	Will attempt to get a valid time from the decoder and sets the Amiga software clock to that time. (uses c:date for that purpose) Note that only the software clock is changed !
Update Pageno.	Determines whether the status box (below the teletext page) will show pagenumbers during a page-search or not.
Set Retry Delay	See Tooltypes section
Set I2C delay	See Tooltypes section
Set Timeout	See Tooltypes section

## Settings Menu

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Create Icons	Determines whether the save operations (See Project Menu) create an icon for the saved file or not. as soon as a page is read into that catalog.
Default Tool »	Allows you to set the default tool for the TT, ASCII, ANSI and IFF Icons. Defaults: TT:     TeleText ASCII: SYS:Utilities/More IFF:    SYS:Utilities/Display ANSI:   SYS:Utilities/More
Save Settings	Saves all settings to ENV:TeleText.prefs and ENVARC:TeleText.prefs Saved are: Timer Yes/No, I2Cdelay, RetryDelay, TimeOut, Update Pageno, CreateIcons, ViewScreen On/Off and the default tools.

## 1.13 Gadgets and keyboardcontrol

The teletext-page is displayed in a box in the middle of the TeleText screen. Below this box, there is a small box, called the status-box. This box contains, information about pages, status of the decoder etc.

To the left of the teletext-page there are two gadgets. One slider gadget for stepping through the subpages of a teletext-page and one numeric gadget for directly displaying any subpage. These gadgets are active only when the current teletext-page has subpages (thus exists of more than 1 page). One can also step through the subpages, using the Cursor Left (decrease subpagenumber) or Cursor Right (increase subpagenumber) keys.

A window, displaying which subpages are present, will be opened below the subpage-gadgets when subpages are present.

To the right of the teletext-page there are several gadgets, starting with four gadgets which allow you to choose one of the four catalogs. A catalog can contain one teletext-page (with a maximum of 50 subpages), so a maximum of four teletext-pages with subpages can be stored. Behind the catalog gadget, there are 3 characters containing the number of the teletext-page that is present in that catalog (e.g. 100). When the catalog is empty three dashes (---) will be shown. Selecting a different catalog can also be done with the Cursor Up (previous catalog) or Cursor Down (next catalog) keys.

Below these four gadgets, there is a numeric gadget. This gadget allows you to enter a pagenumber (allowed are 100-899). After pressing return/enter this page will be searched for.

It is also possible to request a page by double-clicking a pagenumber in a displayed TeleText page. When this is a valid number, the software will fetch the page and put it in the next free catalog. If all catalogs are full, a requester will pop up, asking you in which catalog the page should be placed. Note that this feature is only available for registered users.

The stop-gadget (just below the Page-gadget) allows you to interrupt this search-process.

The last gadget is the Reveal-gadget. This gadget allows you to view hidden characters in the teletext-page. This feature is useful for puzzles etc. Note that this gadget will be ghosted (not active) when there is no information to reveal.

#### Keyboard control

=====

There are several keyboard shortcuts in TeleText:

F1	toggles the ViewScreen (ViewScreen is put to front if it is opened)
0..9	allows you to enter a pagenumber without selecting the page-numbergadget. Just try and see what happens (the current number is displayed in the page-numbergadget)
'enter' or 'return'	starts searching a page (takes the number displayed in the page-numbergadget)
b	break, identical to the Stop gadget (stops a search)
cursor up	previous catalog (cycles)
cursor down	next catalog (cycles)
cursor left	previous subpage (if any)
cursor right	next subpage (if any)
+ on keypad	increments the pagenumber by 1
- on keypad	decrements the pagenumber by 1
r	reveal, identical to the Reveal gadget (only when there is something to reveal)

The cursor keys can also be used on the ViewScreen.

## 1.14 Acknowledgements

#### Acknowledgement

-----

This program uses Reqtools.library (c) by Nico François.  
It requires at least version 38 of that library.  
A recent version of reqtools.library is included in the distribution archive.

#### Special thanx to (in random order)

-----

- Brian Ipsen for all the hints/tips and Danish translation
  - Raymond Penners for the support on Amiga C-programming, hints/tips and beta-testing
  - Richard Schiffelers for the support on Amiga C-programming, hints/tips and beta-testing
  - Bert Stronks for beta-testing
  - Robert Udo for having such a great Amiga BBS
  - Paul Kolenbrander for bug-reports and hints/tips
-

- Marco Valk for the SAA5246 bug-report + fix
- Ugo Paternostro for the Italian translation  
please contact him directly, if there is a bug in the italiano  
catalog. Fido: 2:332/112.3 Amy: 39:102/503.3  
Internet: {uunet|rutgers}!cmbvax!cbmehq!cmbita!glub!cip!ugo  
University: paterno@aguirre.ing.unifi.it  
cbmnet: ugo@glub.adsp.sub.org  
ham: IW5DAC (@IK5MEP.#FI.ITA.EURO)
- Gerwin Reuling for beta-testing
- Florent Monteilhet for the French translation

## 1.15 Future enhancements

- \* more AREXX support (registered users only)  
(more Arexx functions, execute Arexx as macro)
- graphics/ascii-hardcopy of currently displayed page
- Iconify
- \* number of subpages userdefinable (unreg. users will still have a fix  
number of subpages)
- \* much more catalogs (possibly only depending on available memory)  
(non reg. users will still have a maximum of 4 catalogs)
- continiously update mode (this will allow you to let certain pages,  
such as subtitles, indexes etc.) to be continiously updated. Instead of  
read once.
- seperate program that will get the time from teletext and set the  
Amiga clock (for use in Startup-sequence etc.)
- support for double-height fonts
- more support for country-dependant characters in TeleText pages

If you have ideas/hints for additional features and/or improvements,  
please let me know (see How to reach the author ).

The features marked with \* will only be available to registered users.  
Features marked with - will be available to all users.

I also plan to move the I2C-interface routines to a shared library.  
This will make the I2C-bus available for other programs.

## 1.16 How to reach the author

If you have FIDO, NLA (Netherlands only) or AMY\_NET access, you can reach  
me by netmail at:

2:283/402.14 (FIDO)  
14:105/2.14 (NLA)  
39:157/101.14 (AMY\_NET)

If you cannot send/receive netmail, you can leave a message for me in the  
local areas of "The Amiga Workbench" (+31-5430-24097) or "DLA Network"  
(+31-5430-23561).

You can also send me snail-mail, but you will only get a reply if you send

an envelope with your adress and sufficient stamps (or money for the return post when sending mail from outside Holland) on it, with it.

My adres is:

Jan Leuverink  
Esweg 2-B  
7151 ZM Eibergen  
Holland

## 1.17 Version information

V1.01B first release to beta testers

V1.02B second release to beta testers

V1.10 first public release

V1.11 Bug-fixes:

- the programm would crash if using the cursor-left/right keys when the page had no subpages, fixed.

Hardware update:

- due to a modification in my Amiga, the current-limiter for the supply voltage on the parallel port did not work. Therefor the TeleText circuit worked well on my machine, but will most certainly NOT work on any other Amiga, because it draws to much power from the parallel port. Solution: an external DC adapter is now used as power-supply. This has the advantage of having enough power left to connect future devices to the I2C bus.
- due to the above, the PCB design and the schematics have been updated

Documentation:

- on some Amigaguide viewers, the buttons were not visible, fixed (thanx Paul !)
- a better description of how to build the hardware (the previous one really was very, very bad... :-( )
- in previous documentation I mentioned plans for making a gameport-version of TeleText. It turned out that this is not possible, because of the lack of 2 'normal' outputs on the gameport (there are 3 ports which can be used as output, but 2 of them are loaded with large capacitors :-( )

V1.20 Release date: 29-12-1993

Bugfixes:

- Save as TT did not save last line, fixed.
- hold graphics code not supported, this would cause some graphics in a TeleText page to be incorrect, fixed.

Hardware:

- some SAA5246 IC's have oscillator problems, fixed.
-

New features:

- Save as ANSI + added default tool stuff for that (reg. users only)
- '+' and '-' gadget for subpage selection replaced by a slider gadget
- fullsize ViewScreen for displaying TeleText pages.
- added keyboard shortcuts for often uses functions
- reveal gadget is now ghosted when there is nothing to reveal
- added selection of a pagenumber by doubleclicking a number in a displayed page
- added an AREXX port
- some small fixes

## 1.18 List of components

See the Assembling section for more information !

When using a SAA5246AP for U1:

-----	
R1	10k, 1/4 Watt, 5%, resistor (color-code: brown-black-orange)
R2	10 ohm, 1/4 Watt, 5%, resistor (brown-black-black)
R3	27k, 1/4 Watt, 5%, resistor (red-purple-orange)
R4	does not exist
R5	10k, 1/4 Watt, 5%, resistor (brown-black-orange)
R6	4k7, 1/4 Watt, 5%, resistor (yellow-purple-red)
R7	3k3, 1/4 Watt, 5%, resistor (orange-orange-red)
C1	not needed
C2	10pF, ceramic capacitor
C3	not needed
C4	100nF, ceramic capacitor
C5	100nF, ceramic capacitor
C6	100nF, ceramic capacitor
C7	100nF, ceramic capacitor
C8	10 $\mu$ F/16V, electrolytic capacitor, radial
C9	100nF, ceramic capacitor
C10	15pF, ceramic capacitor
C11	1nF, ceramic capacitor
X1	not needed (replace with a wire see Assembling )
X2	27MHz crystal
L1	4 $\mu$ H coil (looks like a resistor)
U1	SAA5246AP teletext decoder chip
U2	6264 RAM (min. 200ns) or FCB61C65L (replacement for 6264)
U3	74HC(T)4053 3-channel multiplexer
U4	7805 voltage regulator
T1	BC547 or equivalent
D1	1N4001 diode or equivalent
J1	25p Sub-D female connector (male for A1000)
J2	25p Sub-D male connector (female for A1000)

J3/J4 Cinch-chassis connector

SW1 switch (make-contact)

Note: instead of J1 and J2, you can also use a 25p male - 25p female cable (rs232 type, fully wired) and cut it in two.  
(if you are a bit handy, you can remove the plastic in the middle of the cable and only cut the wires you need for TeleText. The rest will be automatically be passed thru) This is what I did for the prototype (see directory IFF for pictures of it)

Extras:

- 1 TeleText printed circuit board (PCB)  
see the PCB Service section for information  
on how to get one.
- 1 DC adapter, DC output voltage between 7.5 and 12 Volt, minimal  
supply current of 100mA (300mA is preferred)
- 1 16-pin IC-socket
- 1 28-pin IC-socket
- 1 48-pin IC-socket
- 16 solder pins

some wiring, depending on your needs.

When using a SAA5246P for U1:

- 
- R1 10k, 1/4 Watt, 5%, resistor (color-code: brown-black-orange)
  - R2 10 ohm, 1/4 Watt, 5%, resistor (brown-black-black)
  - R3 27k, 1/4 Watt, 5%, resistor (red-purple-orange)
  - R4 does not exist
  - R5 10k, 1/4 Watt, 5%, resistor (brown-black-orange)
  - R6 4k7, 1/4 Watt, 5%, resistor (yellow-purple-red)
  - R7 not needed
  
  - C1 22pF, ceramic capacitor
  - C2 22pF, ceramic capacitor
  - C3 22pF, ceramic capacitor
  - C4 100nF, ceramic capacitor
  - C5 100nF, ceramic capacitor
  - C6 100nF, ceramic capacitor
  - C7 100nF, ceramic capacitor
  - C8  $10\mu\text{F}/16\text{V}$ , electrolytic capacitor, radial
  - C9 100nF, ceramic capacitor
  - C10 not needed
  - C11 not needed
  
  - X1 27MHz crystal
  - X2 not needed (replace with a wire see Assembling )
  
  - L1  $3\mu\text{H}$  coil (looks like a resistor)
-

U1     SAA5246P teletext decoder chip  
U2     6264 RAM (min. 200ns) or FCB61C65L (replacement for 6264)  
U3     74HC(T)4053 3-channel multiplexer  
U4     7805 voltage regulator  
T1     BC547 or equivalent  
D1     1N4001 diode or equivalent  
  
J1     25p Sub-D female connector (male for A1000)  
J2     25p Sub-D male connector (female for A1000)  
J3/J4 Cinch-chassis connector  
  
SW1    switch (make-contact)

Note: instead of J1 and J2, you can also use a 25p male - 25p female cable (rs232 type, fully wired) and cut it in two.  
(if you are a bit handy, you can remove the plastic in the middle of the cable and only cut the wires you need for TeleText. The rest will be automatically be passed thru) This is what I did for the prototype (see directory IFF for pictures of it)

Extras:

- 1 TeleText printed circuit board (PCB)  
see the PCB Service section for information  
on how to get one.
- 1 DC adapter, DC output voltage between 7.5 and 12 Volt, minimal  
supply current of 100mA (300mA is preferred)
- 1 16-pin IC-socket
- 1 28-pin IC-socket
- 1 48-pin IC-socket
- 16 solder pins

some wiring, depending on your needs

An extra 1N4001 diode could be needed to fix a bug in the SAA5246.  
See the Assembling section ("Bug in SAA5264 ?") for  
more information.

## 1.19 Registration

You can register TeleText by sending the registration fee and  
a filled-in registration form (See file RegistrationForm.doc) to:

Jan Leuverink  
Esweg 2-B  
7151 ZM Eibergen  
HOLLAND

Send money by EuroCheck (amount only in Dutch guilders !!),

---

postal money order or cash.

Currency's accepted: Dutch guilder, Deutsch Mark, English Pound,  
US Dollar

Within Europe eurochecks are prevered.

Within The Netherlands you can also do a bank or giro-transfer.

Bankaccount: 3164.36.445 (Rabobank Oost-Achterhoek)

Giroaccount: 6682346

Please state "TeleText registration" as subject.

Please note that my receipts do not have your address on it, so send  
a letter or netmail to let me know were the registration is supposed to go  
to.

Registration fee:

Dutch guilders	fl.	25.-
Deutsch Mark	DM	25.-
English Pound	£	10.-
US Dollar	\$	15.-

If you send cash, note that I can only accept paper-money, because I cannot  
exchange coins.

If you register you will receive a keyfile, which will make your copy of  
TeleText fully registered.

Note that this keyfile is personal, you may not give or sell it to others.

New versions of TeleText will be available at my NLA/AMY boss

"The Amiga Workbench" and I will try to get it distributed via the  
ADS/SAN network.

Newer versions will automagically be registered, if you have a valid  
keyfile.

"The Amiga Workbench", Winterswijk, Holland (24 hours online)

Sysop: Robert Udo

Using: Zyxel+, max. speed 19k2 bps

Telephone: +31-5430-24097

NLA node: 14:105/2

AMY node: 39:157/1

FIDO node: 2:283/410

Check out this great Amiga BBS !

## 1.20 PCB Service

As a reaction on TeleText V1.10 and V1.11 I got a lot of requests from  
people wanting to know if I could supply pcb's (printed circuit boards).  
I have now found a way of getting pcb's for a reasonable price.

These are expoxy boards, drilled and the traces are tinned (?, I do not  
know the exact english word for it, but what I mean is that the traces  
are covered with tin to protect them, and make soldering a lot easier).

---

Prices (until 31-1-1994):

post & package

		PCB	europa	outside
				europa
	-----	-----	-----	-----
dutch guilders	hfl.	17,50	4,-	8,-
US dollars	\$	12,-	3,-	6,-
Deutsche Mark	DM	16,-	3,50	7,-
English pounds	£	6,-	1,50	3,-

Prices (after 1-2-1994):

post & package

		PCB	europa	outside
				europa
	-----	-----	-----	-----
dutch guilders	hfl.	22,-	4,-	8,-
US dollars	\$	15,-	3,-	6,-
Deutsche Mark	DM	20,-	3,50	7,-
English pounds	£	7,50	1,50	3,-

See the Registration section for information on how you can reach me, and how to send me the money. Please state "TeleText PCB" as subject if you do a bank- or girotransfer. (only possible from within Holland, send a letter/netmail to tell me your address)

It is also possible to order a complete build decoder or a do-it-yourself package (pcb+components). Contact me to for more information about ordering, postage, costs etc. (see How to reach the author )