

Using the PC2901 Programmer

The following programs are for use in DOS or from a DOS shell in Windows 95. If you are in Windows 95 then start a DOS session by typing **Start » Program » MS-DOS Prompt**.

Setting up the print port for bi-directional use:

Make sure that nothing is connected to the print port to be used for the programmer. It is safest to do this from DOS. If you are in Windows 95 and the port settings are incorrect then the following tests will either not work or be confusing.

- Start the program **PORTTEST**.
- PORTTEST will list all the valid ports found.
- Select the port you want to test. e.g. for LPT1 press 1 <CR>
- If you have a correctly configured parallel port then the message "Yes your port 1 is bi-directional" will be given.

If your port was bi-directional then proceed to "Using the programmer" below.

Almost all modern machines have the EPP and ECP print ports, but when the machine is shipped the print port mode is set to the original IBM design. You will need to set the printer port to one of the bi-directional modes before using the programmer. This is usually done by entering the BIOS set-up immediately on starting the machine. Look for instructions on the screen such as "Press DEL for SET-UP". The printer port set-up is normally under a heading such as "PORTS and I/O". Select EPP mode, and save the set-up. Retest the port again using **PORTTEST**.

Due to the critical timing of the ATMEL devices, the programmer should only be used under DOS or Windows95. If your computer is faster than a Pentium 200 you may need to restart the machine into DOS.

Only 16k of the **89C55** can be programmed due to address line limitations of this programmer.

Plug 25way cable supplied into a parallel port and supply **18V to 24V DC** or **AC** to the non polarised input, screw terminal block **P2**. Run the programmer software **2901.exe** followed by **LPT1** or **LPT2** for example **2901 1**. You will see the opening screen as shown in Figure 1.

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TECHNMAN ELECTRONICS LTD  ATMEL PROGRAMMER VER 1.0
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Device Currently Set: Name=*No Device Selected, ID=0, Size=0, Voltage=5V
Program File Opened : *No file open

Device select          D
File Open              O
Save to File           S
Auto program           A
Blank Check            B
Chip Erase             E
Program                P
Verify against File    V
Read Signature         R
Write Lock Bit 1       K
Write Lock Bit 2       M
Exit                   X

Enter selection:

Hardware available from Technman Electronic Ltd (http://www.technman.com)

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Figure 1 Initial start up screen for programmer

- Start off by selecting the device you want to program by pressing the **D** key. To choose the device you want press a number between 1 and 6. (The 89C51 and 89C52 devices come in 5V and 12V versions. Check for the 5 volt version by looking at the package and seeing if there is a **-5** appended to the device label e.g. **89C51 20PC-5**.)

```

Device Selection Menu:

Auto Detect device in socket          A
1051      (signature 1E 11)           12V  1
2051      (signature 1E 21)           12V  2
4051      (signature 1E 41)           12V  3
89C51 xxxx-5 (signature 1E 51 05)     5V   4
89C51 xxxx  (signature 1E 51 FF)      12V  5
89C52 xxxx-5 (signature 1E 52 05)     5V   6
89C52 xxxx  (signature 1E 52 FF)      12V  7
89C55 XXXX-5 (signature 1E 55 05)     5V   8
89C55 XXXX  (signature 1E 55 FF)      12V  9

Enter selection:

```

Fig 2 Device selection screen

- Load a binary file by selection **O** for open file, this file will load your required file and keep it in memory so you can program any amount of devices without having to reloading the file again. If you have a hex file see the section “Converting Intel hex files to binary” below.
- Now select any other function required.
- The **A** for **Auto Program** will first erase the device, program it, verify it and then set all three lock bits (mode 4) automatically.

Should you at any time have a problem using Windows95 make sure the printer port is set up and follow the following:

Start » Settings » Control Panel » System » Device Manager » Port(COM & LPT) and make sure that the printer port is selected properly, else double click on **Printer Port** select **Resources** and choose **Setting based on:** and select the right port.

Should you find this rather tedious and time consuming use the programmer in DOS mode.

Converting Intel hex files to binary.

As the programmer requires a binary file format we supply a Hex to Binary converter called **Hex2bin.exe**. To convert a file type **HEX2BIN** <CR> and follow instructions.

Installation of programmer files

To copy the programmer files onto your hard disk go to the DOS prompt and type:

A: <cr> (where <cr> is the ENTER key)
Setup <cr>

Batch file example to simplify usage of programmer.

If you are programming from a HEX file then use the batch file PGM.BAT.

PGM p d f <cr>

where

p:[1..4] selects printer port 1 to 4

d: selects device eg. 89C55

f: selects binary file eg. Filename.bin

E.g.

If you want to program your file TEST.HEX into a 89C52 then use the line:

PGM 1 TEST 89C52 <cr>

Your file will be converted from hex to bin and the 2901 software will start up.
While in the 2901 software press the A key to program your 89C52.