TNM Programmers 5000/2000+/1000+

For Windows 7 / Vista / XP

User Manual

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Contents

1. System Requirements:

The minimum system requirement is as follows:

• A desktop or laptop computer with Intel Pentium or an equivalent processor.

• Windows XP or Windows Vista or Windows 7 operating system.

• At least 1 GB free space on your hard drive, for Nand Chips,1GB+Nand Capacity

• At least one standard (USB 2.0) connector

• A CD drive

2. Software Setup

You can install your software either from the CD-ROM or by downloading the program from the TNM Electronics website. Instructions for both methods are described below.

NOTE: Do Not Connect The Programmer to The Computer USB before Software Installation!

Installation from CD-ROM

1. Insert the CD into the CD-ROM drive.

2. Autorun program will be started automatically, Select the **"Install Product"** item. If the setup program does not start automatically, run SETUP. EXE located in the root directory.

Note: In **Model-5000** According to your software license there may be more programs on the installation menu, like: *TNM Nand Programmer Software for Nand Flash Programming , ECU Repair Kit , ARM OpenOCD Based Debugger, RS232 Emulator, … .*

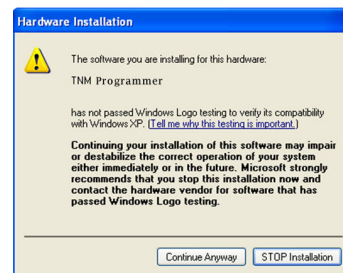Each of these software have their instruction manual . Refer to them for more information.

Installation from TNM Electronics Website

You can download the specific software for a certain model at TNM Electronics website:

http://www.TnmElectronics.com. Once you have saved the file to your computer, run it to setup the software. After Running SETUP.EXE , The system displays a dialog box , Press the **Next** button ,then in the next box, you can change the default installation path (Not Recommended), Then press **Next** Again and at the end, Press **Finish**. After the software installation, please connect the USB cable to the programmer and your PC. **"Found New Hardware Wizard"** box will be opened like picture below.
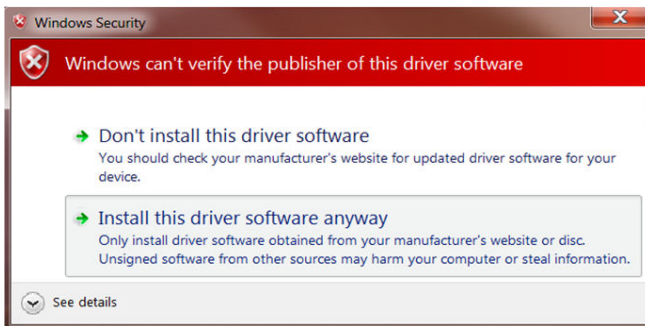
Windows Vista, Windows 7　　　　　　　　　　Windows XP

Please select the **"Continue Anyway"** in windows XP or **"Install this driver software anyway"** in the newer windows versions and click next. Now the programmer software can be run from the **"Start /Programs /TNM"** menu shortcut.

Driver Installation Problems:

Normally after connecting TNM programmer to the USB, you must see your device in the Windows Device manger like this:
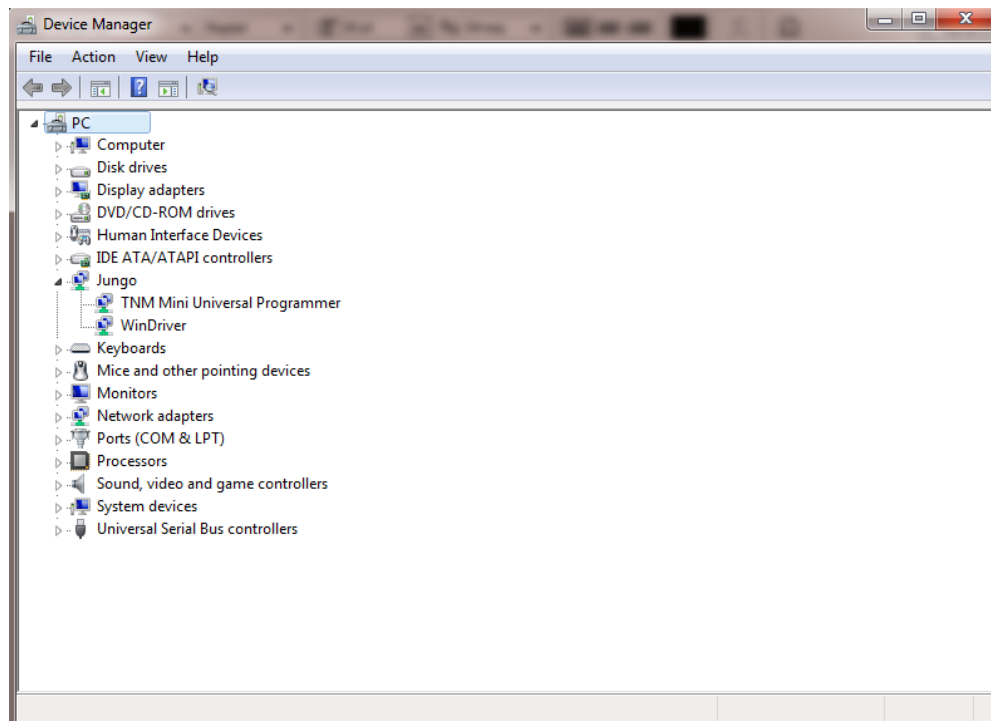
If you couldn't see your device under Jungo tree or if there is a yellow or red warning sign, right click on the device name and select **"Update Driver Software"** . Then select **"Browse My Computer**

for driver software" then find the correct path for driver, which usually is **"C:\Program Files\TNM\Programmer\Wdreg\"** .

You Can Also delete the driver & then select reinstall the Driver option form Start Menu while the USB connector is disconnected.

3. Hardware Review:

Red LED Indicator: When you connect the programmer to the USB port, this **LED** blinks once and then turns off. After executing the PC program, this LED turns on (Power-On) and during data transfer the LED blinks (Busy).

ZIF Socket: Pin 1 of all devices must be aligned to the pin 1 of the ZIF socket. **Model-5000** has a **48** pin ZIF Socket & **Model-2000+** has a **40** pin ZIF.

ISP Connector: See connector map from the "**Help\User Manual\ISP Connector Pinout"** Menu.

Power Connector: Only available in **Model-5000** , this is an auxiliary power connector and normally it's not necessary. If in the software you got a warning message because of low USB voltage, Connect the 9v power supply. Polarity of supply is not important.

4. Software Review:

Main Screen

The main screen is illustrated below. Each part of the user interface is labeled with a number and described below.
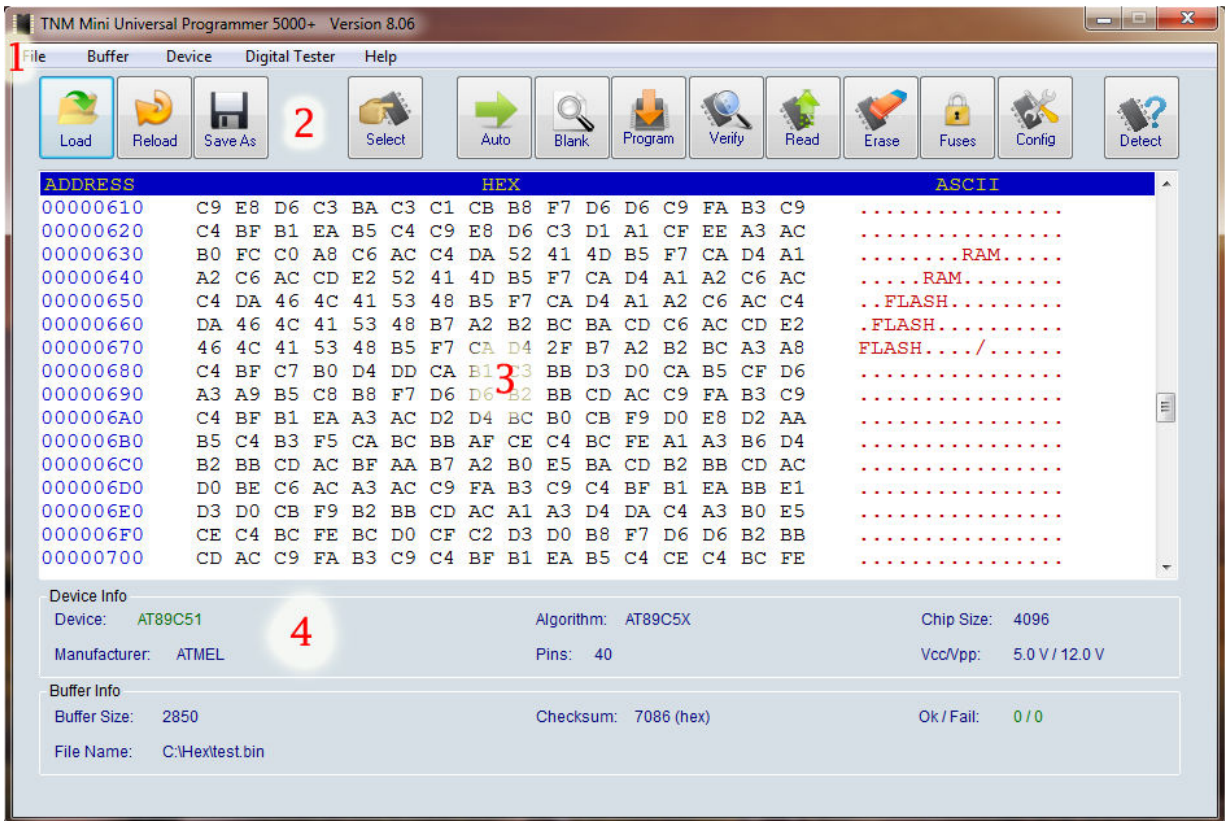
1. The **Main Menu** provides access to the File, Buffer, Device, Digital Tester and Help menus. Refer to the **Menu & Toolbar** section or more information.

2. The **Toolbar** includes icons for quick access to common functions. Refer to the **Menu & Toolbar** section or more information.

3. The **Hex-Editor** Window, Including the **Address, Hex Values** and **ASCII Values.** The buffer contents are showed in here. You can double-click in there for editing the stored values.

4. The **Information area**, Shows you the Selected device name, Programming algorithm, the selected device chip size (total programmable memory of the selected device in bytes) , The selected device Manufacturer and Pin numbers, **Vcc** is the voltage for the device supply, **Vpp** is the device programming voltage. **Buffer size** is the size (in bytes) of the loaded or readed data into the buffer. **Checksum** is the 16-bit checksum of the loaded or the readed data into the buffer. **OK/Fail** is the number of successful or failed actions. **File Name** is the last loaded file name into the buffer.

Menu & Toolbar:

1. File Menu

a. Load: For loading a file to the buffer and show it by hex editor. The supported file types are: binary (bin), Intel Hex (hex), Xilinx Cpld jedec file (jed), Xilinx FPGA bit file (bit), Serial Vector File (svf) , Atmel EEPROM file (eep) & Altera Jam file . After loading a SVF file all the actions except the SVF player button will be disabled. You can also Drag & Drop files to programmer window.

b. Reload: For reloading a previously loaded file.

c. Save: For saving the buffer contents to the current file.

d. SaveAs: For saving the buffer contents to a file.

e. Setup: For customizing the software. The available options are:

- Notify me ... : Select this item for the notification at the end of an action.

- Warning message ... : During the device programming If this item is checked and buffer size is greater than device size , a message box will warn you.

- Auto Detect Device ... : If the selected device is not identical to the device under program, the programmer automatically will identify the device. *(If the device has an ID).*

- Continue When ... : If this item is checked, Programming will be done even when the Device ID is not present.

- Show device info ... : If this item is checked, after selecting a device from the list, specific device information will be shown.

- Ask me before ... : Check this item to prevent accidental file overwriting during file saving.

- Disable Sounds: For silence mode.

- Disable Alt … : Turns off ALT hotkey running in other programs.

- Ask before Erase … : Always ask your permission to erase a device.

- Pin Connection … : Pin continuity tester on/off.

- Chip Power Supply … : You can increase or decrease VCC of chips during read or write about %5 more or less.

- ISP Delay Time: Use this item to slow down ISP clock speed for low MCU clocks.

- Clock out: Selecting the frequency of clock on ISP pin 4 of Model 5000.

f. Language: List of available user interface languages.

g. Recent Files: list of the last recent opened files for fast loading.

h. Save/Load All Setting: For saving & restoring all software settings including the selected chip , the loaded file, software setup and all chip fuses . Every user can save his or her working project and then restore it.

g. Exit: To exit the programmer software.

2. Buffer Menu

a. Edit Enable: For enabling the hex editor edit mode. Also you can double click on the hex-editor window to enable it.

b. Fill: For Filling the buffer from the start to the end address with a value.

c. Swap Bytes: For swapping two consequent bytes to convert from Little Endian format to Big Endian.

d. Search: For finding a text or hex string in the buffer.

e. Copy: For copying a part of buffer to another place in the buffer.

f. Properties: Only available for specific devices to program and verify a part of a device.

g. Jump: Jumping to an address in the buffer.

h. Auto Serial Number: You can specify a part of the buffer with arbitrary size and an increment factor, the initial value of this buffer point will be increased every time you press AUTO key.

i. Load Encryption Table: For 87C51 MCU. You can load 64 byte binary encryption table to memory (it won't be shown in the hex editor) and then load it to the device.

j. Reset OK/Fail Counter: Resets the OK/Fail counter value to zero.

3. Device Menu:

a. Erase: For erasing the device memory contents.

b. Blank Check: For Checking the device is blank or not.

c: Program: For transferring buffer to the device memory. If the buffer size is greater than the device memory, only the first part of the buffer with a size equal to the device memory will be transferred. Programming will be done with verification. For programming the MCU devices with internal EEPROM, Size of the buffer must be equal to sum of the FLASH memory and EEPROM.

d. Read: For reading back the device contents to the program buffer and the hex editor window.

e. Lock bits and Fuses Programming: For transferring the lock bits and fuse bits value to the device.

f. Fuse & Lock Configuration: For setting fuse bit values. After setting these values you can transfer them to the device (refer to part 3.e)

g. Read MCU EEPROM: In microcontrollers with internal EEPROM you can read EEPROM contents to the start of the buffer.

Note: This is different With **Read (3.e)** option. By **Read** button all the flash and EEPROM will be readed and be copied to the buffer in order and EEPROM data are placed after flash data.

h. Write MCU EEPROM: Like part 3.g.

i. Verify MCU EEPROM: Like part 3.g.

j. Auto: Automatic sequence of actions. Use "Edit Auto" to edit the sequence.

k. Edit Auto: You can check sequence of actions for a device. For mass device programming, check "detect Insertion & repeat" item and after the end of Auto sequence just replace the device. The programmer automatically will sense the device insertion and repeat the auto sequence.

l. Select: For selecting a device from a list.

m. Recent Selected Devices: List of the four recent selected devices for fast device selection.

4. Digital Tester Menu

a. TestIC: For testing a TTL/CMOS device from a list. You can add a vector test to the list file in LIB\TESTLIB.TXT.

b. Detect IC: For matching the result of an unknown device vector test with the list file. The programmer can only find devices within the list.

5. Help Menu

a. Programmer SelfTest: You can check programmer internal circuit by this option.

b. Selected Device Info: If there is any info available about the selected device, an information box will be opened.

5. Detect Button

The programmer search it's database for all detectable chips and show you a list of matched devices. Your device must have and internal manufacturer ID to be detectable. i.e Serial EEproms & Eproms haven't IDs and are not detectable.
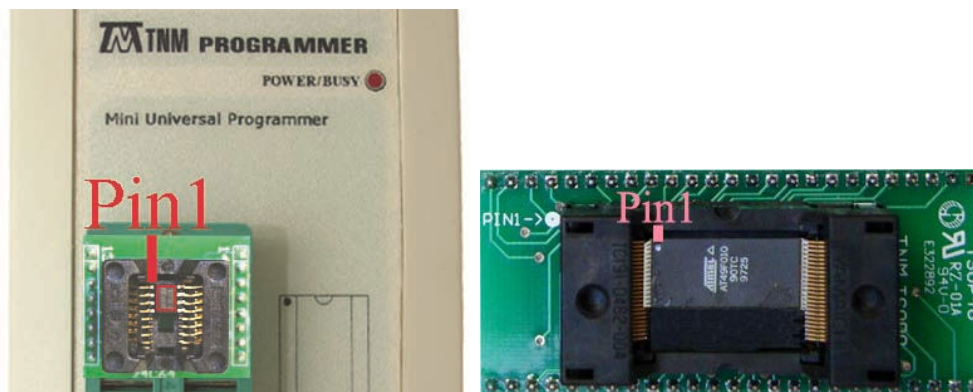
IC Insertion in ZIF:

Pin1 of the all Chips must be inserted in the topmost place of the programmer ZIF socket. Only there is a few exceptions, which you will be informed by software.
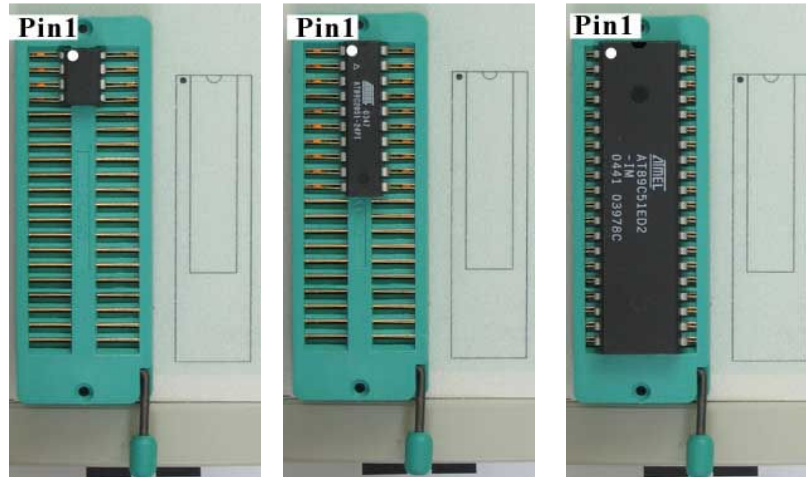
Pin 1 of the chips is specified with a round hole or a Wedge.

You must place SMD chips in adaptors according to the mentioned rule too.

Copying a Chip:

To copy a chip, first insert the source chip & press the button **Read**, if you want to copy a microcontroller, after that press **Config** button and press read button inside the config window.

Then insert your destination chip & after erase press the **Program** button. Next press the **Verify** button to check programmed contents. For microcontrollers , press **Config** button & press **Write** inside the config window.

Note1: If your microcontroller is locked, it can't be copied.

Note2: Some Chips are one time only programmable, Check your chip datasheet before programming.

Note3: Some Eprom Chips can't be erased by programmer, You need a UV lamp to erase these kind of chips.

Gang Programming:

You can connect two or more programmers to one PC and run instances of programmer software for each hardware. In Auto mode if "detect Insertion & repeat" option is checked, you can program devices in parallel and without necessity for software manipulation.