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Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: info@chipsmall.com Web: www.chipsmall.com

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China



User's Guide

XELTEK
Superpro®7500
Series

**Ultra-Fast, Stand-Alone, 144pin
Programmer of the Future**

XELTEK

1296 Kifer Rd. Unit 605

Sunnyvale, CA 94086

Tel: (408) 530-8080 Fax: (408)

530-0096

www.xeltek.com

IMPORTANT!

1. This manual applies to SuperPro/7500.
2. Make sure the software installation is completed before connecting the programmer to PC.
3. Please read the manual carefully before using programmers.
4. Please use Xeltek Adapters. Non-Xeltek adapters will cause error

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Welcome

Welcome to the world of Xeltek SUPERPRO programmers. Xeltek has produced the SUPERPRO line of IC programmers since 1985. Our motto is to provide high value products at affordable prices. In the past 27 years, Xeltek has produced a string of highly popular and successful programmers including SUPERPRO, SUPERPRO II, SUPERPRO III, SUPERPRO V, SUPERPRO 680, SUPERPRO 8000, SUPERPRO 3000U, and SUPERPRO 9000 models.

SUPERPRO 3000U is the first model to incorporate both PC connected and stand-alone modes operations combined into one programmer. It is also the first programmer to break the barrier of 40,000 devices supported in the industry. SUPERPRO 3000U is by far the most popular IC programmer in the industry today.

Pushing the barrier further, Xeltek is proud to announce the family of SUPERPRO 7500 programmers. SUPERPRO 7500 retains all the good features of SUPERPRO 3000U, but, in addition, it is designed to program today's large size devices efficiently and effectively.

Feature Highlights

- The SUPERPRO includes ultra high speed programming via 32bit RISC MCU device. This is especially suitable for programming high capacity NAND Flash devices
- A 144 pin driver support is built-in to provide efficient programming of large pin count devices, an additional pin expander module is not necessary to program large pin-count devices.
- The SUPERPRO operates with a PC for engineering purpose or in stand-alone mode, without a PC, for repeat production mode programming. This provides seamless migration from engineering to production.
- The SUPERPRO communicates through a USB 2.0 port and operates on most Pentium-based, IBM compatible desktop/notebook computers.
- The SUPERPRO comes with a standard 48-pin DIP ZIF socket and supports optional socket adapters to accommodate PLCC, TSOP, SOIC, SOP, QFP, TSSOP and BGA package types.
- The programmer and software supports Windows XP, Windows Vista, and Windows 7.

- For authorized users, the SUPERPRO can provide for automatic generation of electronic serial numbers.

User Manual Organization

This manual includes the following major chapters,

- An introduction to the SUPERPRO series, including the system requirements and the software and hardware installation
- Detailed explanations on the commands and the programming procedures
- Information about error messages and common problems
- An Appendix that includes the customer support information

Note: The software prevails in any discrepancy between it and the user manual, due to any upgrades of the software. The information in this document may be subject to change without notice.

Chapter 1 Overview of SUPERPRO® 7500

This section provides a brief introduction of SUPERPRO (1.1), software features (1.2), structure of the handbook (1.3), system requirement for the installation (1.4), and package content (1.5).

1.1 Introduction to SUPERPRO

The SUPERPRO is a menu-driven software that operates a series of cost-effective, reliable, and high-speed universal programmers. SUPERPRO communicates through a USB 2.0 port and operates with most IBM-compatible desktop and notebook computers that based on Pentium. Menu-driven software interface makes all the operations quite user-friendly.

1.2 Software feature

The USB 2.0 Series supports:

- Windows XP, Windows Vista, and Windows 7
- More than 43,000 types of devices, including E/EPROM, PLD, MCU, FLASH, etc.
- Compatible with many types of file formats, such as Binary, Intel (linear & segmented) Hex, Motorola S, Tektronix (linear & segmented), Jed, pof, etc.
- It supports a plug-in test (48 pins or less) to detect defective chips, improper insertion and pins that are poorly contacted.
- SUPERPRO has an integral full-screen buffer editorial environment with commands such as fill, copy, move, swap, etc.
- Electronic serial numbers are generated automatically.

1.3 Structure of this User's Guide

The content of this User's Guide is structured into three major sections,

Chapter 1 is an overview and introduction of the SUPERPRO, describing the system requirement, installation of the hardware and software.

Chapter 2 - Chapter 5 are detailed specification and explanation of all the features, commands, and function modules.

In Appendices, there are supportive information and guide for trouble-shooting

1.4 System requirements

The minimum system configuration requires:

- A desktop or laptop computer with Intel Pentium or an equivalent processor
- Windows XP, Windows Vista, and/or Windows 7 operating system
- 1 GB free space on the hard drive
- Standard (USB 2.0) compliant socket
- A CD drive

1.5 Package content

A standard SUPERPRO programmer package includes:

- A Programming host module
- A Power supply unit
- A USB 2.0 connection cable
- A CD contains driver software
- A user's registration form

Chapter 2 System Installation

This chapter provides a brief guidance on how to install the SUPERPRO software and connect the programmer hardware properly.

NOTE: To avoid complications during the installation process, you must setup the software before connecting the programming hardware (the USB device) to your computer. That is, installation through the "Add New Hardware Wizard" of Windows system is NOT recommended (this might lead to wrong drivers with a different compatible device ID).

2.1 Software Setup

Select the software to setup your SUPERPRO programmer either from the CD-ROM or by downloading the program from the Xeltek website. Instructions for both methods are described below.

2.1.1 Software setup from CD

1. Insert the CD into the CD-ROM drive.
2. If the setup program does not start automatically, run SETUP.EXE located in the root directory.
3. Select the appropriate programmer model.
4. Click **Setup**.

NOTE: Each model has its own software and they are NOT compatible.

2.1.2 Download the software from website and setup (recommended)

You can also download the specific software for a certain model at Xeltek website: <http://www.xeltek.com>. Select the icon to download the appropriate file for your programmer. Once you have saved the file to your computer, run it to setup the software. The following procedure describes the setup process step by step.

1. Once the setup program is running, a dialog box displays to allow the user choosing a preferred language. Select one from the drop down list and click **OK** to continue



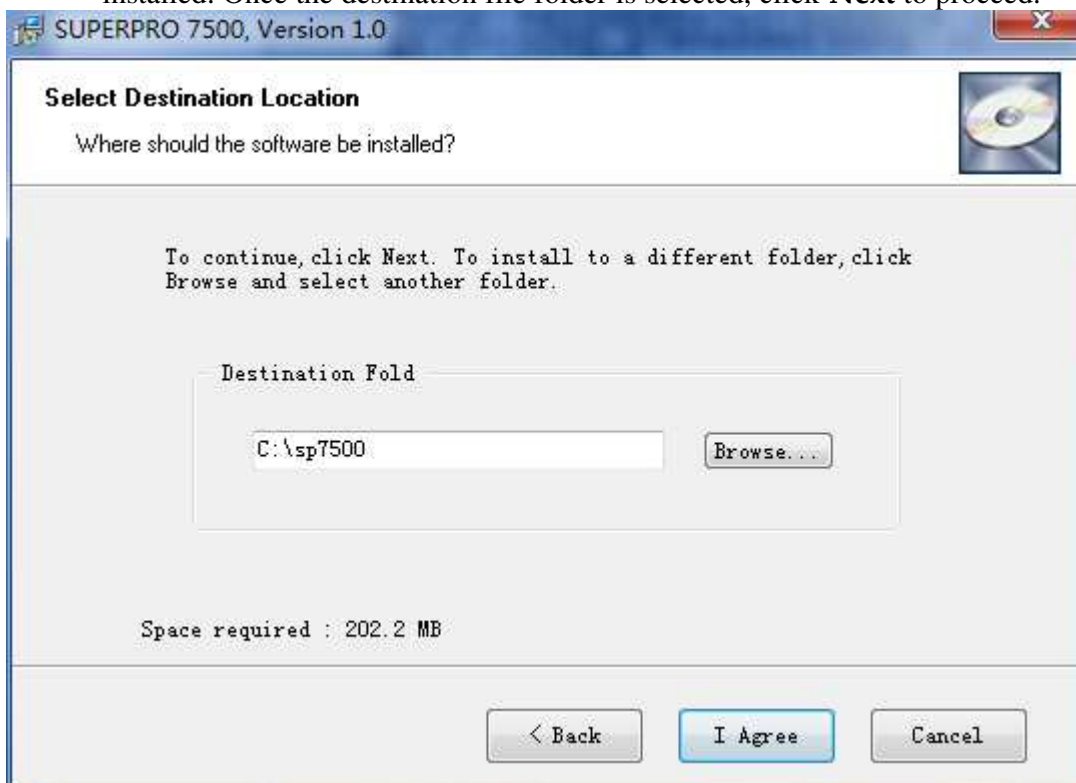
2. An installation wizard will be displayed (as illustrated below). Click **Next** to continue.



3. A License Agreement will be displayed. Click **I Agree** to continue.

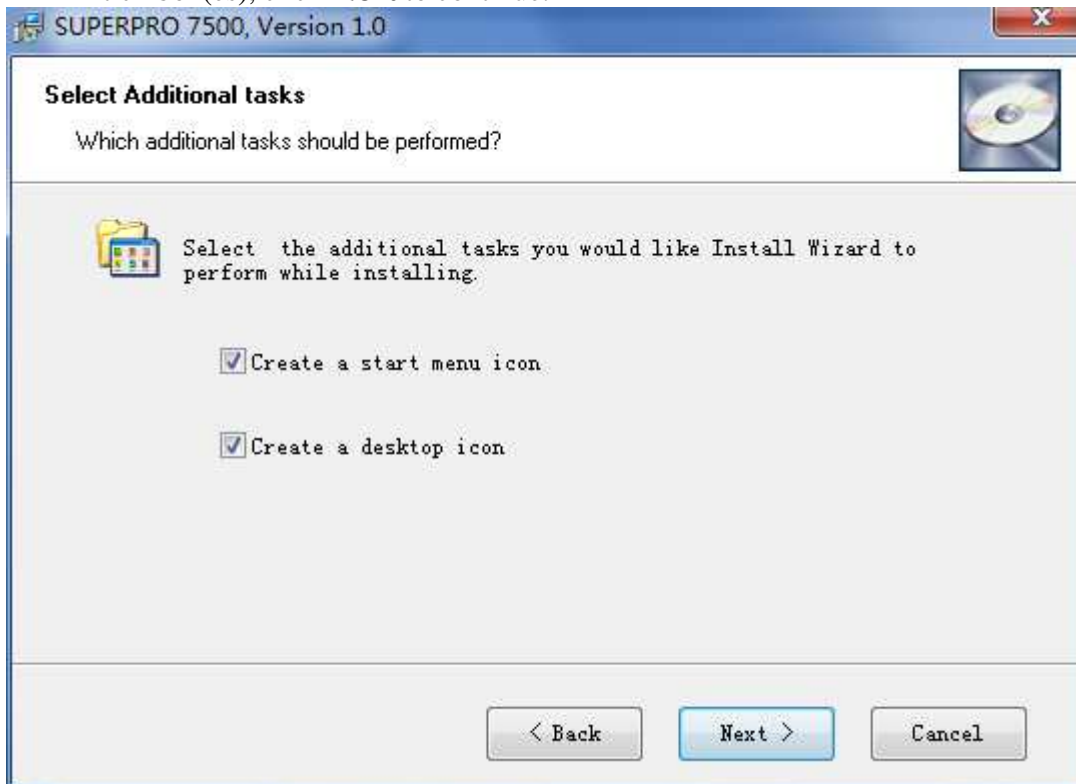


4. Choose the Destination Location in which the driver software will be installed. Once the destination file folder is selected, click **Next** to proceed.

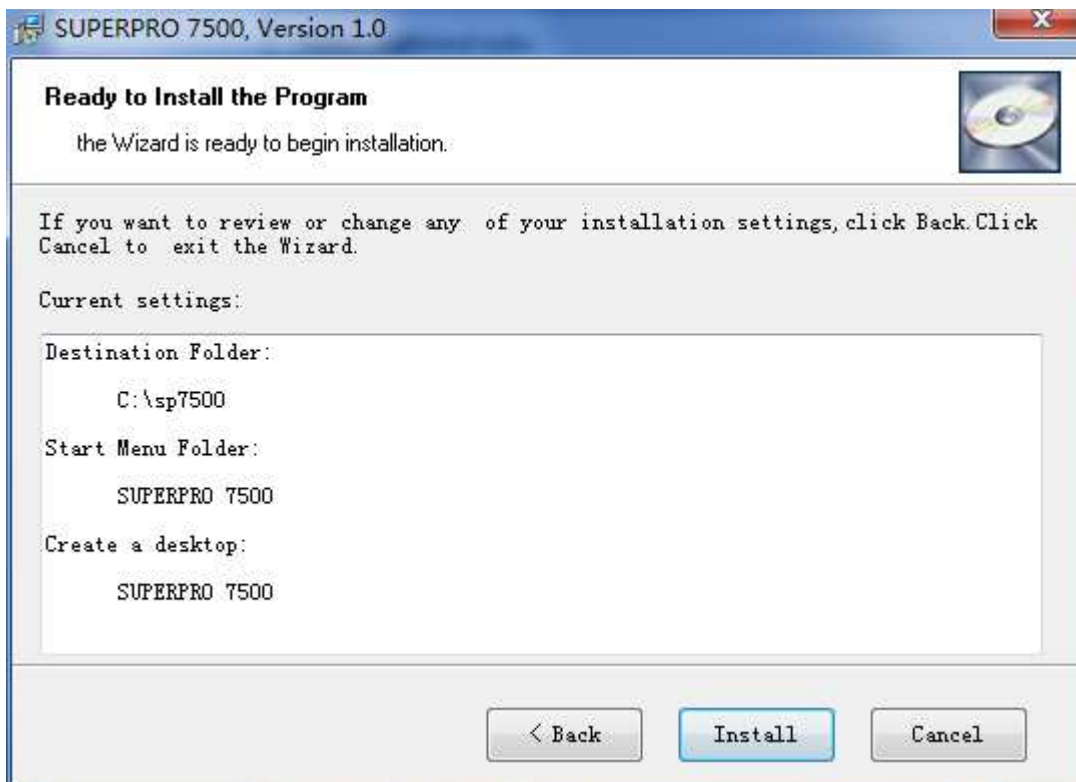


5. Another dialog box will be presented and allow the user to choose whether creating a start menu icon and/or a desktop icon. Once correctly check the

tick box(es), click **Next** to continue.



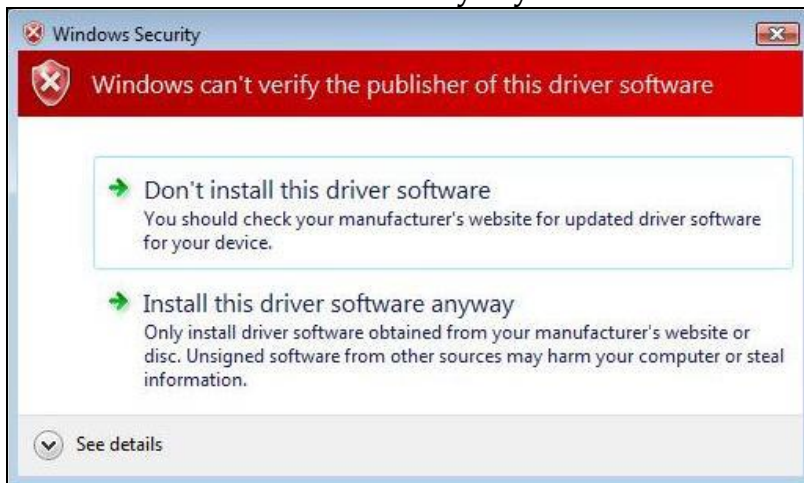
6. Check the previous selections and click **Install** to start the installation



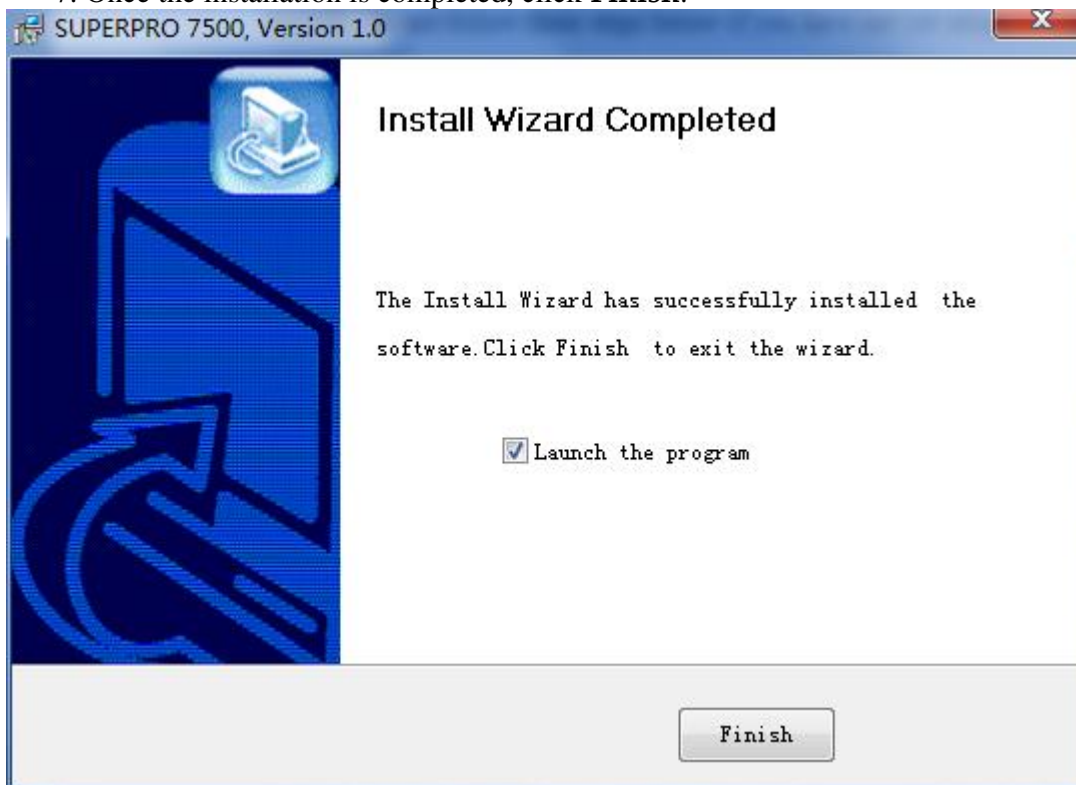
NOTE: If you are using the Windows Vista system, the operation system may

display the following dialog box to ask you whether to install the software. Select

Install this driver software anyway.



7. Once the installation is completed, click **Finish**.



2.2 Hardware and Driver Installation

After you set up the software, you can install the hardware and driver. The following procedure explains the installation process.

NOTE: Do not follow these steps below if you have not yet setup the software (see section 2.1).

1. Make sure all other programs are closed during the installation process.
2. Connect the programmer module to the computer through the USB port.
3. Turn on the power switch of the programmer module.

When you connect the new hardware, the system initiates the New Hardware Wizard, which locates the driver from the software you have just installed.

The system displays alerts one at a time, illustrated below. The alerts on your system may be slightly different.



4. After you open the application software for the programmer, the system automatically starts the initialization. If it does not, make sure the programmer is securely connected to the computer and that the power switch is on.

Chapter 3 Quick Guidance of the Software Features

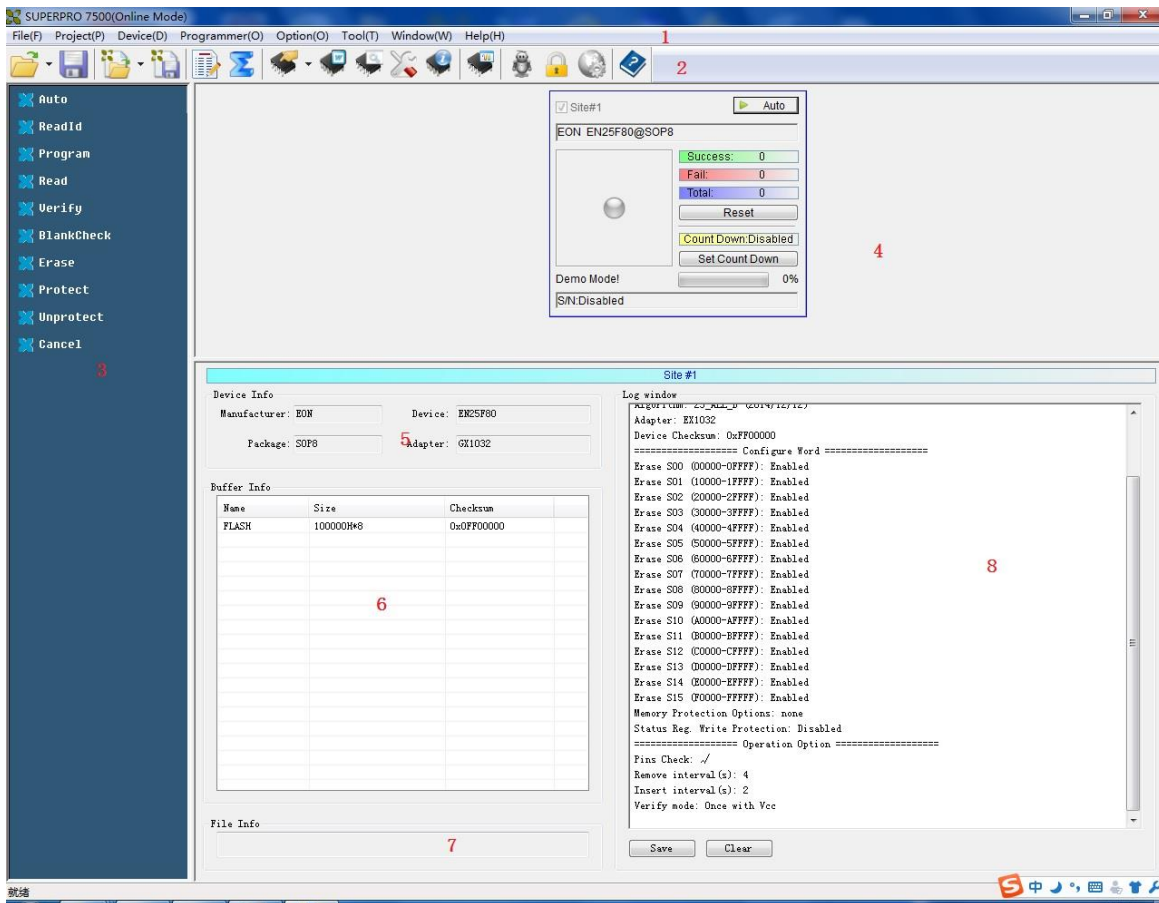
This chapter is a quick guidance of the SUPERPRO[®] software. It describes the functions and features of the programmer that are most frequently used. The SUPERPRO 7500 provides two programmers in one, they are: PC mode for engineering and Stand-alone mode for production.

- Under PC hosted mode, a PC controls the programmer via a high-speed USB connection to program a chip.
- Under stand-alone mode, the user controls the programmer via 20-characters, 4-line LCD display with 6-KEY keypad.

In this chapter, all the features being described are in PC mode, while the stand-alone mode is described elsewhere.

3.1 The User's Interface (main screen)

The main SUPERPRO screen is illustrated below. Each part of the user interface is labeled with a number and described below.



1. The *Menu Bar* provides access to the **File**, **Buffer**, **Device**, **Option**, **Project**, and **Help** menus.
2. The *Tool Bar* offers quick access to many commonly used functions.
3. The *Command Window* enables shortcut to many commands and operations.
4. The *Programmer Statue Panel* shows the state of the current project and programmer.
5. The *Device Panel* shows the connected device.
6. The *Buffer Panel* shows the state of the buffer.
7. The *File Panel* shows some basic information of the loaded file.
8. The *Log Window* displays the operation history.

A detailed specification of the *Programmer Statue Panel* is shown in the picture below and described accordingly to the numbered notation.



1. Module number and the ID of the programmer
2. Auto/Cancel button
3. Device name and the manufacturer information
4. Statue bar shows the success/failure of the programmer
5. Statistic information panel
6. Count down settings and information
7. Connectivity and progression of the programmer/project
8. Serial number

3.2 Programming Procedures

This section provides information on steps for common procedures to programme devices using SUPERPRO 7500.

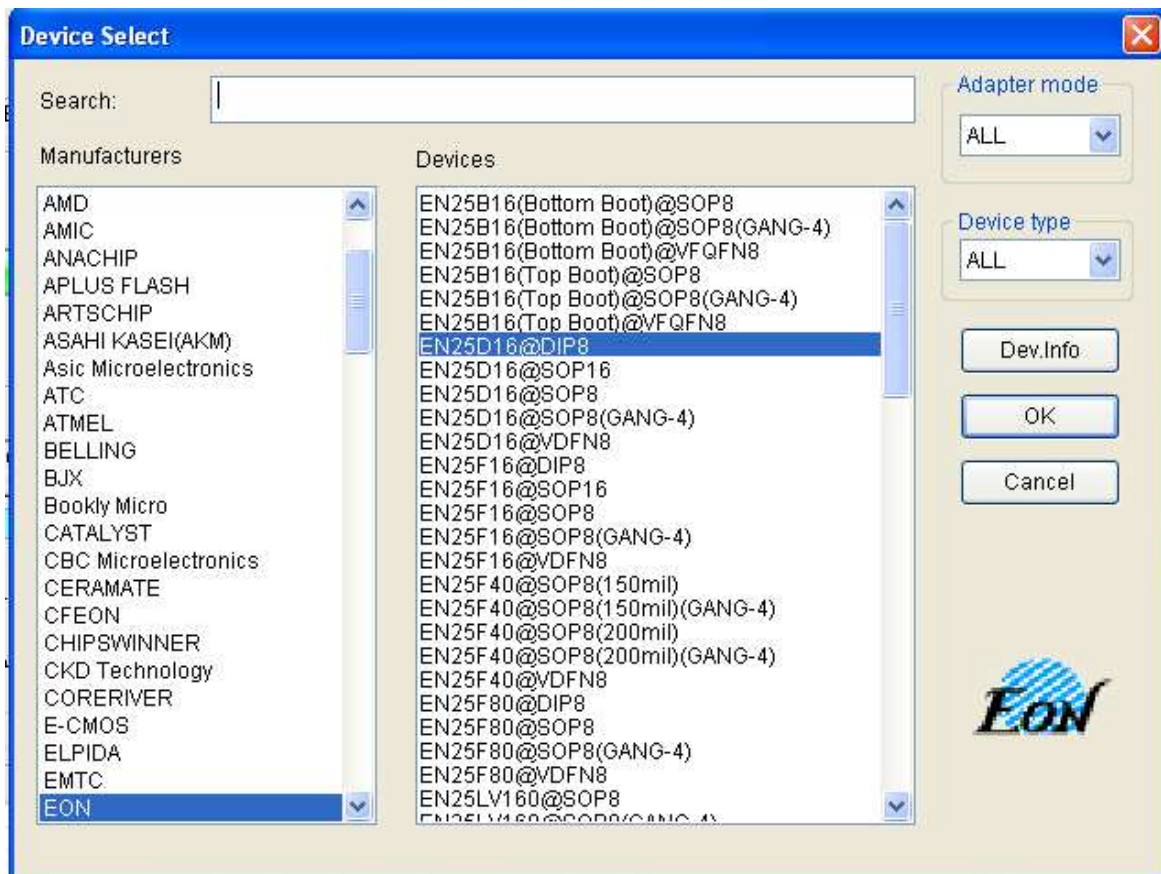
Before using the programmer to program a device, make sure that the programmer is installed properly and that the computer and programmer are communicating successfully. Make sure that you have the appropriate adapter for your SMD devices, if applicable. Insert the chip correctly. Follow the guidelines of the standard chip insertion markings near the pin-driver socket. However, if you select SMD or a device that requires non-standard insertion, the system prompts you with the appropriate chip insertion.

3.2.1 Select the device

To open the Device Selection window, choose one of the following options:

- Select the **Device Selection** icon
- Select the **Device** menu and select the **Select Device (Device)** option.

The system then displays the Device Selection screen as shown below.



NOTE: The red device name means that such device(s) need authorization to use.

3.2.2 Load data into buffer

One can load data into the buffer by reading data either from a file or a master chip.

- To read data from a file, select **Load File** from the **File** menu. The system displays the **Load File** dialog box. To make sure the loaded data is correct one can review the information in the **Buffer** window.

NOTE: Some **Hex** or **S record** files contain non-zero file initial address. In this case, enter the start address in the File Address box.

- To read the data from a master chip, complete the following steps:
 - Insert the master chip in the socket.
 - Select **Read** on the **Device Operation** window in the main screen. The

data will be copied from the master chip to the buffer memory.

- To make sure the loaded data is correct one can review the information in the **Buffer** window.
- If desired, you can save the data to a disk for later use.

NOTE: The read function is not available for some devices, including those have been encrypted.

3.2.3 *Set options*

- Click **Operation Option** from the Option menu to open the Operation Option screen. Set each of the following options:
 - **Insertion Test** indicates whether to check the pin contact.
 - **Device ID Check** indicates whether to check the ID of the device.
 - **Beeper** indicates whether the beeper alarms a sound when the operation succeeds/fails.
 - **Auto Increment Function** indicates an automatic increase in the label number written to each chip.
 - **Address Change** indicates whether a different start and end address shall be applied for the programming zone of the device.
- To set the order of the batch processing functions, select **Edit Auto** from the Options menu. The system displays the Edit Auto screen.
- For devices that include the configuration word, you must set the configuration word before programming to ensure that the chip can be used on the target system. The configuration words for some devices are contained in the data file. Therefore, the system automatically loads the configuration word into the configuration word buffer when loading the data file. For some devices, you must manually make the selection. Select **Device Configuration Word** from the Device menu to open the ConfigWord screen.
- Many devices must meet some special requirements for the programming of a chip, including special algorithms conventions. Read the device manual or instructions carefully and adjust the operation steps or buffer data as needed.

If an adapter is required for programming, the system displays information about the adapter in the device information screen.

3.2.4 *Execute programming*

Insert the chip properly into the socket. If the prompt information indicates a need for an adaptor, you may purchase the adapter. The operation procedure for the programming of a chip is described as the following steps:

- **Blank Check**

NOTE: You can skip this step if the chip is brand new.

The Blank Check fails on electrically erasable chips containing some information. In this case, perform the Erase operation first. You do not need to erase EPROM chips for which the data can be overwritten.

- **Program**
- **Verify**

NOTE: This step is necessary. The chip must pass Verification before the programming can be implemented. Some chips provide only the accumulation check function, such as VerifyCRC instead of a unit-to-unit check function. Very few chips do not provide the accumulation check function.

- **Security or Protect if encryption is required**

NOTE: You may need to set the configuration word before performing encryption. Refer to Device Configuration Word on page 37 for more information. Select Auto to finish all the operations in one step.

- **Execute Production Mode to Program Chips in Batches**

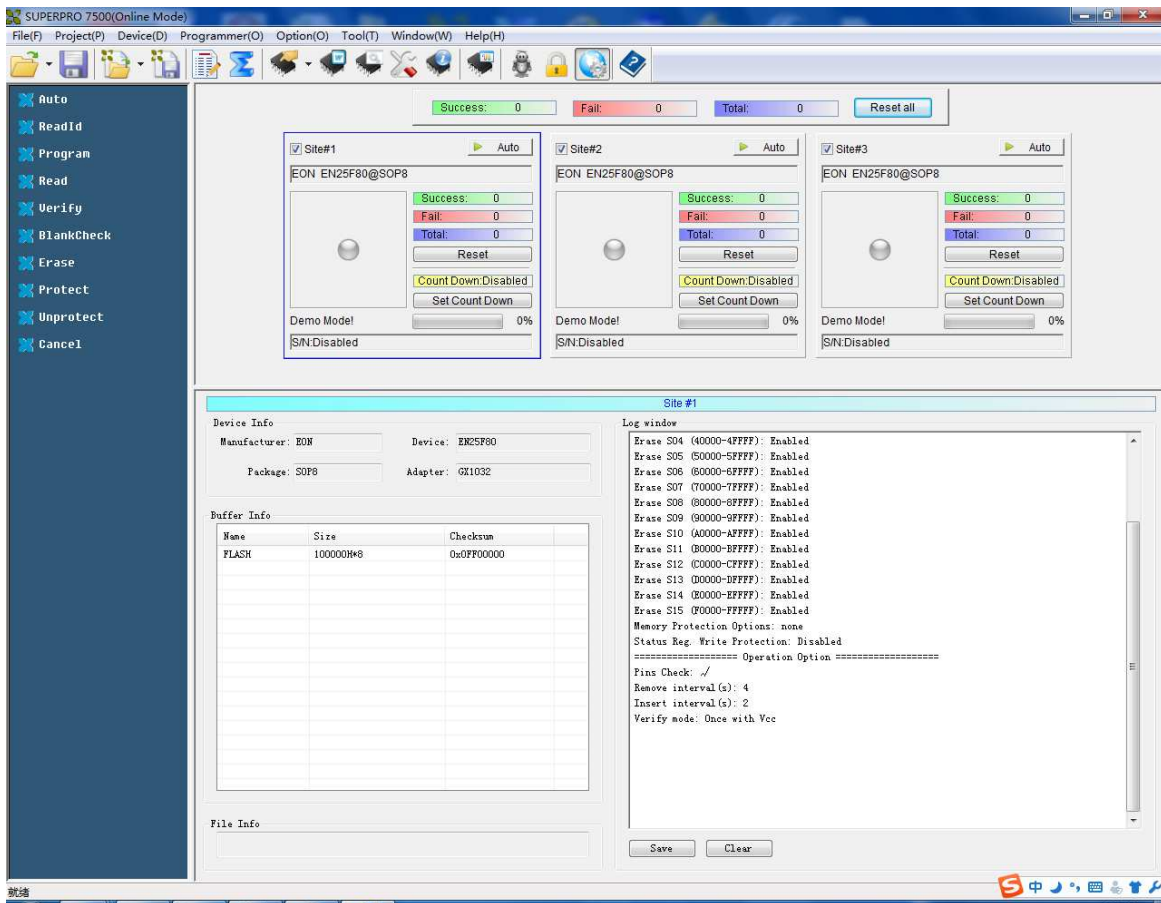
Select Production Mode from the Option menu to program devices in large quantities. This function facilitates the job of the user who programs chips in batches. In order to program chips in batches, the programmer always conducts the insertion test. The programmer waits for the chip insertion to initiate while the system displays the following prompt: Please, insert a device into the socket. Once you have properly inserted the chip, the auto batch-processing command starts automatically.

3.3 Programming When Connected by Hub

SUPERPRO[®] 7500 provides a connection hub and user can simultaneously operate multiple SUPERPRO[®] 7500 programmer by using the hub.

Click menu **Programmer** -> **Module Management**, and select the number of the programmer you want to operate. Picture below shows the interface when simultaneously operating three programmers.

Every programmer has a unique number. The programmer's first line of the LCD display will show the number of this programmer. The module that is selected at the time will be highlighted. The device that is going to be programmed can be different type(s) in each of the module that is connected through the hub.



- In normal mode, all operations (i.e. selecting devices, loading documents and programming) are carried out in the programmer that is selected and highlighted at the time being.
- In global configuration mode, all the operations are carried out in the programmer(s) that is selected with the check in tick-box(es).

NOTE: Choose specified hub for XELTEK to connect SUPERPRO/7500, and currently up to 8 programmer can be operated simultaneously.

Chapter 4 Functions and Commands

This chapter provides a detailed specification and explanation of the SUPERPRO®

software. It includes the description of the functions and commands that is listed as below,

- File Menu and Tool Bar (4.1)
- Project Menu (4.2)
- Device Menu (4.3)
- Option Menu (4.4)
- Tool Bar (4.5)
- Log History Window (4.6)

4.1 File Menu and Tool Bar

The **File** menu provides access to the commands of **Load**, **Save**, **Recent Projects**, and **Exit**. Each function is described in the following sections.

4.1.1 Load File

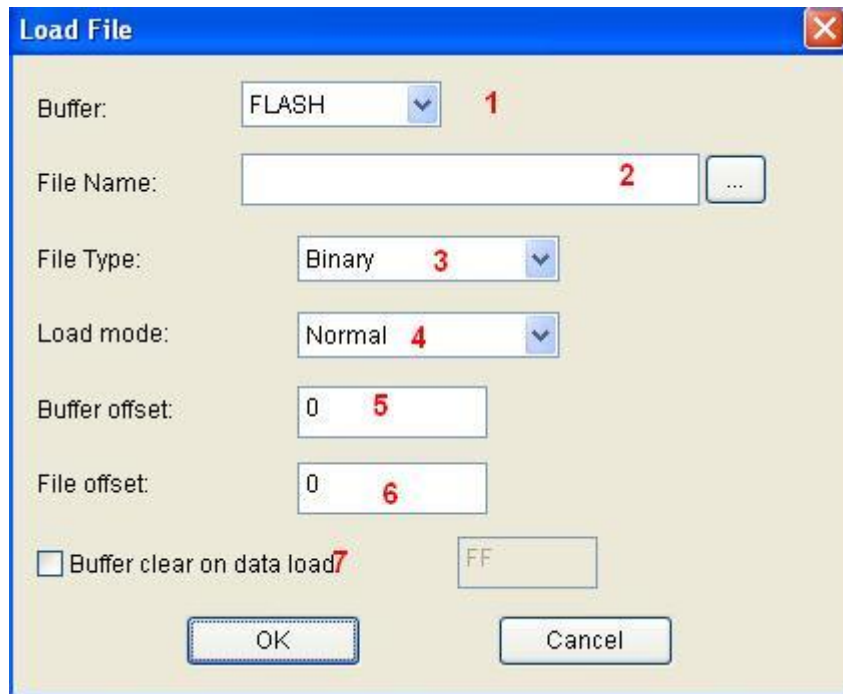
There may be one or more data buffers in the device. If several data buffers are displayed after you have selected the device, refer to the name and the data manual for the meanings of the buffers. The two data types of the device are **Data (HEX/ASCII)** and **Fuse**.

- For most **EPROM** and **SCM**, the data type is **Data (HEX/ASCII)**.
- The data type for **PLD** device is **Fuse**.

After you select the device, the software automatically will identify the data buffer type. You can review the buffer data types if you open the **Edit** dialog box for the data buffer. When some file data are loaded into the data buffer, the following rules apply:

- With a **HEX/ASCII** data buffer (**EPROM**, **MCU** etc.), the system assumes that 8 bits of the data are valid.
- With a **JEDEC** buffer (**PLD/PAL**), the system considers the lowest bit (1 bit) of the file data valid.

Select **Load** from the **File** menu to open the **Load File dialog box**, as illustrated below. The red labels refer to the numbered notations follow this figure.



1. **Buffer.** To select the **Buffer** name from the drop down list. The system loads the file data into the buffer accordingly.
2. **File Name.** To enter the name of the data file to load it, or you can select **Browse** and choose the file using the **Select File box** .
3. **File Type.** To select the type of the file from a drop down list. Different file types are included here, e.g. Binary, Intel Hex, Motorola S record, JEDEC, POF, TI, etc.
4. **File Mode.** To select one of the following File Modes from the drop down list:
 - **Normal** to load the whole file
 - **Even** to load the first byte and discard the second byte out of every two bytes
 - **Odd** to discard the first byte and load the second byte out of every two bytes
 - **1st byte of 4** to load first byte and discard the other three bytes out of every four bytes

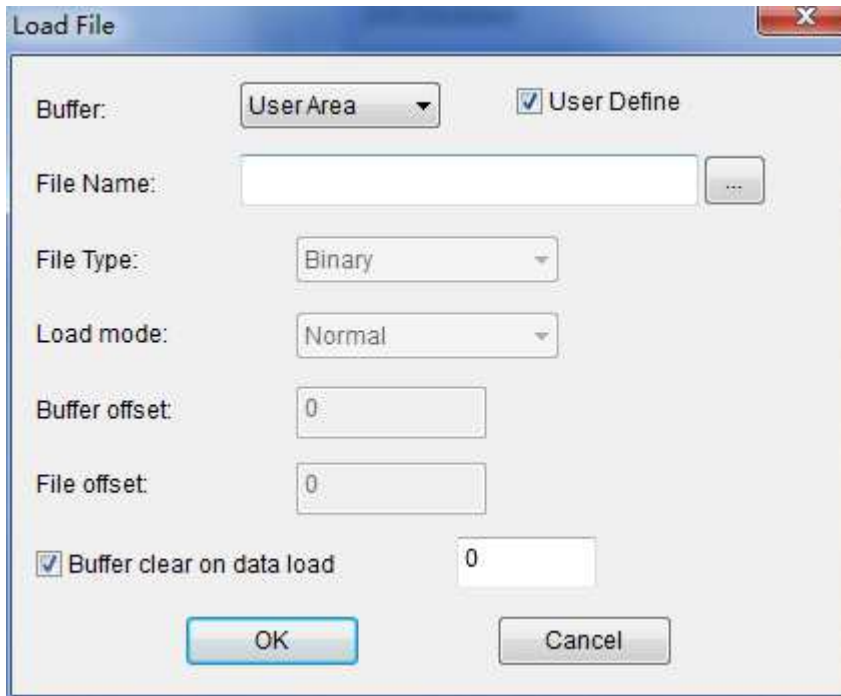
- **2nd byte of 4** to load the second byte and discard the other three bytes out of every four bytes
- **3rd byte of 4** to load the third byte and discard the other three bytes out of every four bytes
- **4th byte of 4** to load the fourth byte and discard the other three bytes out of every four bytes
- **1st 2_byte of 4** to load the first two bytes and discard the other two bytes out of every four bytes
- **2nd 2_byte of 4** to load the last two bytes and discard the other two bytes out of every four bytes

5. **Buffer Address.** To indicate a different initial address of the data being loaded into the buffer.

6. **File Address.** In case the file type has a non-zero start address, enter the data offset address in the **File Address** field. Make sure to enter the correct address, because an incorrect file offset address causes part of the buffer to be filled with FF (or incorrect data).

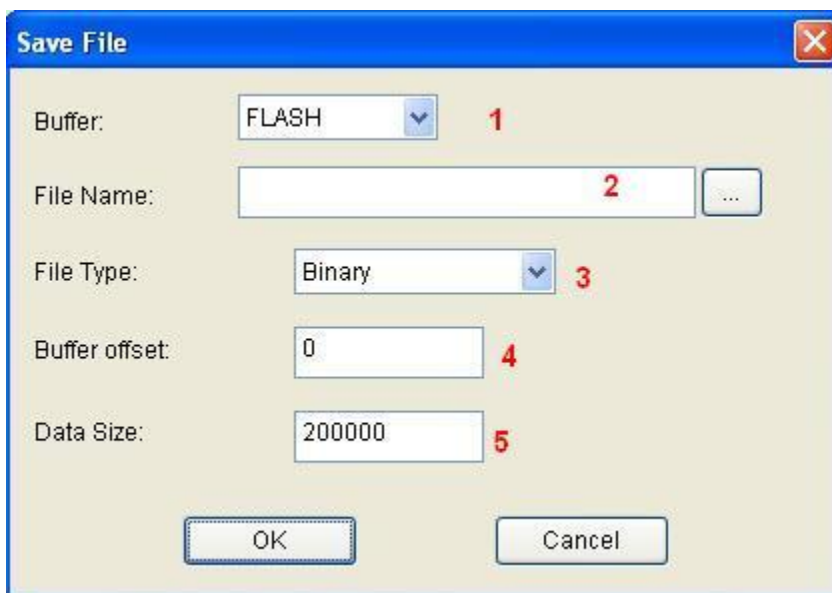
7. **Buffer clear on data load.** Tick this checkbox will enable the user to fill the data buffers with the specified data.

NOTE: Ticking the checkbox of Custom File will disable most loading option.



4.1.2 Save File

Select **Save** from the **File** menu to save data in the current buffer to a disk file. A dialog box titled as **Save File** will be displayed and the saving options are similar to those in section *4.1.1 Load File*.



1. **Buffer.**
2. **File Name**

3. File Type

4. Buffer Address

5. **Data Size.** To enter the save data size in number of bytes.

SUPERPRO® 7500 User's Guide

3. File Type

4. Buffer Address

5. **Data Size.** To enter the save data size in number of bytes.

4.2 Project Menu

The project file contains all of the information and preparations before programming.

It can also be used to restore the working environment that has been saved previously. The project file includes:

- The current device's information, such as:
 - Manufacturer
 - Device type
 - Pin size
 - Data file name
 - Current buffer data

NOTE: The buffer data may differ from the data file due to revisions.

- All Operation Option settings
- The content of the Auto mode
- Software module related to the project

NOTE: The project content is related to the programmer software. If the software has upgraded or has been re-installed to another folder, the saved project files become ineffective

4.2.1 Load Project

Select **Load Project** from the **Project** menu to load a project file. Select the file in the **File** dialog box. Following the information that is provided by the project file, user