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User's Guide

XELTEK

**SuperPro[®] 7100
Series**

XELTEK

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IMPORTANT!

1. This manual applies to SuperPro 7100.
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 errors.

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Chapter 1 Overview

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 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 (USB2.0 Series)

The USB 2.0 Series supports:

- Windows XP, Windows Vista, and Windows 7
- Large amount of 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.

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

Section 2 is about detailed specification and explanation of all the features, commands, and function modules.

Section3, Appendices, has 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 and at least one serial USB 2.0 Bus interface.
- Windows XP, Windows Vista, and/or Windows 7 operating system
- 1 GB free space on the hard drive, determined by the size to be written. For example, if the content to be written is 4G, the minimum space available must be larger than 4G; otherwise the operation cannot be finished.
- A CD drive

1.5 Package content

A standard SUPERPRO programmer package includes:

- A Programming host machine
- A USB 2.0 connection cable
- A Power supply unit
- One CD (contain programmer software and User's Guide)
- User registration table

Chapter 2 Software Installation

If you are the first time to use Xeltek universal programmer based on USB, this chapter provides a brief guidance on how to install the SUPERPRO software and connect the programmer hardware properly. USB device is plug-and-play, so when the first time to install, Windows will scan all available INF files through the "Add New Hardware Wizard" of Windows system. To avoid USB device installation trouble, we strongly recommend you to install programmer software first, the INF files and driver for USB device installation will be processed automatically.

2.1 Software setup from CD

Insert the CD into the CD-ROM drive.

If the setup program starts automatically, a dialogue will come out for you to choose a programmer model; if the setup program does not start automatically, run SETUP.EXE located in the root directory.

According to your purchased programmer, choose the right model, and click the button "Setup" to install programmer software.

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

2.2 Download the software from website and setup (recommended)

You can also download the specific software for a certain model at Xeltek website:

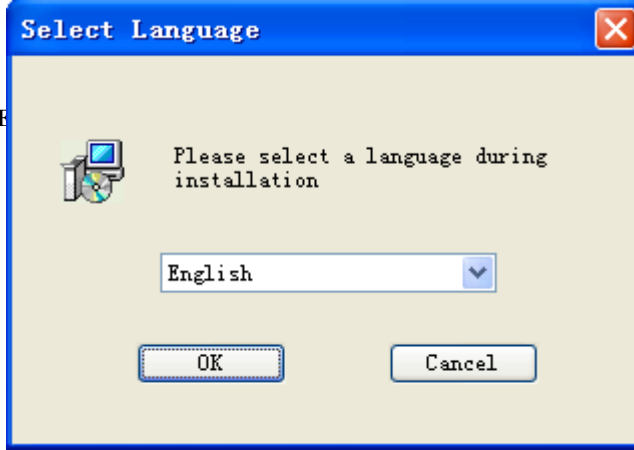
<http://www.xeltek.com>. Select the icon to download the appropriate file for your programmer.

Once you have saved the file to your computer, and run it to setup the software.

2.3 Software Setup Procedures (Example by SUPERPRO/7100)

The software installation will be done step by step, and users can change default settings during the setup procedures.

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.



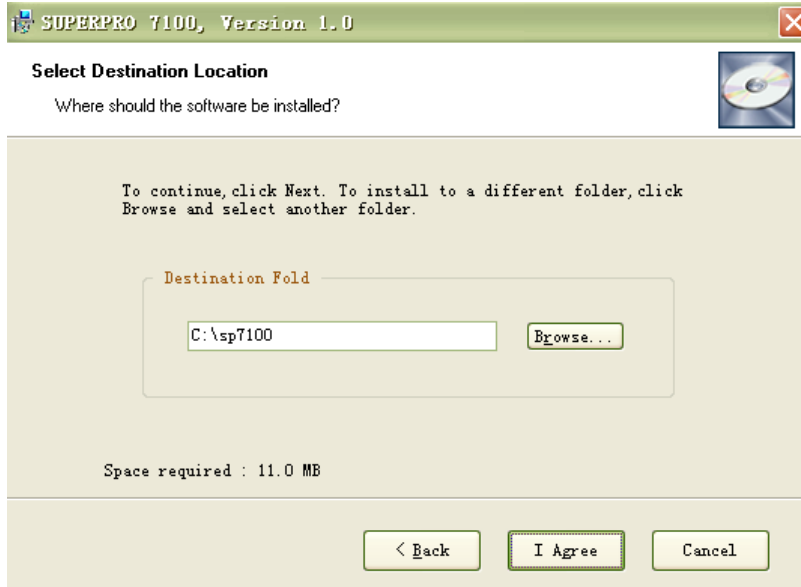
After this dialogue finishes, another dialogue will come out automatically.
2. An installation wizard will be displayed (as illustrated below).



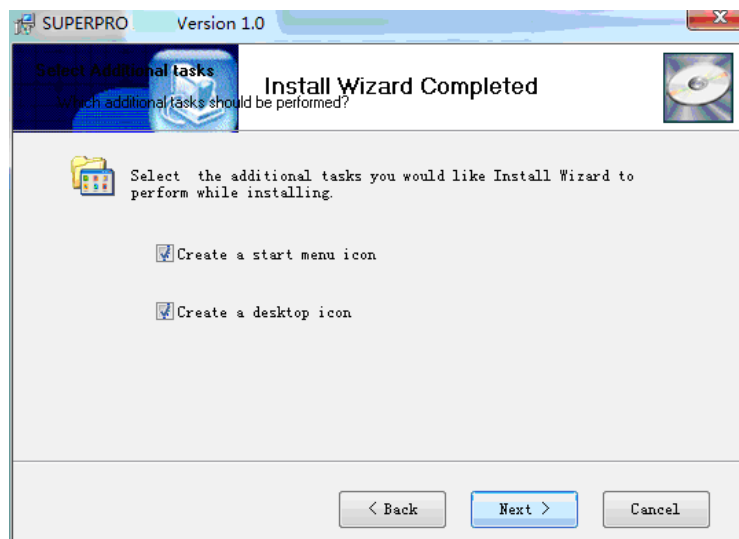
3. A License Agreement will be displayed. Click I Agree to continue.

Read this agreement carefully. Agreeing to install means accept the agreement by default. Click I Agree to continue or click Cancel to quit.

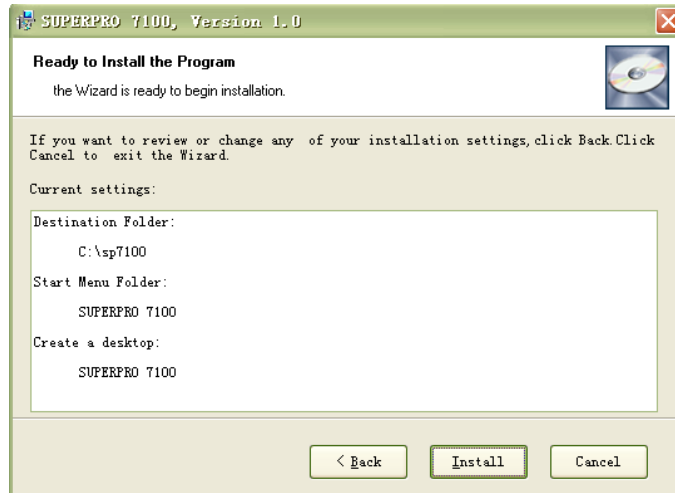
4. Choose the Destination Location in which the driver software will be installed. Click Browse to change the default destination location. Once the destination file folder is selected, click Next to proceed.



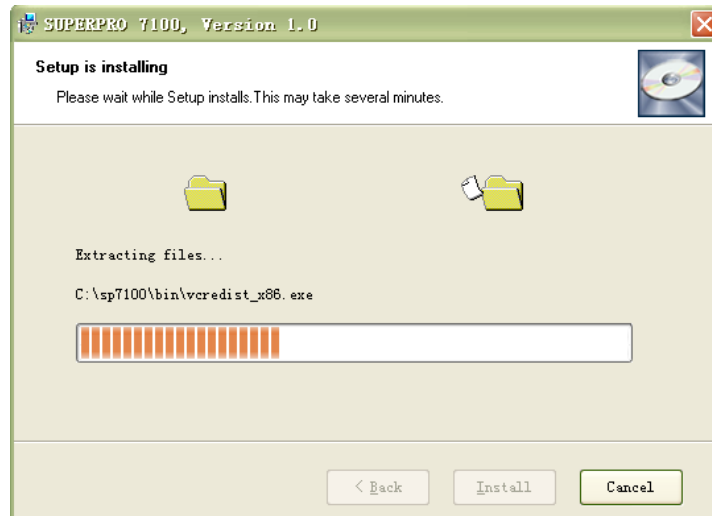
5. Another dialog box will be presented and allow the user to choose whether creating a start menu icon and/or a desktop icon. Once correctly check the box(es), click Next to continue.



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



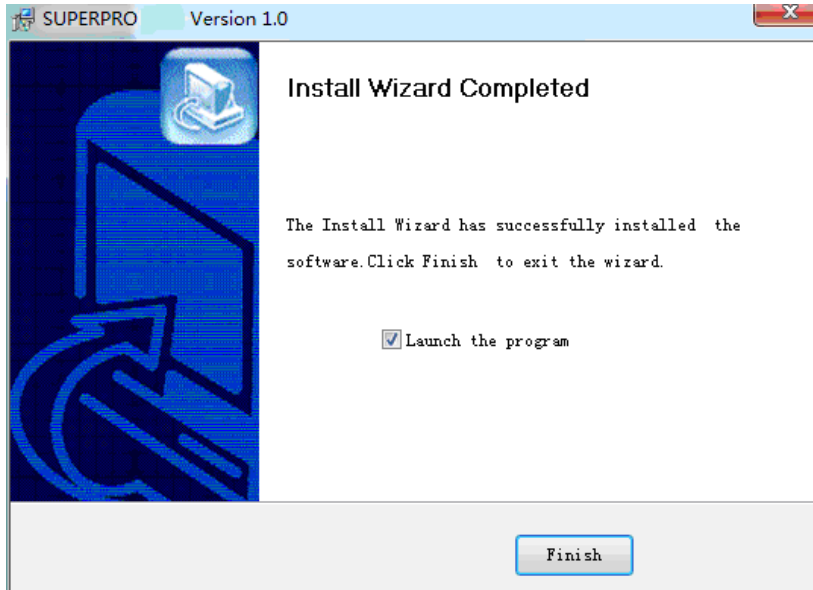
Copy, driver setup and software registration will be done here.



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.



2.4 Hardware and Driver Installation

Connect a programmer and a computer by USB (Universal Serial Bus), and then turn on the programmer power.

After you set up the software, you can install the hardware and driver automatically. 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 one alert message at a time, illustrated below. The alert message on your system may be slightly different.



2.5 Programmer Software

Programmer software has a standard Windows interface, including drop-down menu, buttons, etc. Users should be familiar with Windows operation system, and can skillfully use mouser.

Programmer software will communicate with programmer hardware and initiate it immediately after its start. If failing, please check as the following steps:

- Connect programmer and computer properly, and turn on power
- Setup procedure properly. If connecting programmer hardware before installing software, computer will detect new hardware, and following window will show up:

To avoid compatible ID setup software is used to make troubles, please click Cancel immediately.

Chapter 3 Quick Guidance to Write Devices

This chapter is a quick guidance to write devices, including:

- Software user interface
- Procedure to write devices
- Programmer hardware interface

Before you are ready to write devices, please make sure that the programmer driver has been set up, and the programmer has been connected by USB. The SUPERPRO/7100 is a multi-purpose, ultra-high-speed, multi-channel, universal programmer, and suitable for R&D and production. It has two working modes:

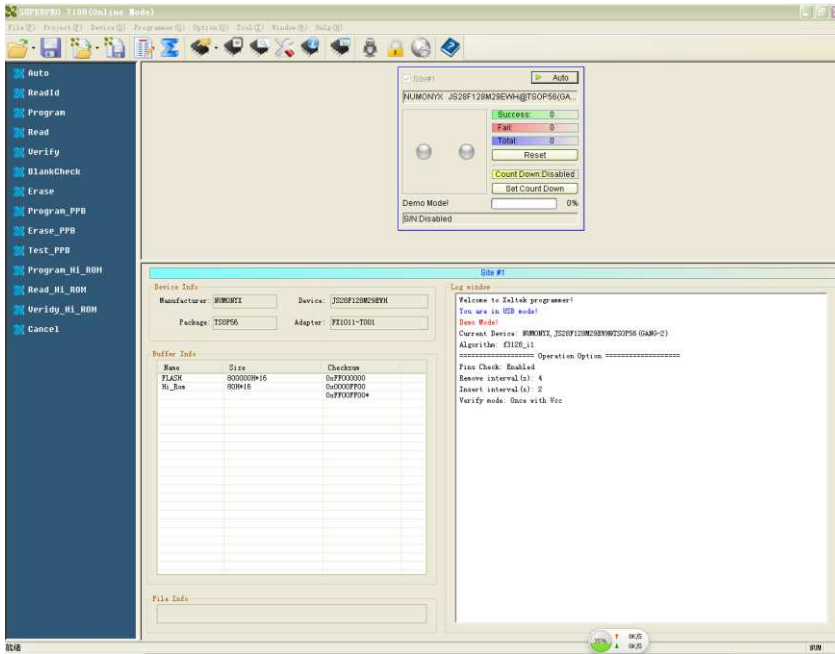
- Online mode: Connected to PC USB by USB2.0 cable, the programmer has an extremely user-friendly and powerful interface. Also the programmer can be connected to PC by a standard network cable, and it works under network mode. We recommend USB mode, and online mode refers to USB mode.
- Stand-alone mode: Operated by a keyboard and LCD screen, not necessary connected to PC. Save user engineering document on SD card. Users can make engineering document under online mode and download it on SD card, or copy it to SD card. Note: Stand-alone mode does not support the function of generating serial number automatically.

Additionally, it supplies API interface and command line mode, and integrate programmer system into customers' systems to form a completely automatic writing system which is popular in ICT testing or automatic production lines.

This Chapter will introduce Online Mode, and Stand-alone Mode will be discussed in later chapters.

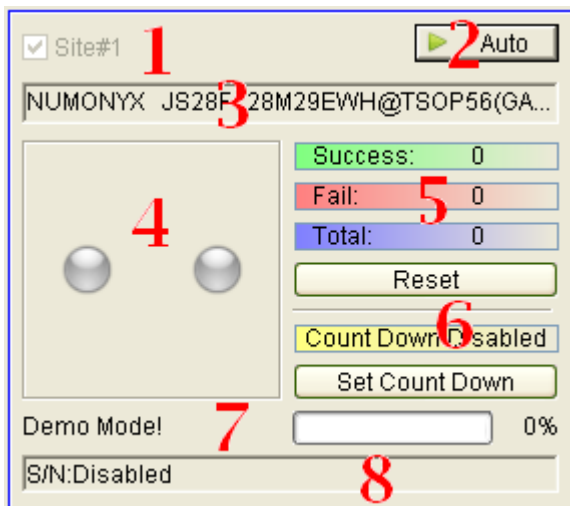
3.1 The User's Interface

Running the programmer software, the following user interface will come out:



- 1. Menu Bar
- 2. Tool Bar
- 3. Command Window
- 4. Programmer Statue Panel
- 5. Device Status Panel
- 6. Buffer Panel
- 7. Data File Panel
- 8. The Log Window

A detailed specification of the Programmer Status Panel is shown in the picture below:



- 1. Module number and the programmer ID

2. Auto/Cancel button
3. Device name and the manufacturer information
4. Status bar
5. Statistic information panel
6. Count down settings and information
7. Programmer status panel
8. Serial number

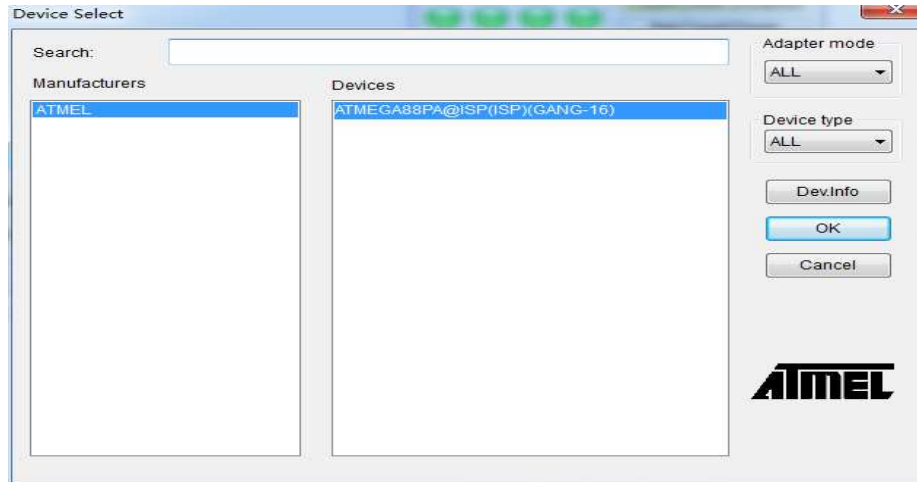
3.2 Programming Procedures

Before using the programmer to write a device, make sure that the programmer is installed properly and that the computer and programmer communicate successfully. Insert USB cable and turn on power as shown in the following picture.



3.2.1 Select the device

To open the Device Selection window, click Select the Device icon or select the Device menu and select the Select Device option. First choose adapter mode (including ordinary, GANG2, GANG4, and ISP), and then choose Device Type, for example, E/EPROM, BPROM, SRAM, PLD OR MCU. Next, select manufacturer and device name, and click OK. Also by searching device name in editing windows to narrow searching, choose devices quickly.



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

3.2.2 Load data into buffer

The process of programming chips is to load buffer data into chip memory units per manufacturers' requirements. There are two ways to load data into buffer:

1. Read data from a file

Select Load File from the File menu to load data from a file into buffer. Input the relative file folder and name into the Load File dialog box, and then choose file format from the File Type dialogue box. Next load file data into buffer after confirmation. To make sure the loaded data 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.

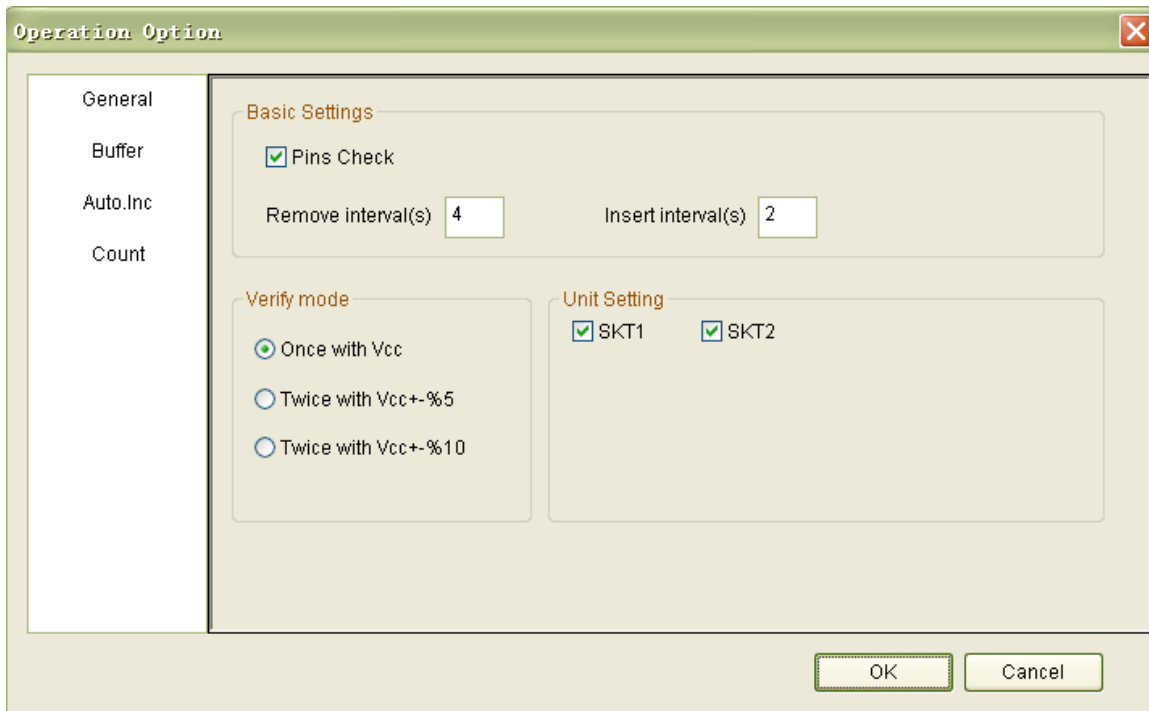
2. Read the data from a master chip

Insert the master chip in the socket after device selection, and 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 correct, one can review the information in the Buffer window. You can save the data to a disk for later use.

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

3.2.3 Set options

- 1) Operation Option



- Insertion Test Choice: To determine whether to check insertion before writing chips.
- Serial Number Auto Increment Function: If choosing to write the accumulative number at the specified position when programming, all the written chips will have different numbers.
- Change Device: Need the start and end address of the to-be-written area.
- Verify Mode: By data manual's requirement, choose specified VCC verification voltage to verify the programming's rightness.
- If the chosen device algorithm can program multiple chips simultaneously, choose the unit to be written first. By default, all units (channels) are chosen, so customers can choose which units to be written at their will.

2) Auto

In the Device Operation Window, each device has a basic batch operation Auto. It will run other operation functions in fixed order automatically. Ordinary devices choose the following automatic programming mode.

- Erase
- Blank_check
- Program
- Verify
- Security or Protect

3) Device Configuration Word

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 user data file, and can be written into configuration word buffer automatically when loading data file. For some devices, you must manually make the selection.

4) Device Menu

After selecting devices, the device menu dialogue box will come out to display device status. 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. Simultaneously, connect programming cable and chip pins by pin connection guidance, which is an important step in online mode.

5) Production Mode

Online programmer cannot do pin detecting, therefore production mode is different from ordinary programmers. The system control port of a programmer supplies an input detecting pin. In production mode, once high-voltage detected, AUTO operation will be initiated automatically (Details are shown in 3.4 Programmer Hardware Interface).

3.2.4 Execute programming, loading buffer data into the chips

Users can buy adapters by the given instruction, and insert chips properly.

The procedure to program chips is as following:

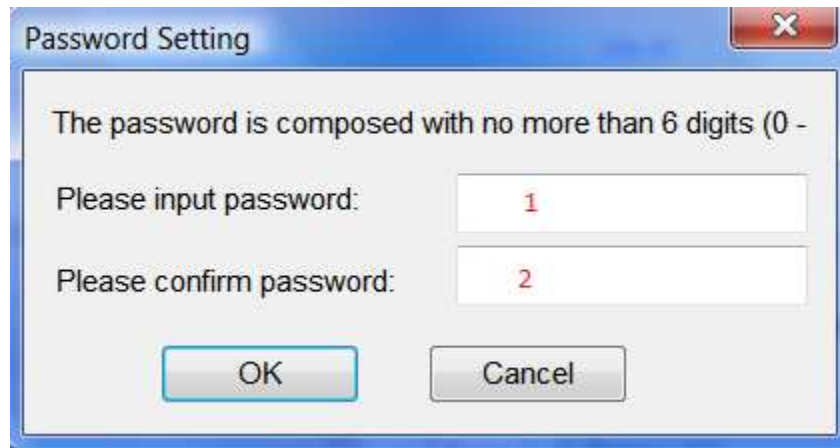
- Blank_Check. If the chip is new, ignore this step.
- Program
- Verify. Verification is a must. Only after the verification succeeds, the chip programming is confirmed right. Some chips do not supply unit to unit verification function but accumulative verification function similar to Verify CRC. Very few chips even do not supply accumulative verification functions.
- As to erasable chips with data, blank-check will fail. At this time, Erase operation should be executed first. Some EEPROM devices can be programmed directly without erasing first.
- If the device needs encryption, add Security or Protect function after verification. Note: The encryption for some devices needs to set device configuration word first. Please refer to Function Details.

Users can choose Auto to finish all functions at one time.

3.2.5 Safety and Password

To protect user's data from being used by others, input passwords during the process.

- Set password: Input new password



1 · New password

2. Password confirmation

When text in box 1 is same with text in box 2, the password is valid. When the texts in box 1 and 2 are empty, it means password unnecessary.

Note: Space can also be used as password.

- Password Confirmation: Need when operating the protected data.



The description mentioned above is a must process to write a chip. If you are first time to use, please read chapters about Function Details for details.

3.3 Project File

Project file is a special file type for programmer(.prj). It contains all information for programming, such as customer settings, options, Auto and data to be programmed. Project is required for stand-alone mode.

The standard procedures to create a project file:

Select device -> Load data -> Option setting -> Auto edit -> Configure word setting -> Save project

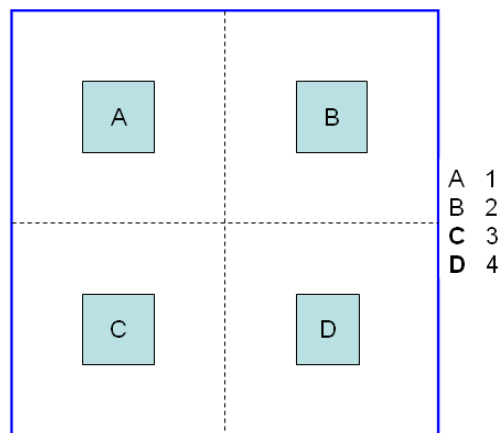
Every step is described in detail in section 3.2. **NOTE:** No need to set configure word If device has no "Configure word".

If user will program a large amount IC, it's better to create a project file first. Load the project file before start to program after running S/W and it's no need to repeat the steps of various settings. This is convenient ,and avoids man-made mistakes.

3.4 Programmer Channel Introduction

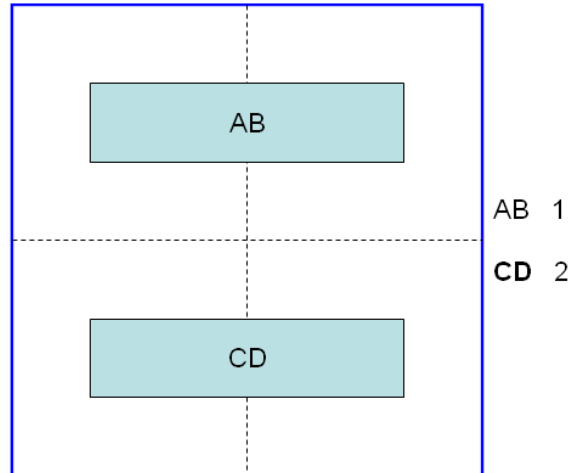
SP7100 supports 4 channels or 2 channels, and their layout are shown below.

4 Channels



2 Channels

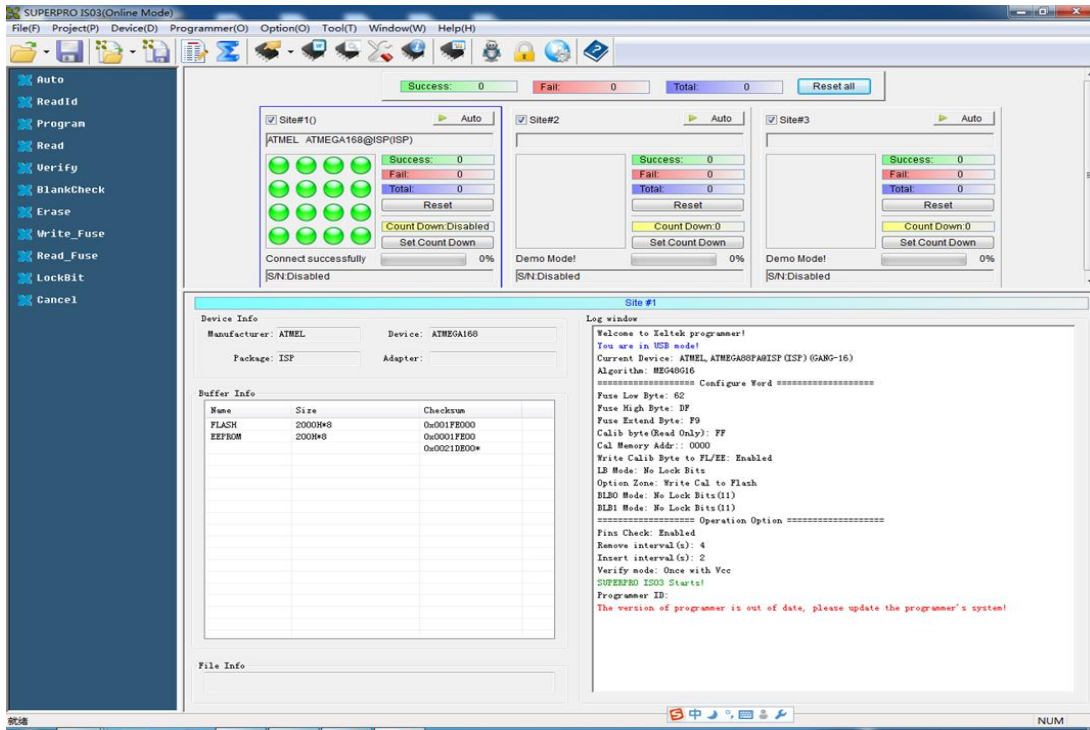
For example, if Nor Flash chips have many pins, just two channels can be supported, that is, AB channel or CD channel. AB channel is Channel 1, and CD channel is Channel 2.



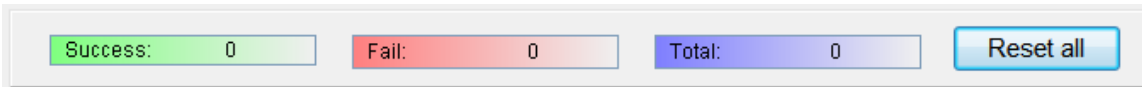
3.5 Programming When Connected by Hub

SUPERPRO/7100 provides a connection hub and user can simultaneously operate multiple SUPERPRO/7100 programmers 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 such as "01", "02", and the programmer's first line of the LCD display will show the number of this programmer. The numbers displayed on the screen are correspondence with the ones on the software interface. 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 (i.e. selecting devices, loading documents and programming) are carried out in the programmer(s) that is selected with the check in tick-box(es) (excluding the operation buttons on the programmer board).



Statistics Column:



NOTE:

1. Choose specified hub for XELTEK to connect SUPERPRO/7100, and currently up to 8 programmers can be operated simultaneously.
2. The visible panel number can be adjusted by the programmer panel style.

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
- Edit Buffer and File information Frame
- Device Operation Function Menu
- Operation Information Menu
- Status Bar
- Statistics Window

4.1 File Menu and Tool Bar

4.1.1 File and Data

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 will automatically identify the data buffer type. You can review the buffer data types if you open the Edit dialog box for the data buffer.

4.1.1.1 Load File

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.