GIE 8051 Professional Kit

User Manual

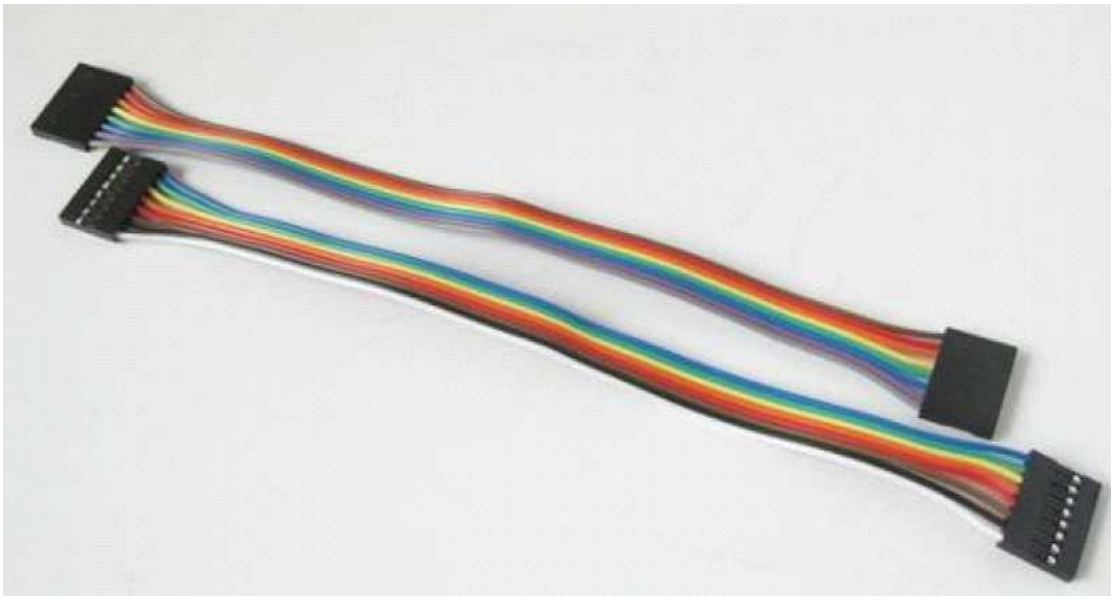
Content

Precaution:

The board MUST power by +5V, it either comes from USB port or external +5V power adapter or ISP Port, exceed +5V, the board will burn.

8051 Professional Kit

1. **Overview**
   The development board is designed modular, most of the modules are independently except power, the connection between I/O and devices are not connected, you are require to use jumper wires (as below picture) to connect each other.

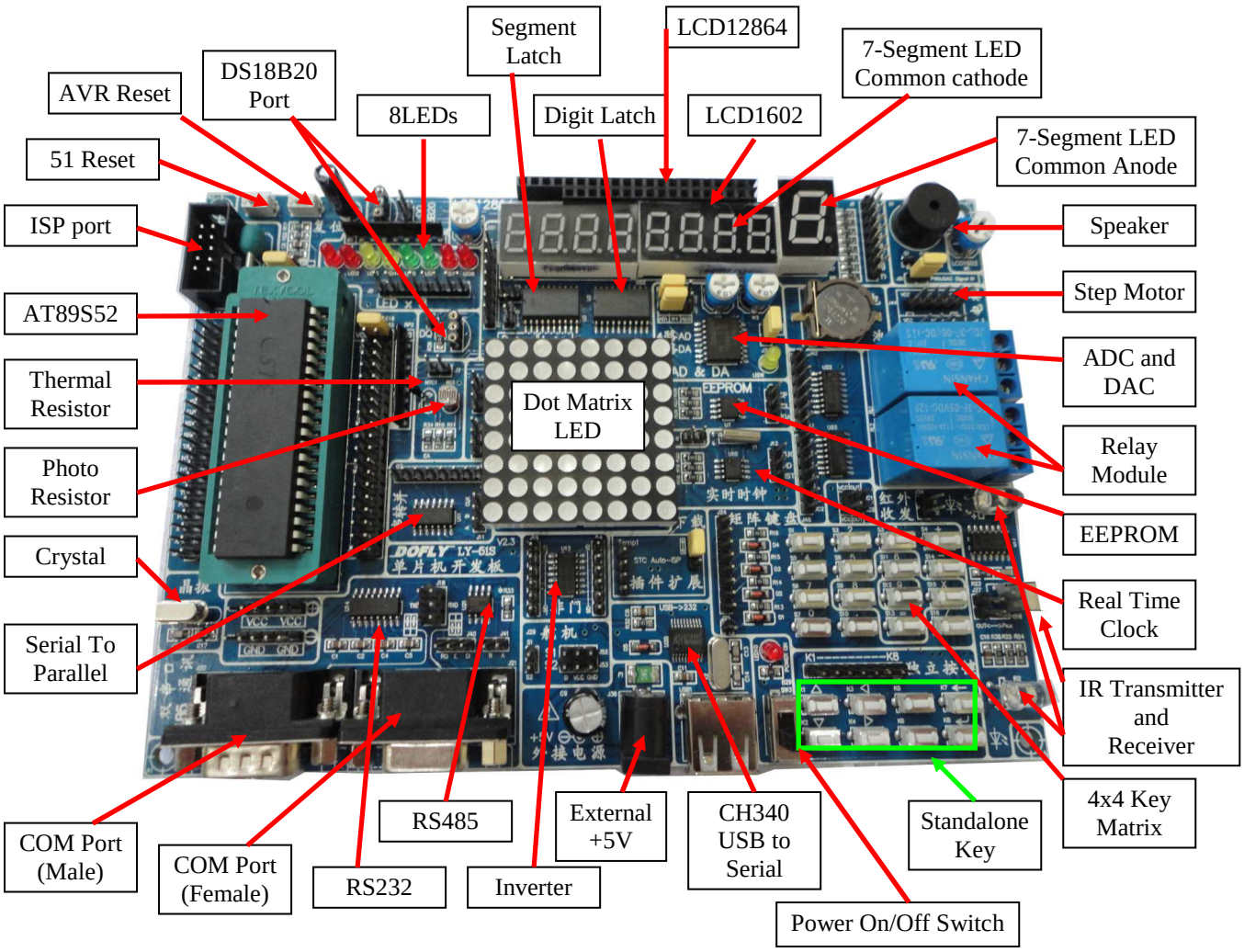


8 Pins Jumper Wires

2. **Features**
   - Default processor is AT89S52
   - Crystal : 11.0592MHz
   - Eight LEDs
   - Eight 7-Segment LED (Common Cathode)
   - One 7-Segment LED (Common Anode)
   - 8x8 dot matrix LED
   - Dual relay control circuit
   - Dual IR obstacle avoidance sensor
   - Infrared receiver
   - One buzzer
   - 4x4 keyboard matrix
   - Eight standalone keys
   - Dual DC motor driver
   - Dual stepper motor driver
   - Four ADC(Analog Digital Converter)
   - One DAC(Digital Analog Converter)
   - Photosensitive sensing circuit
   - Temperature sensing circuit
   - Two DS18B20 Temperature sensor port
   - CD4069 inverter circuit
   - HC164 serial to parallel circuit
   - RS485 interface circuit

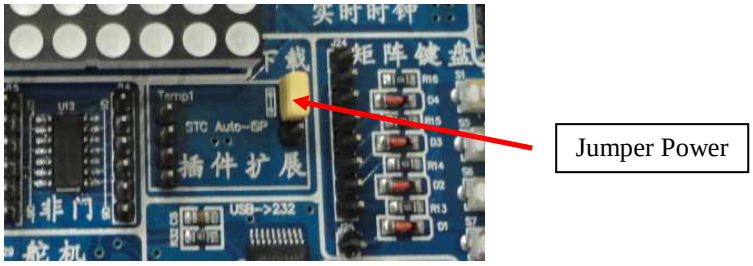
- MAX232 UART port
- CH340 USB to UART port
- DS1302 RTC(Real Time Clock)
- AT24C02 serial EEPROM
- DS18B20 Temperature sensor port
- LCD1602 character dot matrix LCD port
- LCD12864 graphic color LCD port

3. Function Block



4. Jumper Setting

a.) Jumper Power must set correctly(as below), it provide power to the board.



b.) Jumper J18 – Selection for Male or Female COM port.

(i) J18-1, 3 short and J18-2, 4 short = Select Male COM port

(ii) J18-3, 5 short and J18-4, 6 short = Select Female COM port

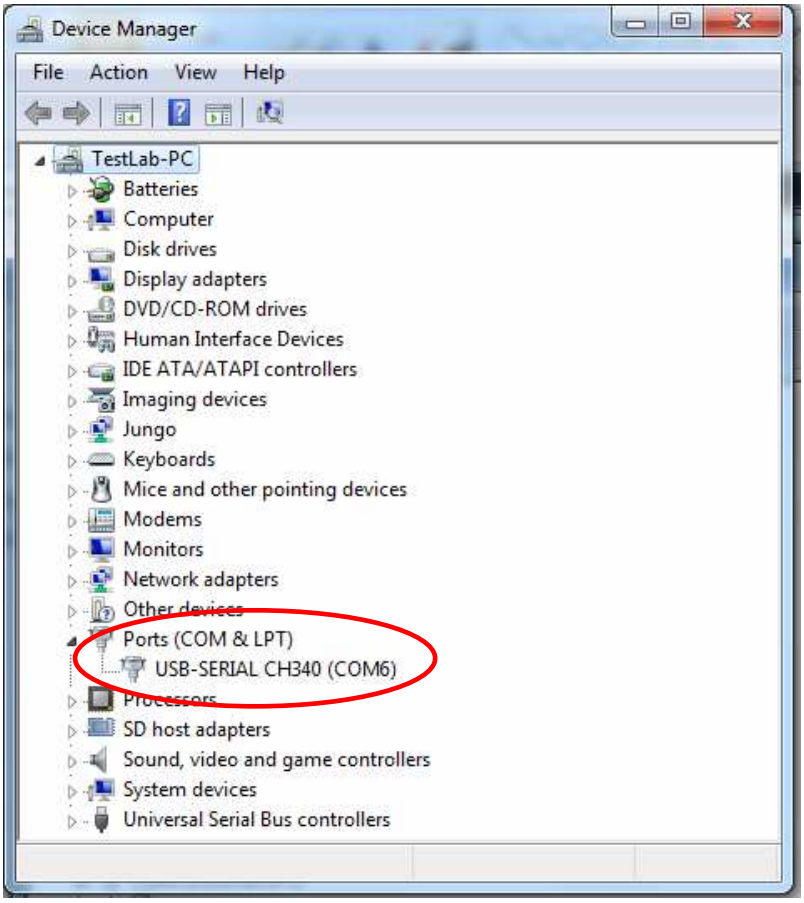
c.) Jumper J19 – For 51 or AVR reset.
d.) Jumper J31 and J32 – For ADC input channel selection.
e.) Jumper J33 – For DAC output, normally, it measured by using Volt meter or Oscilloscope; but you can put a jumper on J33 to connect DAC output to a LED, LED brightness will change with the amplitude of the DAC output.
f.) Jumper J50 – VCC for 8 digits 7-Segment LEDs, it must put on when using it.
g.) Jumper J49 – VCC for dual color Dot Matrix LED, it must put on when using it.

5. **Hardware Connection**
You are required to do connections between MCU I/O port and module interface by using jumper wires when doing experiment.

6. **Required Software**

a.) Install CH340 Driver (USB to Serial Port)
For Win7 32bits, run xxx\8051 Prof Kit\USB Driver\CH341 USB To Serial Driver\WIN7 32 bits Driver\SETUP.exe.

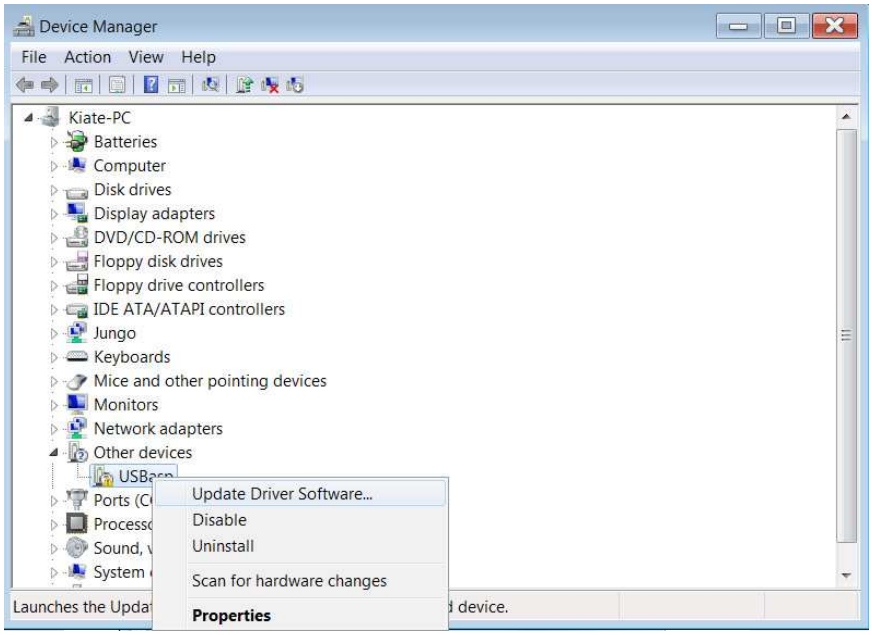
After installation, connect the Prof Kit to the PC through USB cable, you can check the COM Port under Control Panel → System → Device Manager as below .



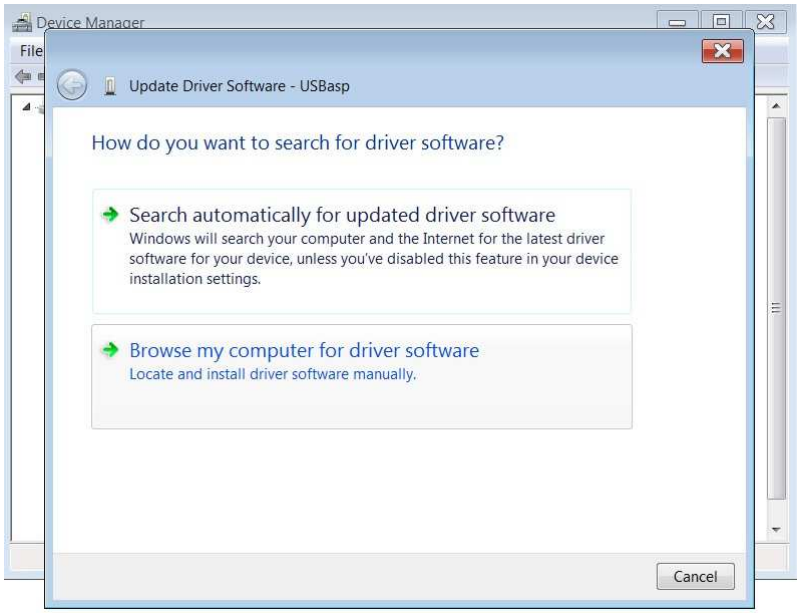
b.) Install USBasp Programmer Driver

(i) Insert the USBasp Programmer into an available USB port in your PC.

(ii) Go into the device manager (Control panel → System) and find the entry for the USBasp and it should be displayed with a yellow alert icon on it. Then right click on the device and select "Update Driver Software".

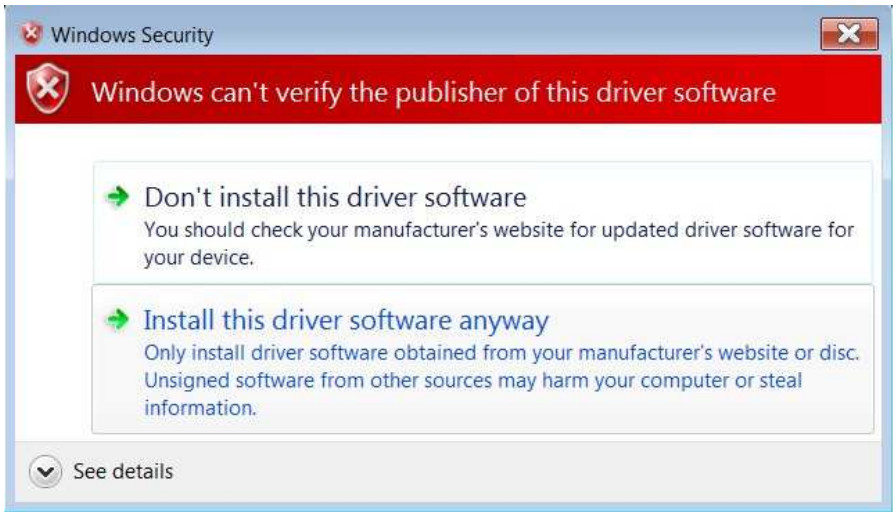


(iii) After you left click the 'Update Driver Software", it will come out with "How do you want to search for driver software?" Then choose the second one which is "Browse my computer for driver software" and click into it.



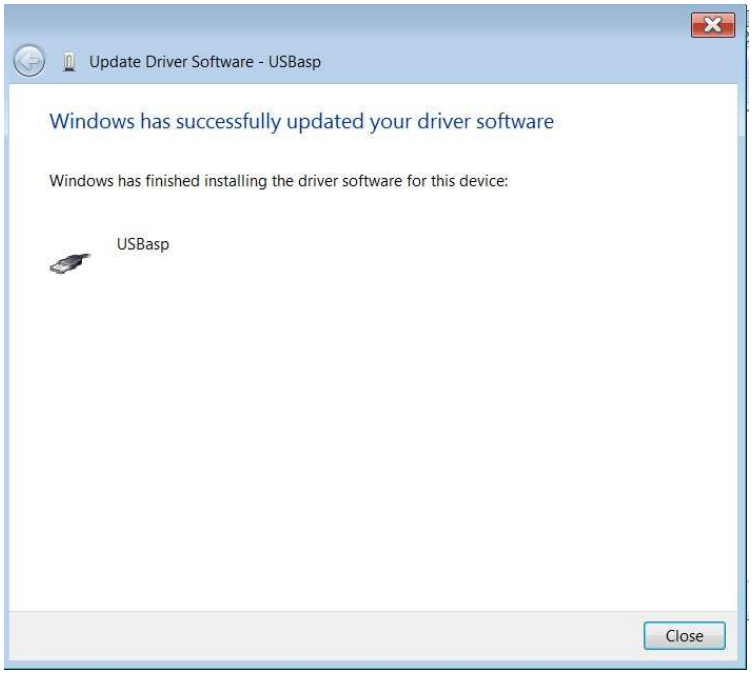
(iv) After that, you will see the screen which will prompt out "Browse for driver software on your computer". In this step, you need to select the folder where you the driver files are (i.e. xxx\8051 Prof Kit\USB Driver\USBasp Driver\libusb_1.2.4.0\x86) then click "Next".

(v) Next, the windows will prompt out a "Windows Security" with a red warning dialog. Do not worry about it, and just click "Install this driver software anyway" and the driver will install.



(vi) After click it, the next step is to wait for a few seconds to let your computer to process the installation of driver software.

(vii) Now, you can use the USBasp to do the programming for microcontroller.

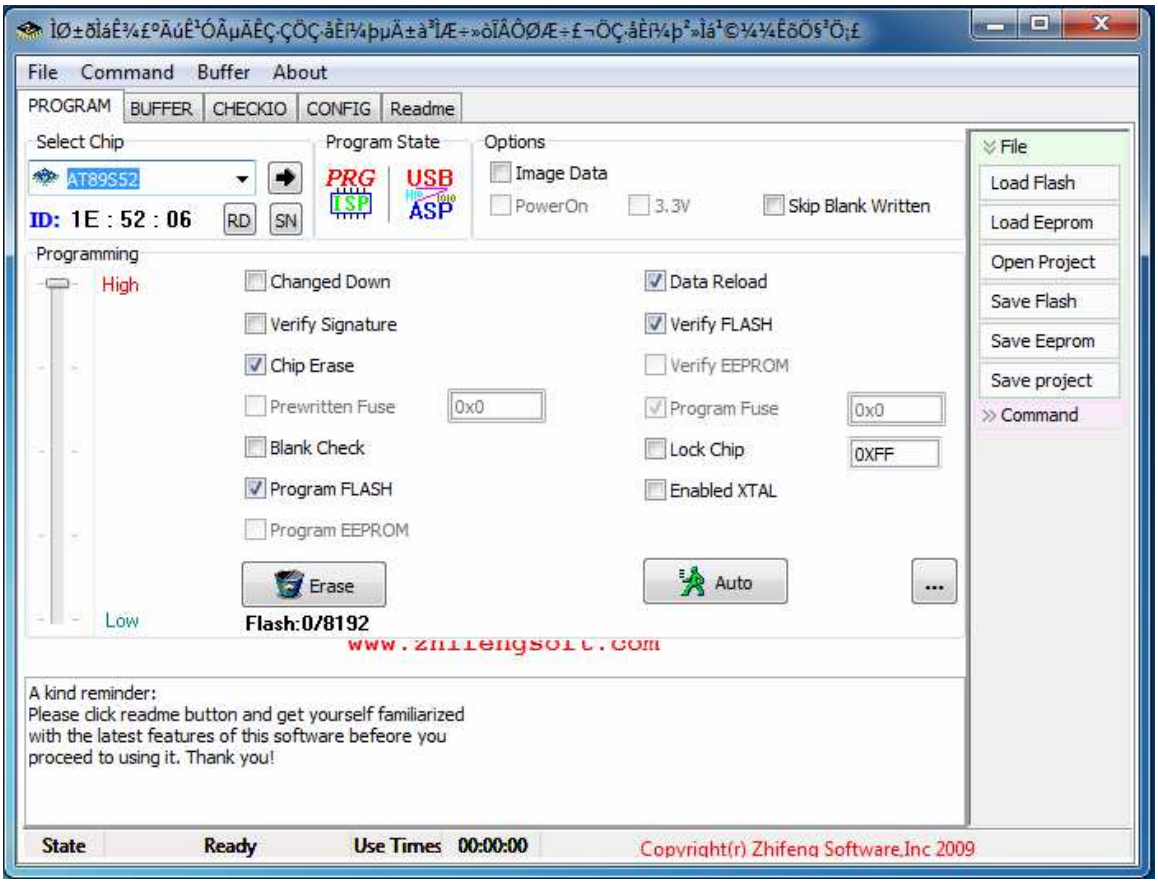


c.) Install Keil C51 (Evaluation version)
Run xxx\8051 Prof Kit\Development Software\c51v905.exe.

d.) AT89S52 IC Programming Software – ProgIsp
This software not require to install, it located at xxx\8051 Prof Kit\Programmer Software And Tools\ProgIsp\progisp.exe.

How to use :

(i) Plug in USBasp to an available USB port in your PC and connect to the Prof Kit. (Refer to Development Setup)
(ii) Run progisp.exe.
(iii) Select AT89S52 under "Select Chip".
(iv) Load program file, click Menu → File → Load Flash → xxx.hex.
(v) Click 'Auto' button.
(vi) Done.



7. **Kit Contents**
   a.) 8051 Prof Board with AT89S52x1
   b.) LCD1602 x 1
   c.) Temperature sensor DS18B20 x1
   d.) Remote Control x1
   e.) Step Motor x 1
   f.) DC Motor x 1
   g.) Jumper wires x1
   h.) Standoff x4
   i.) USB cable x1
   j.) USBasp x 1

8. **Warranty**
   a.) Product warranty is valid for 6 months.
   b.) Warranty is only applies to manufacturing defect.
   c.) Damage caused by improper use is not cover under warranty.
   d.) Warranty does not cover freight cost for both ways.