TWR98/99/100/100A

Writer User Manual

Rev 3.22

AMENDMENT HISTORY

Version	Date	Description
V3.15	Dec, 2022	1. Add New IC writer function TM52 series：TM52eF1375A. 2. Modify some software/firmware bugs. 3. Writer user manual update.
V3.16	May, 2023	1. Add New IC writer function : TM52 series：TM52eF1385 TM56 series : TM56M1521H, TM56M1522, TM56F1542 TM87series : TM87PL35L/ TM87PL35H 2. Modify some software/firmware bugs. 3. Writer user manual update.
V3.17	Aug, 2023	1. Add New IC writer function : TM52 series： TM52F1364 2. Modify some software/firmware bugs. 3. Writer user manual update.
V3.18	Dec, 2023	1. Add New IC writer function : TM52 series：TM52eF1375D, TM52F1376E, TM52F2384, TM52F1384 TM56 series : TM56M152A, TM56M1522B, TM56M1522C TM87series : TM87P32 2. Modify some software/firmware bugs. 3. Writer user manual update.
V3.19	Sep, 2024	2. Add New IC writer function : TM52 series：TM52F5024, TM52F4974, TM52M5473 TM56 series : TM56E6422 TM87series : TM87P32 2. Modify some software/firmware bugs. 3. Writer user manual update.
V3.20	Feb, 2025	1. Add New IC writer function : TM52 series : TM52E5223, TM52F5864 TM56 series : TM56F1552A, TM56F8152, TM56F6942, TM56F7052 TM87 series : TM87PL39 2. Modify some software/firmware bugs. 3. Writer user manual update.
V3.21	Sep, 2025	1. Add New IC writer function : TM52 series : TM52F407A TM56 series : TM56F1521C, TM56F1543B, TM56F8022, TM56F8021, TM56F8022A, TM56E6421, TM56M7842 TM57 series : TM57P75L1A, TM57P75D1A TM87 series : TM87PL35BH, TM87PL35BL 2. Modify some software/firmware bugs. 3. Writer user manual update.
V3.22	Mar, 2026	1. Add New IC writer function : TM52 series : TM52F6174 TM54 series : TM54M0321, TM54M03C1 TM56 series : TM56M7822, TM56F8222 TM87 series : TM87PL39L, TM87PL39H 2. Modify some software/firmware bugs. 3. Writer user manual update.

CONTENTS

PRODUCT NAME

TWR98/99/100/100A

TITLE

USB Writer

FEATURES

1. USB Interface.
2. The device can be attached to a computer and controlled by software for programming or it can also be operated independently as a stand-alone writer.
3. Both software and firmware can be updated.

1. Supported IC Series

1.1 Supported IC Type

1. 4-bit TM87 series:

TM8793	TM8795	TM87P04	TM87P08	TM87ML23
TM87ML28L	TM87ML28H	TM87P18M	TM87ML22L	TM87ML22H
TM87ML25L	TM87ML25H	TM87ML26L	TM87ML26H	TM87PL37L
TM87PL37H	TM87PL36H	TM87PL36L	TM87PL35L	TM87PL35L
TM87P32	TM87PL39	TM87PL35BH	TM87PL35BL	TM87PL39L
TM87PL39H				

Note1 : Only TWR100/100A hardware support

2. 4-bit TM89 series:

TM89P51M	TM89P52M	TM89P55M	TM89P57M	TM89P59M
TM56F8406	TM52F8408			

3. 8-bit TM54 series:

TM54M0321	TM54M03C1			

4. 8-bit TM55 series:

TM55M8428	TM55M8228	TM55M8428T		

5. 8-bit TM56 series:

TM56F8225	TM56F8228	TM56F5412	TM56F5416	TM56F5412B
TM56F5416B	TM56F8406	TM52F8408	TM56P8440	M56F1522
TM56F1552	TM56M1511	TM56M1531	TM56F1543	TM56M1521H

TM56M1522	TM56F1542	TM56M152A	TM56M1522B,	TM56M1522C
TM56ME1522	TM56F1552A	TM56F8152	TM56F6942	TM56F7052
TM56E6422	TM56F1521C	TM56F1543B	TM56F8022	TM56F8021
TM56F8022A	TM56E6421	TM56M7842	TM56M7822	TM56F8222

6. 8-bit TM57 series:

TM57FA40	TM57FA40A	TM57FLA80	TM57FLA80A	TM57MA16
TM57MA1660	TM57MA1668	TM57MA1672	TM57MA20	TM57MA51A
TM57MA21B	TM57MA25	TM57ME20	TM57ME16	TM57ME16AS
TM57ML40	TM57MR10	TM57MR20	TM57PA10	TM57PA10A
TM57PA11	TM57PA11B	TM57PA15	TM57PA16	TM57PA16AS
TM57PA16B	TM57PA20	TM57PA20A	TM57PA20AS	TM57PA20B
TM57PA20E	TM57PA21	TM57PA21B	TM57PA25	TM57PA25B
TM57PA28	TM57PA40	TM57PA40E	TM57PA45	TM57PA45C
TM57PE10	TM57PE11	TM57PE11A	TM57PE11BS	TM57PE11C
TM57PE11CS	TM57PE12	TM57PE12D	TM57PE12AS	TM57PE15AS
TM57PE15A	TM57PE15C	TM57PE15CS	M57PE20A	TM57PE20B
TM57PE40	TM57PT16	TM57PT16AS	TM57PT16B	TM57PT20A
TM57PT20B	TM57PT45	TM57PT45C	TM57M5541	TM57M5545
TM57M5551	TM57MA17	TM57MA18	TM57MA21BZ	TM57MA28
TM57ME15B	TM57M5526C	TM57M5536C	TM57MA45	TM57MA46
TM57M5406	TM57M5408	TM57M5610	TM57M5615	TM57ME15CG
TM57M57M5640	TM57M5645	TM55M8228	TM57M8248	TM57M8248T
TM57MA28B	TM57MA28MB	TM57MA29	TM57MA29C	TM57M5620
TM57M5625	TM57MA2835	TM57P8620	TM57P8625	TM57P8640
TM57P8645	TM57M5625S	TM57MA28NA	TM57MA29NA	TM57MA28ND
TM57MA28NE	TM57MA29ND	TM57MA29NE	TM57P75L1A	TM57P75D1A

7. 51 MCU series:

TM52F2260	TM52F2261	TM52F2264	TM52F2280	TM52F2280B
TM52F2284	TM52F2284B	TM52M5254	TM52F5268B	TM52F5274B
TM52M5258	TM52F5264B	TM52F5268	TM52F5288	TM52F5288C
TM52F5278B	TM52F5284	TM52F5284C	TM52F5273B	TM52F5274C
TM52F5250	TM52F5264C	TM52F5268C	TM52F5273	TM52F2268
TM52F5276B	TM52F5278C	TM52F5276	TM52M8268	TM52F8273
TM52M8254	TM52M8258	TM52M8264	TM52F8273T	TM52F8276T
TM52F8276	TM52F8274	TM52F8278	TM52M8258B	TM52M8264B
TM52F8274T	TM52F8278T	TM52M8254B	TM52FE8274	TM52FE8276
TM52M8268B	TM52F8368	TM52FE8278	TM52FE8976	TM52EF8278B
TM52FE8273	TM52F8558	TM52F8658	TM52FE8276B	TM52FE8273B.
TM52FE8274B	TM52F086A	TM52F1376	TM52F0676	TM52F8368A
TM52FC1335	TM52F1378	TM52F086B	TM52FN8276	TM52FN8273
TM52FN8274	TM52FN8278	TM52F0876	TM52F1732	TM52eF1374
TM52eF1375	TM52F1375G	TM52F1376B	TM52F1363	TM52eF1375A
TM52eF1385	TM52eF1386	TM52F1364	TM52eF1375D	TM52F1376E

TM52F2384	TM52F1384	TM52F5024	TM52F4974,	TM52M5473
TM52E5223,	TM52F5864	TM52F407A	TM52F6174	

8. USB series:

TMU3130	TMU3131	TMU3132	TMU3132LV	TMU32FA80
TMU3131F6	TMU3131F8			

1.2 Program Filename Extension:

1. .epm file: TM87, TM89 series program filename
2. .tenx file: 51 MCU series program filename
3. .hex file: TM55, TM56, TM57 series program filename

2. Hardware and PC Setup

2.1 System Requirements:

a. Applicable in Windows 98/ME/2000/XP, Windows 7, Windows 8, Windows 8.1 system, Windows 10 system

b. Need more than 100MB of hard disk space.

2.2 PC Setup:

a. The user to enter tenx company website : http://www.tenx.com.tw.

b. Execute Setup_Writer_Version2.0.2_Build 024.exe to enter the installation program, follow the screen to complete the installation.

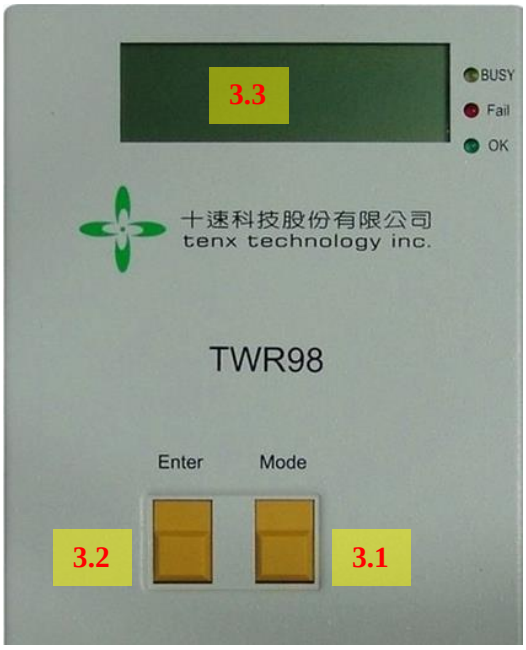
2.3 Hardware connection:

Step 1. Connect the DC 9V Adapter and USB Cable (mini B Type).

Step 2. Turn the Power on.

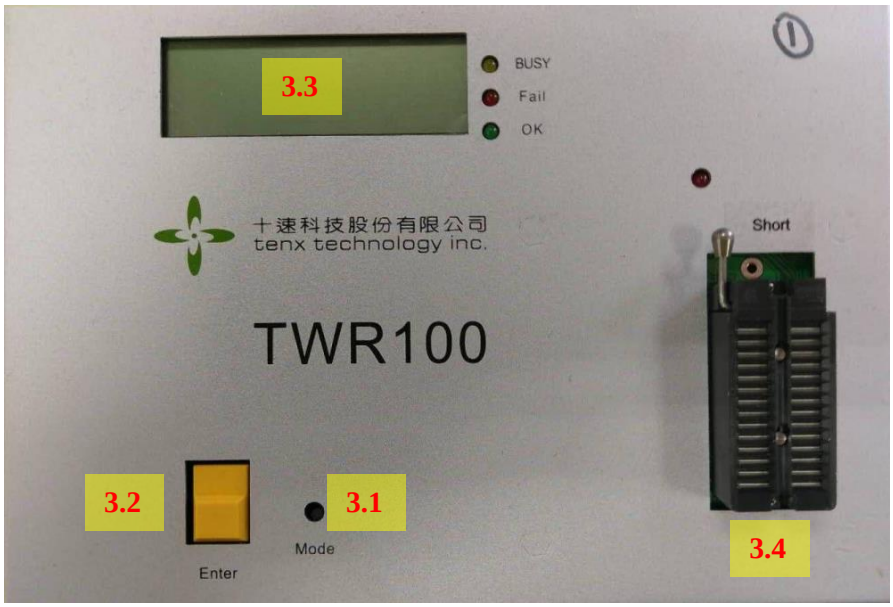
3. Hardware Function Illustration

a. TWR98 hardware (The following is a functional description)

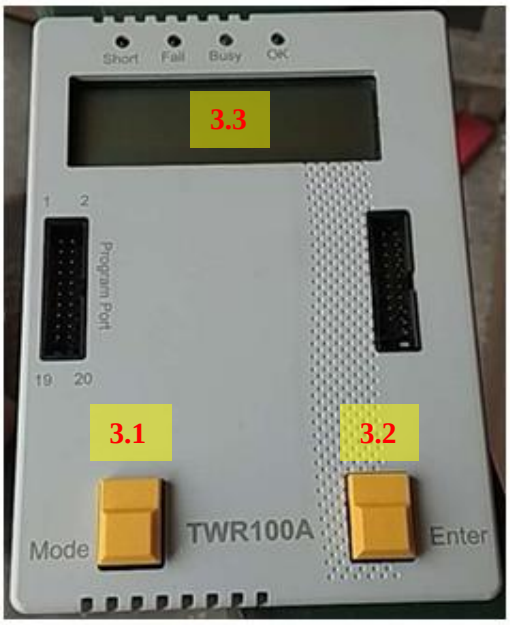


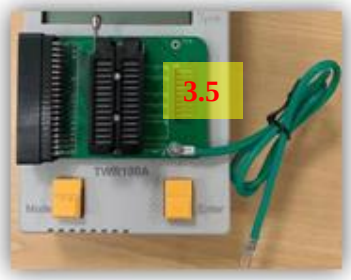
b. TWR99 hardware (The following is a functional description)

c. TWR100 hardware (The following is a functional description)



d. TWR100A hardware (The following is a functional description)



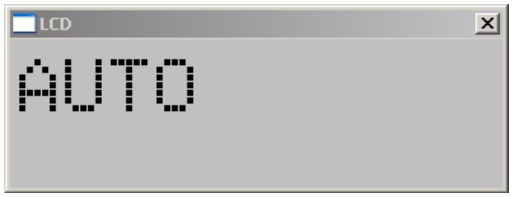


Note : TWR100A hardware must be used with the writer board (as shown)
TWR100A writer board, reserve a ground line for program with an automatic machine.

3.1 Mode function Key: Select the program mode function:

a. Mode1: CHIP NAME

b. Mode2: AUTO (Blank check + Program+Verify) function



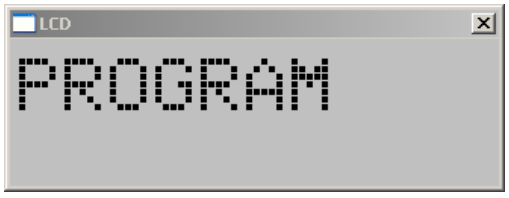
c. Mode3: BLANKCHECK function

(OTP series IC: Blankcheck)

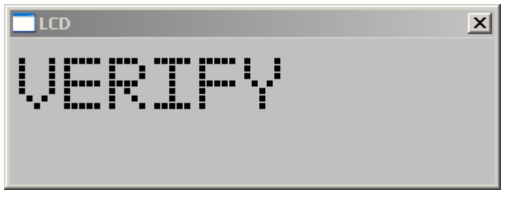
(FLASH/MTP series IC: Erase+Blank check)

(Some models support EEPROM erase : TM52F1376, TM52F1378, TM52F1363, TM52F2384, TM52F4974, TM52F5024, TM52E5223, TM52M5473, TM52F5864, TM52M59C4, TM56F1522, TM56F8152, TM56F1552A, TM56M1511, TM56M1531, TM56E6421, TM56E6422, TM56M152A, TM56F8021, TM56F8022

d. Mode4: PROGRAM (Program+Verify) function



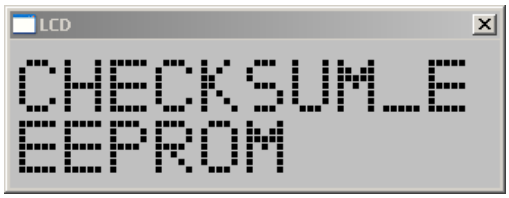
e. Mode5: VERIFY function



f. Mode6: CHECKSUM_E =>Display the EEPROM buffer Checksum

This function is used to check the correctness of the PC download data, which is to be programmed to the EEPROM.

It is deemed correct if the Checksum value from EEPROM equals to the Checksum value from software.

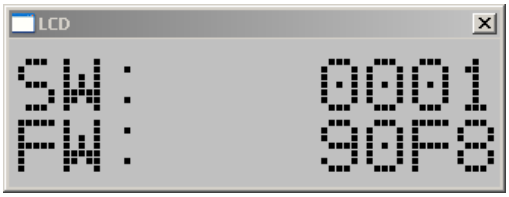


g. Mode7: CHECKSUM_O =>Display the OTP Chip Checksum

This function is used to read back the data from the OTP Chip to do the Checksum calculation.

It will be deemed correct only if the Checksum value from OTP chip equals to the Checksum value from EEPROM.

h. Mode8: SW : =>Display Software version / FW : =>Display Firmware version

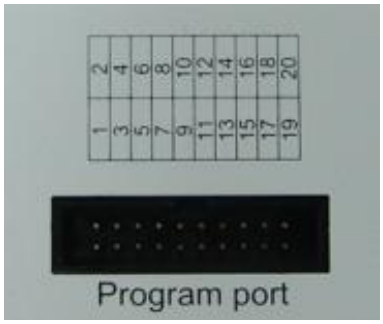


3.2 Enter function key: Execute the mode function

3.3 LCD: Display the Mode function and programming result

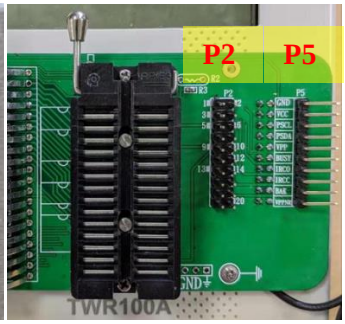
3.4 Programming Socket

3.5 Writer IC programming-pins



(TWR98/100 機器)

(TWR100 機器)



(TWR100A 機器)

Note 1: Program Port (picture left, mid and right P5 Port), Provide users with self-pull wire programming or programming on the board, P2 Port (picture right) only used in 4-bit programming.

Note 2: When the TWR100 Writer user pulls wire form the Program Port (picture mid), VPP Pin need to add 100R ohm.

3.5.1:

TM87ML25L	TM87ML25H	TM87ML28L	TM87ML28H	TM87ML22L
TM87ML22H	TM87M23	TM87ML26L	TM87ML26H	TM87PL37L
TM87PL37H	TM87PL36H	TM87PL36L	TM87PL35H	TM87PL35L
TM87P32	TM87PL35BH	TM87PL35BL		

Program Pin : VL3, VBAT, RESET, GND, BAK, IOC3, IOC4.

3.5.2:

TM87P18M				

Program Pin : BAK, VBAT, VPP, GND, VDD3, RESET, INT.

3.5.3:

TM89P59	TM89P59M	TM89P55M	TM89P52M	TM89P57M

Program Pin : BAK, VBAT, VPP, RESET, GND, VL5, INT.

3.5.4:

TM8793	TM89P51M			

Program Pin : VL4 , VBAT, VPP, GND, BAK, RESET, INT.

3.5.5:

TM87PL39L	TM87PL39H			

Program Pin : VL4 , VBAT, GND, BAK, RFC0, CX

3.5.6:

TM57PA10	TM57PA40	TM57PE11	TM57PA20	TM57PA21
TM57PE10	TM57PE11A	TM57PA10A	TM57PE12	TM57PE11B
TM57PE15A	TM57PE40	TM57PA21	TM57PA25	TM57PA20A
TM57P11	TM57P11B	TM57P11C	TM57PE11C	TM57PE15C
TM57P11CU	TM57PE12D	TM57PA11	TM57PE20A	TM57PT20A
TM57PA45	TM57PA15	TM57PA21B	TM57PA25B	TM57PA16
TM57PT16	TM57PT45	TM57MA25	TM57PA20B	TM57PA28
TM57PE20B	TM57PT20B	TM57PA16B	TM57PT16B	TM57PA45C
TM57PT45C	TM56P8440			

Program Pin : VPP, PA3, VDD, PA1, PA0, PA4, VSS.

3.5.7:

TM57PE11B	TM57PE11C	TM57PE15AS	TM57PE15CS	TM57PE15AS
TM57PE12AS	TM57PA20AS			

Program Pin : VPP, VDD, PA1, PA0, PA4, VSS.

3.5.8:

TM57P8620	TM57P8625	TM57P8640	TM57P8645	TM57P75D1
TM57P75L1	TM57P75L1A	TM57P75D1A		

Program Pin : VPP , VBAT, PA0, PA1,PA3, PA4, VSS

3.5.9:

TM57FA40	TM57FA40A			

Program Pin : VPP, PA3, PA2, VCC, PA1, PA0, PA4,VSS.

3.5.10:

TM57FLA80	TM57ME20	TM57MR10	TM57MR20	TM57MR10
TM57MA20	TM57MA21B	TM57MA16	TM57MA1660	TM57MA1668
TM57MA1672	TM57M5541	TM57M5545	TM57M5551	TM57MA17
TM57MA18	TM57MA21BZ	TM57MA28	TM57M5526C	TM57M5536C
TM57ME15B	TM57ML40	TM57MA45	TM57MA46	TM57M5406
TM57M5408	TM55M8228	TM55M5248	TM55M8248T	TM57MA28B
TM57MA28MB	TM57MA29	TM57MA29C	TM57MA28NA	TM57MA29NA
TM55M8428	TM55M8228	TM55M8428T	TM57MA28NA	TM57MA29NA
TM55M8428	TM55M8228	TM55M8428T	TM57MA28ND	TM57MA28NE
TM57MA29ND	TM57MA29NE			

(1) non ISP mode

Program Pin : VPP, PA3, PA2, VDD5, PA1, PA0, PA4, PA6, VSS.

(2) EXHV ISP mode
Program Pin : VPP, VDD5, PA1, PA0, VSS.

3.5.11:

TM57ME16	TM57ME16AS			

Program Pin : VPP, PA3, VCC, PA1, PA0, VSS.

3.5.12:

TMU3130	TMU3132	TMU3132LV	TMU32FA80	

(For the above 4 type, VDD5 and VDD need to be short-recorded when programming.)

(1) non ISP mode
Program Pin : VPP, PA3, PA2,VDD5, DP, DM, PA4, PA6, VSS.

(2) EXHV ISP mode
Program Pin : VPP, VDD5, DP, DM, VSS.

3.5.13:

TM52E5223				

(1) non ISP mode
Program Pin :VPP, VCC, P3.0, P3.1, P3.3, P3.4, VSS

(2) EXHV ISP mode
Program Pin :VCC, P3.0, P3.1, VSS

3.5.14:

TM52M5254	TM52M5258	TM52M8264	TM52M8268	TM52M8254B
TM52M8258B	TM52M8264B	TM52M8268B	TM52M5473	

(1) non ISP mode
Program Pin : VPP, P3.2, P3.3, VCC, P3.0, P3.1, P1.2, VSS.

(2) EXHV ISP mode
Program Pin : VPP, VCC, P3.0, P3.1, VSS.

3.5.15:

TM52F5276	TM52F5273	TM52F5274B	TM52F5278B	TM52F5264B
TM52F5268B	TM52F5250	TM52F5264C	TM52F5268C	TM52F5273B
TM52F5274C	TM52F5276B	TM52F5278C		

(1) non ISP mode
Program Pin : VPP, P3.2, P3.3, VCC, P3.0, P3.1, P1.2, VSS.

(2) EXHV ISP mode
Program Pin : VPP, VCC, P3.0, P3.1, VSS.

(3) ISP mode
Program Pin : VCC, P3.0, P3.1, VSS

3.5.16:

TM52F5284	TM52F5288	TM52F5284C	TM52F5288C	

(1) non ISP mode
Program Pin : VPP, P1.1, P1.0, VCC, P1.2, P1.3, P4.3, VSS.

(2) EXHV ISP mode
Program Pin : VPP, VCC, P1.2, P1.3, VSS.

(3) ISP mode
Program Pin : VCC, P1.2, P1.3, VSS.

3.5.17:

TM52F2260	TM52F2261	TM52F2264		

(1) non ISP mode

Program Pin : VPP, P1.0, VBAT, P1.2, P1.3, VSS.

(2) EXHV ISP mode
Program Pin : VPP, VBAT, P1.2, P1.3, VSS.

(3) ISP mode
Program Pin : VBAT, P1.2, P1.3, VSS.

3.5.18:

TM52F2280	TM52F2284	TM52F2280B	TM52F2284B	TM52F2268

(1) non ISP mode
Program Pin : VPP, P1.1, P1.0, VCC, P1.2, P1.3, P0.7, VSS

(2) EXHV ISP mode
Program Pin : VPP, VCC, P1.2, P1.3, VSS.

(3) ISP mode
Program Pin : VCC , P1.2, P1.3, VSS.

3.5.19:

TM52F8273	TM52F8276	TM52F8274	TM52F8278	TM52F8273T
TM52F8276T	TM52F8274T	TM52F8278T	TM52F8368	TM52FE8278
TM52FE8274	TM52FE8276	TM52FE8273	TM52F8558	TM52F8658
TM52FE8976	TM52EF8278B	TM52FE8274B	TM52FE8276B	TM52FE8273B
TM52F086A	TM52F1376	TM52F0676	TM52FC1335	TM52F1378
TM52F086B	TM52F8368A	TM52FN8276	TM52FN8273	TM52FN8274
TM52FN8278	TM52F0876	TM52F1732	TM52eF1374	TM52eF1375
TM52F1375G	TM52F1376B	TM52F1363	TM52eF1375A	TM52F1364
TM52F1376E	TM52FE1375D	TM52F1384	TM52F5024	TM52F4974

TM52F407A	TM52F6174			

(1) non ISP mode
Program Pin : P3.3, VCC, P3.0, P3.1, P1.2, VSS.

(2) ISP mode
Program Pin : VCC, P3.0, P3.1, VSS.

3.5.20:

TM52F2384				

(1) non ISP mode
Program Pin: VCC, P1.0, P1.2, P1.3, P0.7, VSS

(2) ISP mode
Program Pin: VCC , P1.2, P1.3, VSS

3.5.21:

TM57M5640	TM57M5645	TM57M5620	TM57M5625	TM57M5625S
TM56F8406	TM56F8408			

(1) non ISP mode
Program Pin : VPP, PA3, PA2, VBAT, PA1, PA0, VSS

(2) EXHV ISP mode
Program Pin : VPP, VBAT, PA1, PA0, VSS

3.5.22:

TM57M5610	TM57M5615			

(These ICs are only for TWR100 hardware)

(1) non ISP mode
Program Pin : VPP, PA3, PA2, VBAT, CX, PA1, PA0, PA4, VSS.

(2) EXHV ISP mode
Program Pin : VPP, VBAT, CX, PA1, PA0, VSS.

3.5.23:

TM56F8225	TM56FE8228	TM56F5412	TM56F5416	TM56F5412B
TM56F5416B	TM56F1522	TM56F1552	TM56M1511	TM56M1531
TM56F1543	TM56F1552A	TM56F8152	TM56F7052	TM56F70C2
TM56F1543B				

(1) non ISP mode
Program Pin : PA2, VCC, PA1, PA0, PA4, VSS.

(2) ISP mode
Program Pin : VCC, PA1, PA0, VSS.

3.5.24:

TMU3131F6	TMU3131F8			

(For the above 2 type, VDD5 and VDD need to be short-recorded when programming.)

(1) non ISP mode
Program Pin : VPP , PA7, PA2,VDD5, DP, DM, PA4, VSS.

(2) EXHV ISP mode
Program Pin : VPP , VDD5, DP, DM, VSS.

(2) ISP mode
Program Pin : VSS, PA1, DP, DM.

3.5.25:

TM52eF1385	TM52eF1386			

(1) non ISP mode
Program Pin: P3.3, VCC, P3.0, P3.1, P5.6, VSS
(2) ISP mode
Program Pin: VCC , P3.0, P3.1, VSS

3.5.26:

TM56M1521H	TM56M1522	TM56M1522B	TM52M1522C	TM56ME1522
TM56M152A	TM56E6422	TM56F1521C	TM56F8022	TM56F8021
TM56F8022A	TM56E6421			

(1) non ISP mode
Program Pin: VPP, VCC, PA0, PA1, PA4, PA5, VSS

(2) EXHV ISP mode
Program Pin: VPP, VCC, PA0, PA1, VSS

3.5.27:

TM56F1542				

(1) non ISP mode
Program Pin: VCC, PA0, PA1, PA2, PD4, VSS

(2) ISP mode
Program Pin: VCC, PA0, PA1, VSS

3.5.28:

TM56F6942				

(1) non ISP mode
Program Pin: VCC, PA0, PA1, PB0, PD4, VSS

(2) ISP mode
Program Pin: VCC, PA0, PA1, VSS

3.5.29:

TM56M7842	TM56M7822			

(1) non ISP mode
Program Pin: VPP, VCC, PA0, PA1, PB0, PA4, VSS

(2) EXHV ISP mode
Program Pin: VCC, PA0, PA1, VSS

3.5.30:

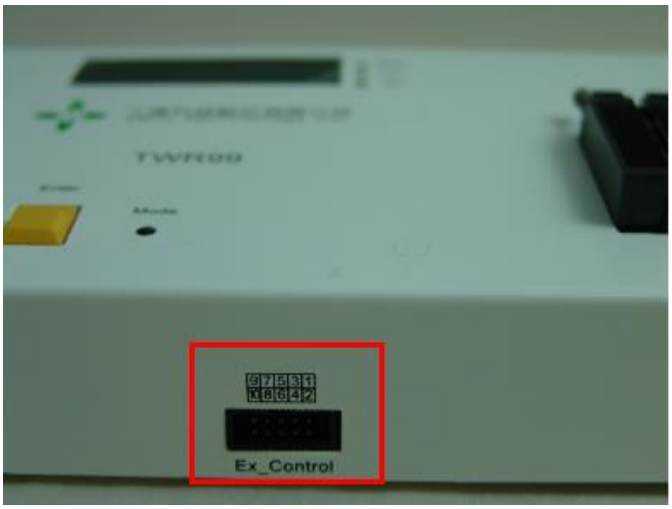
TM54M0321	TM54M03C1			

(1) non ISP mode
Program Pin: VPP, VCC, PA0, PA1, VSS

Note : If you follow the above process and still cannot burn effectively, it may be caused by the following reasons:

1. The relationship between the programming line is too long or the wire is poor.
2. The instantaneous current demand of VDD/VCC is too large, causing the power supply of the writer to be shut down by the protection circuit.
3. The capacitance of the programming pin power (VCC or VDD/or VBAT) should be less than 470uF.
4. The capacitance of the programming pin (SDA/SCL) should be less than 100pF.
5. The programming pin (SDA/SCL) should not be connected in series (current limit) or parallel (voltage division) resistors, which will affect the programming ability.

3.6 EX_Control: External Control Signal



3.6.1: Signal Name and location

9: N.C.	7: Result2	5: GND	3: Result0	1: VDD
10: N.C.	8: N.C.	6: GND	4: Result1	2: Start

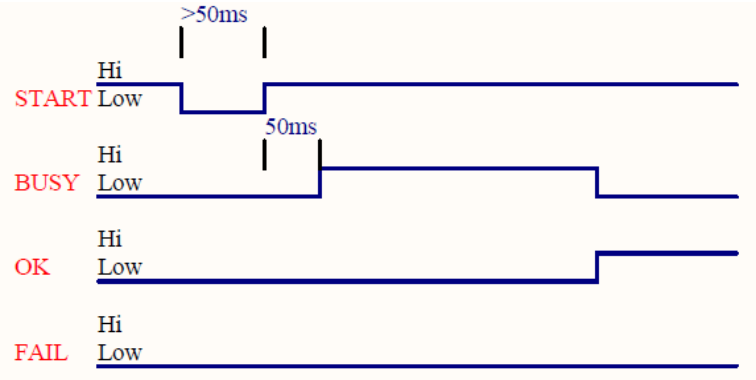
3.6.2: Signal Function

1. VDD =>Output Power, +3V
2. Start signal =>Input Start signal, Low Pulse valid (start signal valid wide>50 ms)
3. Result0, Result1 and Result2 pins =>Output Programming result, the status is as below:

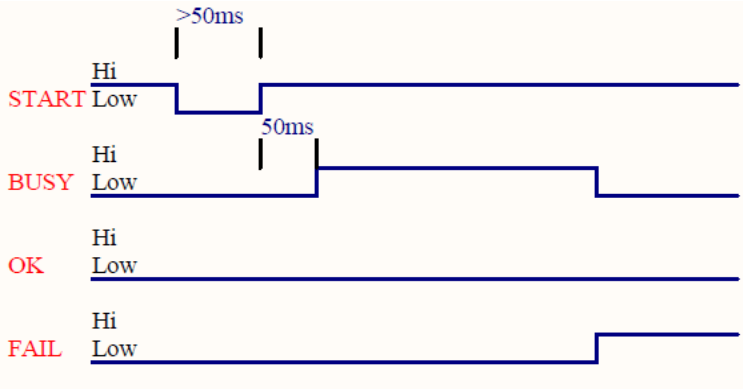
Result2	Result1	Result0	Status
1	0	0	BUSY
0	1	0	FAIL
0	0	1	OK

3.7 Semi-automatic Machine Control Signals

3.7.1: Program ok signal



3.7.2: Program Fail signal



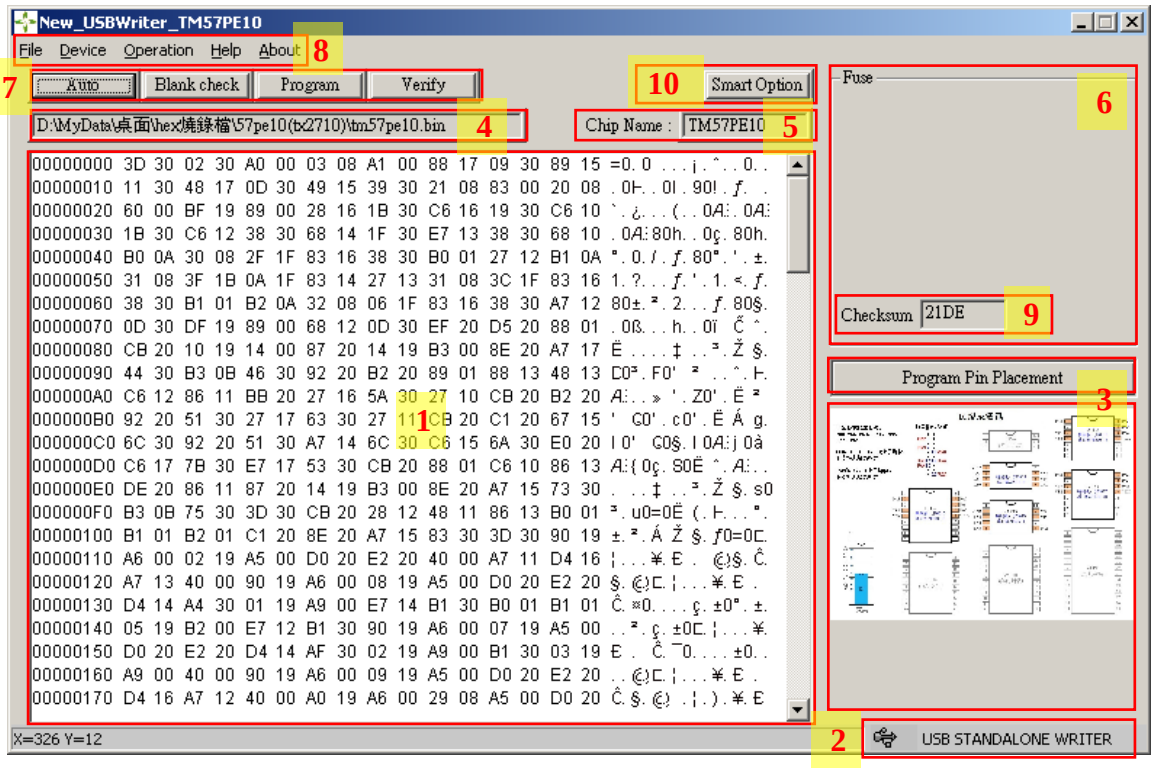
3.8 LED Description:

3.8.1: Yellow LED: the LED blinks when downloading writer file data or during writing process, means it is in busy state.

3.8.2: Red LED: red light ON means writing process fails. When IC is taken away or writing mode is switched to another mode, LED will be switched off.

3.8.3: Green LED: green light ON means the writing process succeeded. When IC is taken away or writing mode is switched to another mode, LED will be switched off.

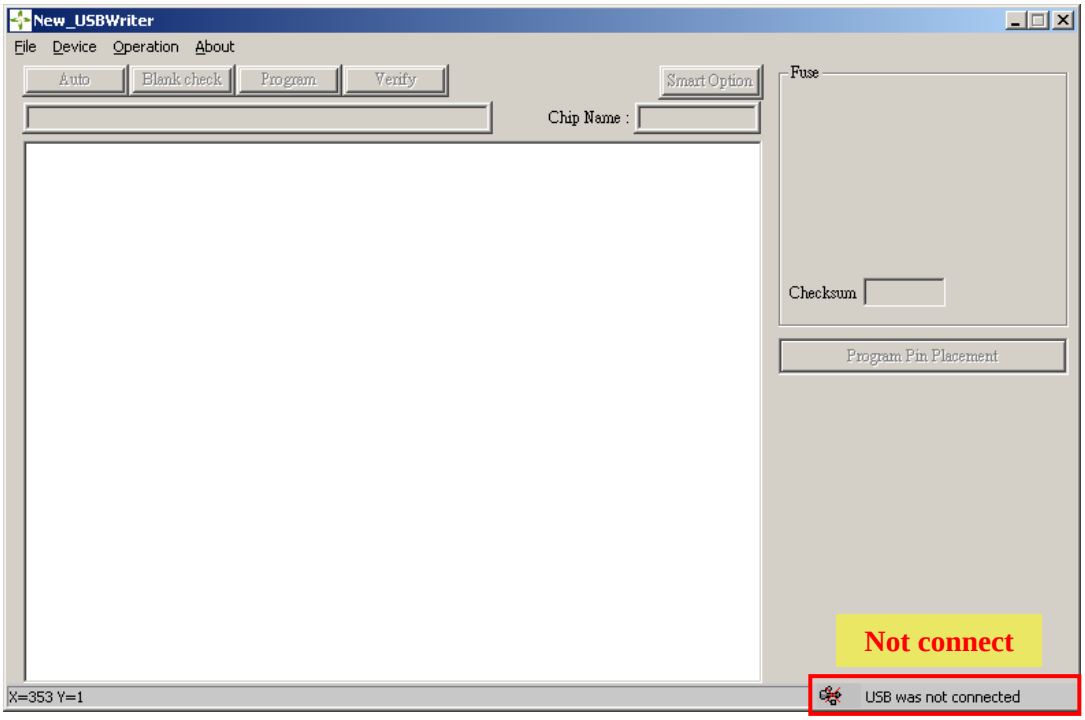
4. Software Function Guide



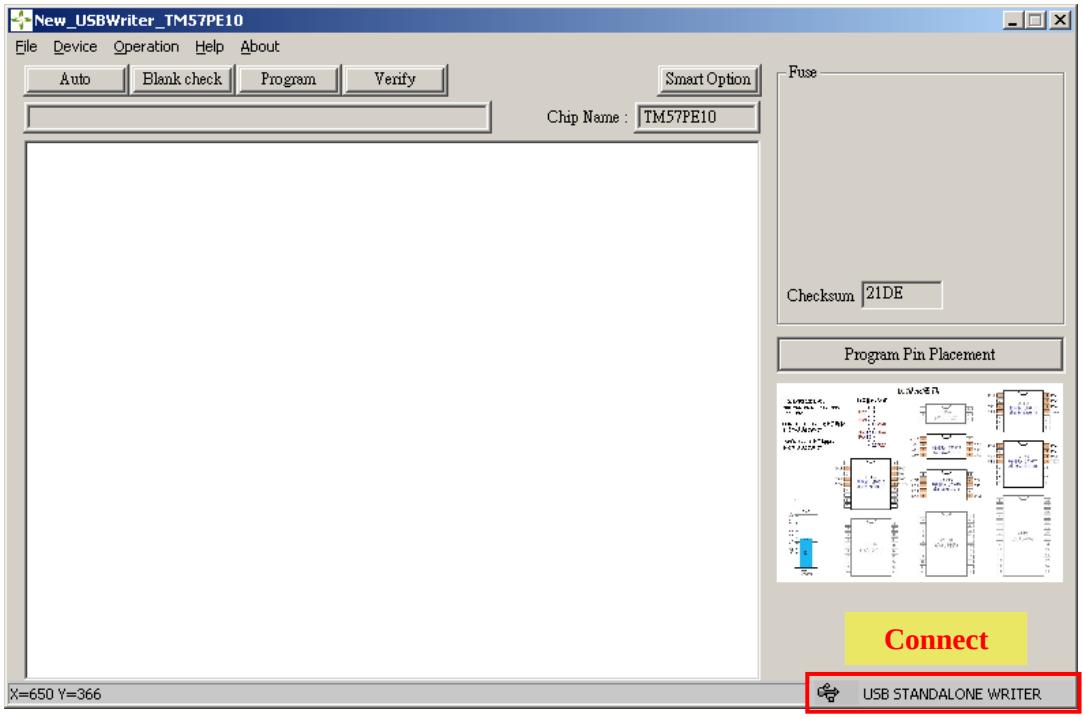
1. Display the programming data
2. Display whether the Writer Device is connected to PC or not
3. Display OTP IC programming-pins placement (Corresponding to the Hardware programming port)
4. Display the file path of program
5. Display the name of the programming CHIP
6. Display IC program mode
7. The functions of Auto, Blank check, Program, and Verify are the same as the hardware. When the USB Writer Device is connected to the PC, the programming commands can be directly programmed by the software
8. Menu bar:
   8.1 File =>Load the programming file
   8.2 Device =>Select programming CHIP
   8.3 Operation =>Update firmware, Writer option set, Read IC information
   8.4 Help =>Writer Firmware Reset, Hareware Simple Test, Read Hardware ID
   8.5 About =>Display software version
9. Checksum: Display the Checksum value of the programming file
10. Smart Option: Display System Configuration definition

5. Programming Software Operation

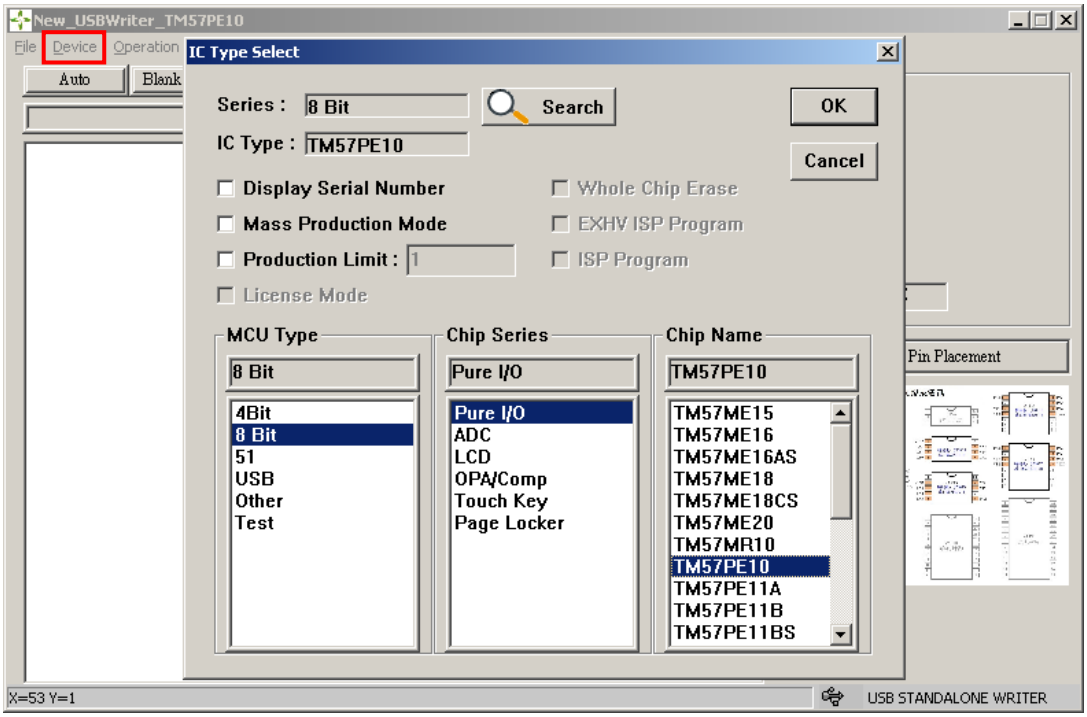
Step 1: Start the writer software tool.



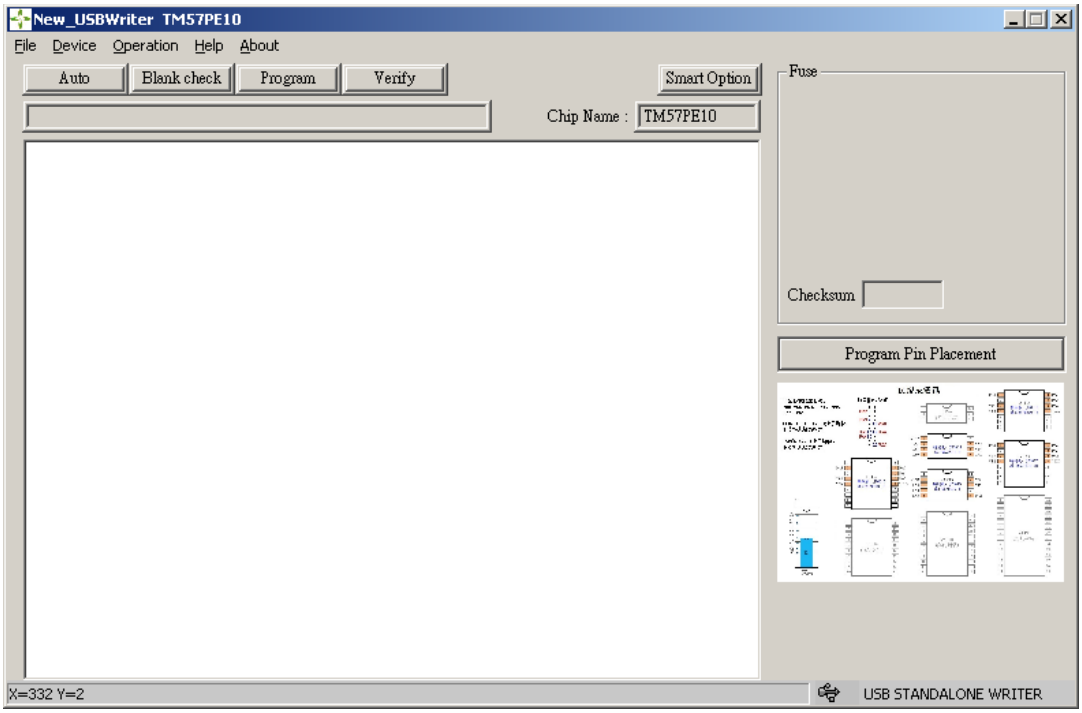
Step 2: The writer is open; confirm that the writer Device is connected to PC



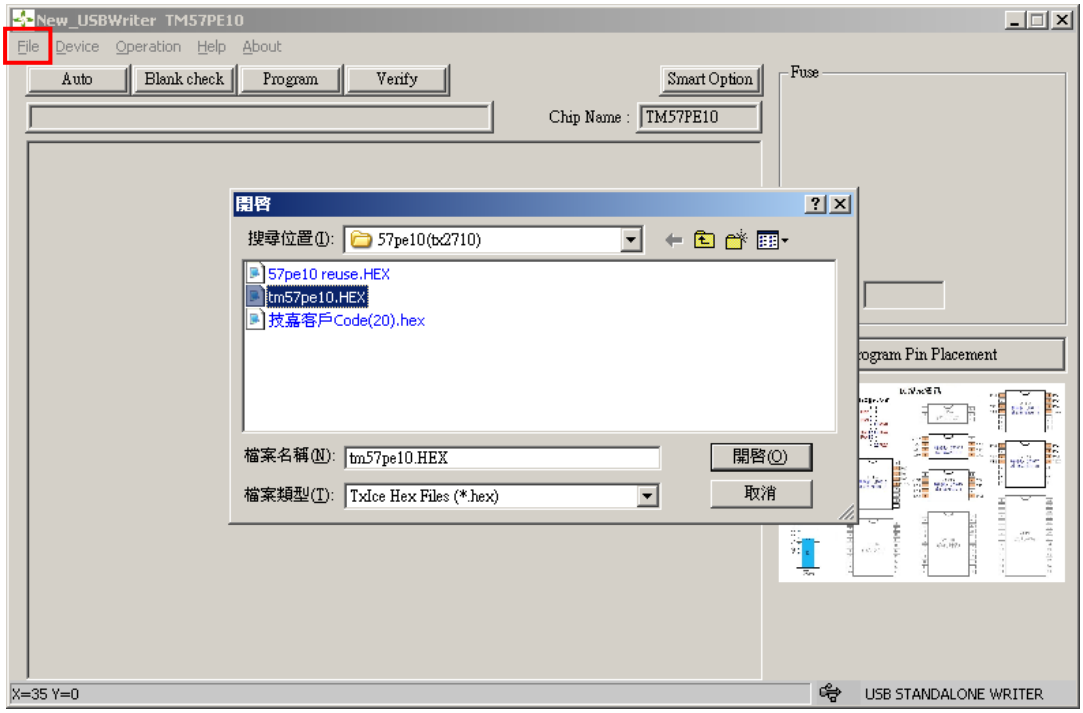
Step 3: Execute Device (Select CHIP) Note: search function can be used to search



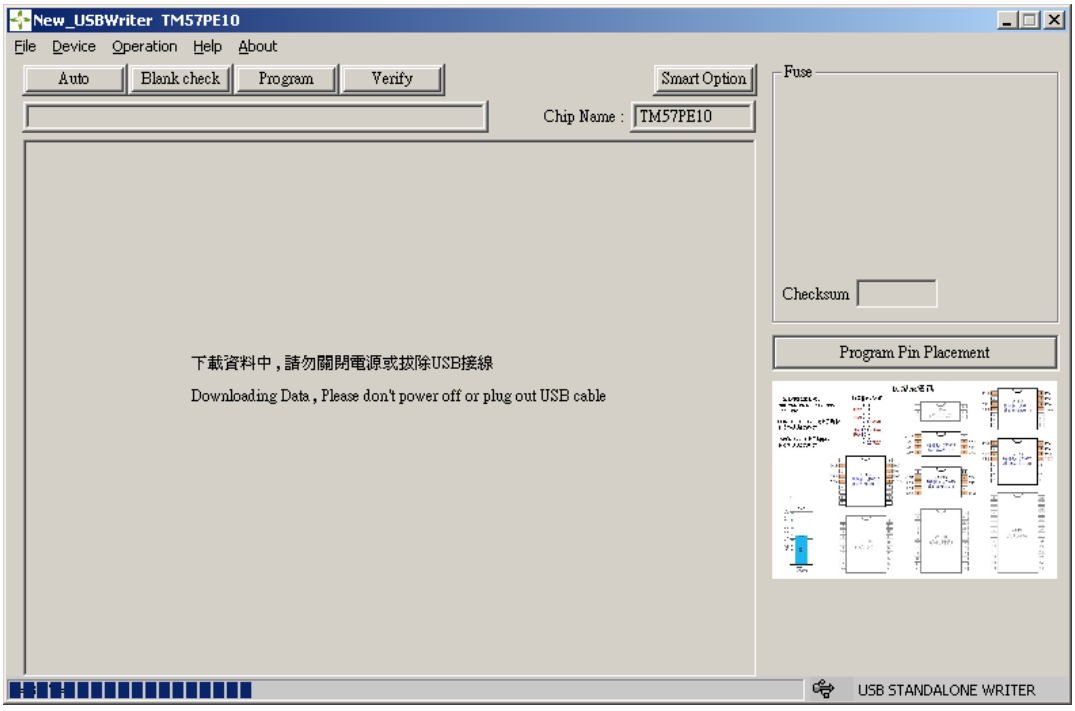
Step 4: Select CHIP ok.



Step 5: Execute File =>Load File.

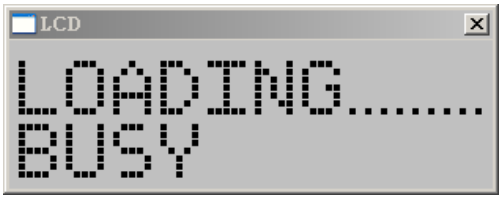


Step 6: Load the file



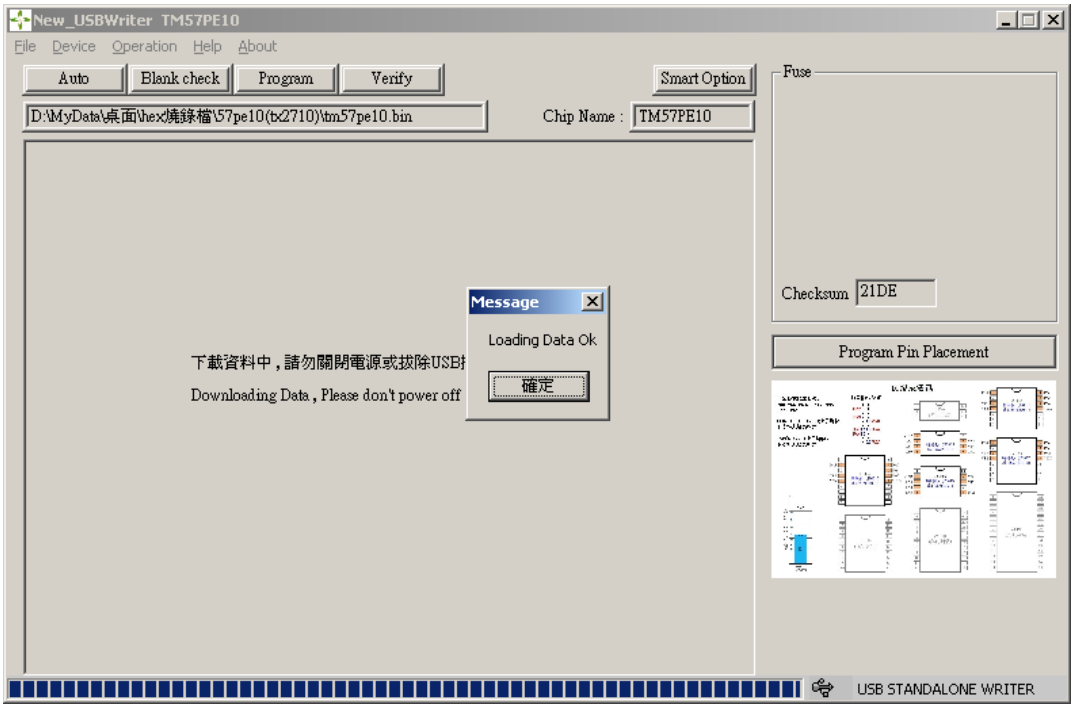
Step 7: When loading the file, the hardware of the LCD will display as follows

(Please don't power off or plug out USB cable)

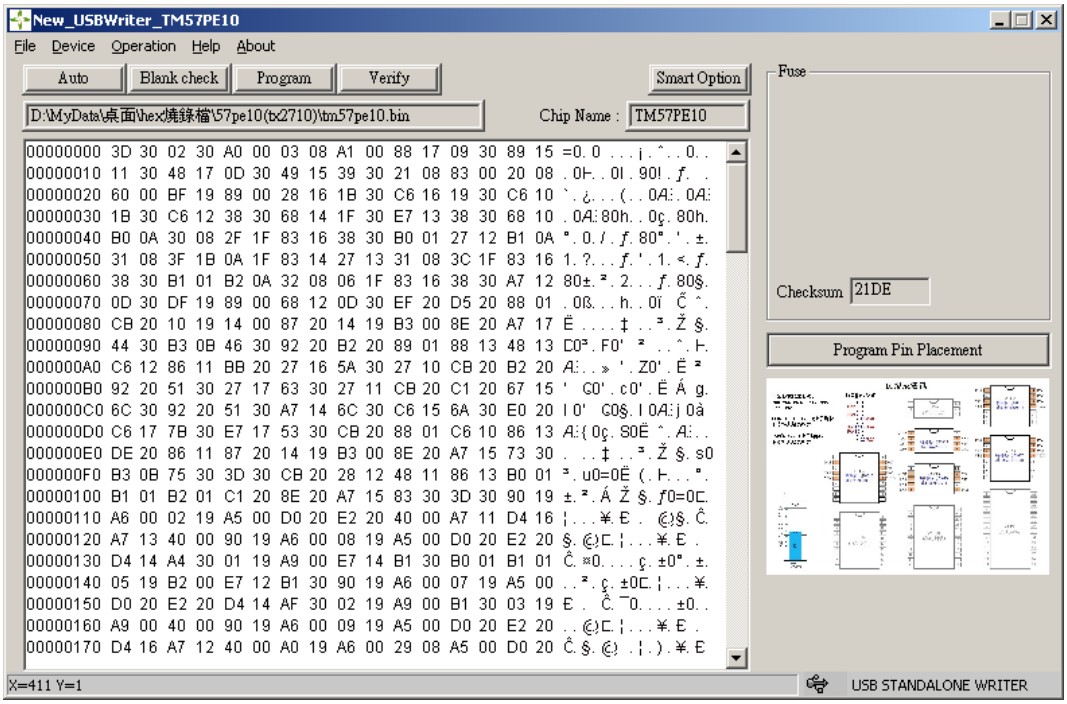


Step 8: Click on OK, download is completed

(If you don't click the "OK" button, plug out USB cable will occur Writer stand lone operation error, please re-power the Writer can be restored to normal)

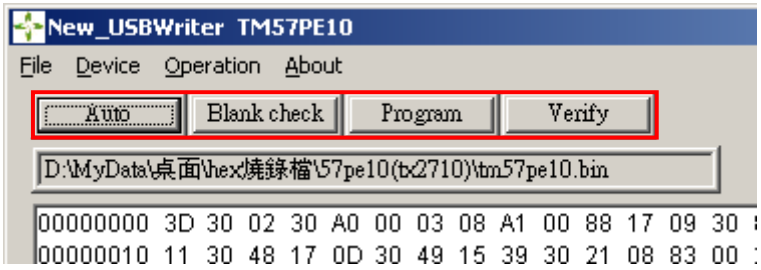


Step 9: Start execution (already loading into hardware)



Step 10: After successfully loading the file, the LCD panel on the hardware will display the CHIP NAME.

Step 11: Select the function on the toolbar (Auto, Blank, Check, Program, Verify).



6. LCD Error Messages

6.1: PROTECT => IC data are protected and cannot be read.

6.2: BUSY FAIL => Check if the IC Programming signals are connected to Writer.

6.3: B FAIL => Blank Test fails

6.4: P FAIL => Programming data fails

6.5: V FAIL => Comparing data fails

6.6: I FAIL => Enter Programming Mode fails

6.7: D FAIL => Check ID fail

6.8: F FAIL => Programming FUSE or SYSTEM CONFIG fails

6.9: NO CHIP => IC or connection is not connected properly. Please confirm whether IC is put properly or the line is connected perfectly.

6.10: C/E FAIL => Writer Checksum data comparing error

6.11: ENTRANCEF => Check IC entering write mode fail

6.12: Busy Fail => Writer wait IC busy time out

6.13: T(R)IRC Fail => Check IRC data error.

6.14: VBG Fail => Check VBG data error.

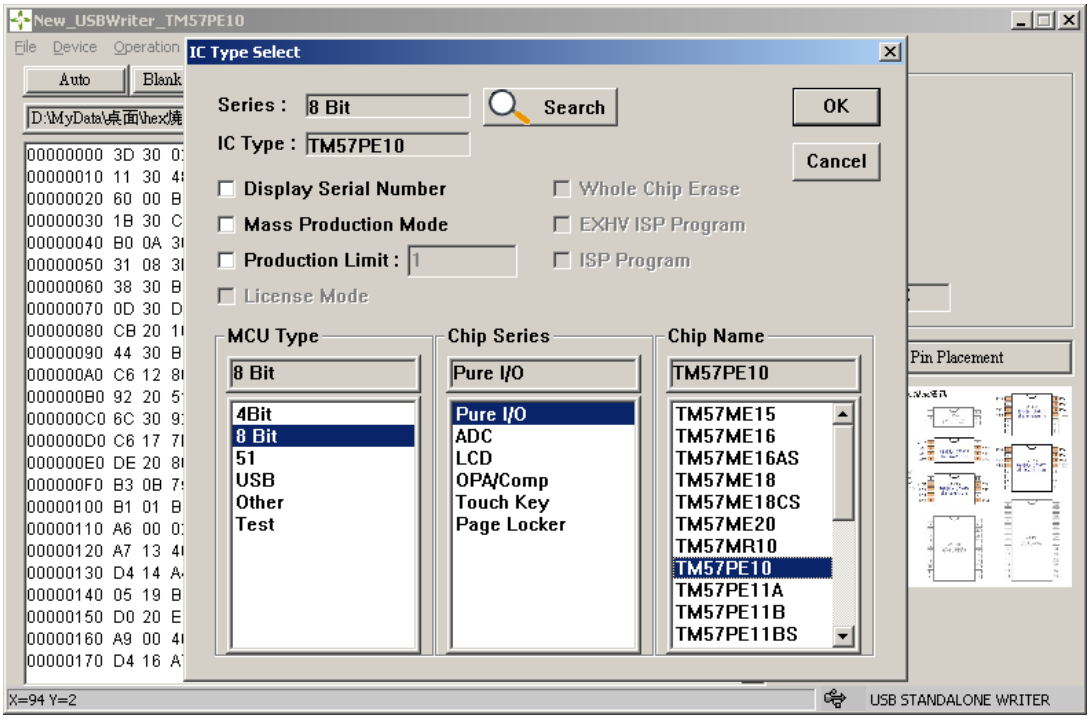
6.15: OTP Fail => Means that the IC only provides one-time programming.

6.16: R Fail => The program voltage is fail, please check the programming line/probe or socket.

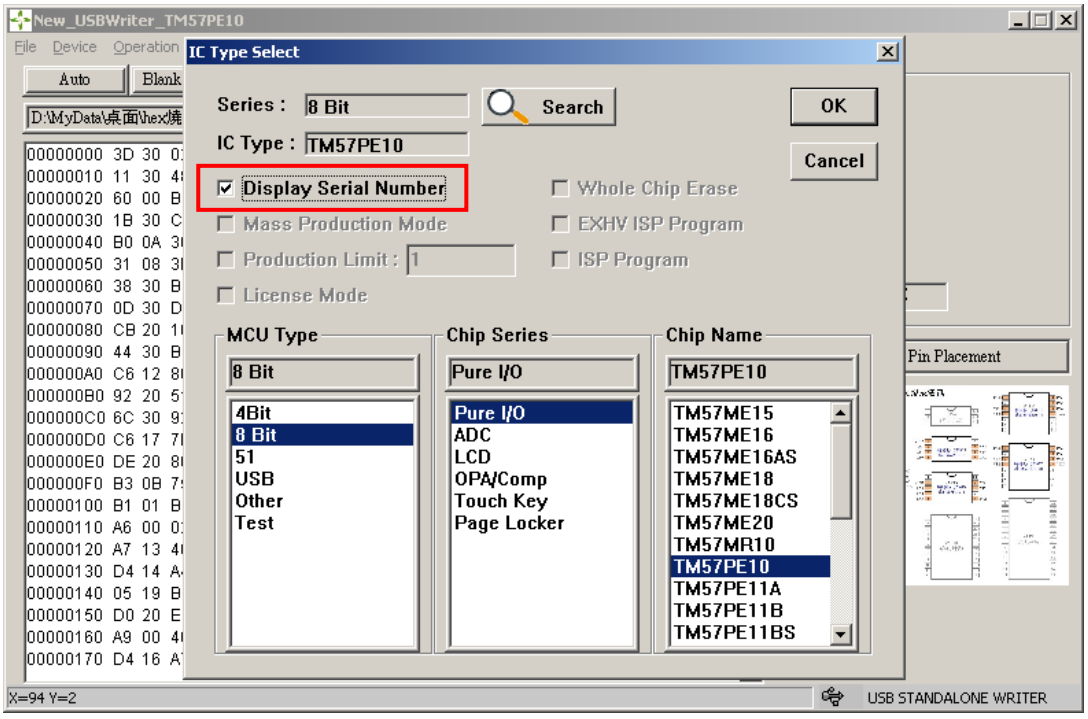
6.17: EEPROM Fail => Writer EEPROM data check error

7. Set-up and Operations for Programming Serial Number

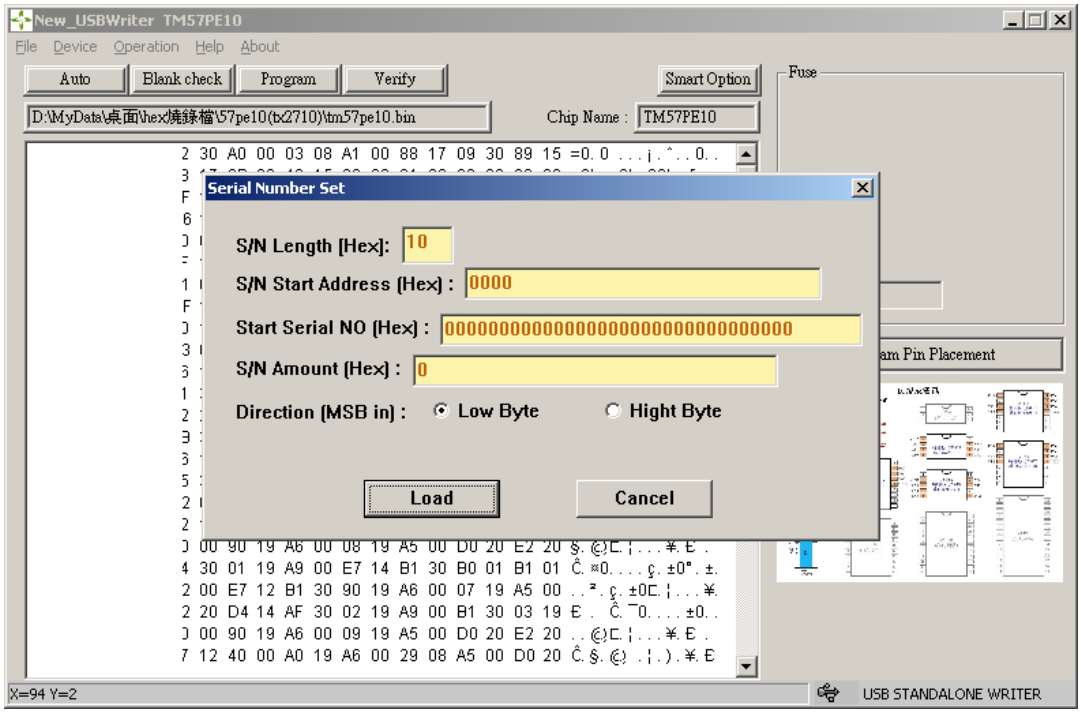
Step 1: Select “Device” :



Step 2: After selecting IC, please enable the “Display Serial Number”, and then click on “OK”.



Step 3: Enter “Serial Number Set” =>Set up the Serial Number parameters.



Step 4: Set up the S/N Length [Hex] (range: 0x01~0x10)

Step 5: Set up the S/N Start Address [Hex].

Step 6: Set up the Start Serial NO [Hex].

Step 7: Set up the S/N Amount [Hex] (the amount of OTP IC programming).

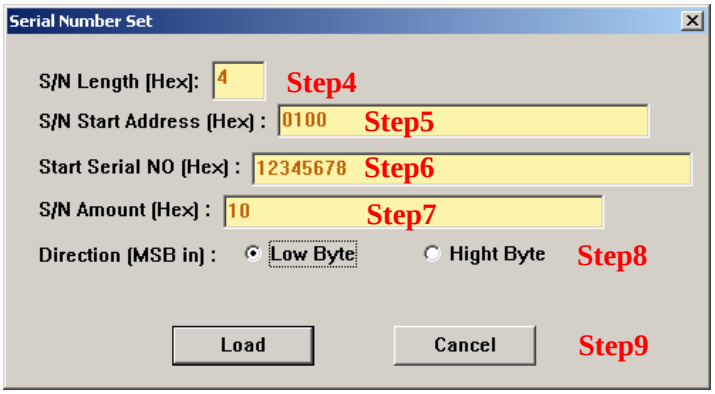
Step 8: Set up the S/N Direction [MSB In]

For Example: Serial Number value=12345678

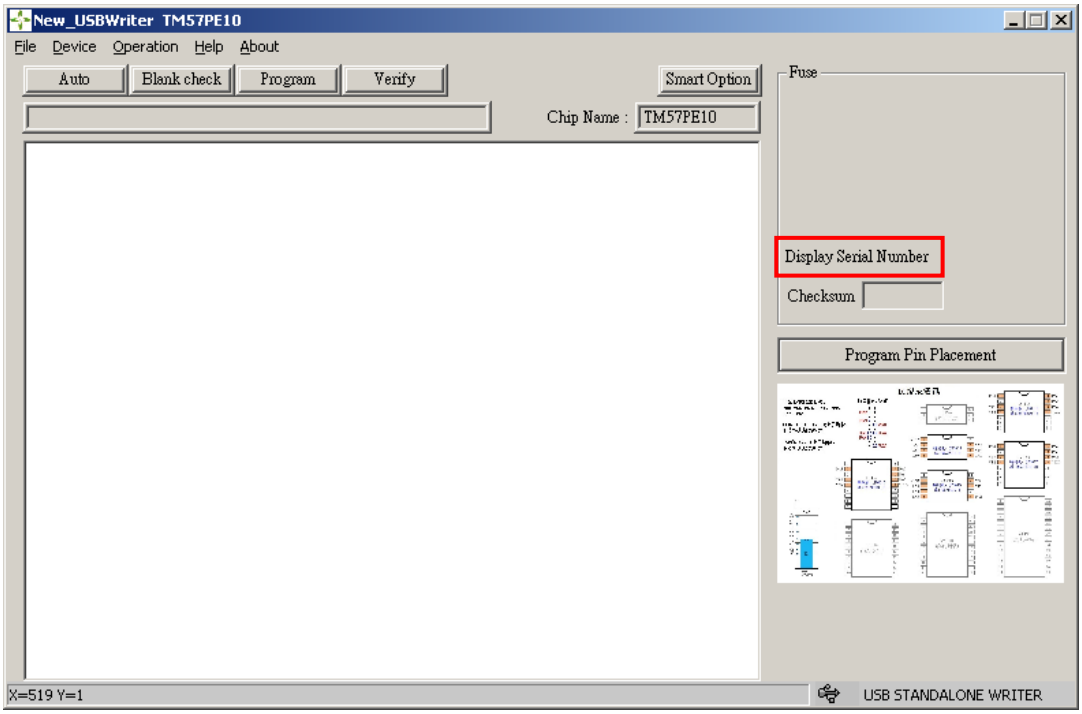
Select “Low Byte” to program the IC location: 12 34 56 78

Select “High Byte” to program the IC location: 78 56 34 12

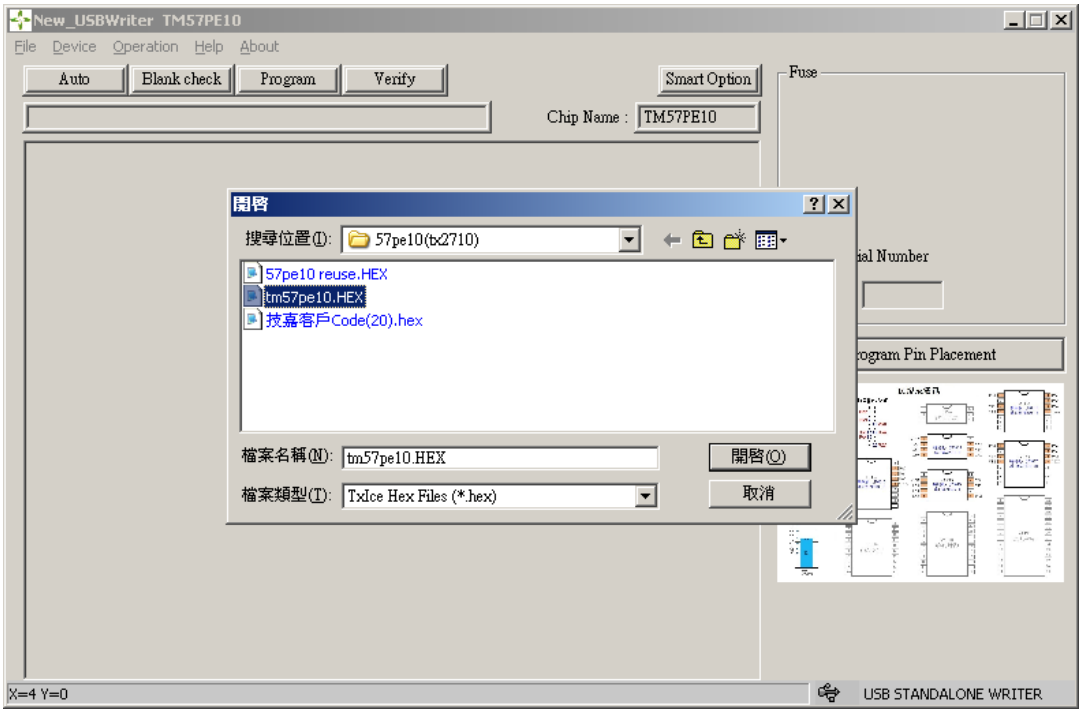
Step 9: After finishing set up, click the Load button (load the serial configuration data into Writer, please wait for it to complete)



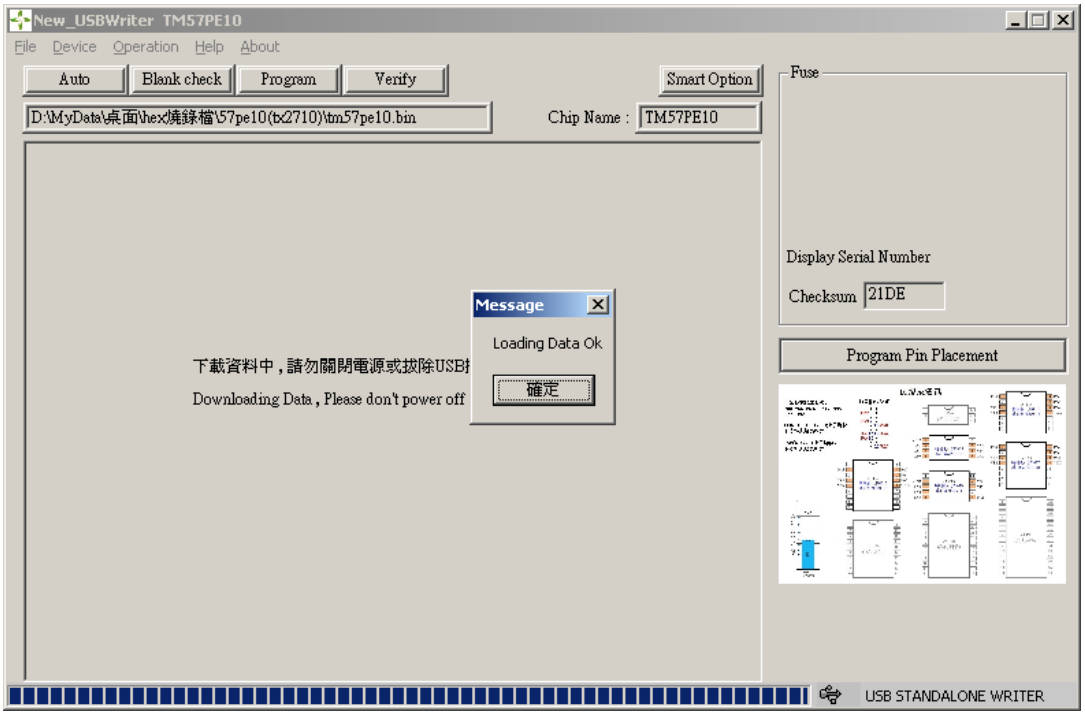
Step 10: After setting the “Serial Number Set” setup, click on the “Load” button.



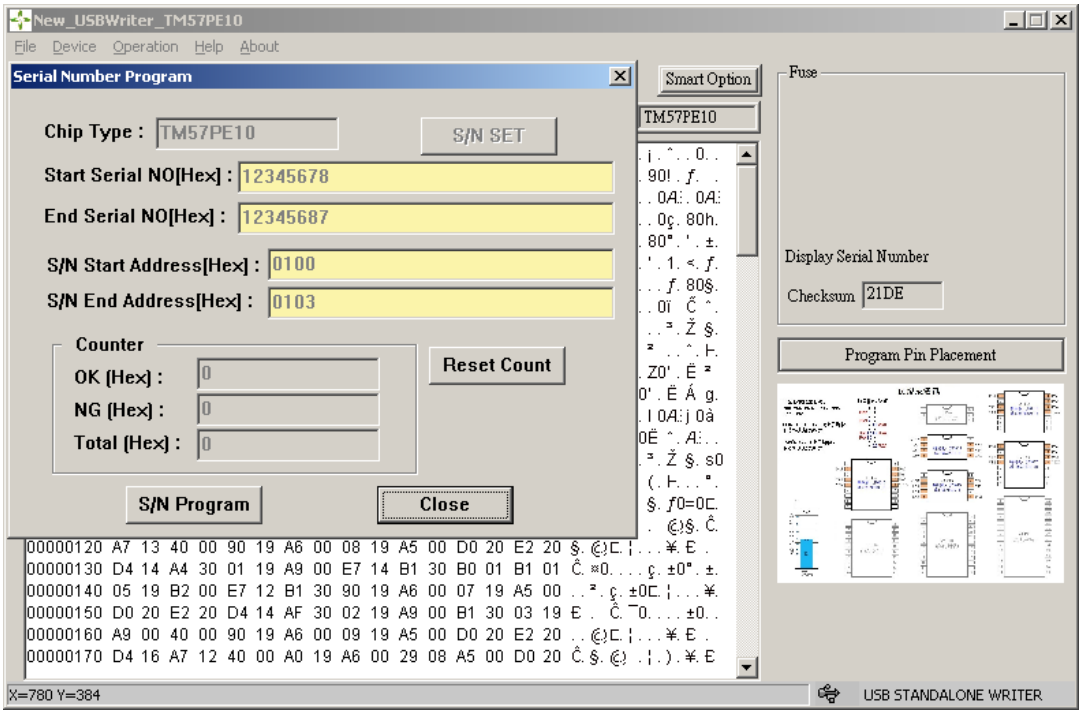
Step 11: Execute File ->Load File



Step 12: Wait until the files are downloaded OK, click on “ confirm ” button to enter the Serial Number Program mode



Step 13: Click on " S/N Program " button to start programming



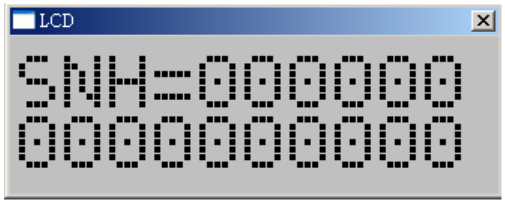
Note: After the completion of programming, if programming code + serial number is desired, go back to Step 1 and start all over.

After the above steps are completed, the user can choose two modes of operation: to connect to PC and let PC control the programming process or go offline and programmed by using writer independently.

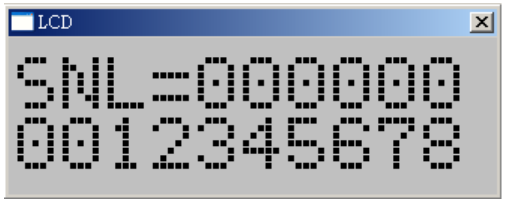
1. Operating instruction in using PC to control the programming process:
   a. Click on S/N Program button to start the programming process.
   b. If programming is successful, the count number for " Start Serial NO, OK, Total " will be incremented by 1 automatically.
   c. If programming is fail, the count number for " NG, Tota l " will be incremented by 1 automatically.
   d. When the S/N Program button is disabled, it means that the programming process for the serial number is completed. Reset and reload by entering the " S/N SET " window is required.
   e. " Reset Count " button will reset the " OK, NG, Total " column value to zero.
   f. **Attention:** Do not press the " Enter " key on the writer hardware during programming if PC control mode is used.

2. Operating instruction in using writer for programming independently:
   a. The function for the Mode button is to choose whether to display the value for " Serial Number, OK, NG, TOTAL ".

   a-1: SNH =>Display Serial Number (9~16 bytes) , but when S/N Length is less than 9, this mode will not display the number.



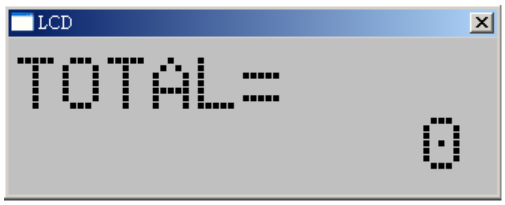
   a-2: SNL =>Display Serial Number (1~8 bytes).



   a-3: OK =>Display the number of successful programming.

a-4: NG =>Display the number of fail programming.

a-5: TOTAL =>Display the total number of programming.



b. The function for the " Enter " key is to execute programming.

c. If programming is successful, the value of " Serial Number, OK, TOTAL " will be incremented by 1 automatically.

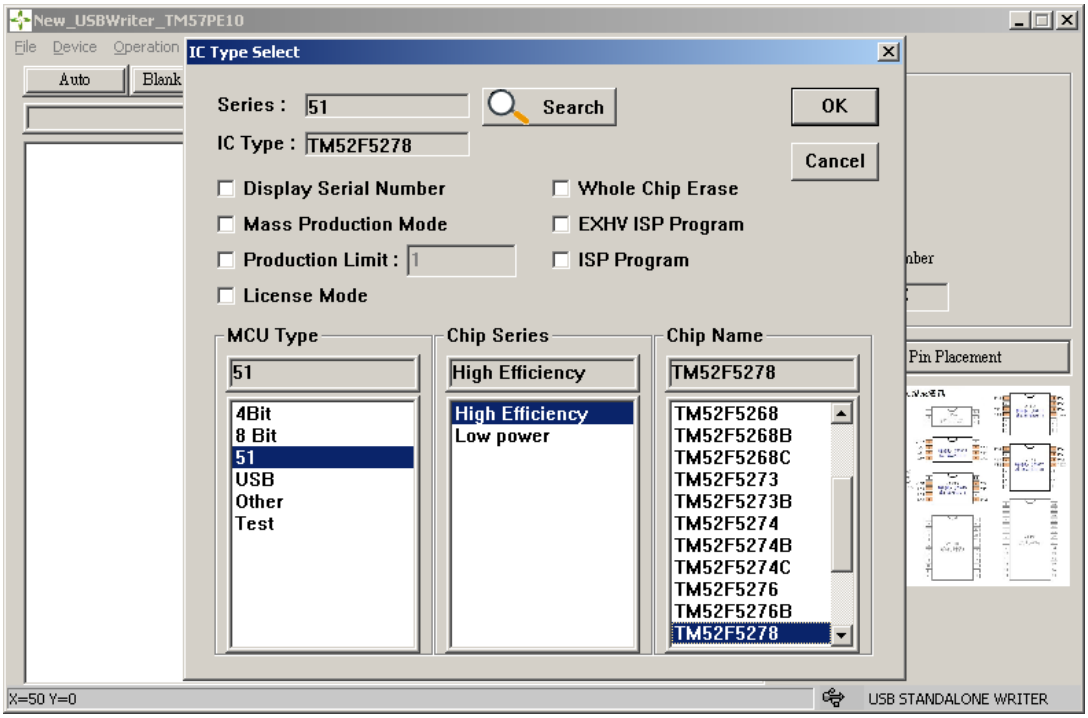
d. If programming is fail, the value of " NG, TOTA L" will be incremented by 1 automatically.

e. When the " Enter " key is disabled, it means that the programming for the serial number is completed and the must be reloaded.

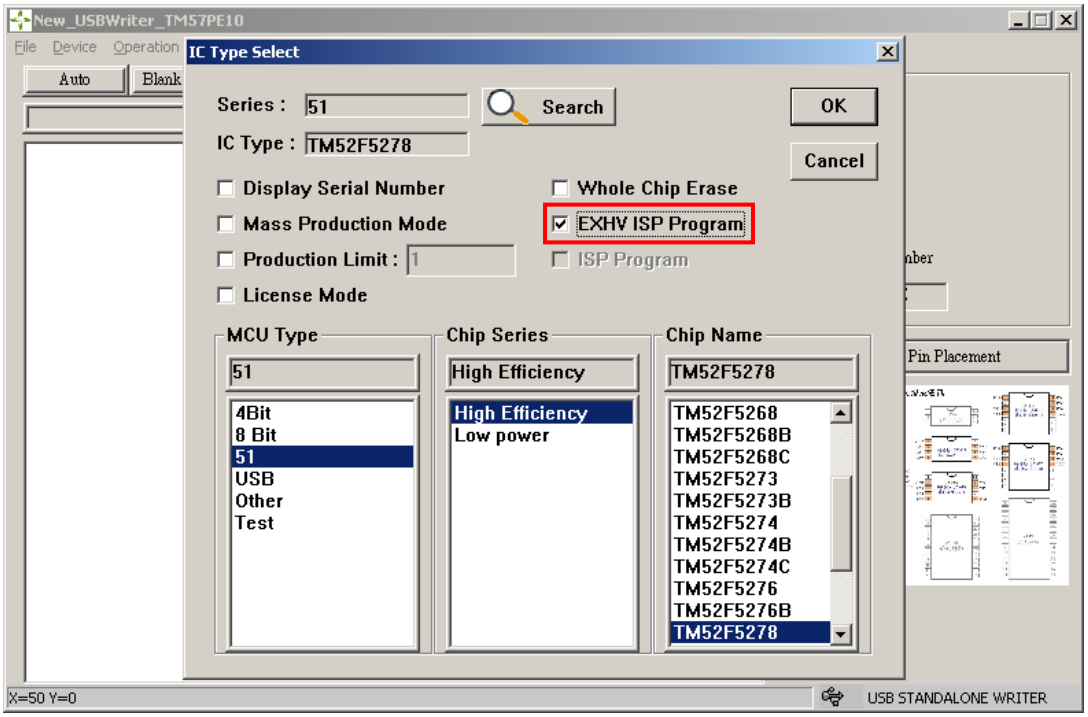
f. **Attention:** if the power of writer is turned off and on again, the serial number will be reset to the initial value.

8. Programming Operation in EXHV ISP Mode

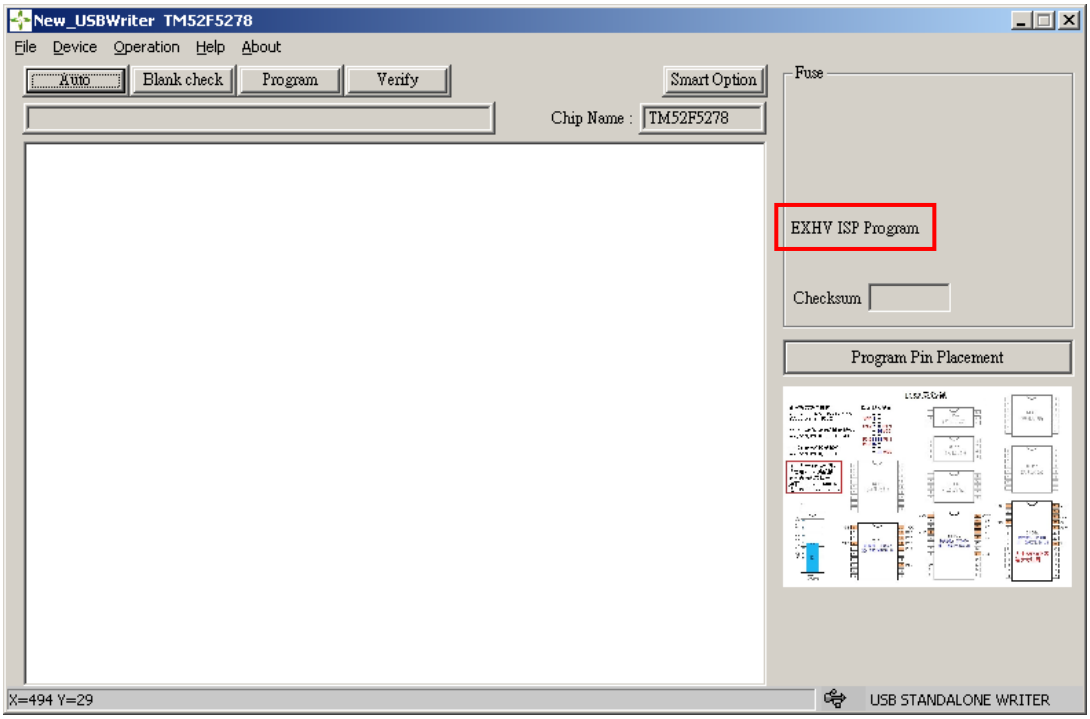
Step 1: Select Device



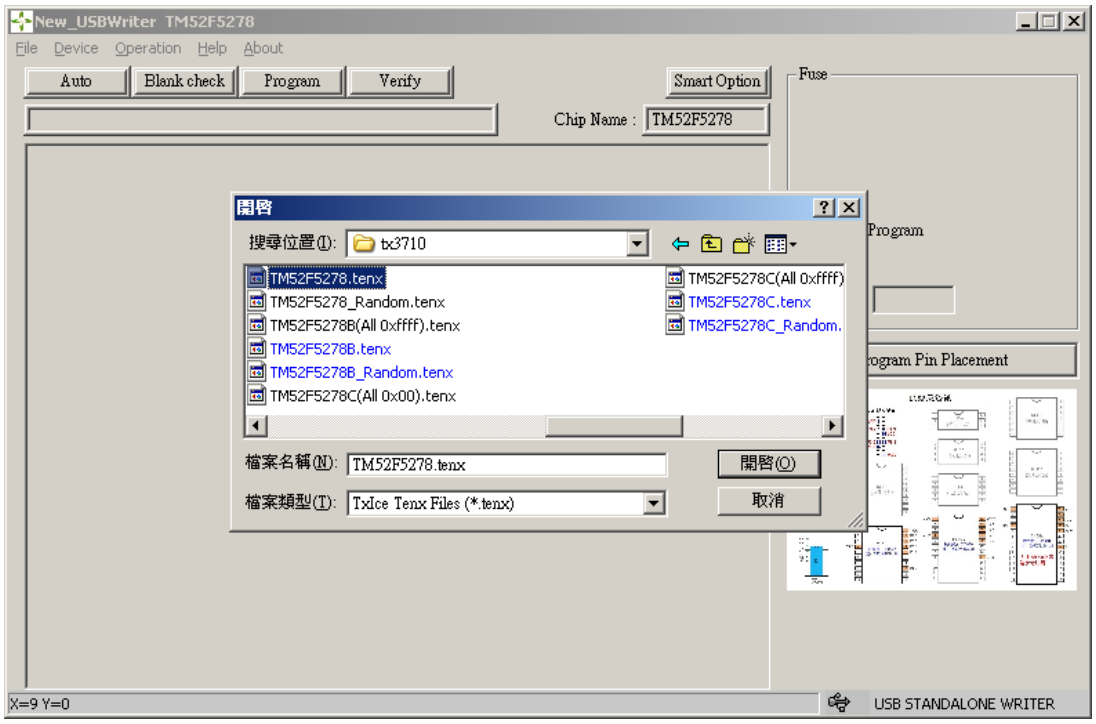
Step 2: Select IC and enable “ EXHV ISP Program ”, and then click on “ OK ”



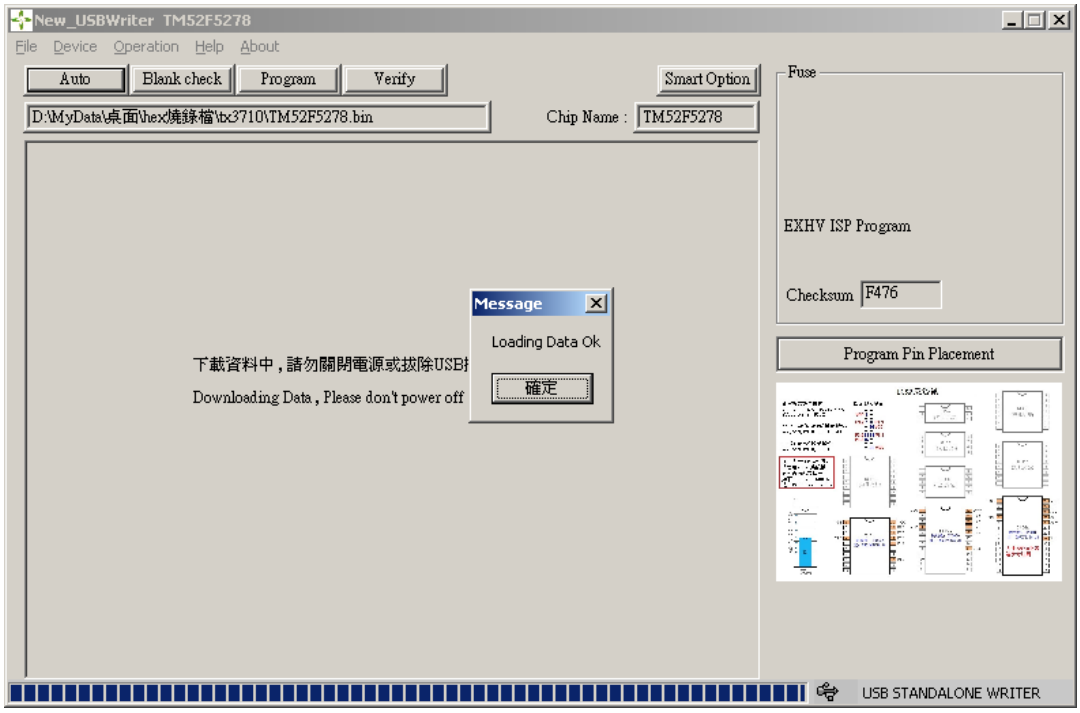
Step 3: The main screen will exhibit “ EXHV ISP Program ”



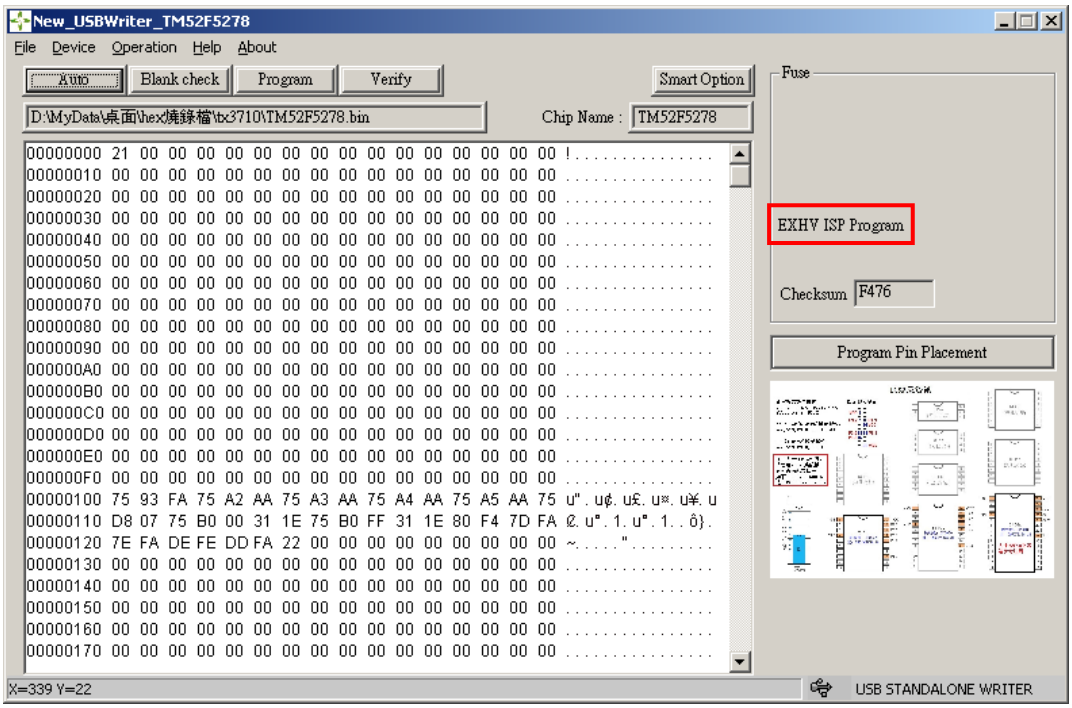
Step 4: Select File ->Load File



Step 5：Wait until files are downloaded, click on OK to complete the download



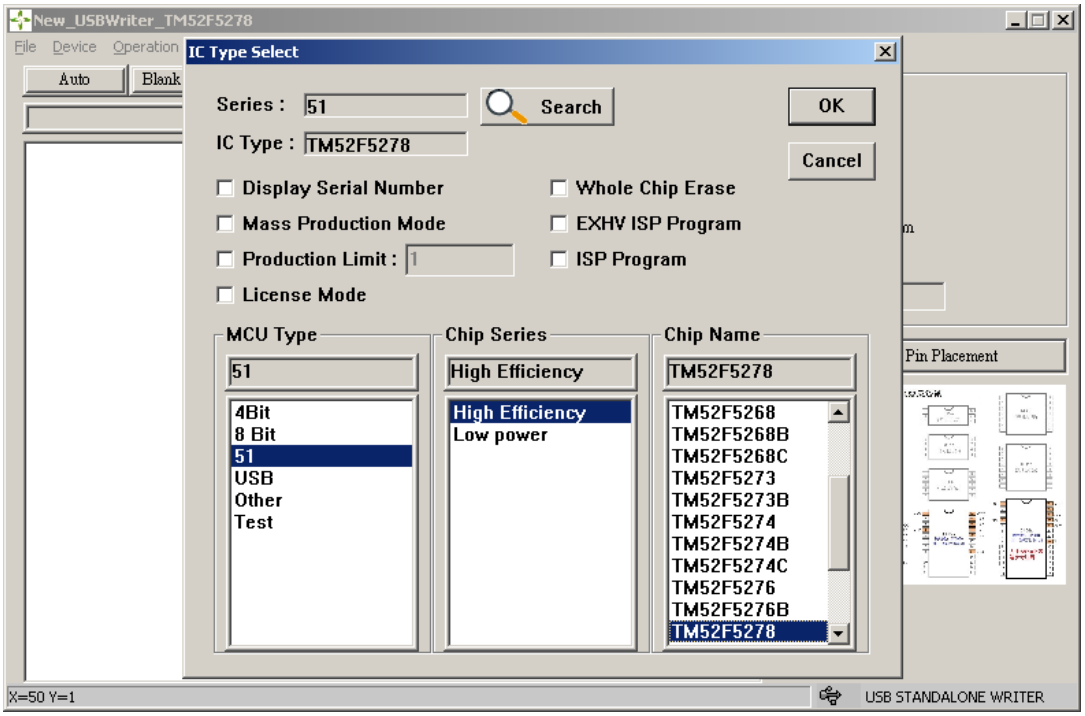
Step 6: Downloaded OK



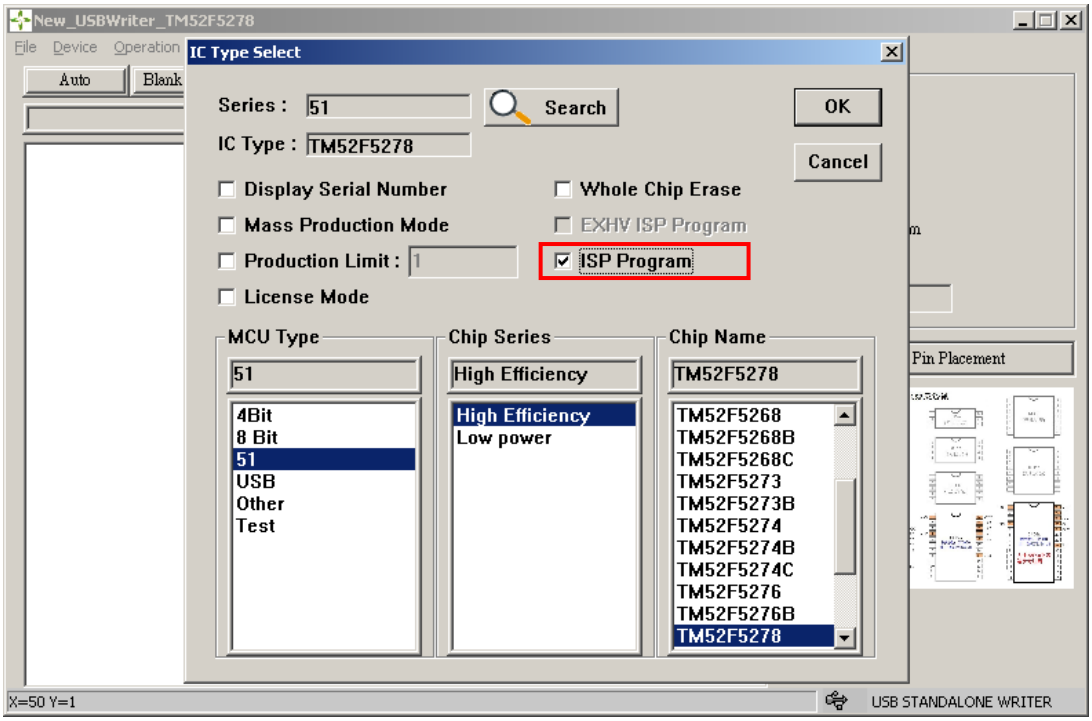
Note: The capacitance (VCC/VSS) on the PCB programming cannot exceed 470uF, and the capacitance (SDA/SCL) cannot exceed 100pF

9. Programming Operation in ISP Mode

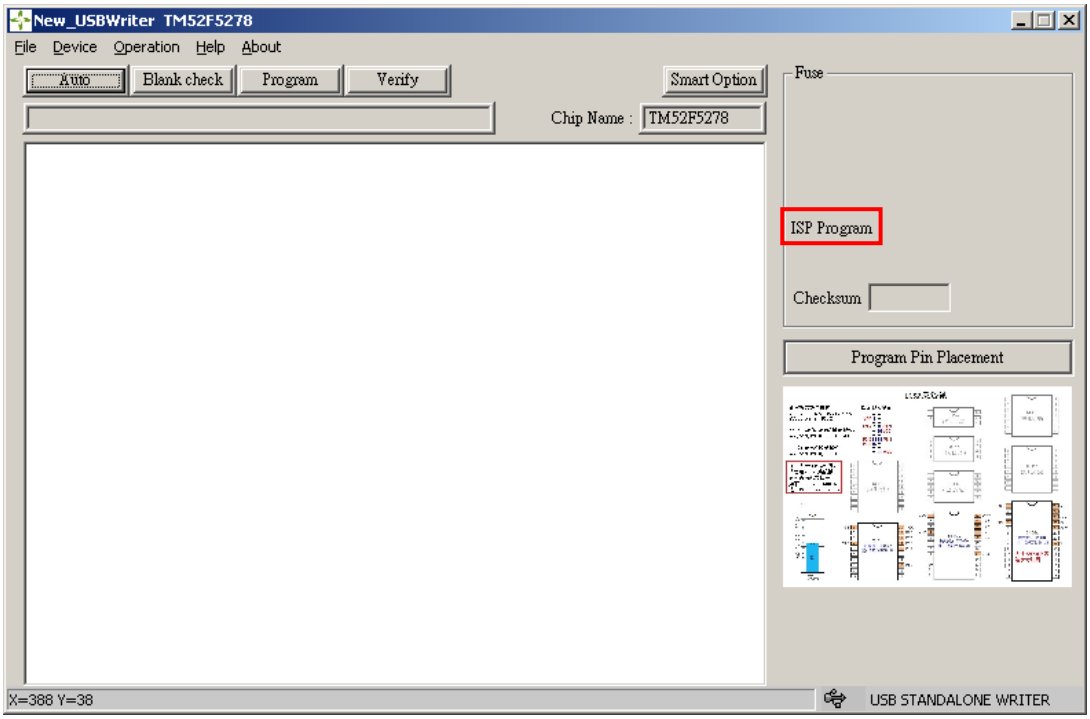
Step 1: Select Device



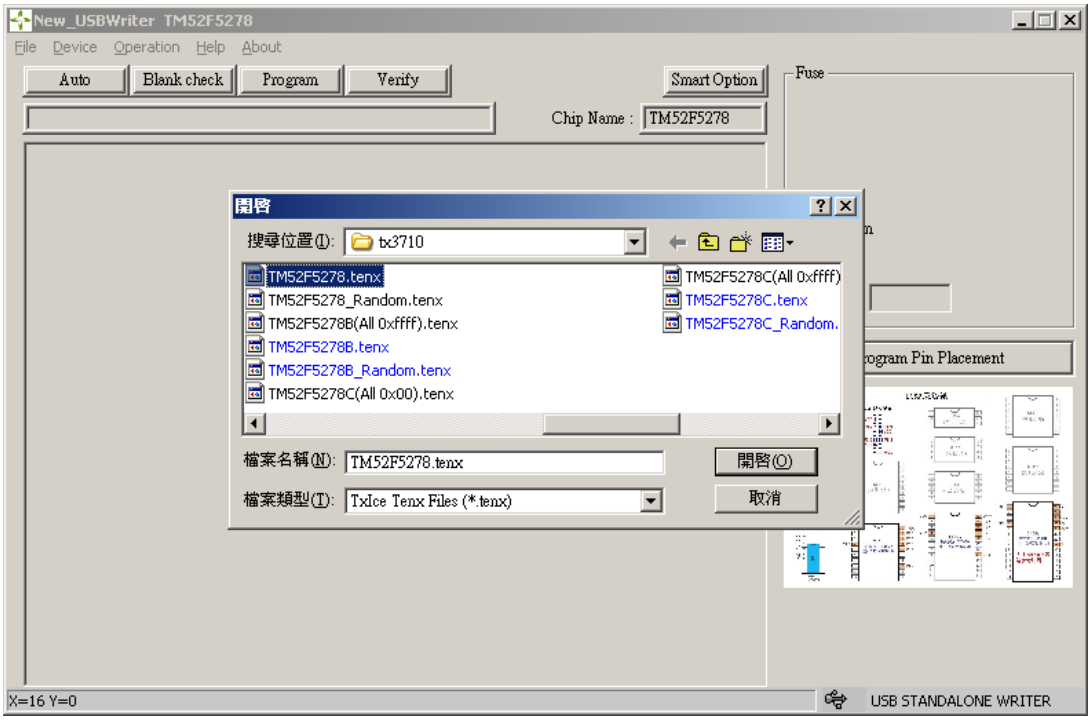
Step 2: Select IC and enable “ ISP Program ”, and then click on “ OK ”



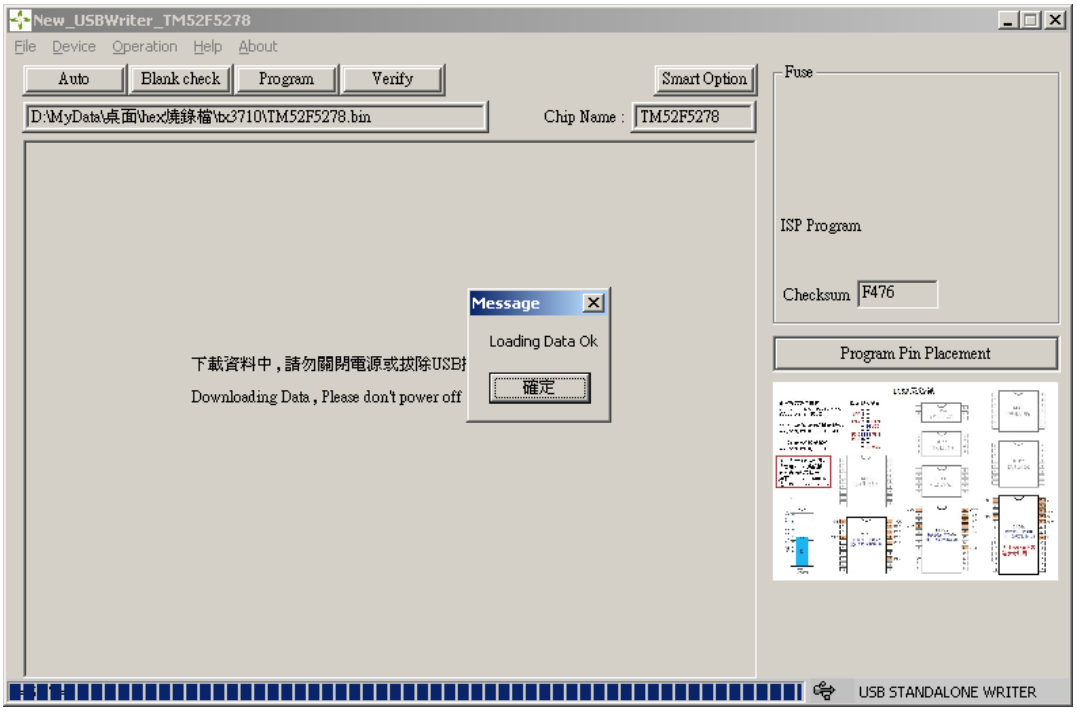
Step 3: The main screen will exhibit “ ISP Program ”



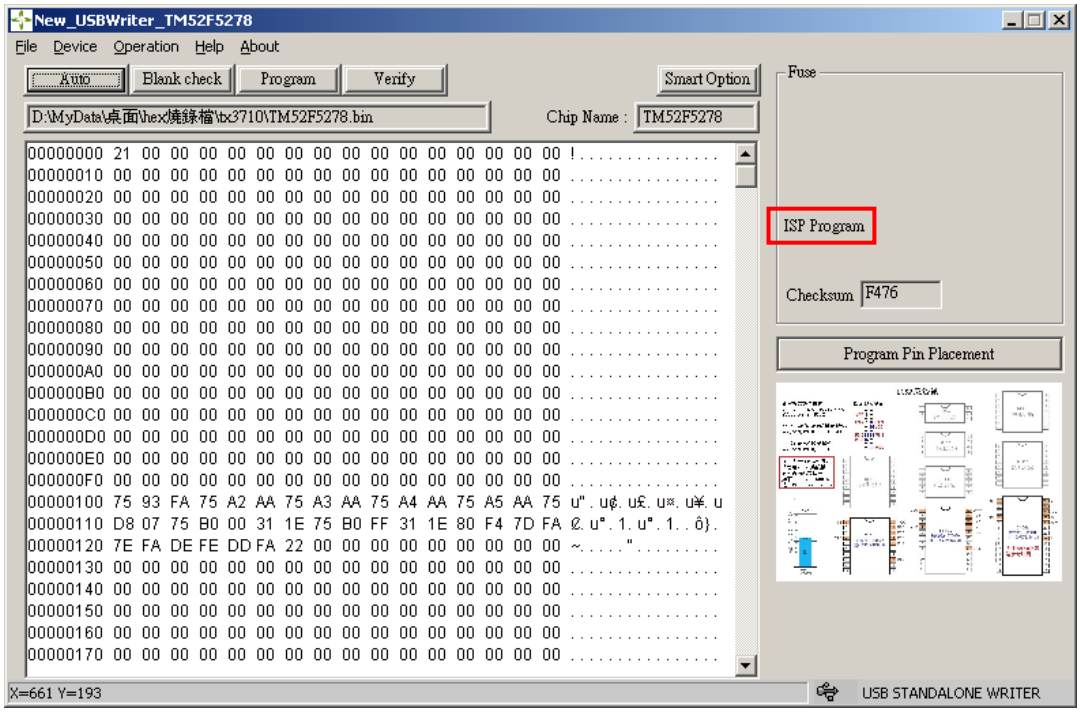
Step 4: Select File ->Load File



Step 5: Wait until files are downloaded, click on OK to complete the download



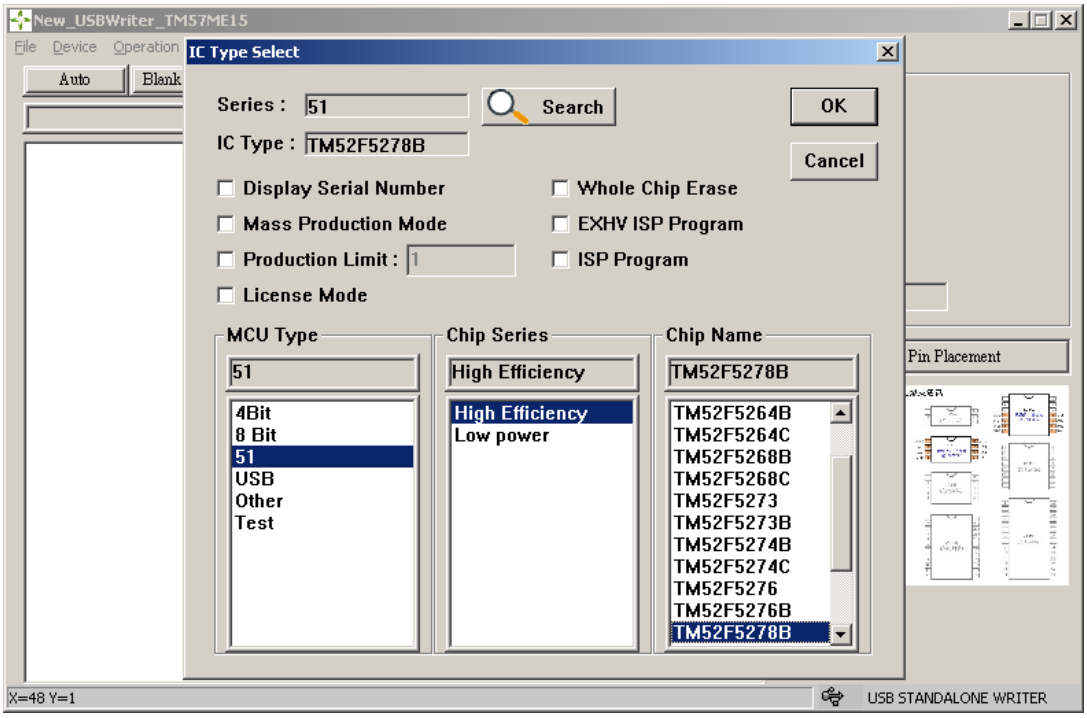
Step 6: Downloaded OK



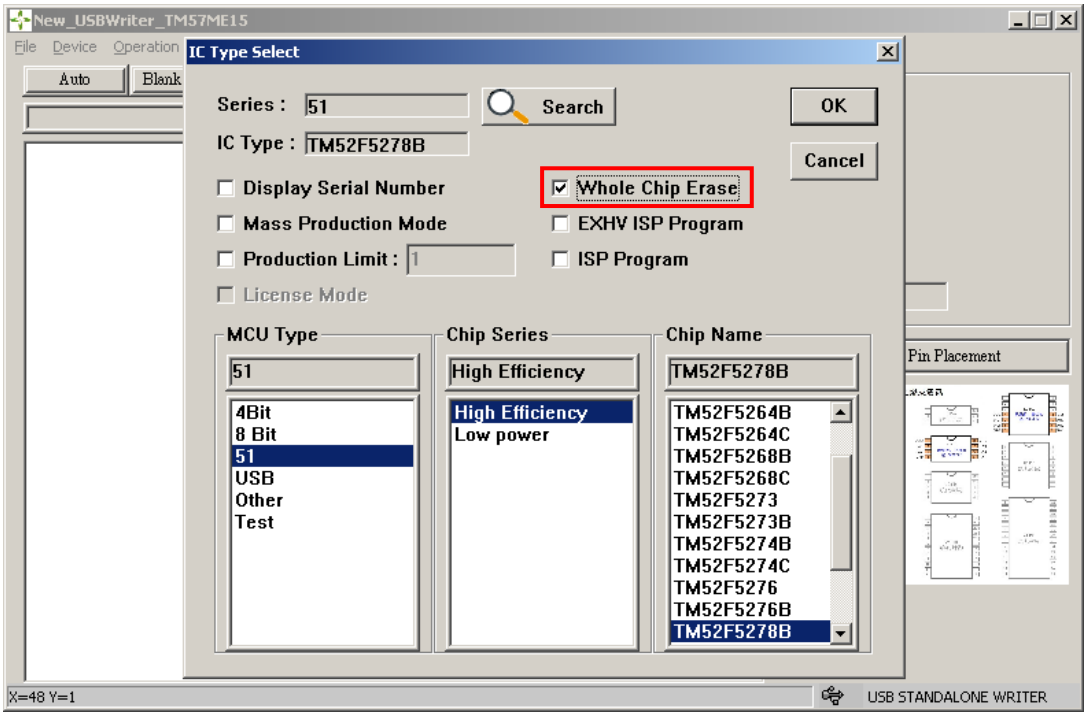
Note: The capacitance (VCC/VSS) on the PCB programming cannot exceed 470uF, and the capacitance (SDA/SCL) cannot exceed 100pF

10. Programming Operation in Whole Chip Erase Mode

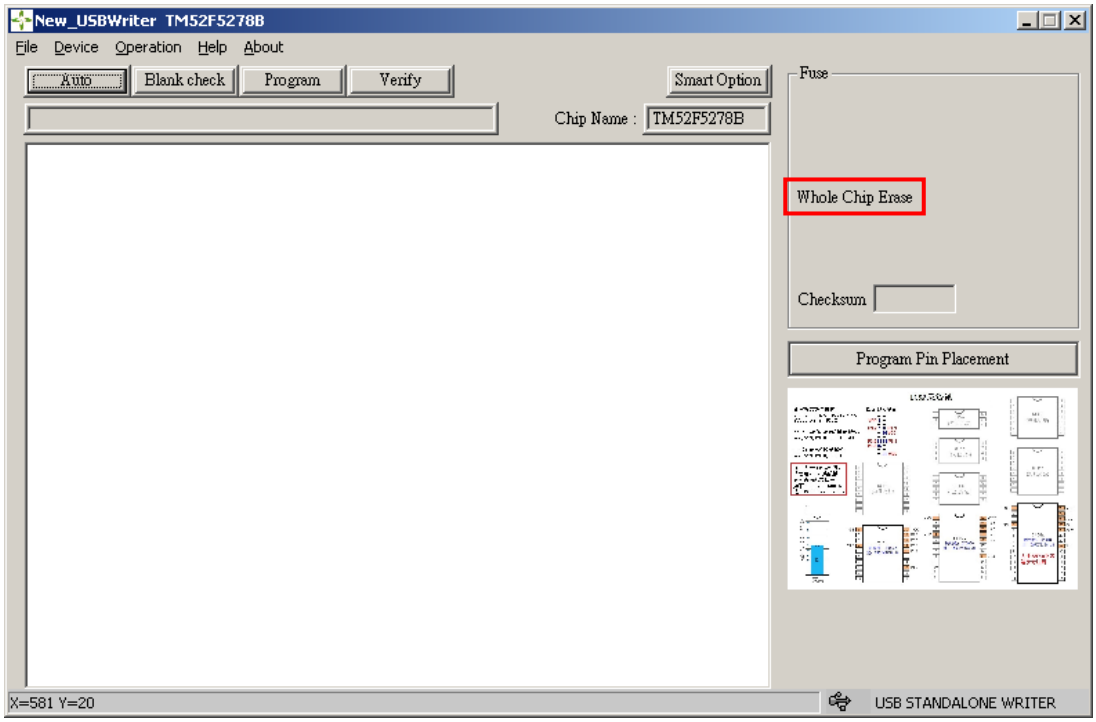
Step 1: Select Device



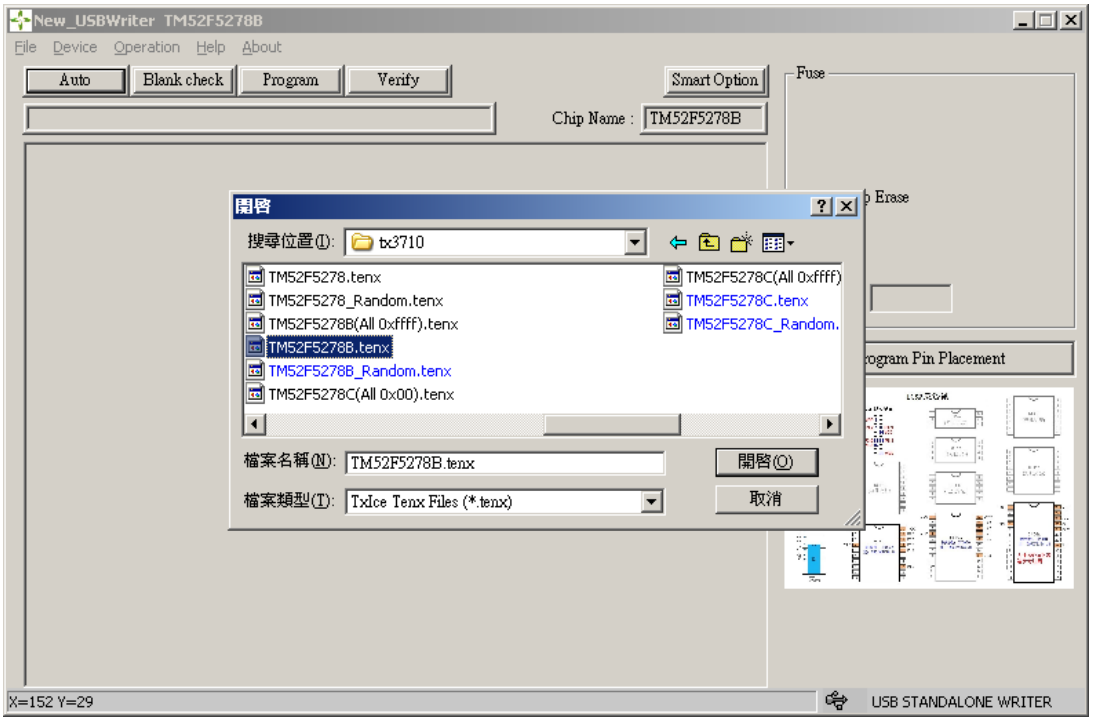
Step 2: Select IC and enable “ Whole Chip Erase ”, and then click on “ OK ”



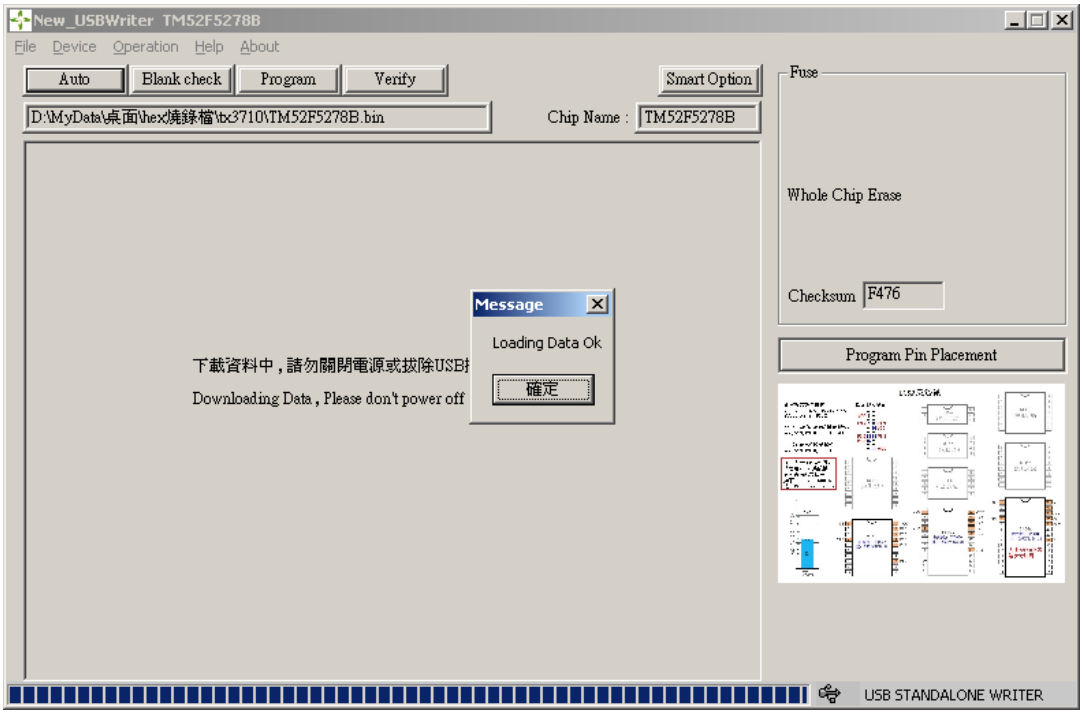
Step 3: The main screen will exhibit “Whole Chip Erase”



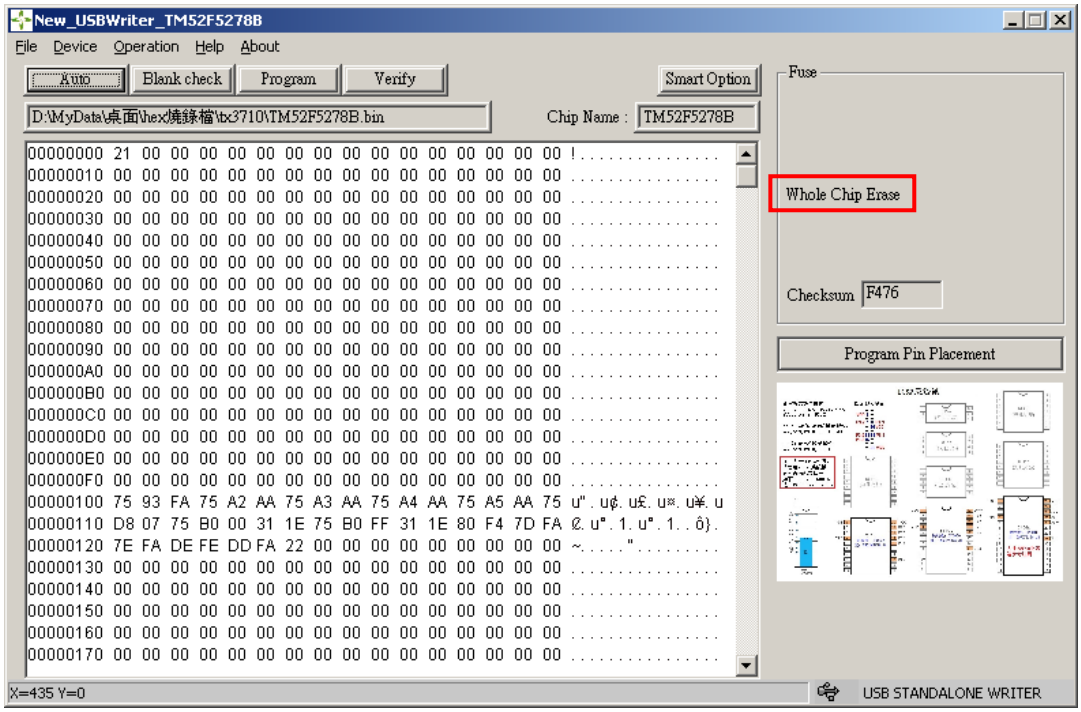
Step 4: Select File ->Load File



Step 5: Wait until files are downloaded, click on OK to complete the download



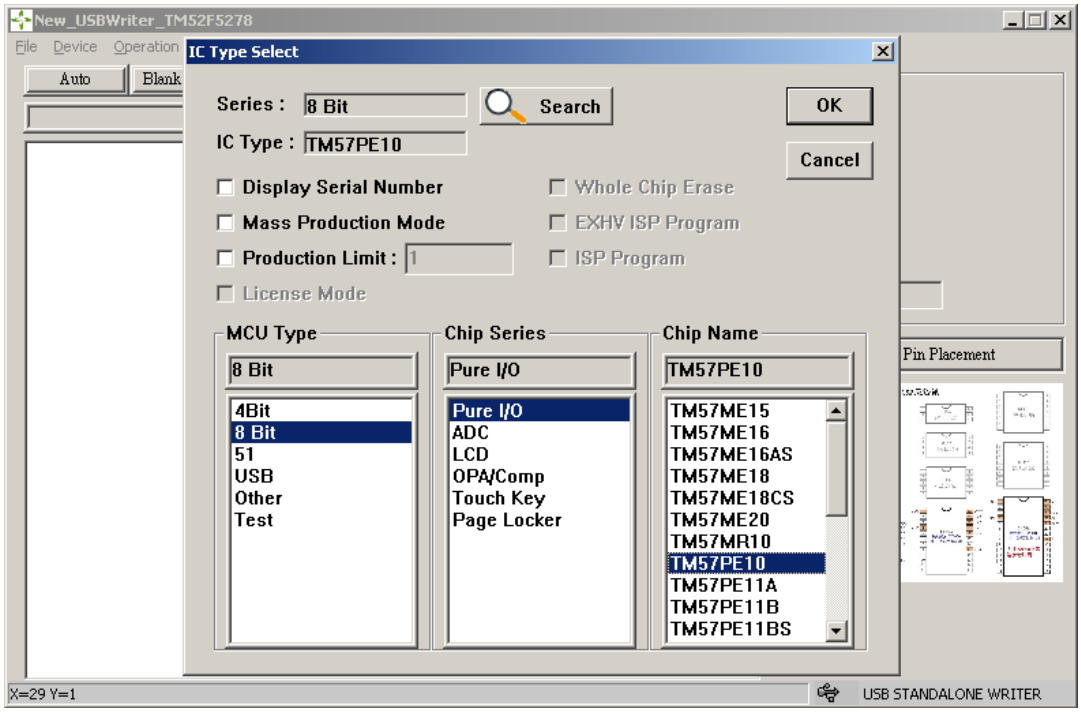
Step 6: Downloaded OK



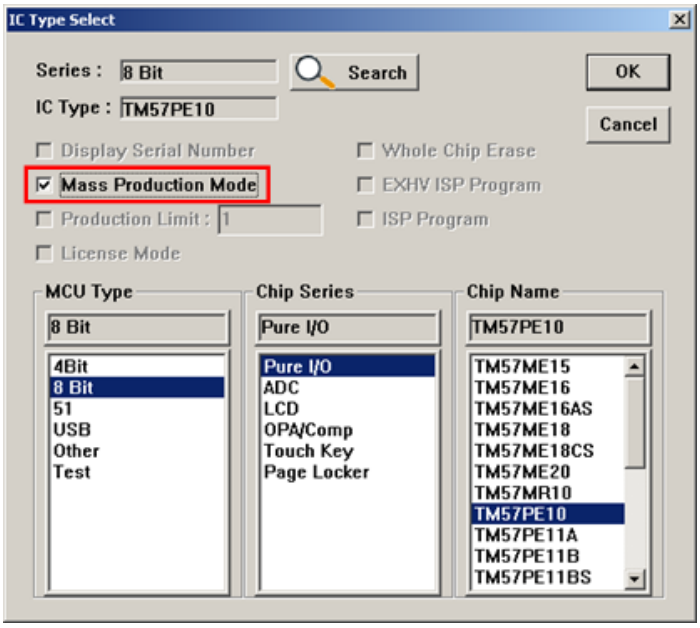
11. Programming Guide for Mass Production Mode

This function contains only Auto mode, which records OK and NG counts, and checksum display, there are no other functions, so it is recommended to be used in mass production.

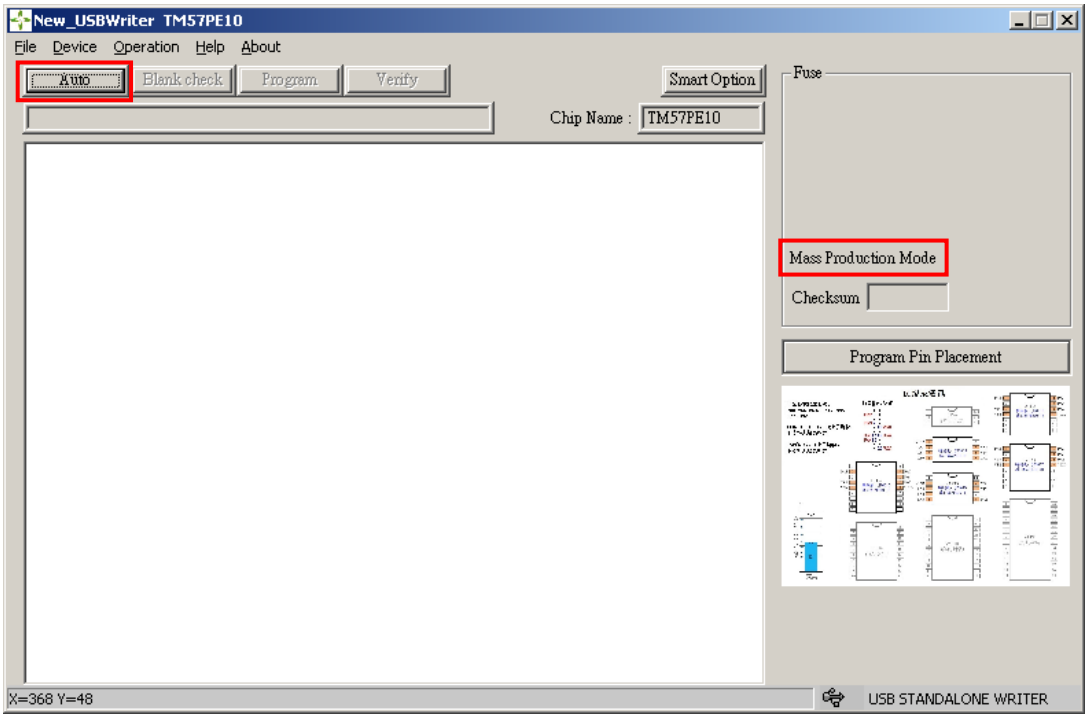
Step 1: Select Device



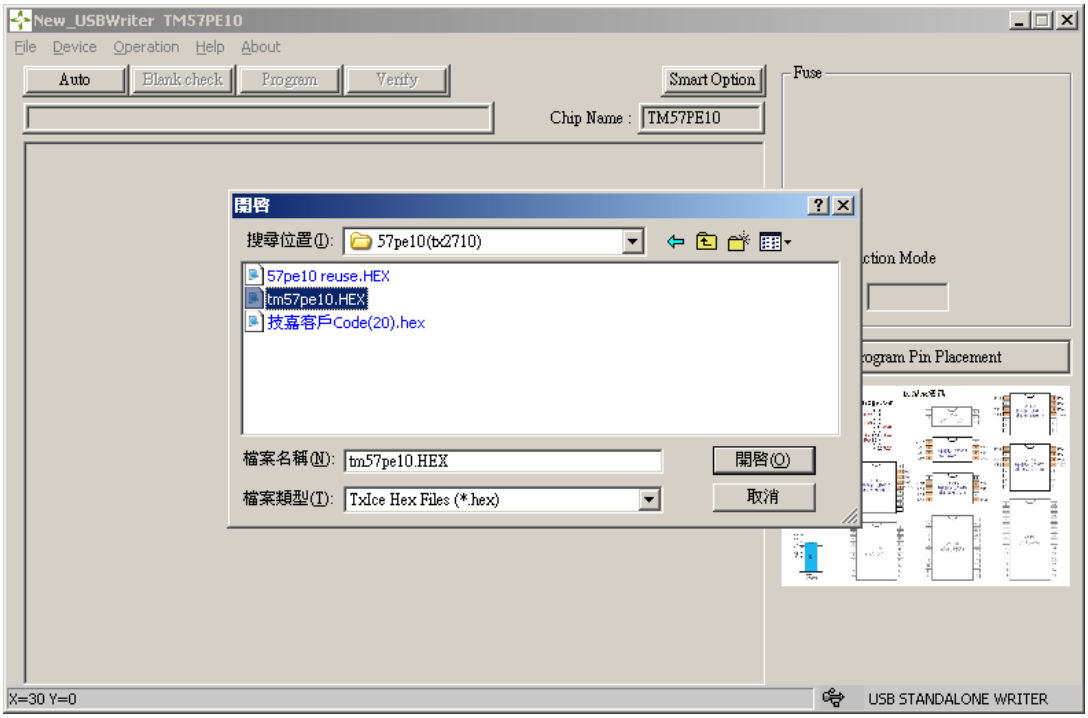
Step 2: Select IC type and enable the “ Mass Production Mode ”, and then click on “ OK ”



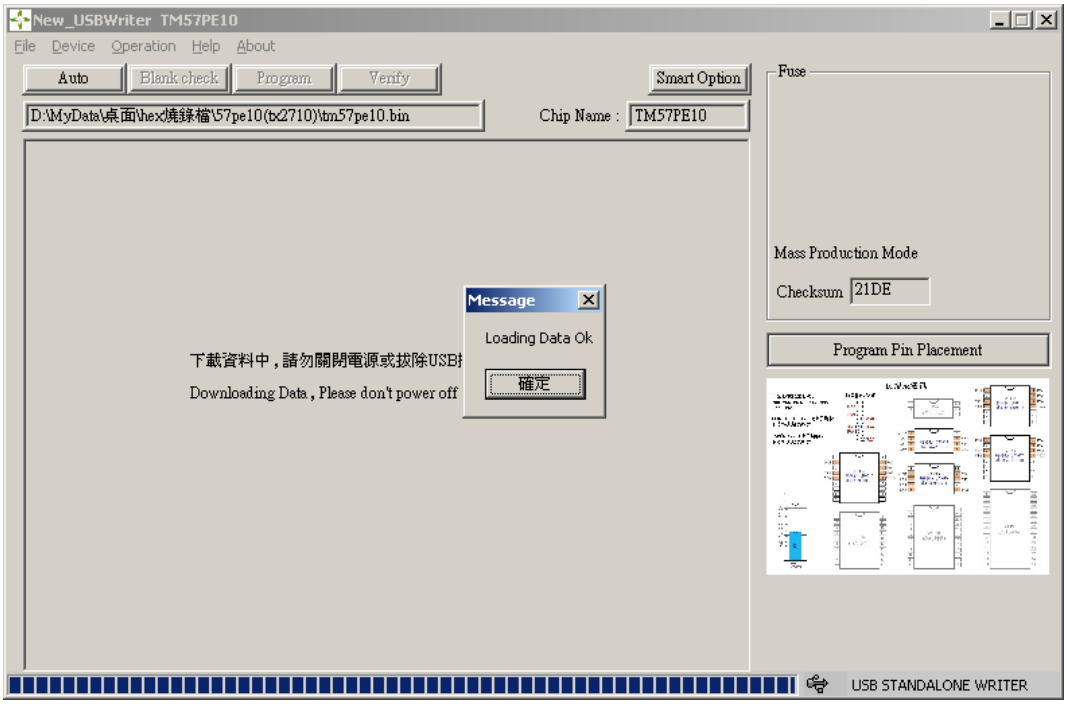
Step 3: The main screen will show “ Mass Production Mode ” and Enable Auto function



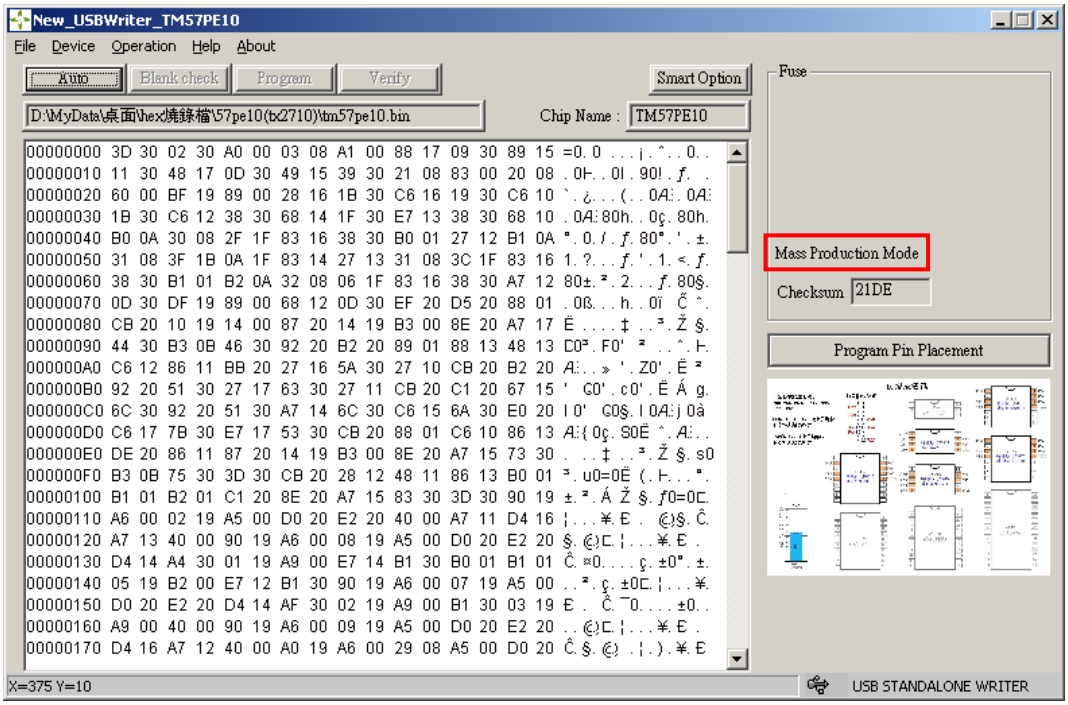
Step 4: Execute File ->Load File



Step 5: Wait until files are downloaded, click on OK to complete the download



Step 6: Downloaded OK

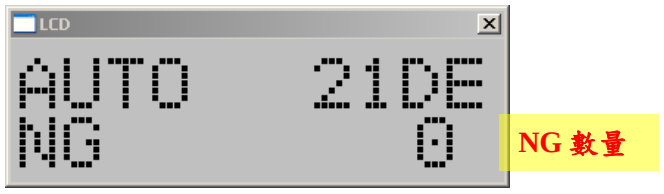


Step 7: Hardware Display and Operate:

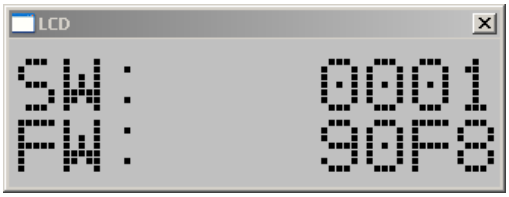
a. Display CHIP NAME (Hold 2 sec Display)

b. Display Auto Mode: (Mode button: click once will change OK and NG Display)

1. Display Checksum
2. Display the counting number that the programming procedure is successful
3. Display the counting number that the programming procedure is not successful



c. Display Software version and Firmware version (Press the Mode button more than 3 seconds continuously to get the information)

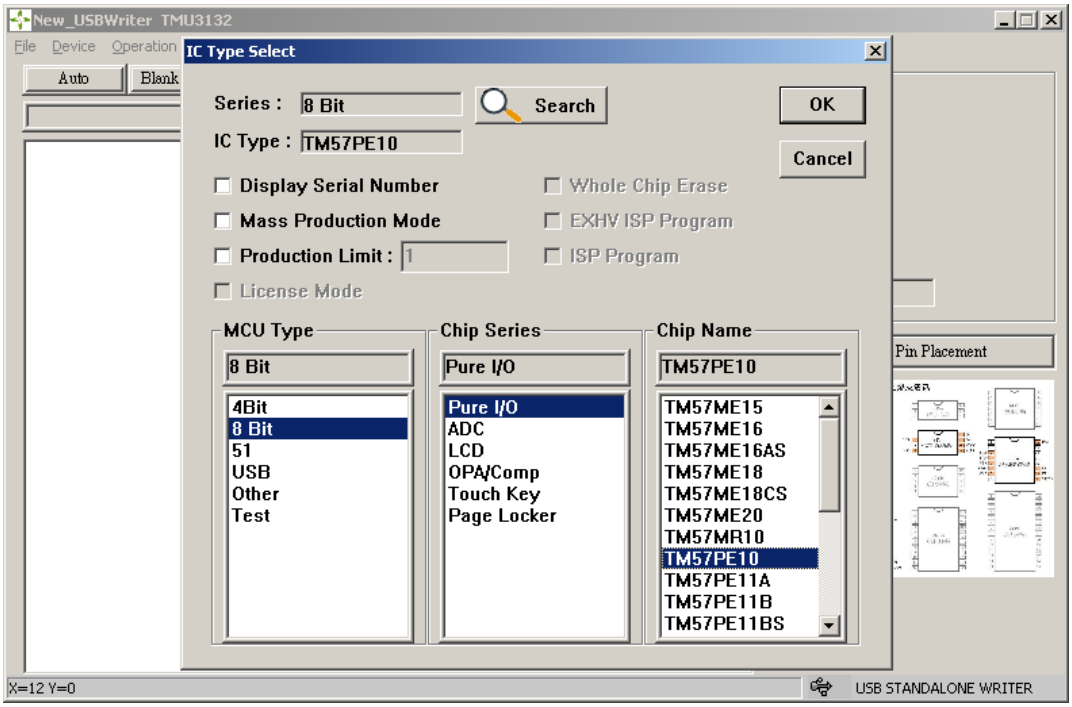


d. Enter button: press enter to execute

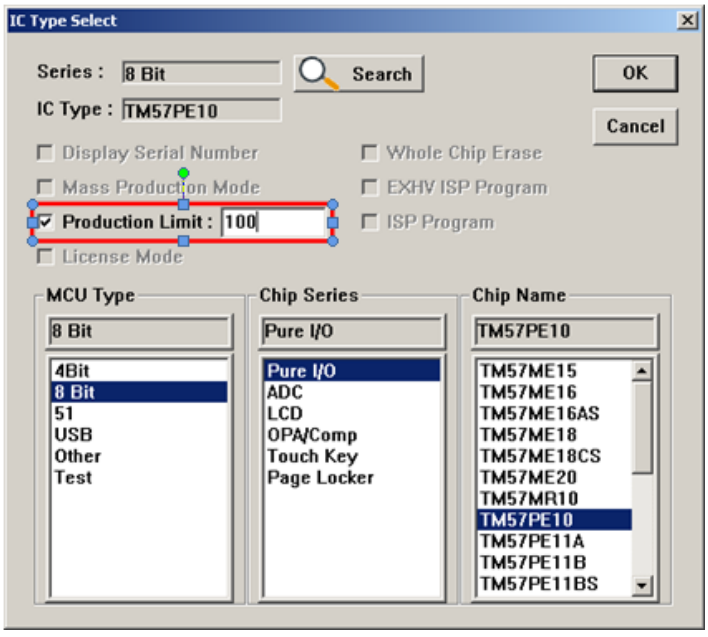
12. Production Limit Mode Writer Operation

This function contains only Auto mode, which records OK and NG counts, and checksum display, there are no other functions, so it is recommended to be used in mass production.

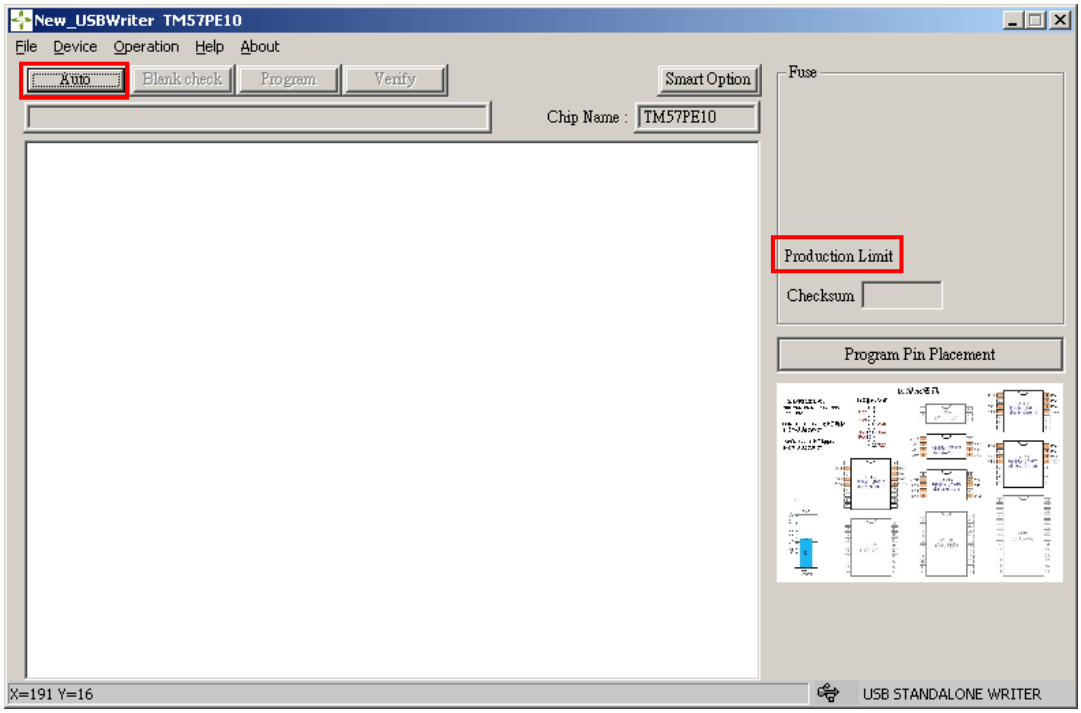
Step 1: Select Device



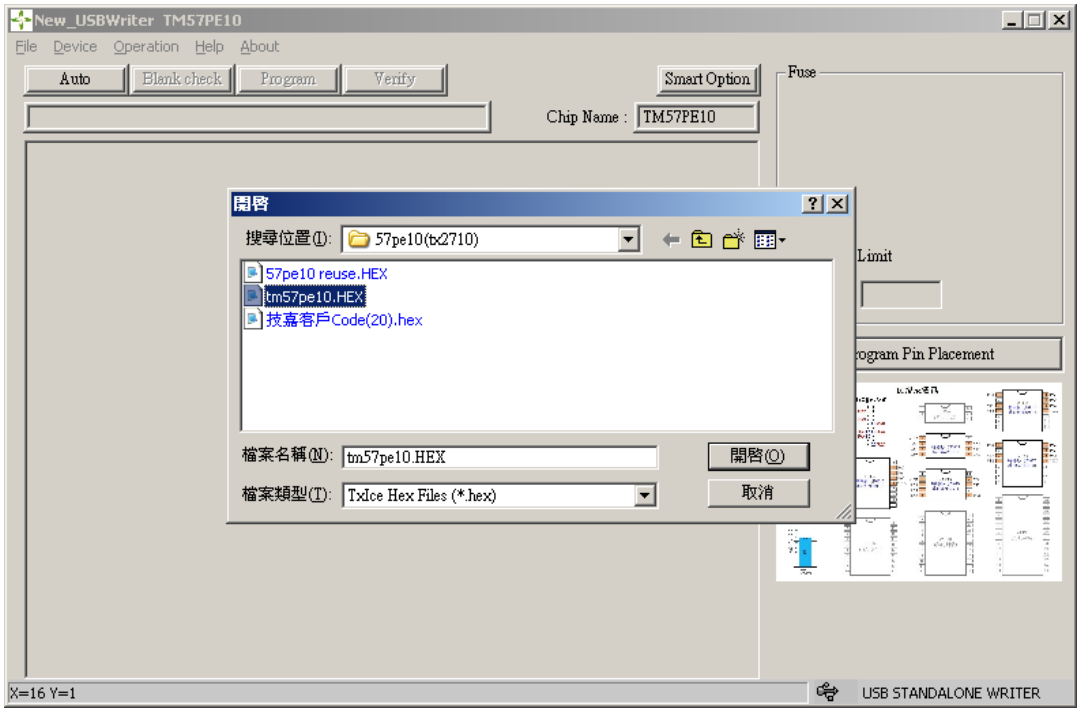
Step 2: Select IC and enable the Production Limit Mode to set the writer counts (1~99999999) , then press OK.



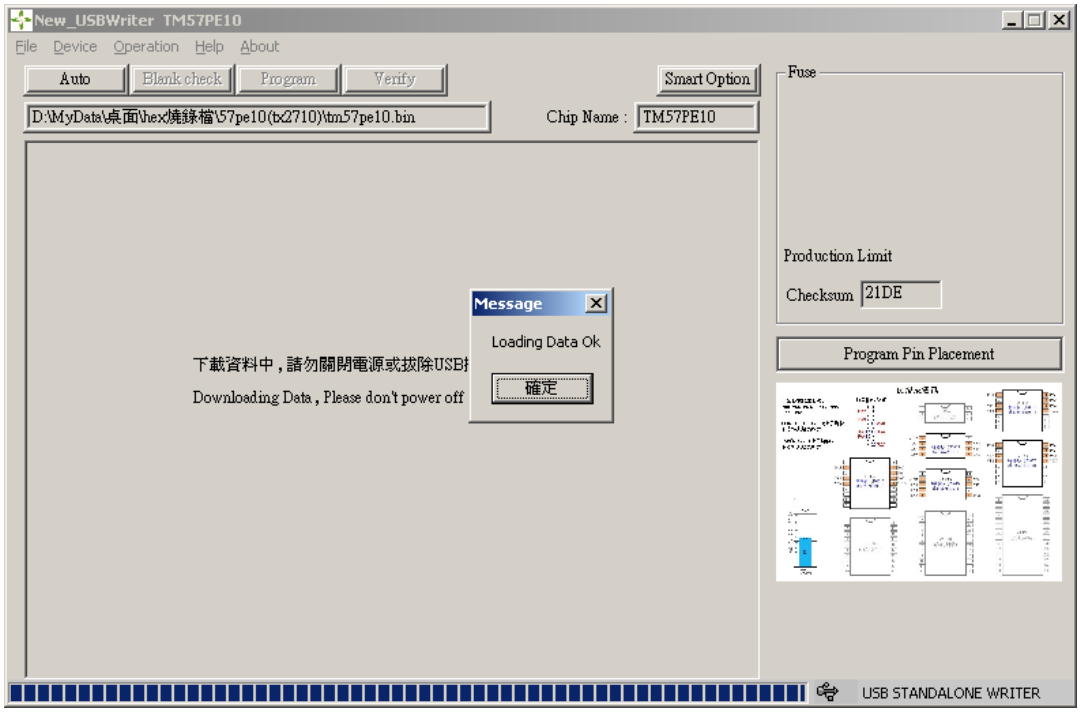
Step 3: Main window will show “ Production Limit Mode ” and enable “ Auto ” function



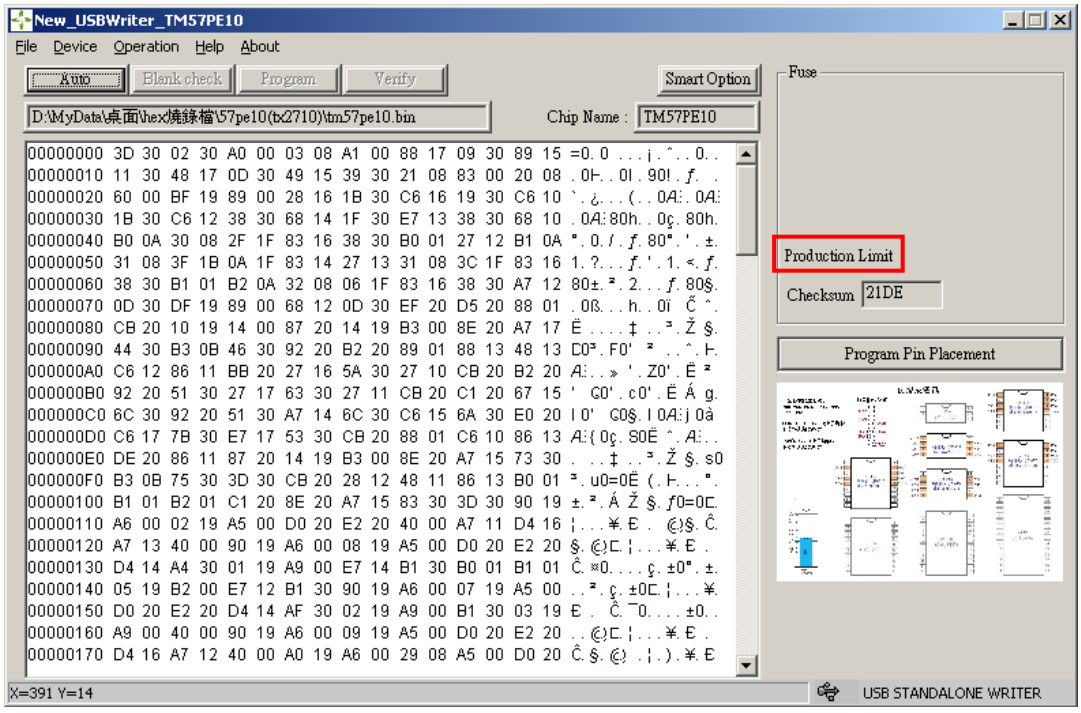
Step 4: Select File ->Load File



Step 5: Wait until files are downloaded, click on OK to complete the download



Step 6: Download OK

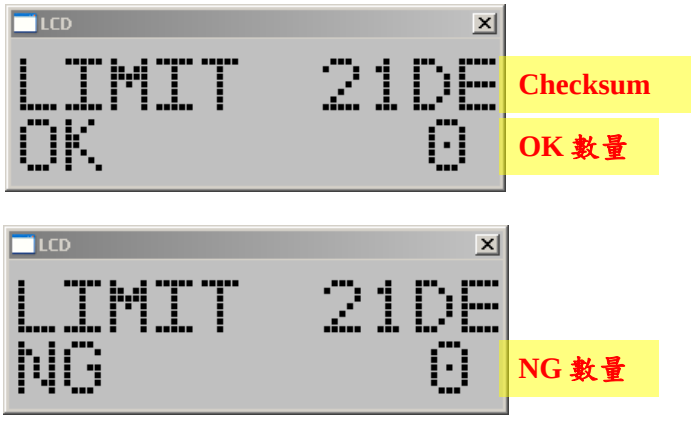


Step 7: Hardware display and operation:

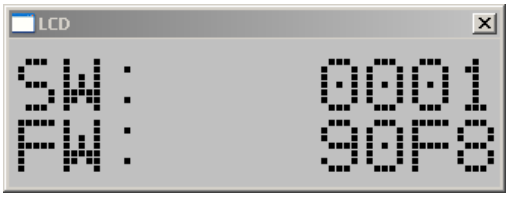
a. Display CHIP NAME (holds for 2 secs display)

b. Display Limit mode: (hardware mode button can only switch to OK and NG display)

1. Checksum
2. Write OK count
3. Write NG count



c. Display Software version and Firmware version (Press the Mode button more than 3 seconds continuously to operate this function)

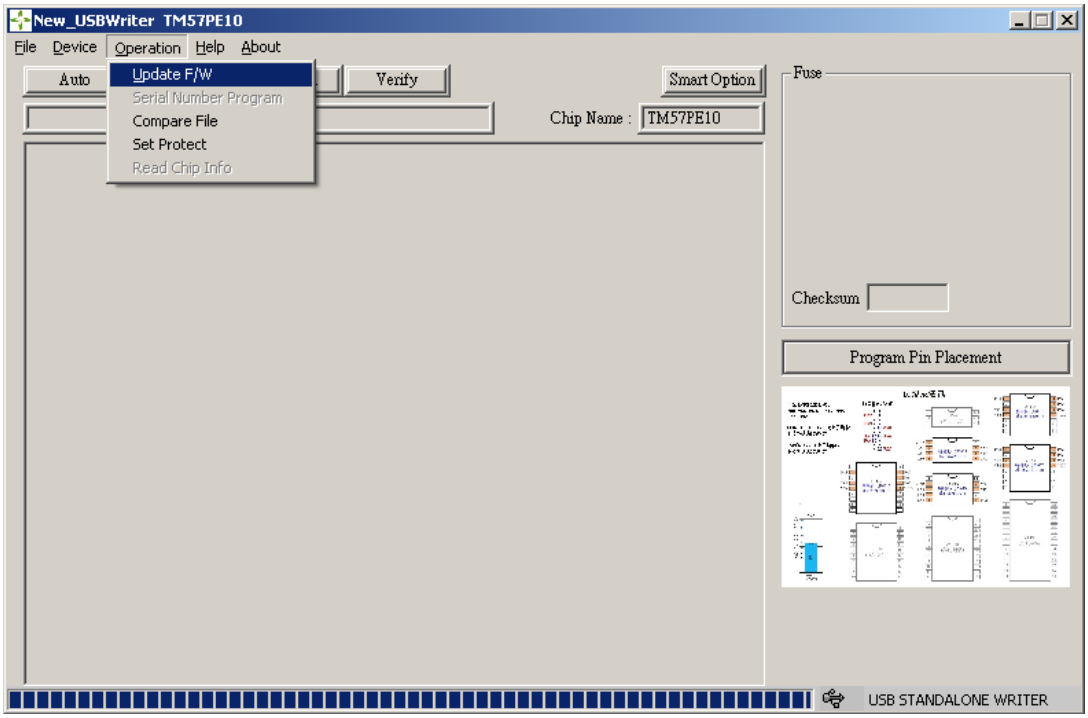


d. Enter button: press enter to execute

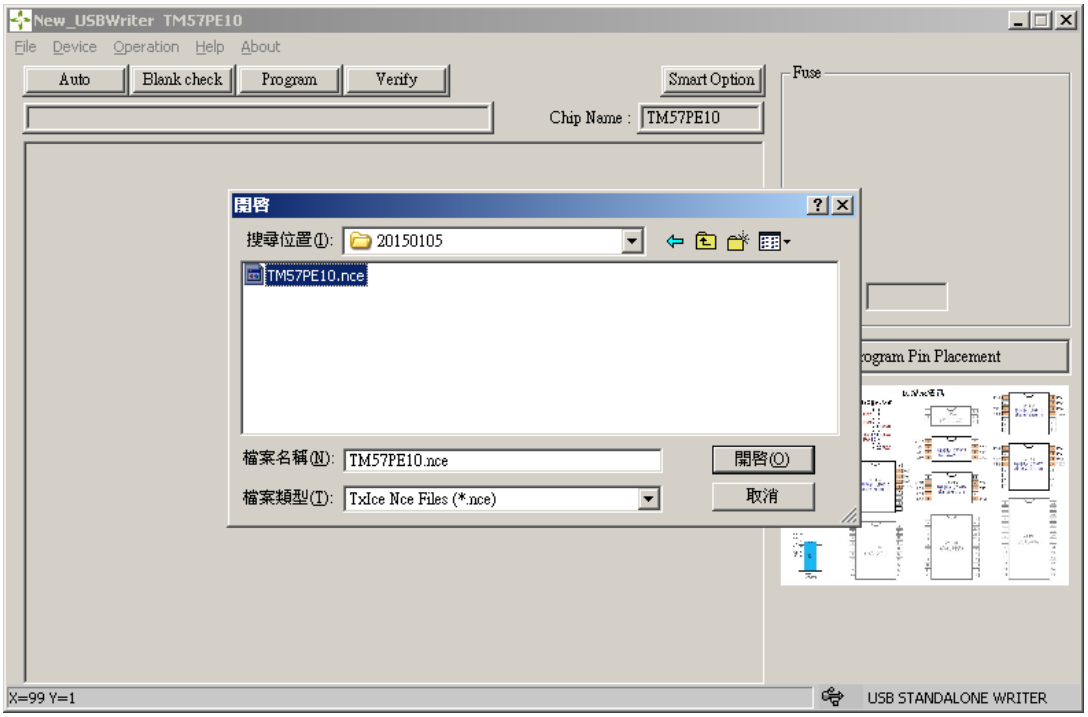
e. When OK count reaches the writing limit setting, writer will not continue to execute

13. Manually Update Firmware Function Guide

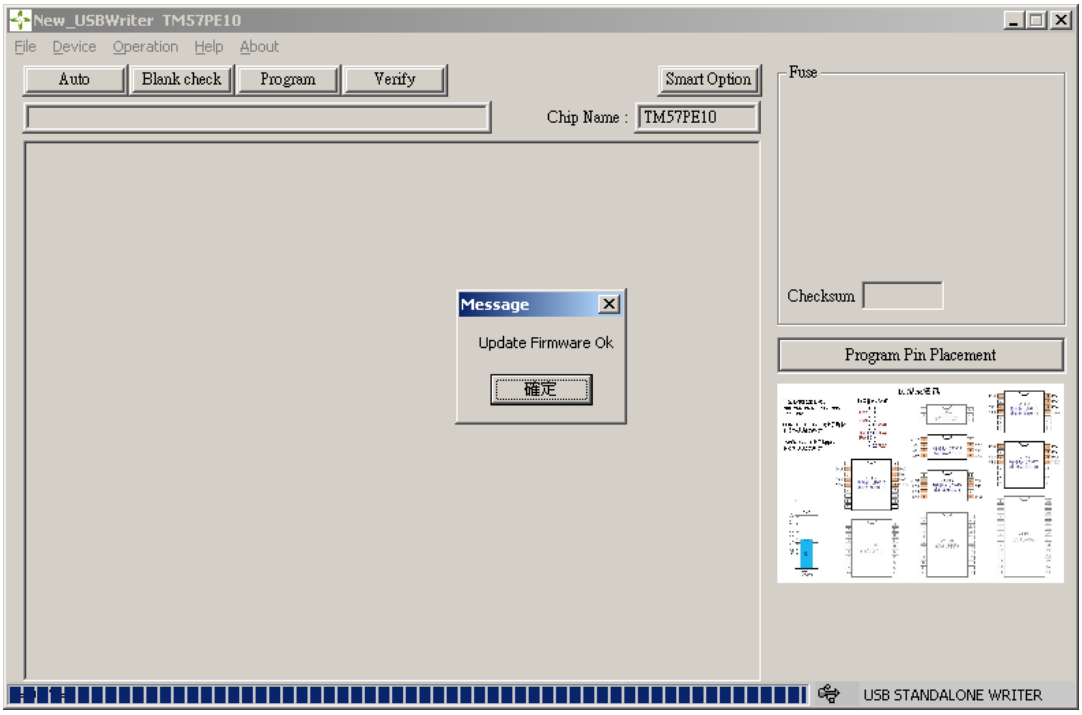
Step 1: Execute Operation =>Update F/W



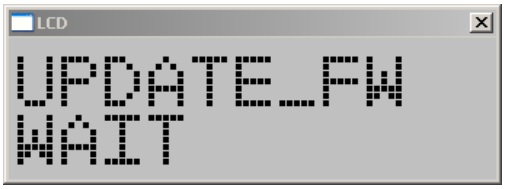
Step 2: Select the file to Update.



Step 3: Start execution (start loading into hardware), click on OK to complete the set



Step 4: During the Updating Firmware period, the LCD will display UPDATE_FW WAIT.

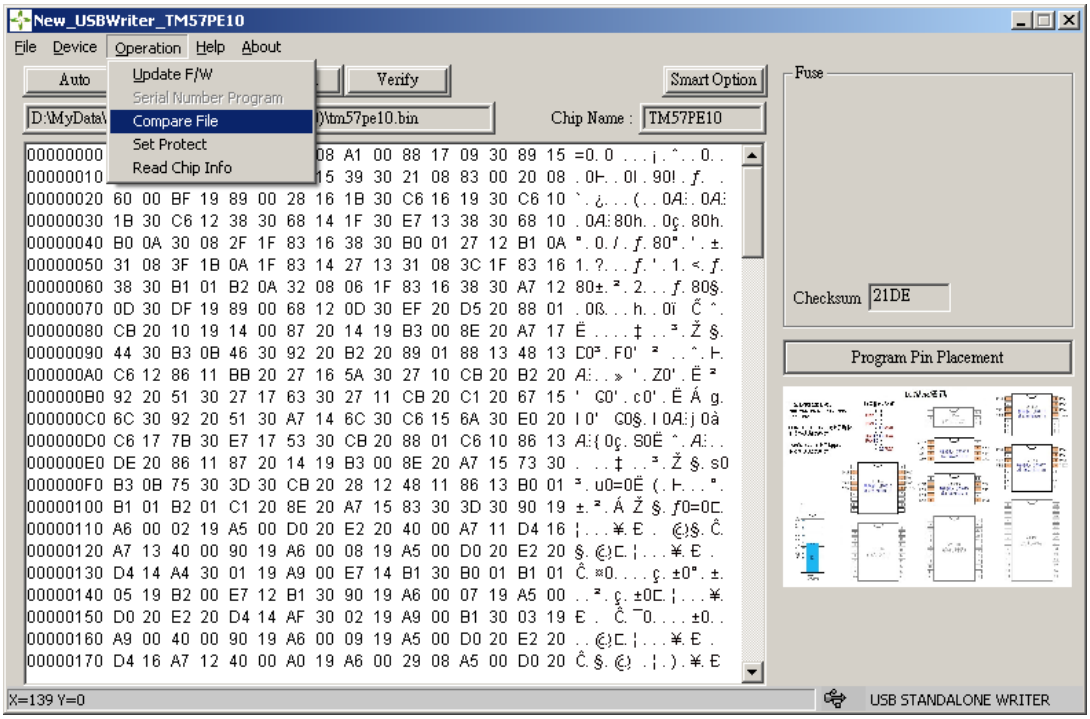


Step 5: After successfully updating Firmware, the LCD will display the CHIP NAME.

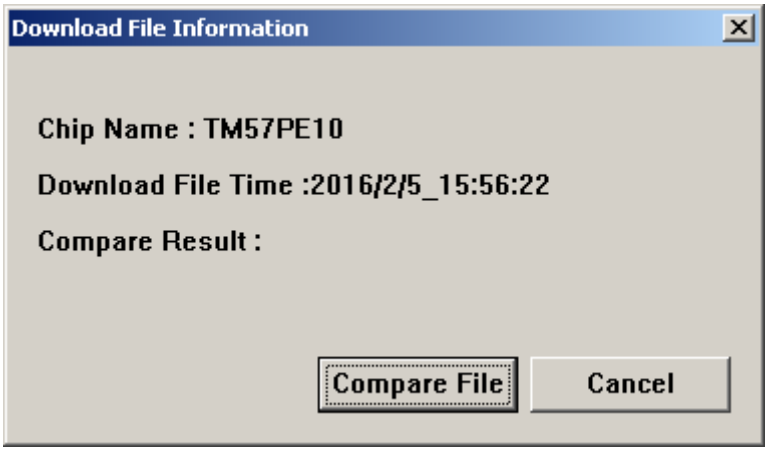
14. Compare File Function Operation

Display writer register data, “ IC Name ”, “ Download File Time ”, and “ Compare File Result ”.

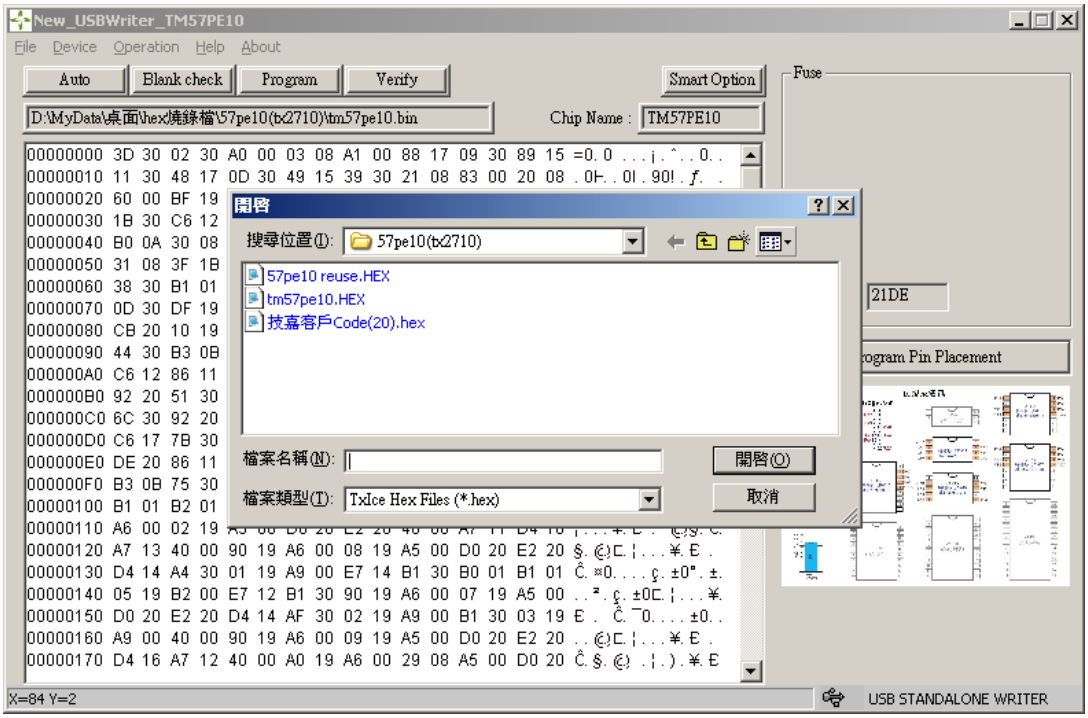
Step 1: Select Operation ->Compare File



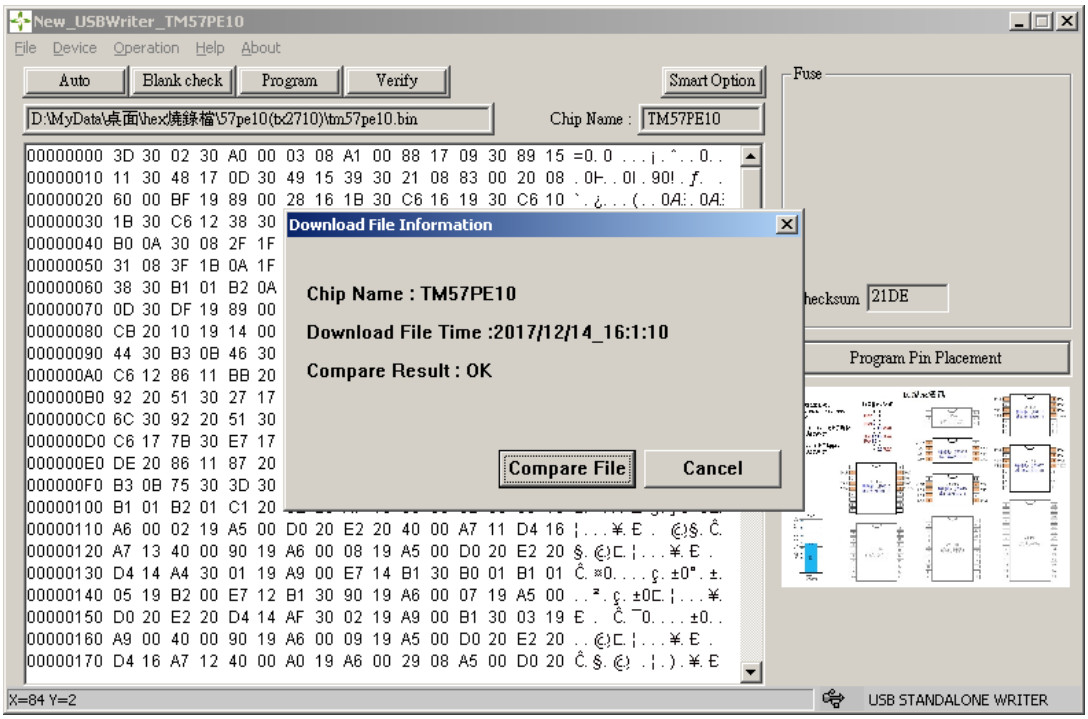
Step 2: Download File information window shows up



Step 3: Press “ Compare File ” button, select the file to be compared, then press “ Open ” button.

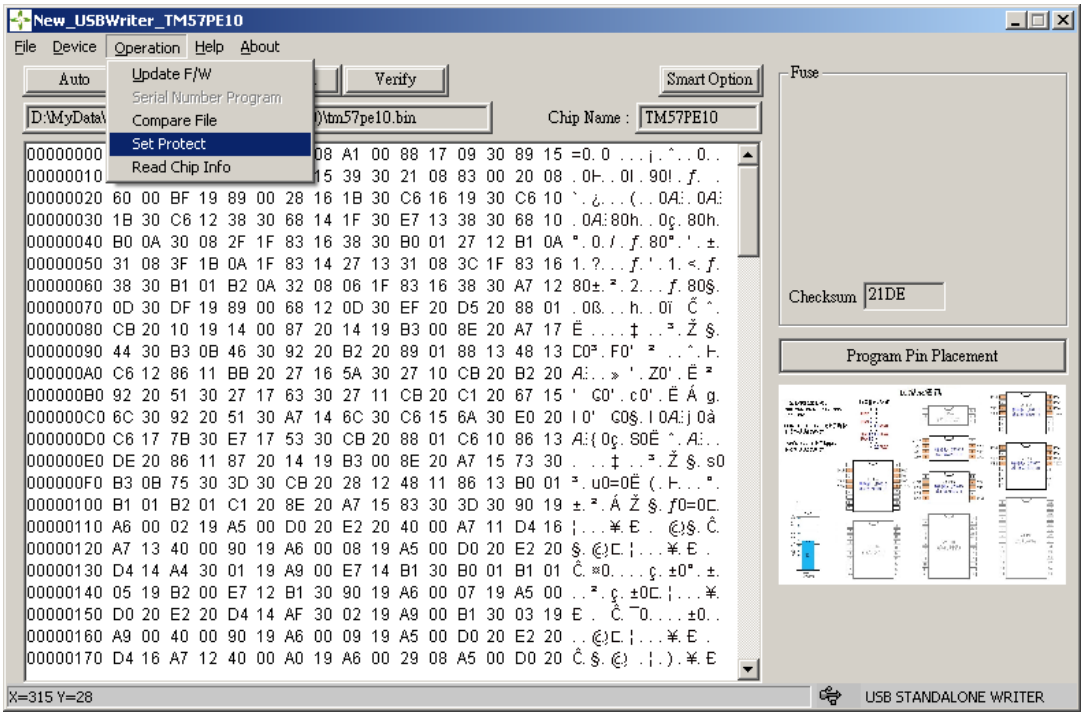


Step 4: Wait for compare result, OK/Fail

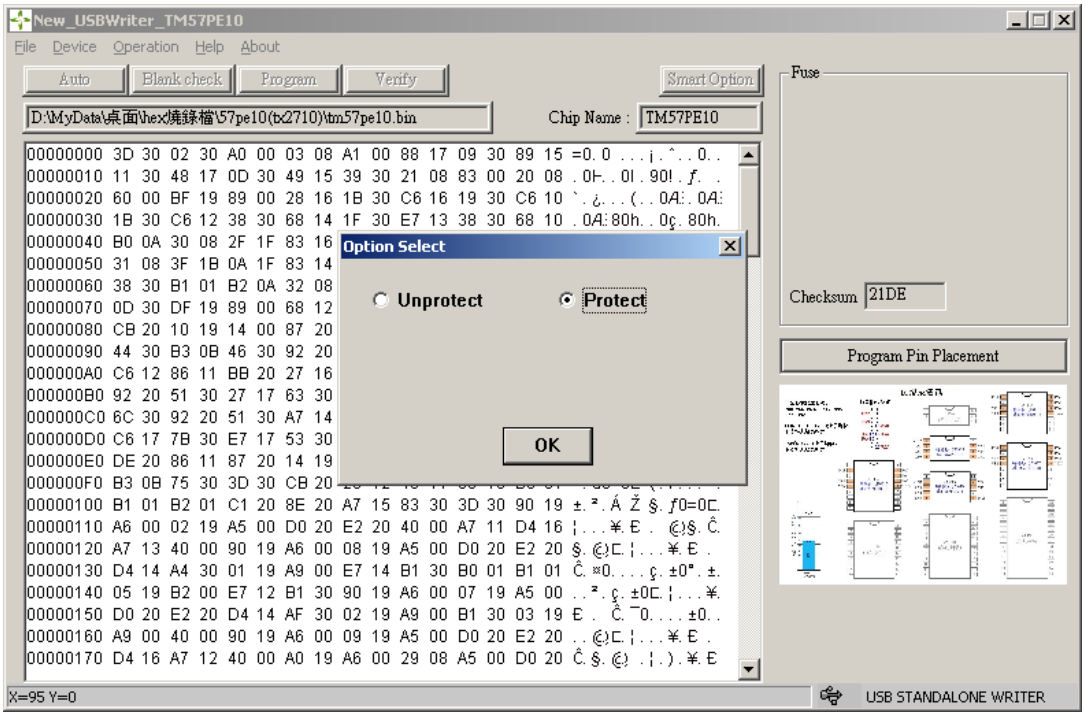


15. Set Protect Function Operation

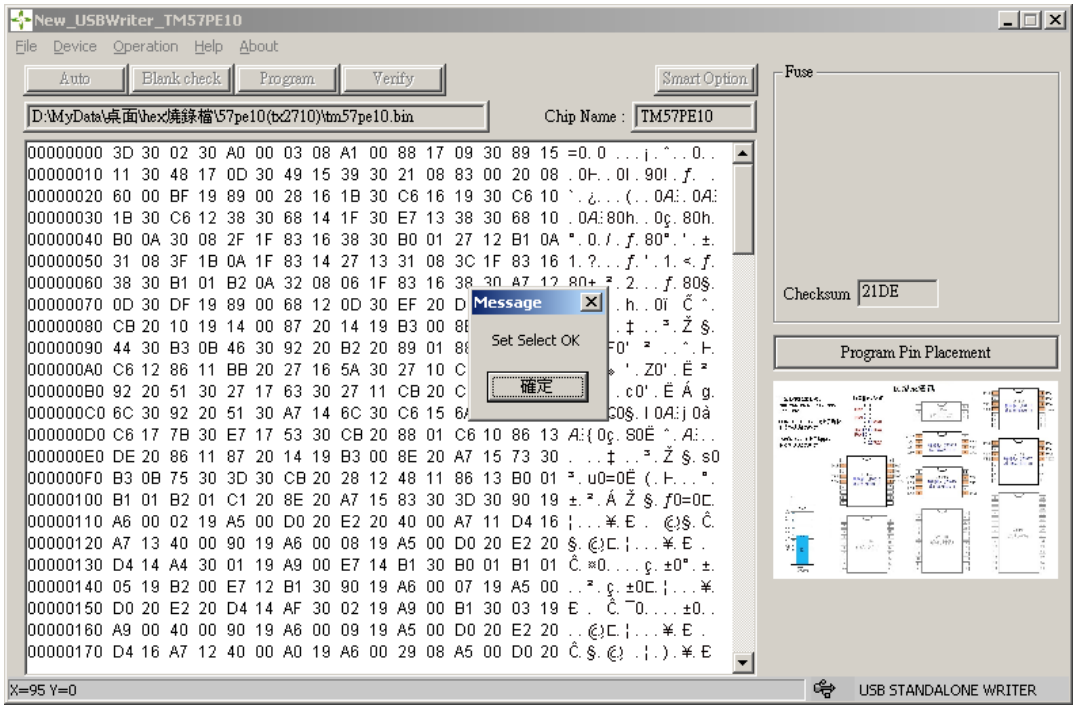
Step 1: Select Operation ->Set Protect



Step 2: Option Select 1 window shows up



Step 3: Select Unprotect or Protect, then press “ OK ” button, wait for the setting completes

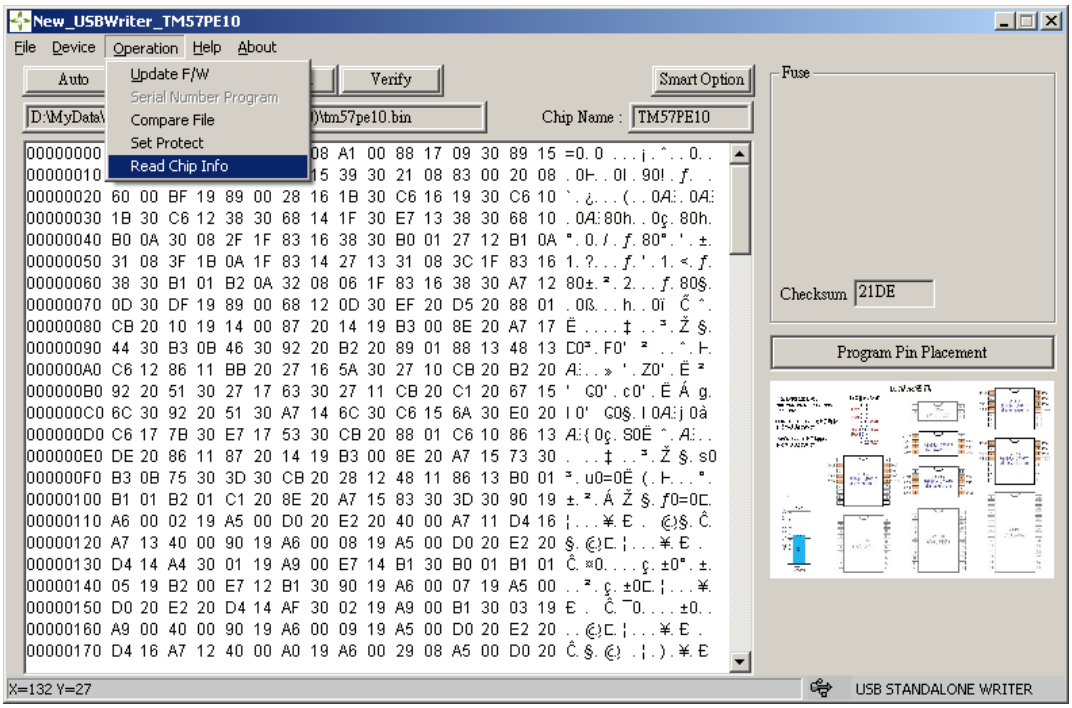


16. Read Chip Info Function Operation

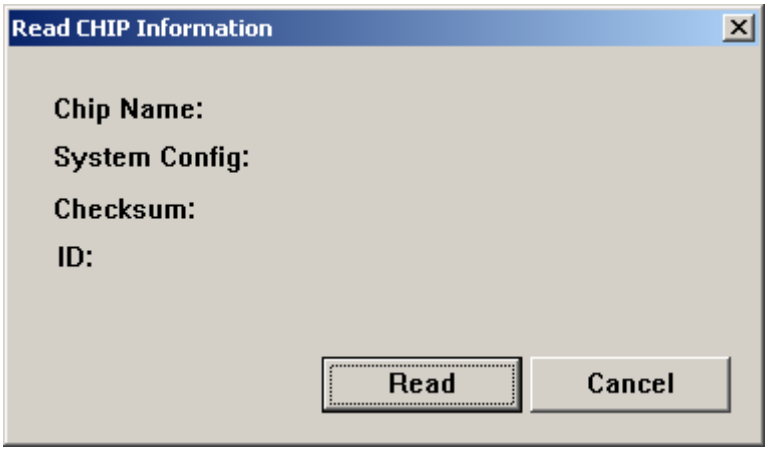
Note: It does not support Mass Production and Production Limit mode.

Read Target IC info, “ system config ”, “ checksum ”, “ ID ”.

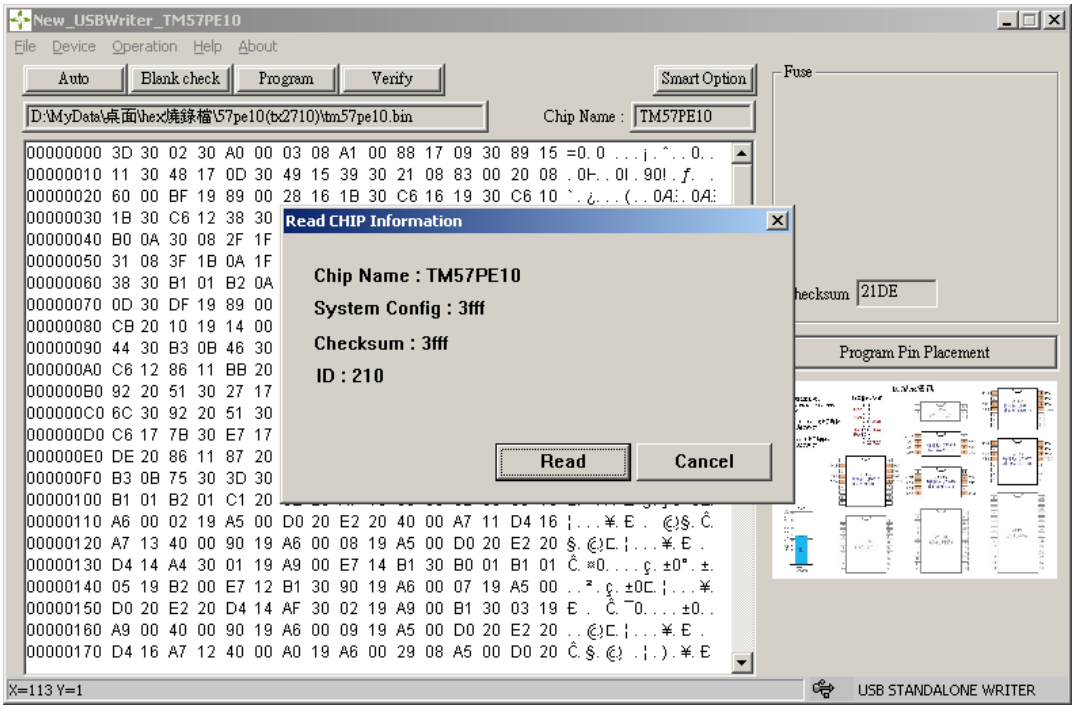
Step 1: Select Operation ->Read Chip Info



Step 2: Read chip information window shows up

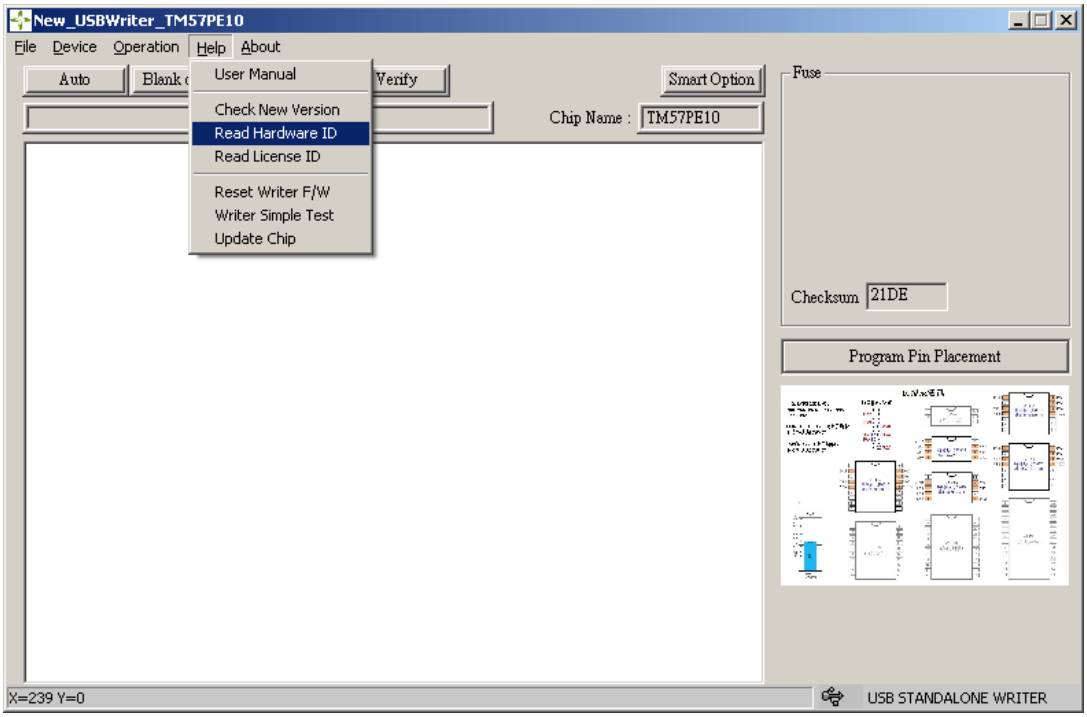


Step 3: Press “ Read ” button, start reading, wait for completed

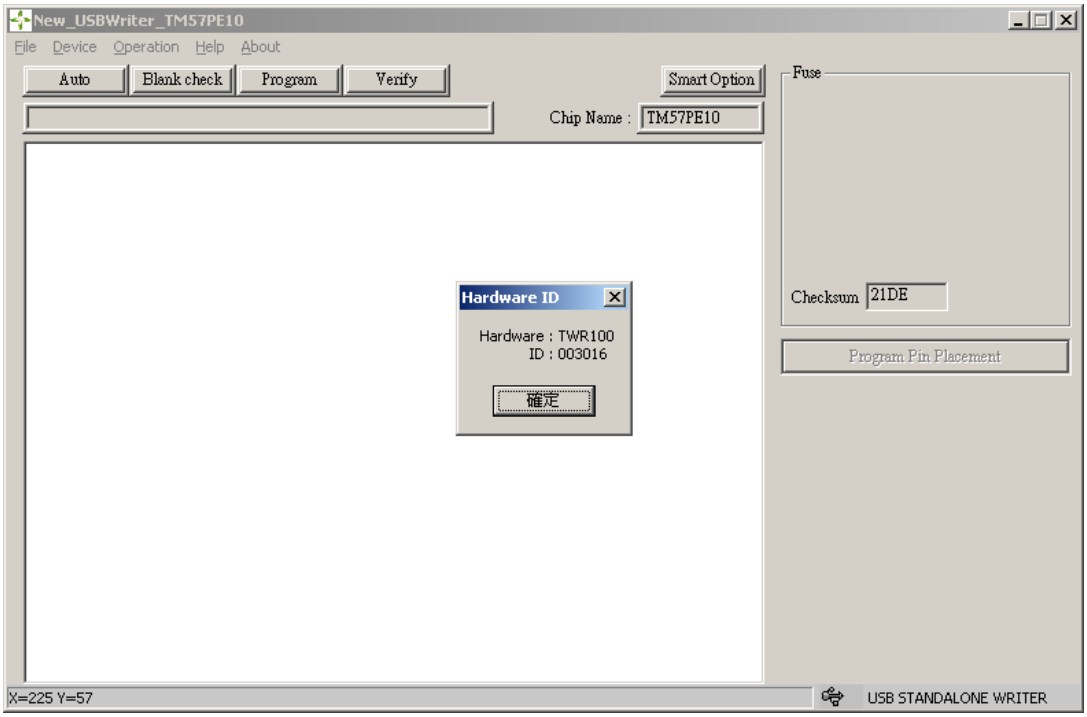


17. Read Hardware ID Operation

Step 1: Select Help -> Read Hardware ID

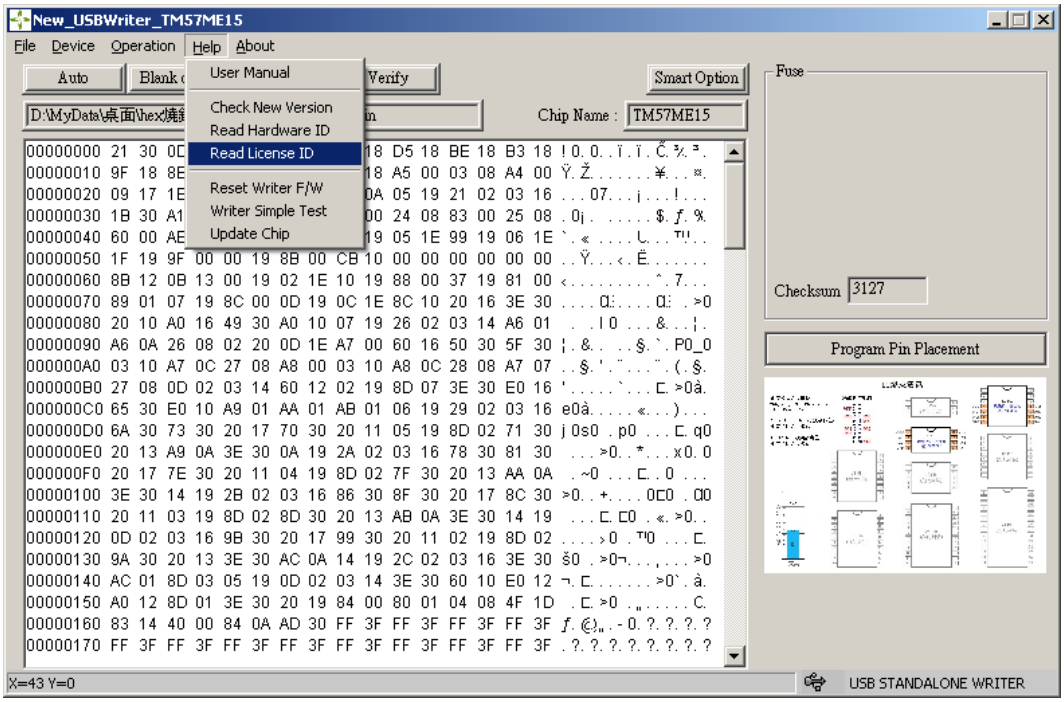


Step 2: Click on OK, read writer hardware ID successfully

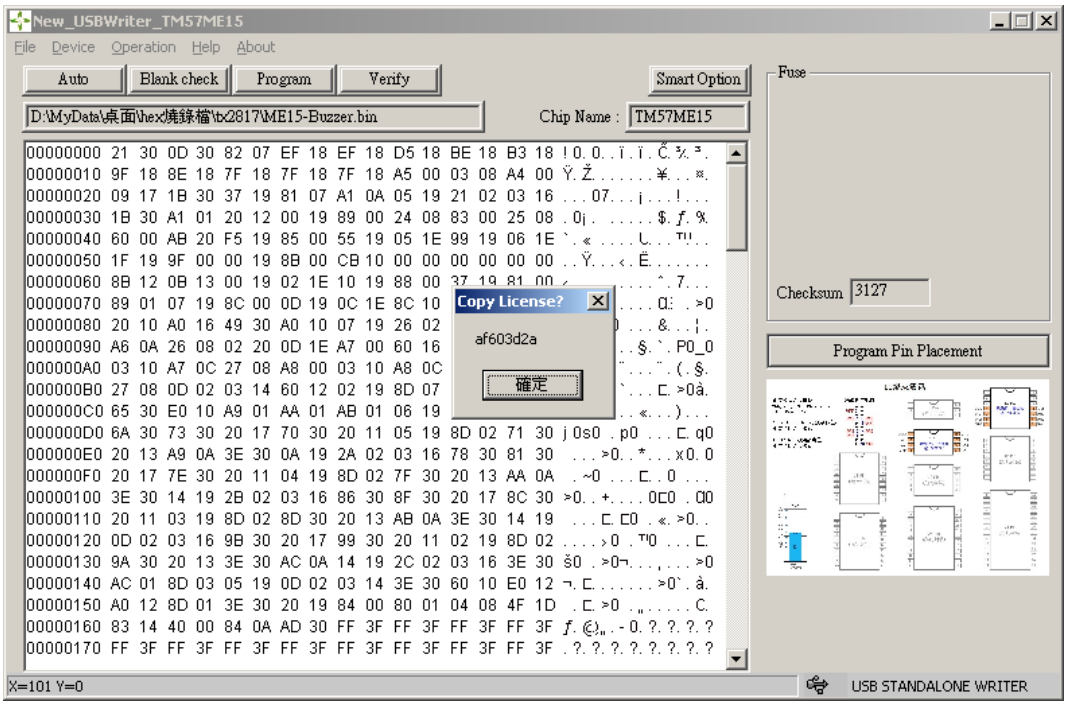


18. Read License ID Operation

Step 1: Select Help -> Read License ID

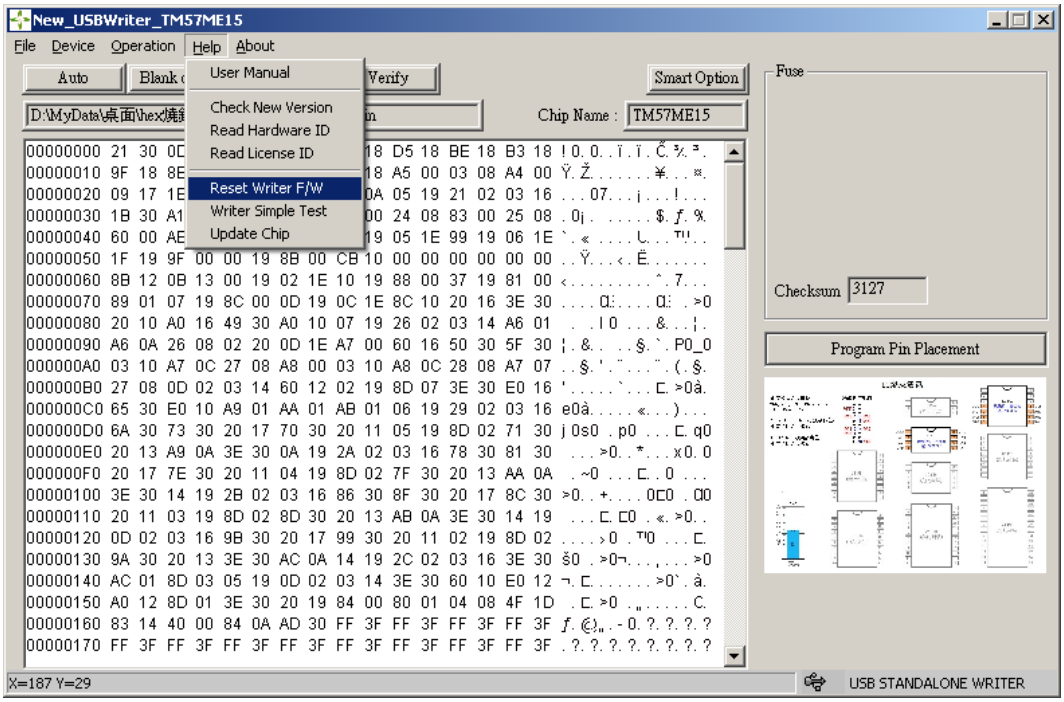


Step 2: Read Writer License ID successfully (details, please refer to License User Manual)

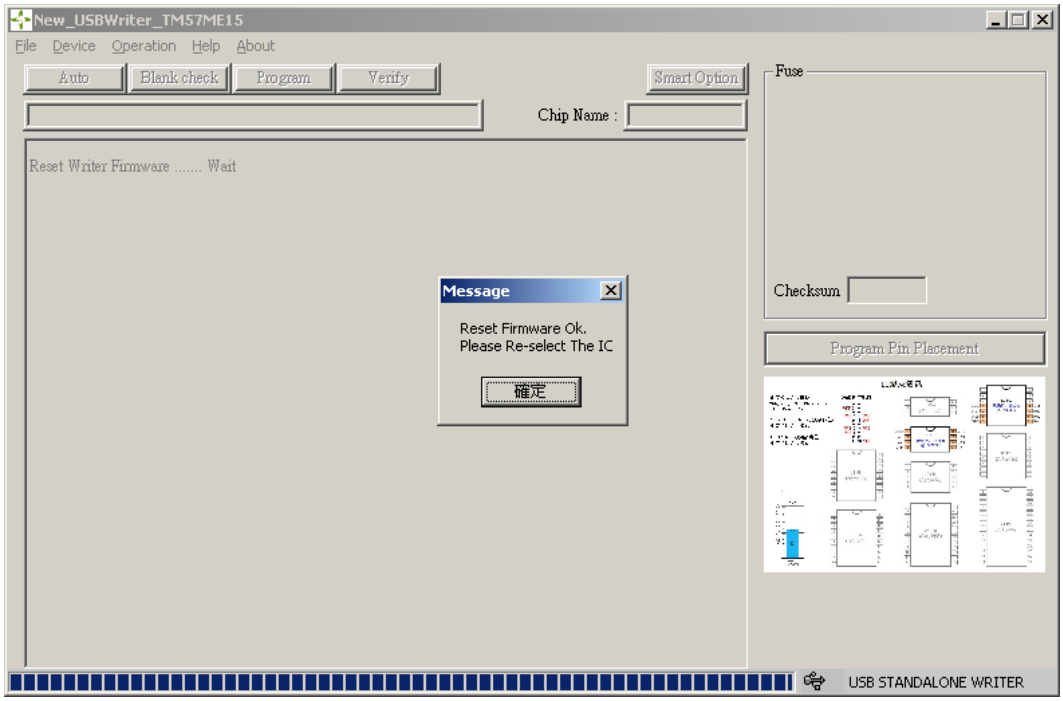


19. Reset Firmware Operation

Step 1: Select Help -> Reset Writer F/W ->TWR98 or TWR99

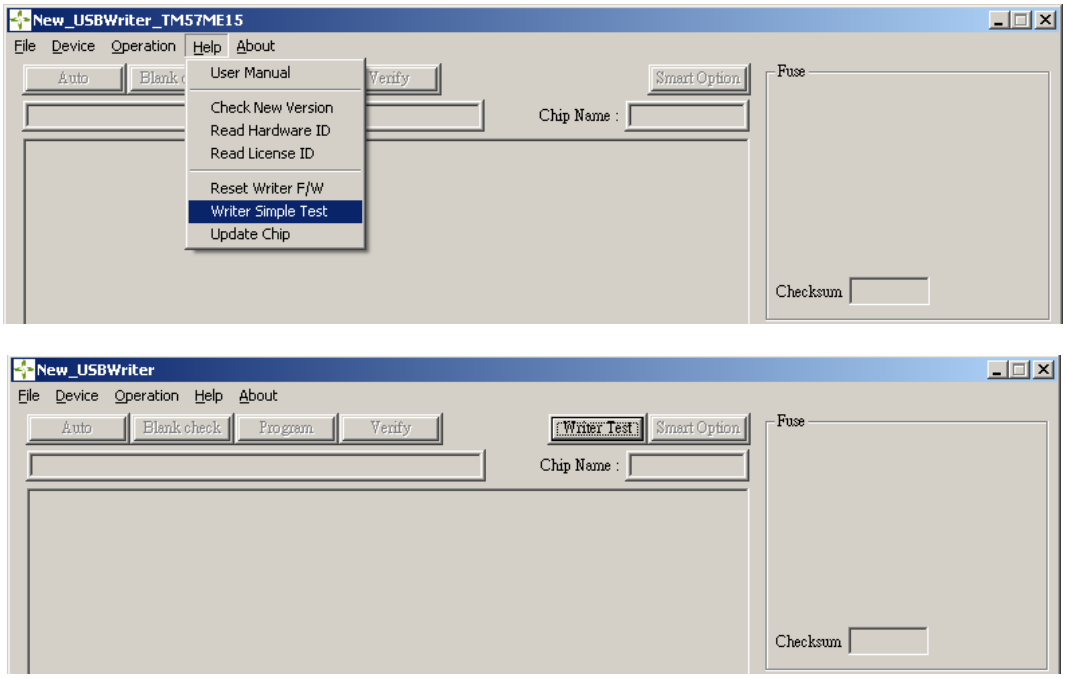


Step 2: Click on OK, reset firmware successfully

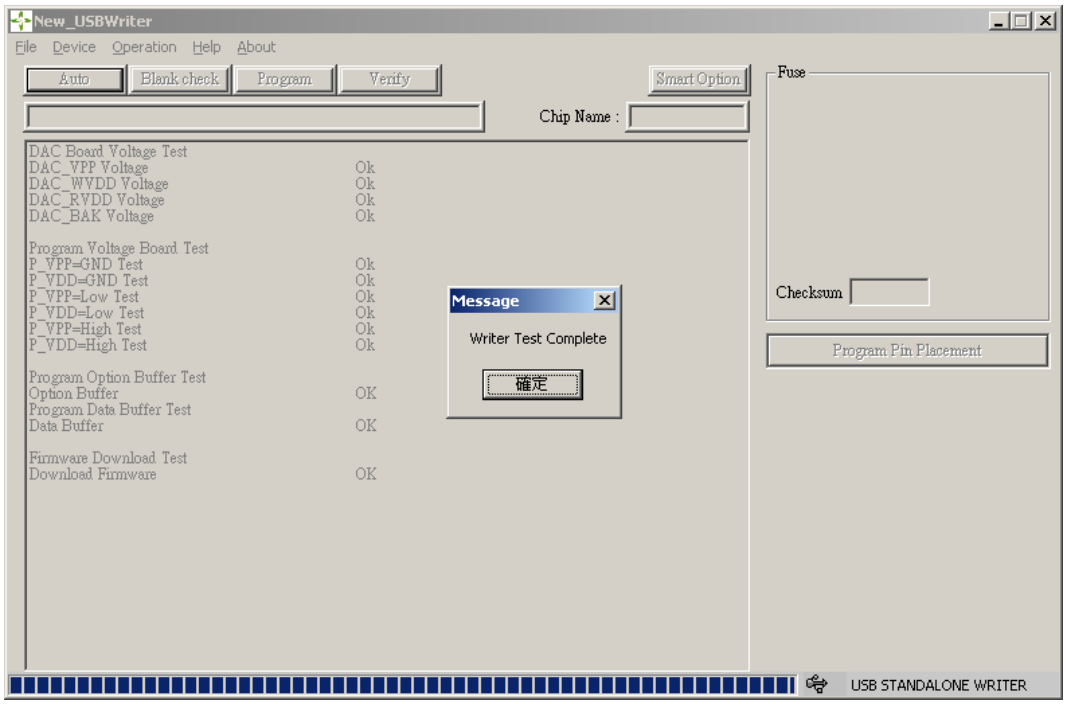


20. Writer Simple Test Operation

Step 1: Select Help -> Writer Simple Test **(Please remove the program port cable and chip first)**
Or Writer Test function

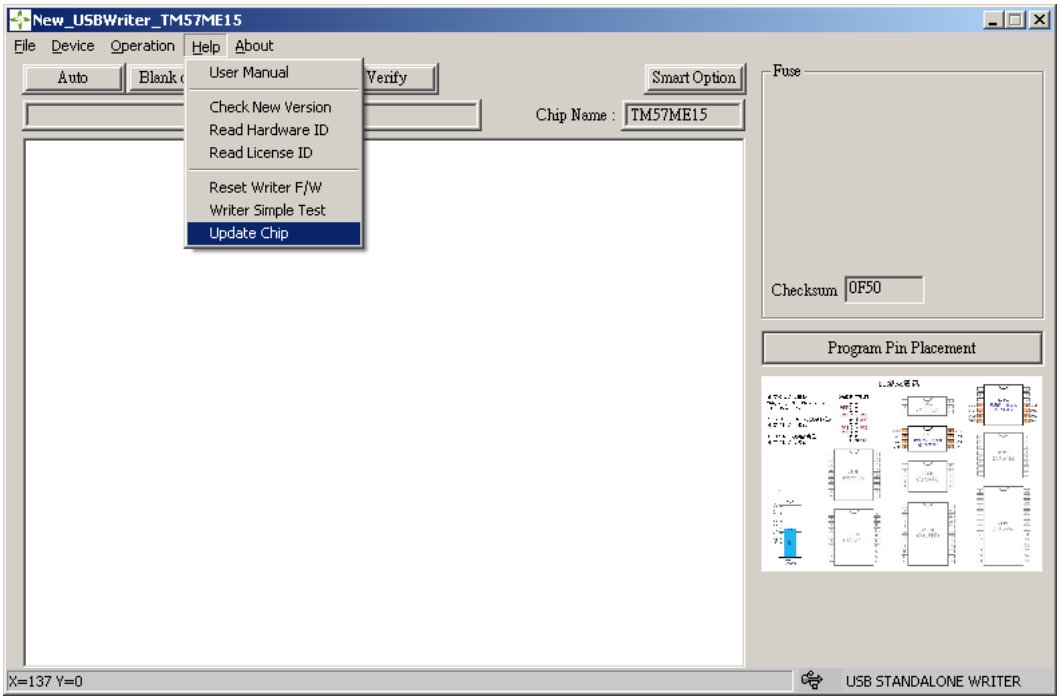


Step 2: Click on OK, writer simple test complete

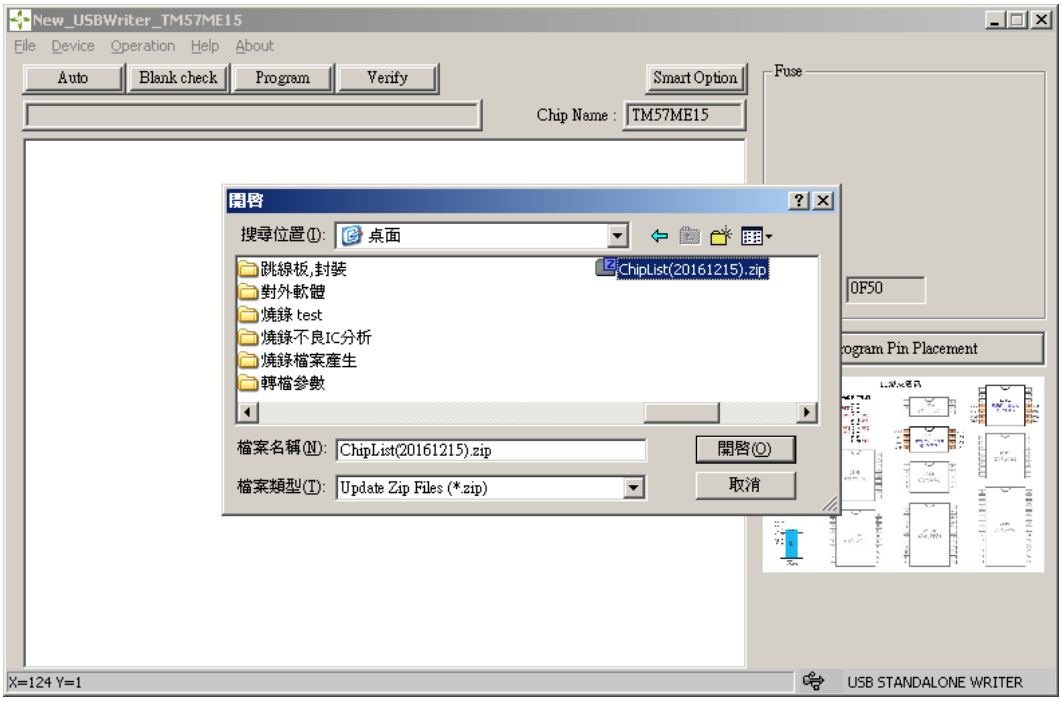


21. Software Plugin Operation

Step 1: Select Help -> Update Chip



Step 2: Select plugin file.zip



Step 3: Click on OK, software update successfully