

**EPROM WRITER CARD  
FOR PC/XT, AT  
INSTRUCTION MANUAL  
(EW:-7 SERIES)**

**IBM PC, PC/XT, PC/AT ARE REGISTERED TRADE MARKS  
OF INTERNATIONAL BUSINESS MACHINES CORP.**

**SUNSHINE EPROM PROGRAMMER V1.0**  
**MODEL: EW-704X (C) 1987**

Main Menu:

1. DIR
2. Load BIN file to memory buffer
3. Save memory buffer to disk
4. Edit memory buffer
5. Change I/O base-adr of hardware
6. display loaded file history
- T. Type select 27/87 series
- U. change VPP      G. change MASTER GANG
- Z. modify target Zone
- B. Blank check
- P. Program                      A. Auto
- R. Read master gang              V. Verify
- C. Compare & display master gang
- S. program Speed
- Q. Quit

NOTE: Allocation memory buffer 128 KB Start address at  
5016:0000

Select which number? T

**REVISION BOARD:**

Some characters will be changed from model to model.  
EPPGM4 in model EW-701 will be changed to EPPGM1.  
EPPGM4 in model EW-708 will be changed to EPPGM8.  
for ex: program execution section

Model EW-704: A> EPPGM4 <CR> changed to A>EPPGM1 <CR>  
Model EW-708: A> EPPGM4 <CR> changed to A>EPPGM8 <CR>

\* TYPE: x16                   \* PGMSPEED: NORMAL  
 \* VPP: 25V                   \* MASTER GANG: #1

| TARGET ZONE      |         |
|------------------|---------|
| Buffer start adr | : 00000 |
| end adr          | : 007FF |
| check sum        | : 0000  |
| Device start adr | : 00000 |
|                  | COUNTER |
|                  | 00000   |

| TYPE: 27/87 SERIES         |       |       |               |
|----------------------------|-------|-------|---------------|
| TYPE and DEFAULT VPP table |       |       |               |
| 0.                         | x16   | 25V   | 8. x512 12.5V |
| 1.                         | x32   | 25V   | 9. x101 12.5V |
| 2.                         | x32A  | 21V   | A. x301 12.5V |
| 3.                         | x64   | 21V   |               |
| 4.                         | x64A  | 12.5V |               |
| 5.                         | x128  | 21V   |               |
| 6.                         | x128A | 12.5V |               |
| 7.                         | x256  | 12.5V |               |
| <CR> back to main menu.    |       |       |               |
| SELECT NUMBER?             |       |       |               |

## Preface

This documentation describes the operation and detail function of EPROM programmer card (EW-704X, EW-708X).

The supplied disk includes 3 utility files as follow.

1. EPPGM4.EXE –  
This is the main file that can be executed.
  2. EPPGM4.DAT –  
The previous informations will be saved to this file while EPPGM4.EXE is being terminated and will be loaded from this file while EPPGM4.EXE is being executed. Informations include I/O base address, EPROM type and programming speed.
  3. EPPGM4.HLP –  
Some new advanced informations not printed on this manual will be added in this file.
- \* Do not edit any data of EPPGM4.DAT file by yourself, or something error may be happend.
  - \* These files have to be on the same disk, and also must be at the default disk driver.
  - \* Two DOS files (DEBUG.COM, COMMAN.COM) must be put on the same default disk driver. These two files must be prepared by yourself.

#### Minimum computer system configuration

1. IBM PC/XT or compatible system with 256K memory one 360K floppy disk driver.
2. PC DOS V2.0 (or greater) or compatible DOS.

#### Program execution.

Insert the EPROM programmer card on any slot of the computer, connect the programmer card to the TEXTTOOL box through cable under the power off condition.

Boot your computer system by DOS disk. Put the supplied disk at the default disk driver, put your BIN file (ROM BASE Binary file) on any disk driver, and then key in the following command.

```
EPPGM4 <CR>
```

The main menu will be displayed on screen. Then select desired function as you want. Detail function will be described latter.

**HAVE A GOOD JOB!**

NOTE: be sure to back up 1 copy of the source disk, and save at a safty place.

#### 1.0 I/O base address selection

This card can be inserted into any slot of the computer. The I/O base address had been selected to 2A0H. Some problem would happend if other card inserted on the computer had the same address as this card. The way to slove

this problem is shown below.

- step 1. Turn off the computer power.
- step 2: Select the DIP switch to new I/O address by tunning on 1 of the 8 positions. the I/O base address map is shown below.

position = I/O address

|   |      |
|---|------|
| 1 | 200H |
| 2 | 220H |
| 3 | 240H |
| 4 | 260H |
| 5 | 280H |
| 6 | 2A0H |
| 7 | 2C0H |
| 8 | 2E0H |

- step 3: Re-insert the card into computer, and executing the program (EPPGM4.EXE). Enter new I/O address (selected by step 2) under function 5.
- step 4: After step 3, the installation is completed.

#### 2.0 Function description

The function menu will be automaticaly displayed on screen after executing EPPGM4.EXE. The simple way to program the EPROM device for designer is shown below.

- step 1: Prepare your BIN file on disk.
- step 2: Execute EPPGM4.EXE.

step 3: Select function T and Z to indicate the type number and TARGET ZONE of EPROM device.

Select function 2 to load you BIN file into memory buffer.

step 4: Select function P to program the blank device.

step 5: After verifying ok by function P inserted the device on you prototype product Then running and debug ging all the operation you designed.

step 6: If any error had happended on prototpe product You should have to re check your BIN file or hardware of prototype product, then quit from EPPGM4 EXE and go to step 1.

The simple way shown above may be modified to be used by small amount production. (directly start procedure from step 4). Detail function will be described below.

#### function 1: DIR

The files on disk can be displayed. This function invokes the COMMAN.COM file. So the COMMAN.COM file must be put on the same default disk.

#### function 2: LOAD BIN FILE FROM DISK

Load you binary file by this function. The way you can do is entering the BIN file nameto be loaded and memory buffer start address to be loaded to.

Maximum 20 characters can be entered to be the file name

EX. D: filename.ext <CR>

D: disk drive of filename

filename.ext: as specified by DOS

NOTE: EPPGM4 can also accept path name specified by DOS.

The start address must be in the range between offset OH and offset 1FFFFH. It is not necessary to enter "H". All digits have to be HEXADECIMAL value.

NOTE: Because the 128 KB memory buffer is dinamically allocated, so the base segment address are defferent between any computers.

The base segment address will be shown on screen.

#### function 3: SAVE MEMORY BUFFER TO DISK

This function is used seldomly. But if the BIN data is read from other programed device and the binary data must be saved for later used, this function will do this job.

Entering procedure is the same as function 3, except that the end address in needed to be entered.

#### function 4: EDIT MEMORY BUFFER

The loaded binary map can be displayed, edited by this function. This function invokes the DEBUG.COM file. So the DEBUG.COM file must be put on the same default disk. Please ref. DEBUG.COM manual for detail description.

function 6: DISPLAY LOADED FILE HISTORY

The 20 latest loaded file informations will be displayed by this function.

The informations includes file name, start address and end address.

function U,G:

Program voltage Vpp select and master gang select. There are 4 Vpp (25V, 21V, 12.5V, 12.9V) can be selected by pressing key "U". The selected Vapp will override the default Vpp.

Any gang can be selected to be master gang by pressing key "B", and master gang message will be shown on upper right corner of screen.

function Z: MODIFY TARGET ZONE

The operation address of BLANK CHECK, PROGRAM, AUTO, READ, VERIFY, COMPARE will be referenced to TARGET ZONE area. Buffer starting address, Buffer ending address, Device starting address can be modified by this function.

NOTE: Be sure to check if the range of device is correct every time you change the type number.

The normal range of each device is shown below.

|      |        |       |
|------|--------|-------|
| x16  | 0----  | 7FF   |
| x32  | 0----- | FFF   |
| x64  | 0----- | 1FFF  |
| x128 | 0----- | 3FFF  |
| x256 | 0----- | 7FFF  |
| x512 | 0----- | FFFF  |
| x101 | 0----- | 1FFFF |
| x301 | 0----- | 1FFFF |

function T: TYPE SELECT

Approximately all popular types of device have been included here. (up to 1024 kbits) It is easy to select proper type number as you want.

Type table (27/87 series): 16, 32, 64, 64A, 128, 128A, 256, 512, 101, 301.

NOTE: 101: standard 1024k (byte type) EPROM

301: mask ROM 1024k (byte type) pin out EPROM

| MFG     |        | TYPE SELECT |
|---------|--------|-------------|
| =====   |        | =====       |
| HITACHI | 27101  | 101         |
| HITACHI | 27301  | 302         |
| NEC     | 271001 | 101         |
| NEC     | 271000 | 301         |
| FUJITSU | 271001 | 101         |
| FUJITSU | 271000 | 301         |
| INTEL   | 27010  | 101         |
| OKI     | 271000 | 101         |

Please reference the cross-reference of manufacturer and type table from file EPPGM4.HLP

**function B: BLANK CHECK**

This function can be applied on blanking check of incoming devices. EPPGM4.EXE will not damage the device.

**function P: PROGRAM**

Auto verify program data after program complete. So only check the message "verified ok!".

**function A: AUTO**

This function is mostly the same as function P, except that the blank check function is automatically done first, only one key answer is necessary. So this procedure is more quicker than function B with P. and can be used for small amount production.

**function R: READ**

Read the device data into memory buffer for lately used.

**function V: VERIFY**

This is a stand alone device verifier. After programing small amount of device, all devices can be double checked by this function.

**function C: COMPARE**

This function is almost the same as V. except that all error data will be shown on screen.

**function S: PROGRAM SPEED**

There are 5 program speeds can be selected. NORMAL 50 ms speed, INTL 1 ms intelgent algo., USER 0.5 ms retry by user., NSCMOS 10 ms NS CMOS normal algo., and QUICK 0.1 ms INTEL quick pulse algo.

**NOTE:** If the NSCMOS or QUICK program algo. Is being selected, the program voltage Vpp will be internally set to 12.9V.

**function X: TESTING AND ADJUSTING PROGRAM**

This function is not shown on main menu, but can be selected by pressing key "X". The Vcc and Vpp voltage can be adjusted step by step.

The remaining testing step includes TEXTTOOL CHIP select lines test, data lines test and address lines test.

Please follow the test procedure step by step, if you want to test the hardware.

Under main manual selection, enter Q will

Quit from EPPGM4.EXE to DOS.

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Additional Note:

A1. Function "P", "A", "R", "V", "C" not only operate on all contiguous address of buffer, but also operate on Even or Odd address of buffer. The relationship between ALL, Even and Odd address is shown below.

All address mapping: (by pressing key 'Y')

|              |      |       |              |      |
|--------------|------|-------|--------------|------|
| buffer start | +0   | ====> | device start | +0   |
|              | +1   | ====> |              | +1   |
|              | +2   | ====> |              | +2   |
|              | +3   | ====> |              | +3   |
|              | etc. |       |              | etc. |

Even address mapping: (by pressing key "E")

|              |      |       |              |      |
|--------------|------|-------|--------------|------|
| buffer start | +0   | ====> | device start | +0   |
|              | +2   | ====> |              | +1   |
|              | +4   | ====> |              | +2   |
|              | +6   | ====> |              | +3   |
|              | etc. |       |              | etc. |

Odd address mapping. (by pressing key "O")

|              |      |       |              |      |
|--------------|------|-------|--------------|------|
| buffer start | +1   | ====> | device start | +0   |
|              | +3   | ====> |              | +1   |
|              | +5   | ====> |              | +2   |
|              | +7   | ====> |              | +3   |
|              | etc. |       |              | etc. |

A2. Answering one key and answering one line characters:

Most of these function need to be answered by pressing one key only. But some function need to be answered by entering one line characters, such as function 2 (load), 3 (save), Z (modify target zone).

One line characters answer need to be terminated by pressing <CR> after the last character.

If you want to neglect the answer and back to main menu., please press key <ESE>

-----END-----



**SUNSHINE ADP-51**  
**8751 series SINGLE CHIP MICROPROCESSOR**  
**PROGRAM ADAPTER V1.0**

**1.0 Installation**

The adapter has a 28 pin long lead IC type connector. The pin-out and dimension of the connector is the same as 2764 type EPROM. Insert the connector into any EPROM WRITER just as insert 2764 type EPROM into any EPROM WRITER, then you can program 8751 series SINGLE CHIP MICROPROCESSOR just like you program 2764 type EPROM.

NOTE: 1. Be care of the direction of connector.  
 2. We suggest that you had better use SUNSHINE EPROM WRITER PC/XT/AT add-on card (EW701X, EW704X, EW708X) to program these devices.

**2.0 Type of 8751 series SINGLE CHIP MICROPROCESSOR**

8751,8751H  
 8752,8752H  
 8744,8744H

All type of 8751 series devices can be programmed by selecting type 2764, VPP 21 VOLT on EPROM WRITER.

**3.0 Program procedure**

- 3.1 Insert 8751 series device into 40 pin TEXTTOOL on adapter.
- 3.2 Select EPROM type 2764, VPP 21 VOLT. NORMAL or INTELEGENT program speed and select buffer range as follow  
 8751 : 0000- 0FFF

8752 : 0000 - 1FFF  
 8744 : 0000 - 0FFF

- 3.3 Load your ROM CODE BINARY FILE into buffer.

NOTE: If the ROM CODE is INTEL HEX FORMAT file, you have to convert it to be BINARY file by HEXBIN.EXE converter program supplied on the EPROM WRITER disk.

- 3.4 Program DATA BIT

3.4.1 Jumper JP1 is closed.

3.4.2 Select program function and start programming.

3.4.3 Waiting for VERIFY OK message.

- 3.5 Program SECURITY BIT

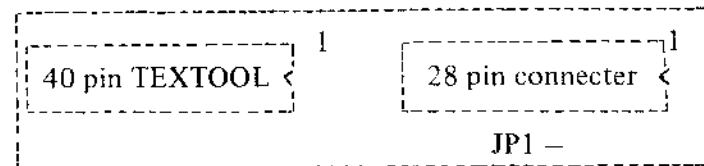
3.5.1 Jumper JP1 is opened.

3.5.2 Select program function and start programming.

3.5.3 Waiting for VERIFY ERROR message.

NOTE: If you try to read out the securitied device, you will find that all data bits is "FF", just like a blanked device.

**4.0 Layout of adapter**



**5.0 Hardware revision**

V1.0: 1st released version can program VPP 21 volt.1 security bit by selecting 2764 eprom programmer.

Device type:

8751,8751H

8751,8752H

8744,8744H

V2.0: 2nd released. modified hardware:

1. Pin 16, 17 of 40 pin textool are connected together, and then connected to pin 40 through 10K OHM resister.
2. Put a jumper between pin 16 and 20 (jumper named JP2).

This version can program vpp 12.75V, 2 security bit by selecting 2764A EPROM programmer.

Device type:

8751BH, 8752BH, 87C51

3. Program procedure.  
program data bit by closing JP1, opening JP2 (procedure same V1.0 data bit programming).

Program 1st security:

By opening JP1, opening JP2.

Procedure same as V1.0 Data bit programming.

Program 2nd security:

By opening JP1, closing JP2.

Procedure same as V1.0 security bit programming.

4. NOTE: The hardware dose not support encryption table programming, but can be modified by user.

