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## 1. PACKING LIST

Before your begin installing your E-1, please make sure, that the following materials have been shipped:

- 1 E-1 eeprom programmer
- 1 RS-232 "straight-through" serial cable
- 1 3,5" Floppy disk containing the DOS software
- 2 AA size batteries (4 AA size batteries)
- Transport box

Customers who have purchased the optimal 24C01 programming adapter will have an additional adapter containing 8 pins DIP socket with 2 pull-up resistors.

If any of these items are missing or damaged, please contact us immediately.

## 2. GENERAL INFORMATION

The E-1 is a hand-held, battery powered serial CMOS eeprom programmer intend for autonomous operate without PC. Based on the Atmel AT90S8515 microprocessor, the E-1 used own EEPROM array, for storage dump contents (1K) in memory E-1, 20x4 character LCD screen with back-light, 4x4 keypad for editor, 4 control buttons, 2 switches (power supply and soft-neon (back-light)). Power consumption ~20-23 mA (back-light OFF), ~45-52 mA (back-light ON). General dimensions (mm): 148x128x24.

This E-1 eeprom programmer is a delicate instrument and treated with care, will provide years of satisfactory performance. Improper connection of the

**CAUTION**

E-1 programmer may cause damage to your programmer and/or your PC.  
Use only prescribed type of batteries and cable shipped with complete!

### NOTE

Before programming AT24C01 A device (or similar), insert into 8 pins Dip socket programming adapter according with Figure 3.

### 3. PART NAMES AND FUNCTIONS

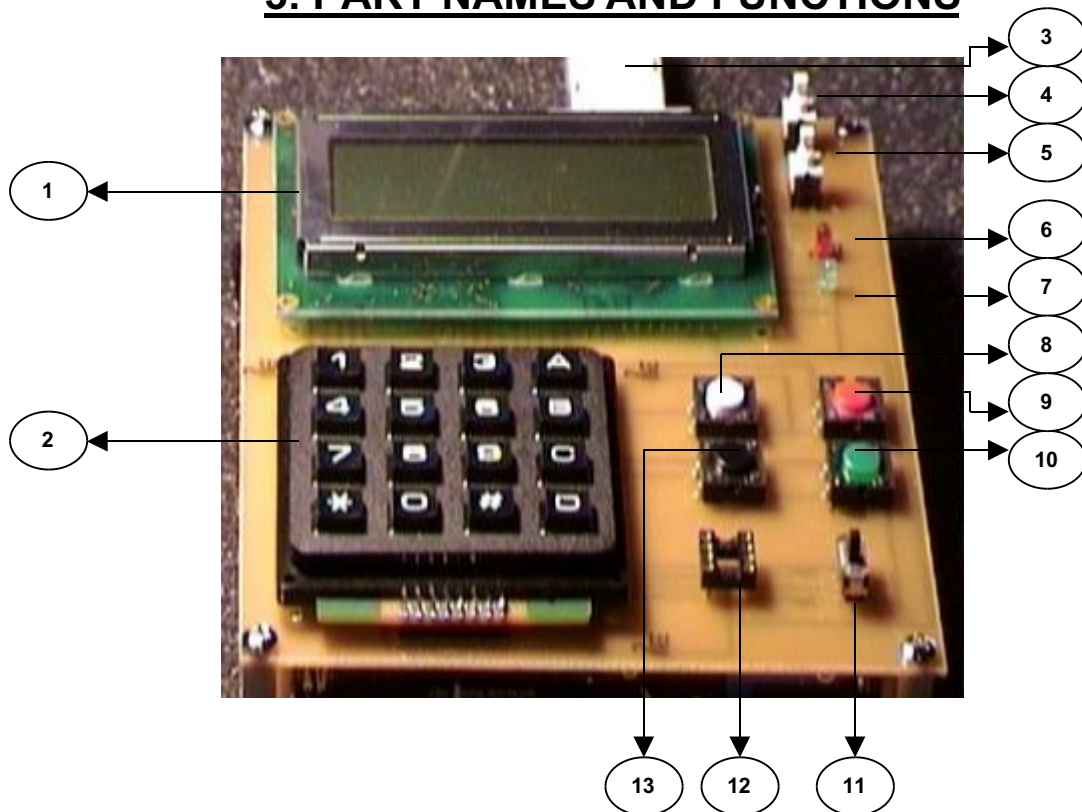


Figure 0

#### 3.1 FRONT

1. 20 x 4 character LCD display
2. 4 x 4 editor keypad
3. RS-232 connector
4. Power switch
5. Soft-neon ( back-light ) switch
6. Computer mode LED
7. Test LED (used only for test needs)
8. " Exit " button
9. " Computer " button
10. " Enter " button
11. " Org " switch
12. 8 pins Dip socket
13. " Menu " button

In the following, each of these is briefly described:

1. LCD screen - the E-1 is provided with a 20 x 4 LCD screen, which can display data under user control.
2. 4 x 4 editor keypad - is used to edit the memory buffer. The memory buffer contains the last file downloaded from eeprom (or file from PC) into memory E-1.
3. RS-232 connector - via this connector, the E-1 attaches to a personal computer.
4. Power switch - the power switch is used to turn the E-1 ON and OFF. The E-1 retains the dump contents of memory even when the board is switched off or battery is absent.
5. Soft-neon (back - light) switch – the soft-neon switch is used to turn back - light ON and OFF. Attention! When Soft-neon is switched ON, current consumption increase up to ~45-52 mA!
6. Computer mode LED – the red LED light when E-1 is in Computer mode operation.
7. Test LED – used only for laboratory test.
8. "Exit" button – the "Exit " button is used to return menu from submenu, editor or computer mode.

9. "Computer" button – the "Computer" button is used to enter Computer mode for receive or transmit data from/to PC.
10. "Enter" button – the "Enter" button is used to control the execution mode of operation, menu and submenu items.
11. "Org" switch – the "Org" switch is used for TC89101 for 8-bits organization.
12. 8 pins Dip socket
13. "Menu" button – the "Menu" button is used for choice type of memory and modes.

### 3.2 BOTTOM

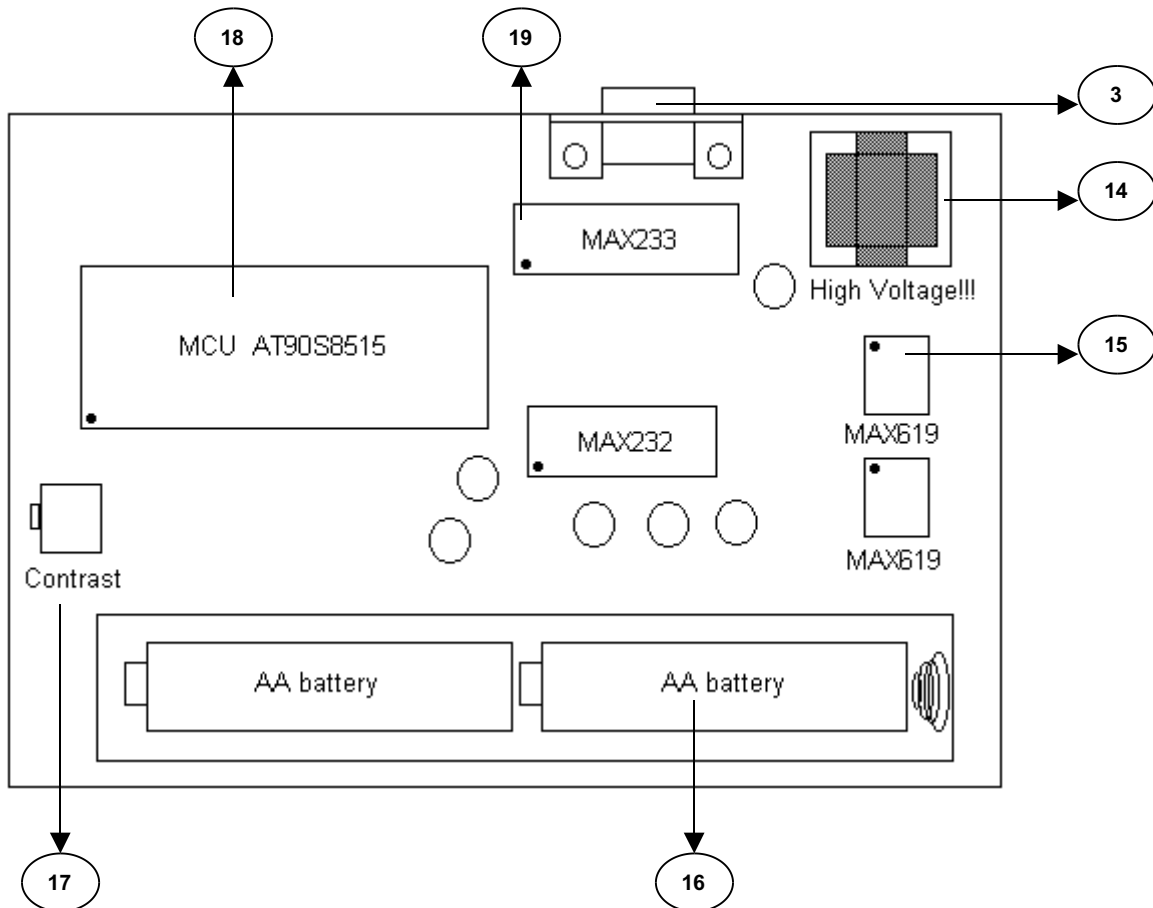


Figure 1

14. High voltage transformer (Soft- neon back- light).
15. DC-DC converters only 3 Volts version of E-1 (absent for 6 Volts version).
16. 2 AA size batteries holder or 4 AA size batteries holder for 6 Volts version of E-1.
17. Contrast potentiometer – LCD display contrast.
18. MCU AT8515.
19. Level translator MAX233 or MAX232 (AD202) completed.

## 4. COMMON OPERATIONS

### 4.1 MENU

A slide Power switch applies power to the E-1 programmer.

You should see a LCD display similar to this one, first time \*ETL\* message (approx.2 sec.), later menu will appear:

- 1) NS7002
- 2) S2444
- 3) CXK1012
- 4) NS93C46

The blink cursor is displayed between first full dots (4 row, NS93C46 position) and display characters at 0.4 sec. intervals. Press "Menu" button one time, cursor shifted to NS7002 position. How select IC type?

For example: Press "Menu" button two times, cursor shifted to S2444 position. Press "Enter" button one time, LCD display changed to submenu:

read:  
load:  
write:  
edit:

Now, you should see 4 items for your choice. Press "Exit" button return to menu. When you press "Menu" button 5 times you should see next items:

- 5) TC89101
- 6) AT59C11
- 7) AT24C01
- 8) S2430

For example: Press "Menu" button eight times, cursor shifted to S2430 position. Press "Enter" button one time, LCD display changed to submenu:

read:  
load:  
write:  
edit:

Press "Exit" button return to menu.

#### 4.2 SUBMENU

When IC is selected, you should see a LCD display submenu message:

read:  
load:  
write:  
edit:

The blink cursor is displayed between first full dots (4 row, edit: position) and display characters at 0.4 sec. intervals. Press "Menu" button one time, cursor shifted to read: position. How select mode operate? For example: Press "Menu" button two times, cursor shifted load: position. Press "Enter" button one time, LCD display will change similar to this one:

0-3\$FFFFFFFFFFFFFFFF  
4-7\$FFFFFFFFFFFFFFFF  
8-B\$FFFFFFFFFFFFFFFF  
C-F\$FFFFFFFFFFFFFFFF

Press "Menu" button to return submenu. Or to this one (for memory types up to 32 bytes):

n \$FFFFFFFFFFFFFFFF  
e \$FFFFFFFFFFFFFFFF  
x \$FFFFFFFFFFFFFFFF  
t \$FFFFFFFFFFFFFFFF

Press "Enter" button and show next 32 bytes of data, or press "Enter" button three times to return submenu.

In the following, each of these is briefly described:

**read:** press "Enter" button – this option reads the active device into the memory of E-1 with show memory dump on LCD display screen. Prior to executing this command, you have to select a device as active device (see 4.1 MENU section), and insert this device into socket.

**load:** press "Enter" button – this option loads a data from memory E-1 on LCD Display screen, helps to control data contents, before programming device.

**write:** press "Enter" button – this option programs the active device according with the contents of the memory buffer E-1. When programming is complete, select read: option for verification eeprom contents.

**edit:** press "Enter" button – this option is used for edit the memory buffer E-1. The memory buffer contains the last data downloaded from IC (or personal computer) into memory E-1. The purpose of the keypad – data entry in Hex. format. Data entry according current address step by step confirmation.

### COMPUTER

Press "Computer" button to enter computer mode. You should see a LCD display same to this one:

**computer**

Computer mode LED – the red LED appear now. Start rscom1.exe (rscom2.exe), you should see a screen (monitor) similar to this one:

**ENGINEERING TECHNICAL LABORATORY  
Handheld EEPROM Programmer E-1  
Asynchronous program for COM1, b=9600  
Created by Alexey Goncharenko & Andrey Knyaz**

Select communication mode, via the Computer push button  
You should see a LCD display message : computer \_  
Choice mode of operation: 'w'- save dump to file  
'r'- upload dump from file into EEPROM Programmer E-1  
Please, input mode of operation, push 'w' or 'r'  
?



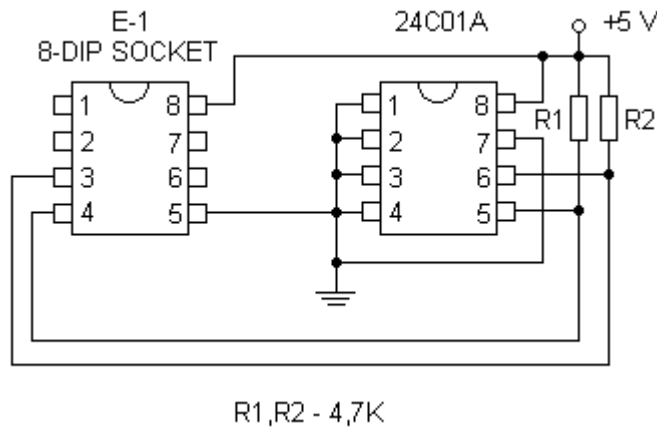


Figure 3

## 6. MENU ITEMS OPERATION

### NS7002 \*16x16 organized

Select 1) NS7002 menu item via “Menu” button and press “Enter” button. You should see a LCD display submenu similar to this one:

read:  
load:  
write:  
edit:

Examples: select **read:** submenu item via “Menu” button and press “Enter” button. You should see a LCD display short message **Reading ...** and device eeprom contents similar to:

```
0-3$0123456789ABCDEF
4-7$FFFFFFFFFFFFFFFF
8-B$FFFFFFFFFFFFFFFF
C-F$FFFFFFFFFFFFFFFF
```

Contents of NS7002 automatically stored in memory E-1. Press “Menu” button to return submenu. Select **edit:** submenu item via “Menu” button and press “Enter” button. You should see a LCD display message **0 addr:\$0123->█** with blinking cursor prompt, enter new data by keypad, for sample: press **7A0B** keys , a message LCD display **0 addr:\$0123->\$7A0B<-**, data stored in E-1 automatically after you press last digit **\$B**, new data contents address **\$0** is **\$7A0B**. If you no need to change data contents, just press “Enter” button. If you wish quit from editor press “Exit” button to return submenu. Check new data contents by **load:** command submenu. Select **load:** submenu item via “Menu” button and press “Enter” button. You should see a LCD display redacted eeprom contents:

```
0-3$7A0B456789ABCDEF
4-7$FFFFFFFFFFFFFFFF
8-B$FFFFFFFFFFFFFFFF
C-F$FFFFFFFFFFFFFFFF
```

Press “Menu” button to return submenu. Select **write:** by “Menu” button and press “Enter” button for execution. You should see a LCD display message:

## Writing ... complete

Submenu returned automatically, when writing complete. Press "Exit" button to return menu items.

### S2444 \*16x16 organized

Operate S2444 similar procedures to NS7002 (see NS7002 section)

### CXK1012 \*8x128 organized

Select 3) CXK1012 menu item via "Menu" button and press "Enter" button. You should see a LCD display submenu similar to this one:

read:

load:

write:

edit:

Examples: select **read:** submenu item via "Menu" button and press "Enter" button. You should see a LCD display short message **Reading ...** and device eeprom contents similar to:

```
n $0123456789ABCDEF
e $FFFFFFFFFFFFFFFF
x $FFFFFFFFFFFFFFFF
t $FFFFFFFFFFFFFFFF
```

Contents of CXK1012 automatically stored in memory E-1. Press "Enter" button and show next data (32 bytes) or press "Enter" button three times to return submenu.

Select **edit:** submenu item via "Menu" button and press "Enter" button. You should see a LCD display message **00 addr:\$01->** ████████

with blinking cursor prompt, enter new data by keypad, for sample: press **7A** keys, a message LCD display **0 addr:\$01->\$7A<-**, data stored in E-1 automatically after you press last digit **\$A**, new data contents address **\$00** is **\$7A**.

If you no need to change data contents, just press "Enter" button. If you wish quit from editor press "Exit" button to return submenu. Check new data contents by **load:**

command submenu. Select **load:** submenu item via "Menu" button and press "Enter" button. You should see a LCD display redacted eeprom contents:

```
n $7A23456789ABCDEF
e $FFFFFFFFFFFFFFFF
x $FFFFFFFFFFFFFFFF
t $FFFFFFFFFFFFFFFF
```

Press "Enter" button to show next data (32 bytes) or press "Enter" button three times to return submenu. Select **write:** by "Menu" button and press "Enter" button for execution. You should see a LCD display message:

**wait**

few moments later

## Writing ... complete

Submenu returned automatically, when writing complete. Press "Exit" button to return menu items.

NS93C46 \*16x64 (8x128) organized

Operate NS93C46 similar procedures to CXK1012 (see CXK1012 section).

TC89101 \*16x64 (8x128) organized

Turn “Org” switch to position num. 2, according Figure 2 (see ORG.OPTION section). Operate TC89101 similar procedures to CXK1012 (see CXK1012 section). Turn “Org” switch to position number 1, when you finish work with TC89101 device.

AT59C11 \*16x64 (8x128) organized

Operate AT59C11 similar procedures to CXK1012 (see CXK1012 section).

AT24C01A \*8x128 organized

Insert programming adapter into 8 pins Dip socket, according with Figure 3 (see charter PROGRAMMING ADAPTER).

Operate AT24C01A similar procedures to CXK1012 (see CXK1012 section).

Remove programming adapter from socket, when you finish work with AC24C01A device.

S2430 \*8x8 organized

Select 1) S2430 menu item via “Menu” button and press “Enter” button. You should see a LCD display submenu similar to this one:

**read:**

**load:**

**write:**

**edit:**

Examples: select **read:** submenu item via “Menu” button and press “Enter” button. You should see a LCD display short message **Reading ...** and device eeprom contents similar to:

**0-8\$0123456789ABCDEF**

Contents of S2430 automatically stored in memory E-1. Press “Menu” button to return submenu. Select **edit:** submenu item via “Menu” button and press “Enter” button. You should see a LCD display message **0 addr:\$01->■** with blinking cursor prompt, enter new data by keypad, for sample: press **7A** keys , a message LCD display **00 addr:\$01->\$7A<-**, data stored in E-1 automatically after you press last digit **\$A**, new data contents address **\$00** is **\$7A**.

If you no need to change data contents, just press “Enter” button. If you wish quit from editor press “Exit” button to return submenu. Check new data contents by **load:** command submenu. Select **load:** submenu item via “Menu” button and press “Enter” button. You should see a LCD display redacted eeprom contents:

**0-8\$7A23456789ABCDEF**

Press “Menu” button to return submenu. Select **write:** by “Menu” button and press “Enter” button for execution. You should see a LCD display message:

**wait**

few moments later

**Writing ... complete**

Submenu returned automatically, when writing complete. Press "Exit" button to return menu items.

## 7. BATTERY INSERTION

Operation (back-light OFF) provide many long continuously action. Nevertheless, from time to time you need to replace batteries.

You'll need this steps: to turn 4 screw on Front panel and open Front panel, make sure the E-1 programmer main power switch is turned OFF.

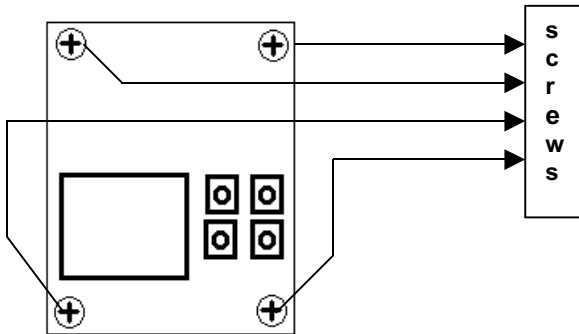


Figure 4

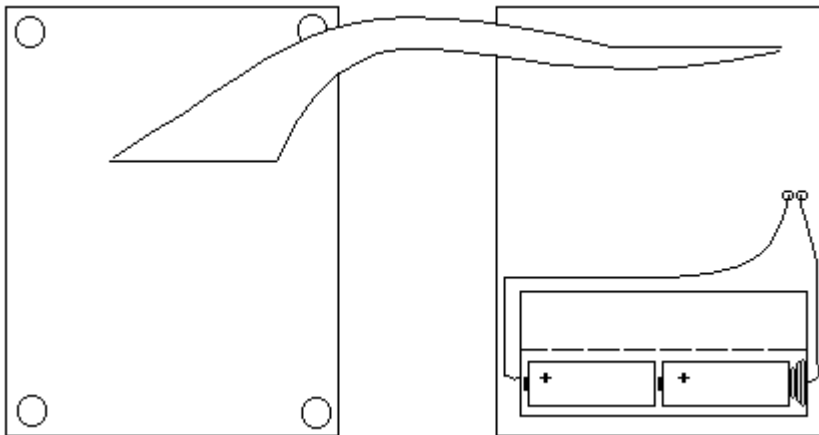


Figure 5

Remove discharged batteries (2 AA batteries or 4 AA batteries). Insert into the battery holder (marked with a + on the positive side) fresh batteries according with yours variant of E-1 (2 AA size batteries or 4 AA size batteries).

### NOTE

If the E-1 programmer is not to be used for a long period of time, remove the batteries!

## 8. APPENDIX

Supported devices:

- 1) NS7002 /National Semiconductor/.
- 2) S2444, X24C44, CAT2444 /Seiko, Xicor, Catalyst/.
- 3) CXK1012, CXK1011, PDG011 / Sony, Pioneer/.
- 4) NS93C46, CAT93C46, AT93C46 / National Semiconductor, Catalyst, Atmel/.
- 5) TC89101 /Toshiba/.
- 6) AT59C11, IX59C11, ER5911 /Atmel, Sharp, General Instruments/.
- 7) AT24C01A, 24C01 /Atmel, Microchip/.
- 8) S2430 /Seiko/.