

MC68HC(8)05P18 EEPROM Programming Tool
User Guide

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1. INTRODUCTION

This manual will guide you through the installation and operation of the MC68HC(8)05P18 Programmer, referenced hereafter as the **P18-Programmer**. The **P18-Programmer** has been designed for reading of EEPROM contents and programming of EEPROM of the next Motorola (Mitsubishi) Microcontroller unit (MCU):

- ✓ MC68HC05P18 (1F52W)
- ✓ MC68HC805P18 (0G64R)
- ✓ MC68HC805P18 (G64R)
- ✓ MC68HC05P18 (H44H)
- ✓ MC68HC805P18 (K05Y)

Note: Devices can be read / programmed in the On-Board mode only

Note: Correct reading and programming can't be guaranteed for devices that are not mentioned in the list above

Note: Recommend (supplied) programming adapters:

MC68HC05P18 (1F52W) programming adapter: SOIC28-DIP28

MC68HC805 P18 (0G64R); (G64R) programming adapter:

805P18 – G64 QFP44 AD

MC68HC05P18(H44H); (K05Y) programming adapter:

68HC805P18 QFP 44 AD

2. CHECKLIST AND REQUIREMENTS

Following describes what items are supplied with the **P18-Programmer** and the system requirements of the software

- ✓ **P18-Programmer** – *supplied*
- ✓ One 28 SOIC to PDIP28 adaptor – *supplied*
- ✓ One 805P18 –G64 QFP44 AD adaptor – *supplied*
- ✓ One 68HC805P18 QFP 44 AD adaptor – *supplied*
- ✓ A serial cable (pin-to-pin compatible) - *supplied*
- ✓ **P18-Programmer** PC software on CD-ROM – *Optional Extra*

- ▶ Desktop/Laptop PC and a free serial port
- ▶ Memory - Minimum 32 Mbytes
- ▶ Display - Color SVGA display recommended
- ▶ Power supply – 10-12 Volts DC external power supply required
- ▶ OS-MS-Windows (Windows 98/2000/XP/Vista/7)

3. INSTALLATION

The P18-Programmer includes two power supply connectors, power switch, serial port, three LEDs, target programming socket; Figure 1

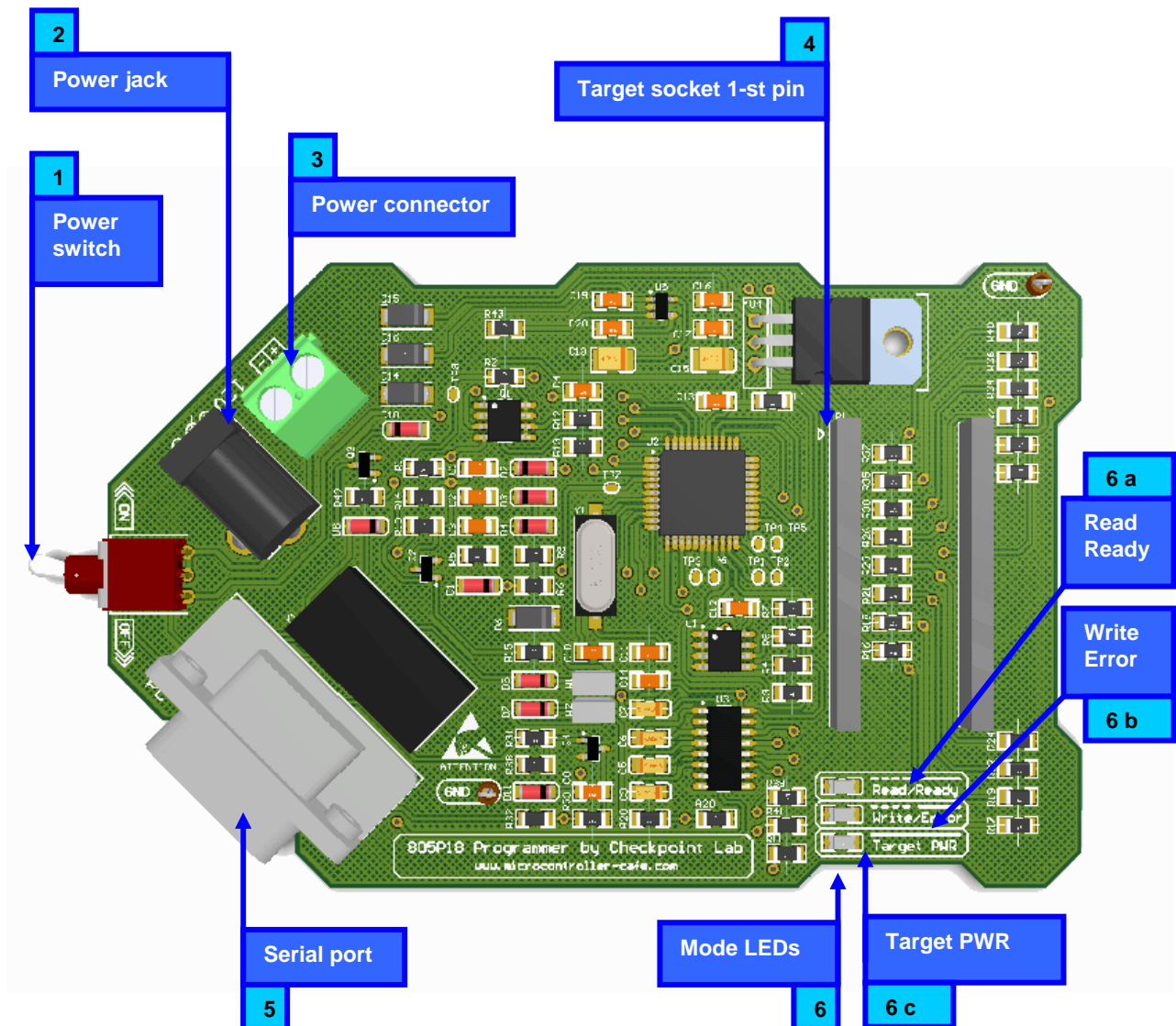


Figure 1

- 1 – **Power switch** :ON/OFF power supply source
- 2 – **Power jack** : 2.1.mm jack (10-12 V DC input)
- 3 – **Power Connector** : External power supply DC voltage in (alternative of Power jack)
- 4 – **Target socket** : target device socket (1-st pin orientation)
- 5 – **Serial port connector** : RS232 serial interface to a host PC
- 6 – **Mode LEDs** : 3 leds indicate mode of operation:
 - 6a) Read / Ready Green color
 - 6b) Write / Error Red color
 - 6c) Target PWR

LEDs indicate programmer state and external power supply voltage

Table 1

	GREEN (READ)	RED (WRITE)	RED (PWR)
Lit	Programmer READY	WRITE in progress and byte overwrite was not necessary	PWR is applied to target
Flashing	READ in progress	WRITE in progress and the bytes are being overwritten	Unexpected error
Not lit	WRITE is in progress	READ is in progress	PWR is not applied to target MCU

Note: If both **GREEN** and **RED** LEDs are lit continuously – programmer is LOCKED.

Contact technical support service: microcontroller-café@yahoo.com

4. QUICK START

- ▶ Connect the P18-Programmer to the computer using the serial cable supplied with the programmer (USB – RS232 converter as optional)
- ▶ Apply power supply DC 10-12V to the P18-Programmer Make sure that the READ / READY LED is lit. Start P18-Programmer software and click Connect menu button Step 1; Figure 2

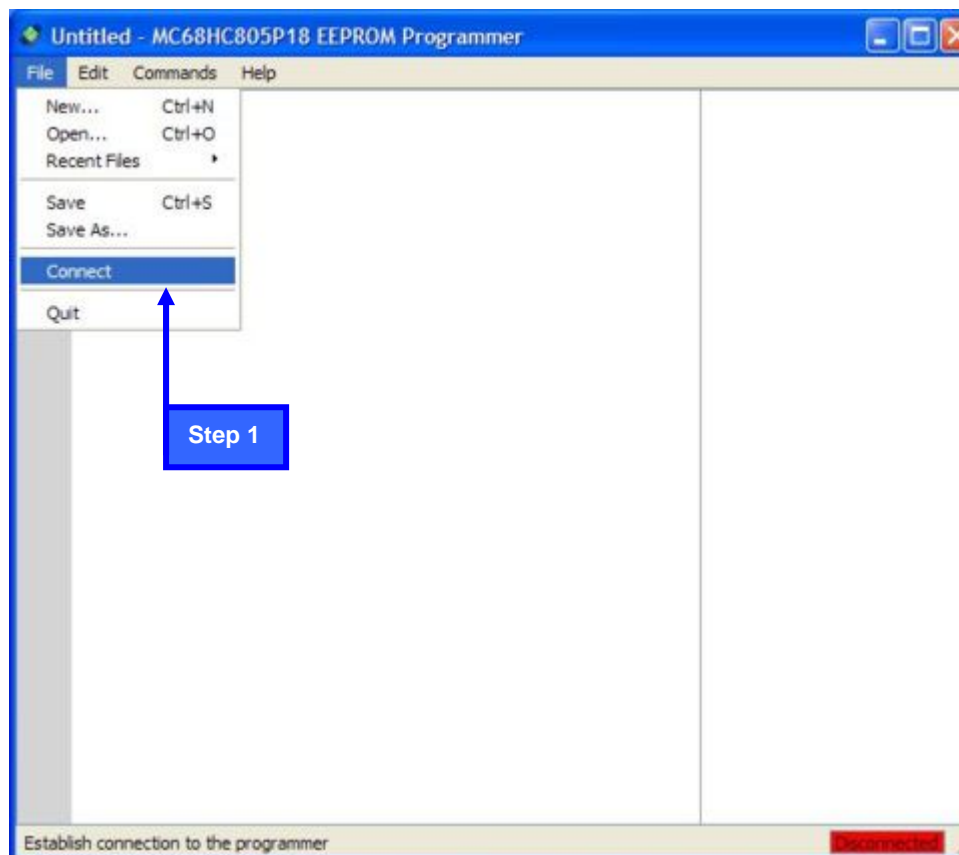


Figure 2

- ▶ On click, a new dialog should open: “Select connection method”
Step 2; Figure 3
- ▶ In dialog window, select the serial port to which the device is connected
And press the “connect” button; Figure 3

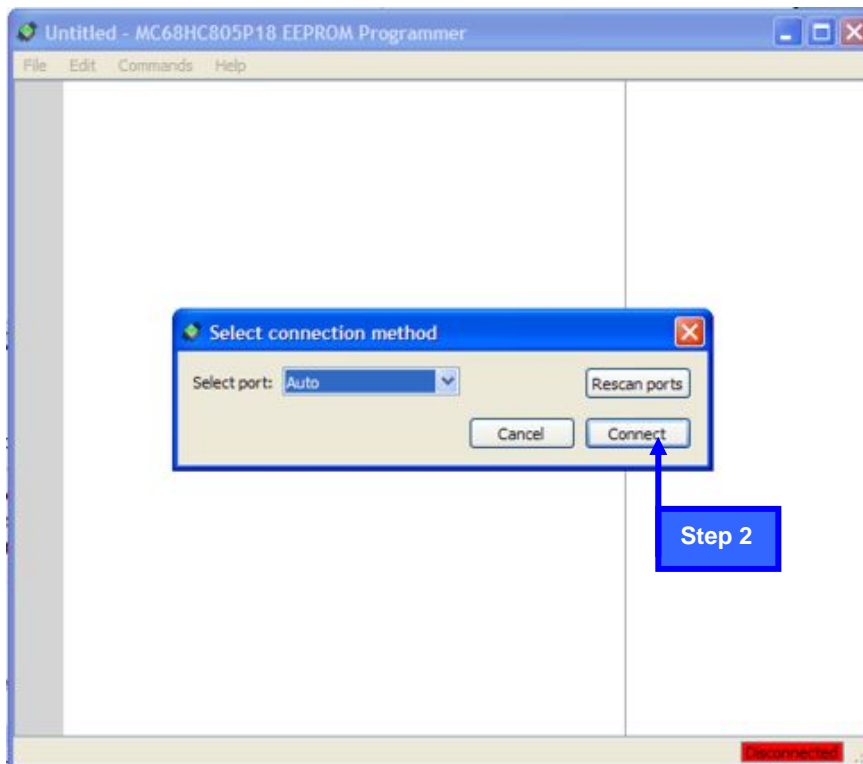


Figure 3

- ▶ On successful connection, you should see MCU selection dialog.
Select MCU type Step3; Figure 4
- Note:** Incorrectly selected MCU type can damage target MCU. If you are not sure about MCU type – select K05Y or H44H mask set (safe mode of target MCU protection)

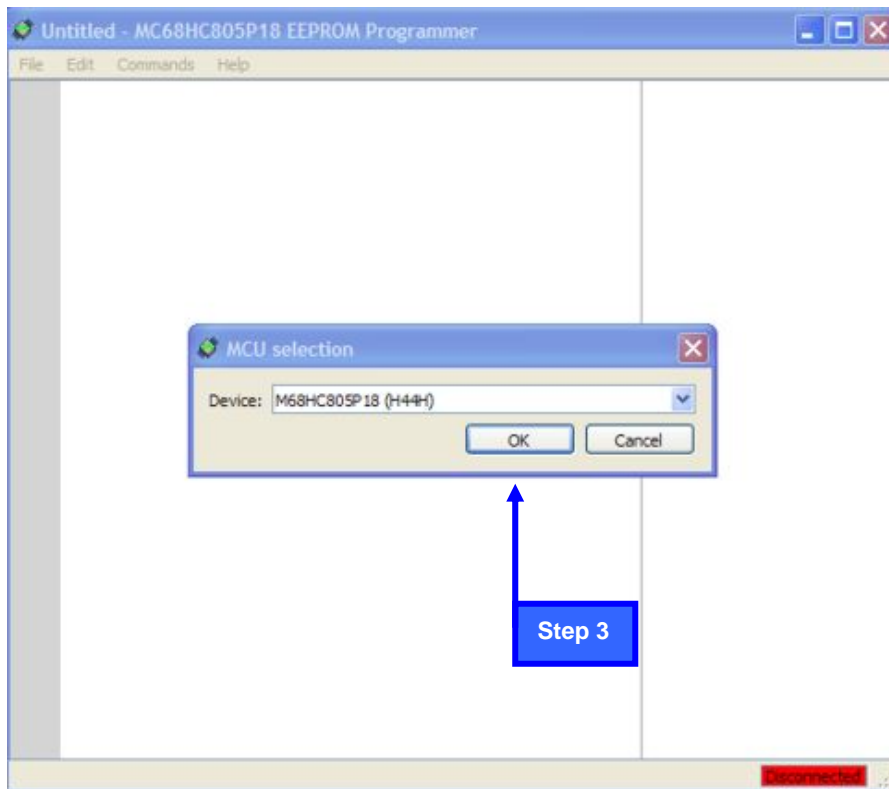


Figure 4

- ▶ If you have chosen auto connection, on success you'll see message box "Programmer detected on port: COM (number)" Step 4; Figure 5

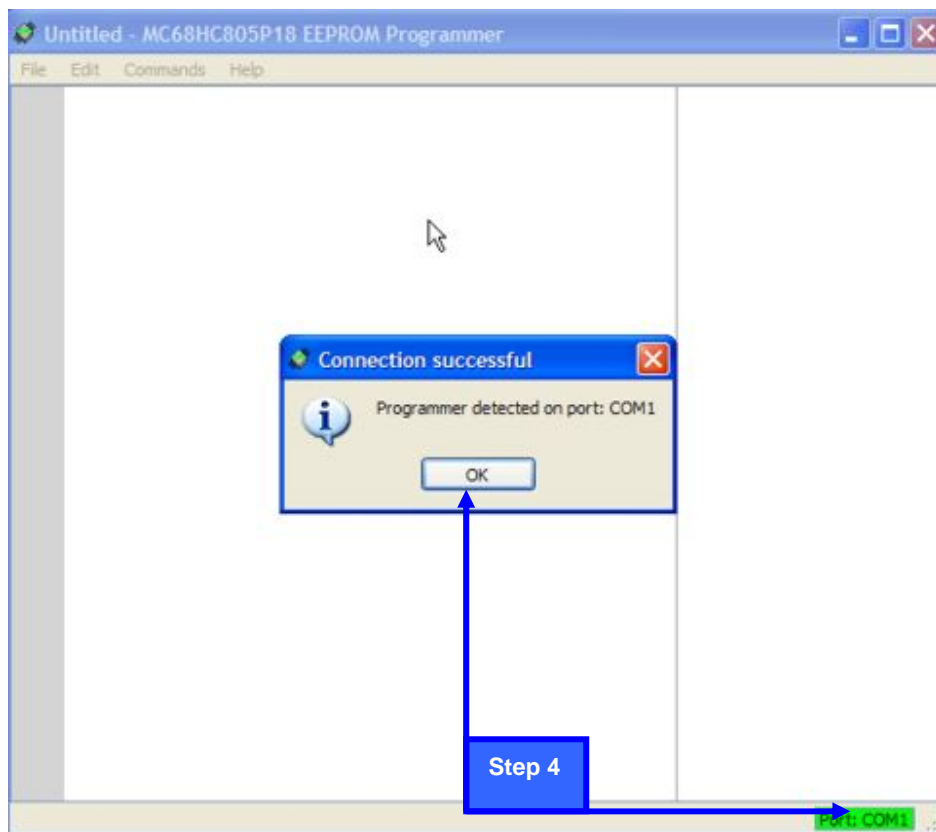


Figure 5

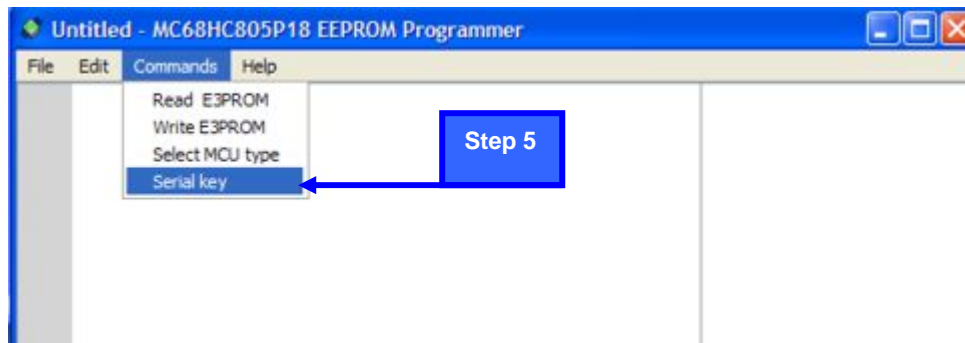


Figure 6

- ▶ Step 5: Enter Serial key number. This step is necessary on the first use of the programmer or on the next key request. Click Serial key menu button. Enter Serial key number. Key consists of 5 fields that should be filled. Step 6; Figure 7
- ▶ This procedure should be performed right after installation of the programmer software or after the reception of a new key (when tokens on the current key run out). New key will be supplied on demand **without charge**. Key/Token system is implemented only for the statistical reasons. To receive a new key, contact technical support at: microcontroller-café@yahoo.com

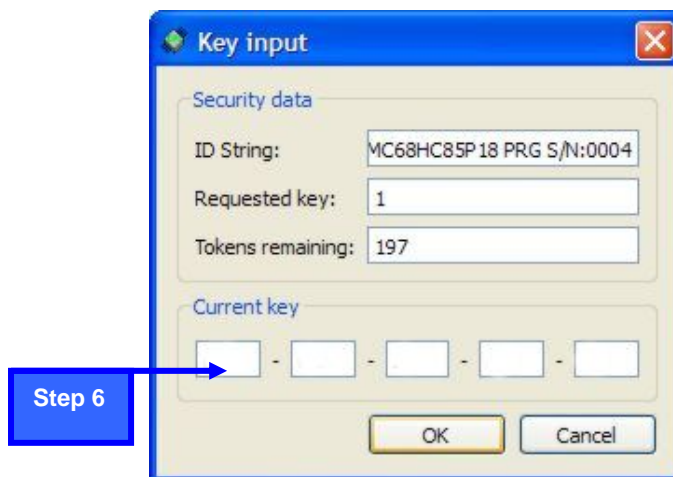


Figure 7

5. ON – BOARD PROGRAMMING

- ▶ Insert target MCU into the socket. Pay attention to the first pin orientation
- ▶ Click on Read EEPROM button. Step 8; Figure 8

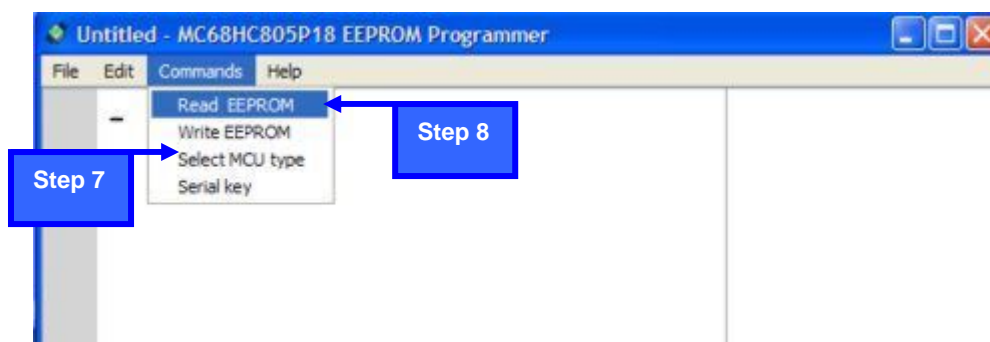


Figure 8

- ▶ Wait for a little while, you'll see progress bar in the "Working" window during read operation

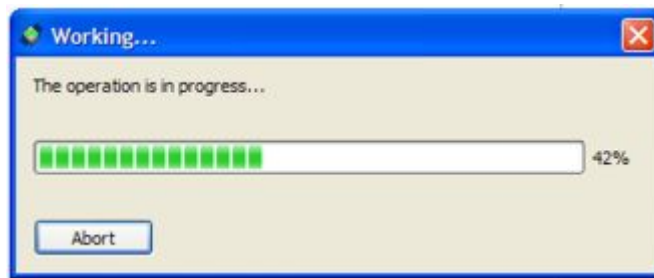


Figure 9

- ▶ Example data is shown on Figure 10

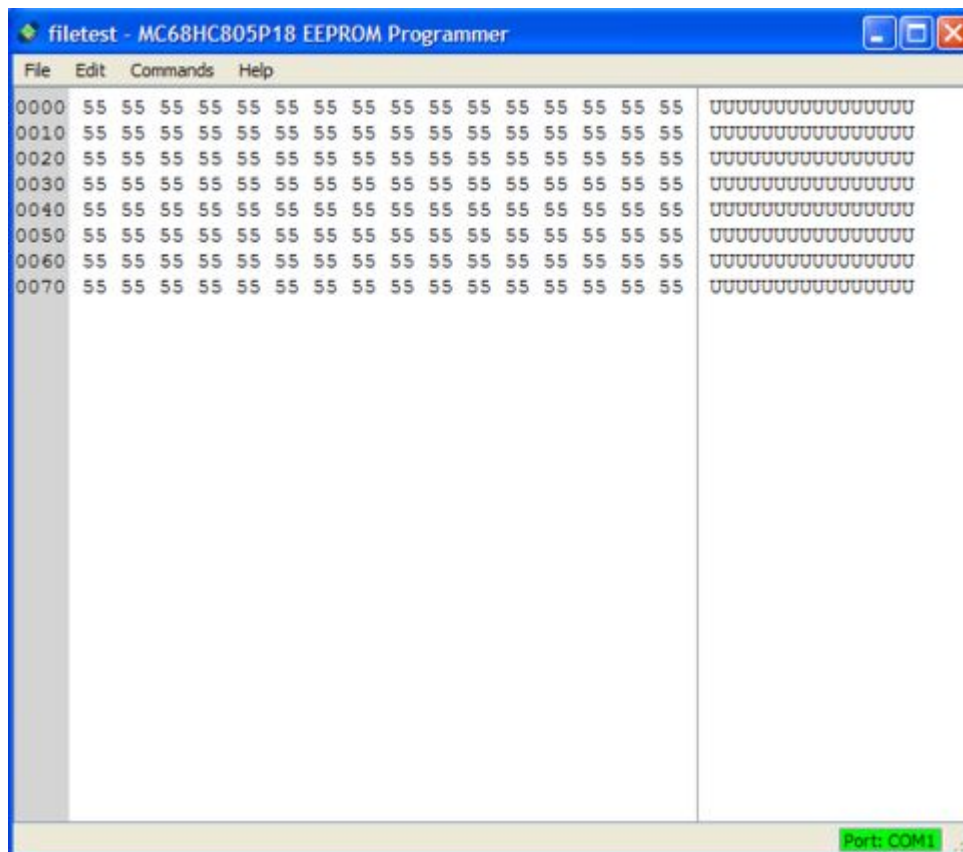


Figure 10

Note: Data sequence \$40; \$41 etc. means that MCU is either damaged or there is a bad contact between MCU and adaptor board

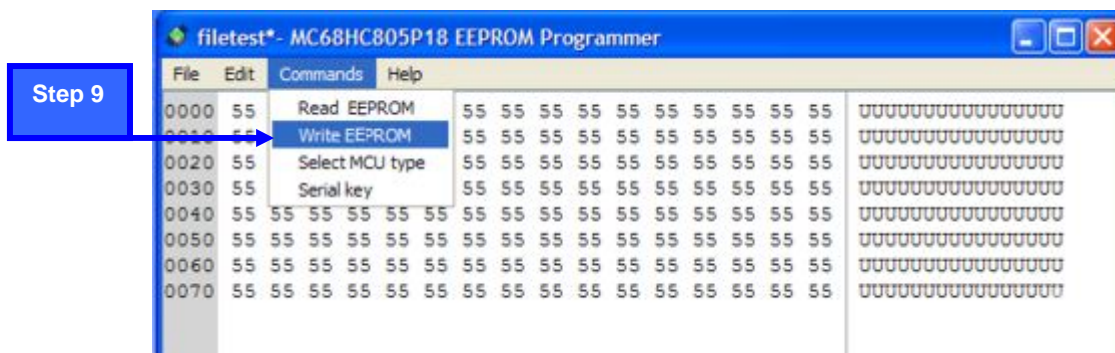


Figure 11

- ▶ Click on Write EEPROM button after editing data array. Step9; Figure 11
- ▶ Verify procedure is combined with the Write procedure internally, so re-reading EEPROM after writing is usually not necessary. Though it is recommended to perform reading operation after the writing is completed

6. MEMORY EDITOR

- ▶ Memory editor / viewer
- ▶ EEPROM location MC68HC805P18 (memory map) starts from address \$0140 and ends at \$01BF. So, address \$0140 from memory map equals to address \$0000 in the buffer, address \$01BF from memory map equals to address \$007F in the buffer. Buffer can be edited manually and accepts lowercase HEX numbers. Buffer contains the open file contents or the internal memory (EEPROM) of target MCU after READ operation
- ▶ Copy. This function copies selected block in memory to a new address
- ▶ Paste. This function pastes previous selected block from memory to a new buffer address
- ▶ Undo. When the changes are made, the changes areas are highlighted. If you wish to undo last change, just click this button

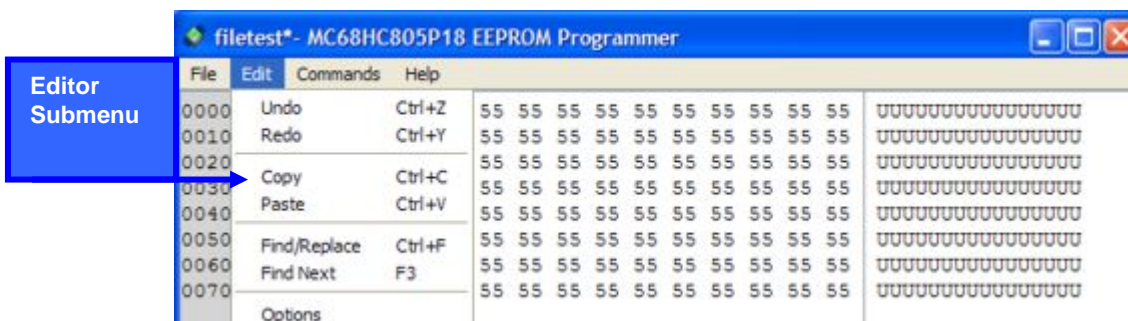


Figure 12

7. TROUBLESHOOTING



Figure 13

- ◆ **Problem:** LEDs are not lit
- ◆ **Causes:** If the power is supplied correctly - this problem can occur when power switch is damaged or host MCU is broken
- ◆ **Solutions:** Check power supply. Replace power switch. Contact to technical service for host MCU replacement



Figure 14

- ◆ **Problem:** Unable to establish connection
- ◆ **Causes:** Various, depending on error message
- ◆ **Solutions:** Stop any programs that are using the same serial port, check serial cable and power supply to board, make sure that the READ / READY LED is lit

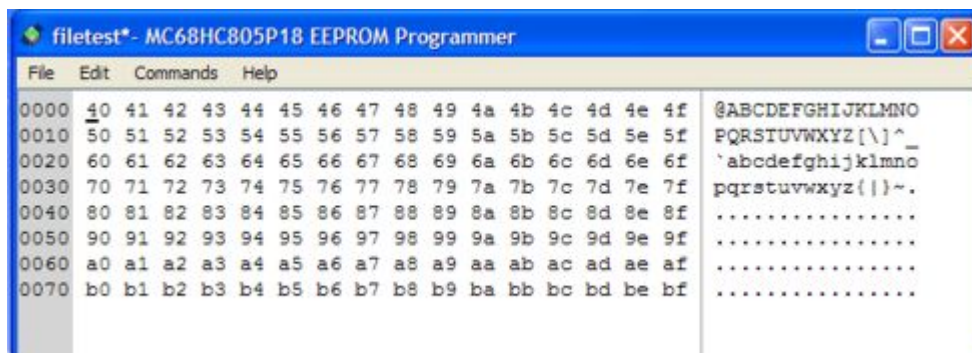


Figure 15

- ◆ **Problem:** Addresses returned instead of data
- ◆ **Causes:** A bad contact in the socket, no MCU or MCU is broken
- ◆ **Solutions:** Check contacts into the socket or replace broken target MCU

8. TECHNICAL SUPPORT

For technical support, please contact: microcontroller-café@yahoo.com
 When requesting technical support for MC68HC805P18 EEPROM programmer, please, include following information:

- ▶ ID string
- ▶ PC operation system and version
- ▶ Power supply voltage
- ▶ A detailed description of the problem

9. WARRANTY STATEMENT AND DISCLAIMER

All Checkpoint LAB products are intended for lawful service, repair or replacement Of various electronic equipment according to the laws of the country in which the product is being sold or used. Checkpoint LAB guarantees that provided tool can perform its functions described in this document. Checkpoint LAB holds no responsibility for any damage caused by any user action outside of normal operations such as preparing any attachments to this device for performing normal operations (Read, Write EEPROM). This warranty lasts for 60 days after the customer receives device, if no notification about device arrival was given, for 90 days after invoice date

The MC68HC(8)05 MCU pins layout

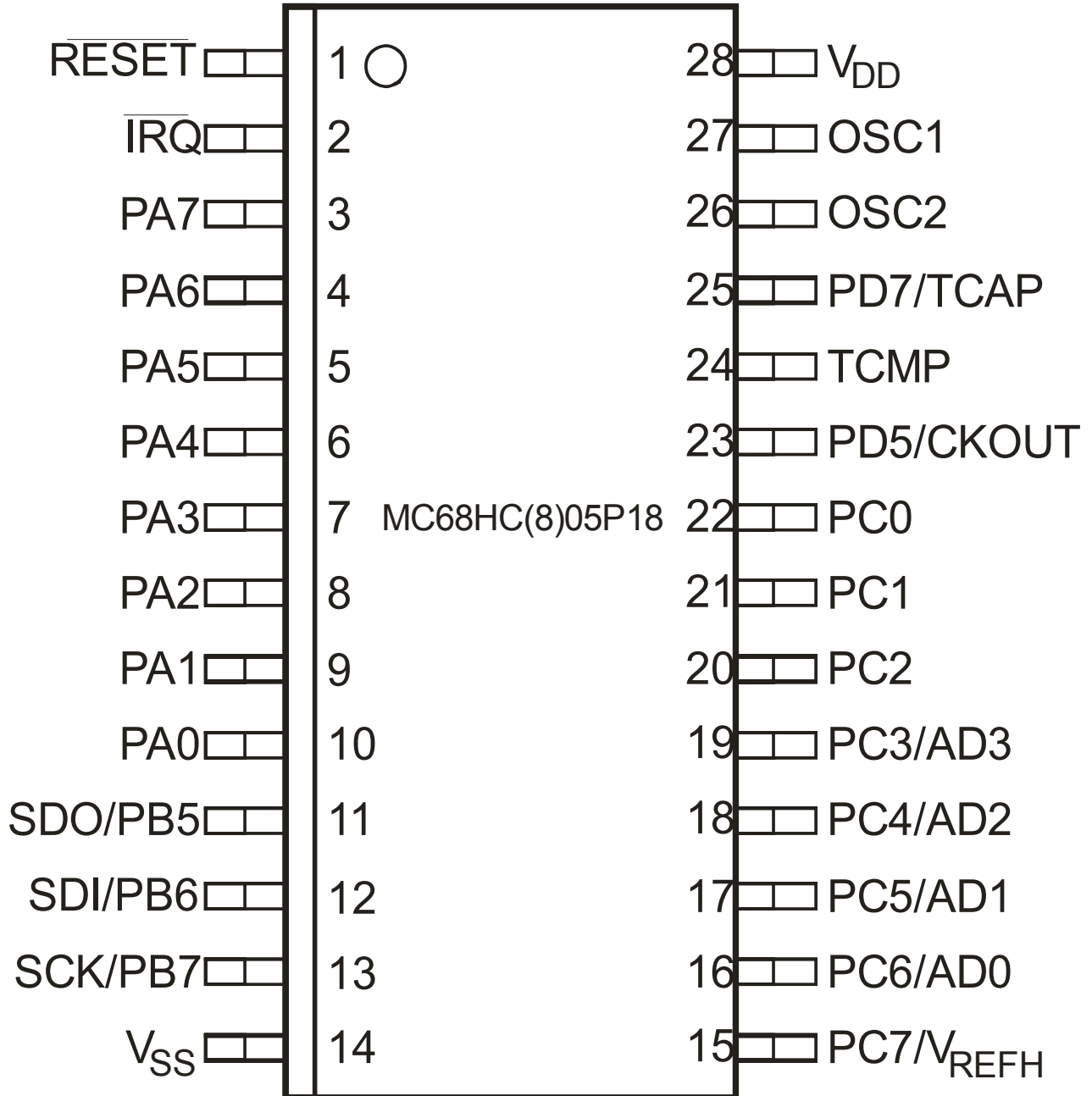


Figure 16