CMT-100

APPLICATION MODULE SIMULATOR

Instructions

CORVALLIS MICROTECHNOLOGY, INC.

INTRODUCTION

The CMT-100 Application Module Simulator is a custom software storage device for use with the HP-41C/CV/CX calculator. It is powered by the HP-41 batteries.

The CMT-100 allows ordinary CMOS or NMOS EPROMs to be used to simulate HP-41 ROMs. The normal EPROM data format is 8-bit-parallel. The HP-41 ROM format is 10-bit-serial. The CMT-100 circuit is designed to convert one format into the other.

The circuit uses a 2764 or a 27C64 EPROM to simulate a 4K-word HP-41 ROM; or a 27128 or 27C128 EPROM to simulate a 8K-word HP-41 ROM.

The CMT-100 can be plugged into any of the HP-41 I/O ports. Before doing so for the first time, be sure to read and follow the instructions given in Section 2, Connecting the CMT-100 to the HP-41.

For your convenience, space has been provided on the front panel so that self-sticking labels may be attached to reflect the contents of your most frequently used EPROMs.

We have given in this manual some basic information required to use the CMT-100. If you need further assistance, contact our office at:

> Corvallis Microtechnology, Inc. Dept. 100-m 33815 Eastgate Circle Corvallis, OR 97333 Tel.: (503)752-5456

INSTALLING AN EPROM INTO THE CMT-100

CAUTION:

* Both the EPROM and the CMOS circuitry in the CMT-100 are sensitive to electro-static discharge (ESD). Before making contact with either, be sure any charge on your body has been properly dissipated. (Use a grounded work area and connect yourself to it via a conductive wrist strap.)

Memory Size Selection

The CMT-100 allows you to work with either 4K-word or 8K-word EPROMs. A 27C64 contains 4K words, while a 27128 or a 27C128 contains 8K words.

To select the proper configuration for the size of the EPROM used, first open the CMT-100 plastic housing and locate the jumper on the circuit board.

If the EPROM being installed is a 2764 or a 27C64, place the shorting jumper in the 4K position indicated on the circuit board. If the EPROM is a 27128 or 27C128, then the shorting jumper should be in the 8K position.

Inserting the EPROM:

- 1. Discharge yourself properly.
- 2. Orient your pre-programmed EPROM so its pin 1 is positioned near the number "1" indicated on the circuit board.
- 3. Align the 28 pins of the EPROM with the socket holes. This often requires some bending. To bend the pins uniformly, lay the EPROM on its side on a flat hard surface, and apply a gentle pressure on the pins.

4. Press down firmly upon the EPROM with a rocking motion until it is firmly seated in the socket.

To remove an EPROM from the socket, pry up carefully from alternating ends of the EPROM to avoid damaging the pins.

Remark

If EPROMs are changed often, it is recommended that a ZIF (zero insertion force) socket be used. There is one available from CMT that plugs into the existing socket.

Follow the instructions in Section 2 to connect the CMT-100 to the HP-41. After verifying proper operation, replace the front panel of the CMT-100, and fasten with the screws provided.

CONNECTING THE CMT-100 TO THE HP-41

CAUTION:

- * Turn the HP-41 calculator off before inserting or removing the CMT-100 module or any other plug-in extensions or accessories. Failure to do so could damage both the calculator and the plug-in module.
- * The CMT-100 must not be connected to the HP-41 without a properly programmed EPROM installed in it. If the HP-41 tries to access the EPROM when it is not installed in the CMT-100, the HP-41 software may crash. This may require resetting the HP-41, and possibly cause a MEMORY LOST condition.

Inserting the CMT-100 Module:

- 1. Turn the HP-41 calculator off!
- 2. Remove the port cover of the port you intend to insert the CMT-100 into. Note, however, that you should never insert the CMT-100 or any other application module into a lowernumbered port than a memory module. (Turn your calculator over to see a map of the ports.) Save the port cap.
- 3. Insert the CMT-100 connector into the selected port. Gently push it in all the way.
- 4. If you are also using the HP-IL module or other application modules, plug them into any port after the last memory module plugged in. You may leave gaps in the port sequence.

5. Turn the calculator on. If the interface loop is used, be sure all the peripheral devices are properly connected and turned on before turning the calculator on. This will ensure proper auto-addressing.

Removing the CMT-100 module:

- 1. Turn the HP-41 calculator off!
- 2. Grasp the CMT-100 connector and pull it out.
- 3. Insert a port cap into the empty port.

ORGANIZATION OF CODE IN THE EPROM

The 10 bits of a given HP-41 word are placed in two 8-bit bytes of the EPROM as follows.

The lower 8 bits of the HP-41 word are placed in an even-numbered address of the EPROM, with the least significant bit (LSB) of the HP-41 word matching that (Bit 0) of the EPROM byte.

The upper 2 bits of the HP-41 word are placed in the lower 2 bits of the next higher odd-numbered address of the EPROM, with the most significant bit (MSB) of the HP-41 word placed in the second bit (Bit 1) of the EPROM byte.

EPROM Address																			H V	iP Io	-4 rd	1
• • •																					• •	
003	x		x		x		x		x		x		MS	B	-	8	-	}	} ī	lo	ord	1
002	7	-	6	-	5	-	4	-	3	-	2	-	1	-	I	SB		-				
001	x		x		x		x		x		x		MS	B	-	8	-	1	ι	In	rd	0
000	7	-	6	-	5	-	4	-	3	-	2	-	1	-	I	SB			, ,		. 0	
	7		6		5		4		3		2		1			0	I	EPI	ROM	1	Bi	ts

x = EPROM bits not used by the CMT-100.

MAINTENANCE INFORMATION

Initial Inspection

When you first receive the device, examine the package for signs of damage. Check to see that the device is in good mechanical condition.

If there is any mechanical damage, notify our office. If the shipping container is damaged, notify the carrier as well as our office.

Care of the Unit

- * Always turn off the calculator before connecting or disconnecting the CMT-100 module.
- * Keep the electrical contacts of the module clean. When necessary, carefully brush or blow the dirt out of the contact area. Do not use any liquid for cleaning the contacts.
- * Store the module in a clean, dry place.
- * Observe the temperature specifications:

Operating: 0 to 45 deg. C (32 to 113 deg. F) Storage: -20 to 55 deg. C (-4 to 131 deg. F)

Resetting the HP-41

In case of a disruption of calculator operation, you can usually recover from it by resetting the HP-41. To do so, follow the instructions given on p. 242 of the HP-41C/41CV Owner's Handbook and Programming Guide, or p. 385 of the HP-41CX Owner's Manual. Sometimes a MEMORY LOST condition results from the disruption or from an attempt to reset the HP-41. Therefore, all causes of disruption should be avoided. Specifically, do not connect the CMT-100 into the HP-41 unless a properly programmed EPROM has been installed in the CMT-100. Also, remember to turn off the HP-41 before inserting or removing plug-in modules.

Warranty Information

WARRANTY

This CMT product is warranted against defects in material and workmanship for a period of 90 days from the date of shipment. During this period, Corvallis Microtechnology, Inc. will, at its option, either repair or replace products which prove to be defective.

Buyer shall prepay shipping charges to return the product to CMT for warranty service, repair or replacement. Buyer shall pay all shipping charges, duties, and taxes for products returned to CMT from any country outside the U.S.A.

CMT does not warrant that the operation of this device and the firmware and software installed on it will be error-free.

LIMITATION OF WARRANTY

The foregoing warranty shall not apply to defects or malfunctioning resulting from improper or inadequate maintenance by buyer, buyer-supplied interfacing, unauthorized modification or misuse, or operation outside of the environmental specifications for the product.

No other warranty is expressed or implied. Corvallis Microtechnology specifically disclaims the implied warranties of fitness for a particular purpose.

Shipping Instructions

Should the need arise, ship your CMT-100 in a protective package to avoid damage. (Use the original shipping container and cushioning material.) In-transit damage is not covered by the warranty.

When returning the unit for service, repair or replacement, be sure to include your name and address as well as a description of the problem.

For warranty service or repair, return the sales receipt with the unit.

NOTICE

Corvallis Microtechnology, Inc. assumes no liability resulting from any errors or omissions in these instructions, from the use of the informaton obtained herein, or from the use of the CMT-100 Application Module Simulator.

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