CMT-48-128R and CMT-48-128KE RAM Cards and EEPROM Cards for the HP 48SX

User's Instructions

10-10-90

Notice:

Your **CMT-48-128R** comes with the coin cell battery already installed. This battery will last 5 years under normal operating conditions. We recommend that you replace it every 2 years.

Section 1 Introduction

The CMT-48 RAM and EEPROM cards are designed for use with the HP 48SX Calculator.

Each CMT-48 RAM card adds 128K bytes of Random Access Memory to your HP 48SX. Its memory contents are backed up by a 3-Volt 2016 coin cell battery. The RAM card may be plugged into either of the two HP 48SX ports. You may store data to it or retrieve data from it. You may also use it as a means of copying a large amount of information from one HP 48SX to another. By using the CMT-48-P01 Programmer, you can copy the memory contents of one RAM card to another.

Unlike a ROM card whose memory may not be altered, the CMT-48 EEPROM card may be electrically erased and then reprogrammed. The CMT-48 EEPROM cards cannot be corrupted by the HP 48SX and are therefore useful for safekeeping programs that you cannot afford to lose. You may run these programs directly out of the EEPROM cards without first copying them to the HP 48SX user memory. The EEPROM cards are also a great tool for marketing and distributing application programs.

Each CMT-48 EEPROM card can hold up to 128K bytes of programs and data stored into it by using a special ROM "burning" process using the CMT-48-P01 Programmer. CMT can burn the EEPROM card for you if you supply the ROM image on a 128K RAM card along with proof of copyright ownership or written authorization from the copyright owner to reproduce the ROM image.

Note: This document covers only information directly related to the description and use of the CMT RAM Card (Part# **CMT-48-128R**) and the CMT EEPROM Card (Part# **CMT-48-128KE**). Please consult the HP 48SX Owner's Manual with regard to using the HP 48SX with plug-in RAM and ROM cards. The **CMT-48-P01** Programmer is described in the instructions supplied with the Programmer.

Trademark Acknowledgment:
HP 48SX is a trademark of Hewlett Packard Corporation.

Liability Statement:

CMT makes no express or implied warranty with regard to the CMT-48-128R and CMT-48-128KE or the merchantability or the fitness of these products for any particular purpose. These products are made available solely on an "as is" basis and the entire risk as to their quality and performance is with the user. Should these products prove defective, the user shall bear the entire cost of all necessary corrections and all incidental or consequential damages in connection with or arising out of the furnishing or use or performance of these products.

Section 2 CMT-48 Memory Cards

2.1 Inserting/Removing the Memory Cards

You may insert a CMT-48-128R or a CMT-48-128KE card in either of the two HP 48SX memory ports. Please read Chapter 34 of **HP 48SX Owner's Manual Volume II** for instructions on installing and removing the plug-in cards. Pay special attention to the cautions and warnings with regard to situations or procedures that may cause the memory in the RAM to be accidentally erased. A few reminders are listed below:

1. Turn off the HP 48SX before installing or removing a plug-in memory card.
2. **Install the RAM or EEPROM card with the metal connector facing the same side as the HP 48SX front panel.**
3. Set the memory protection switch on the RAM card to "READ ONLY" position to prevent accidentally overwriting important data. **Always** turn off the HP 48SX before resetting this switch on an installed card.
4. Merging the memory of a RAM card with system memory destroys the contents of the RAM card.
5. Before removing a RAM card that contains merged memory, first free the merged memory. (Do not write-protect the RAM card whose merged memory is to be freed.)
6. Replace the battery of the RAM card only with the RAM card plugged in the HP 48SX **and** the calculator is turned ON.

2.2 Memory Card Tests

You can run the HP 48SX port RAM test to do a non-destructive testing of the plug-in CMT-48-128R RAM cards. Detailed instructions are provided in Appendix A of the HP 48SX Owner's Manual. A summary of the procedure follows:

1. Set the write-protect switch to the "READ/WRITE" position.
2. Hold down [ON] and press the white key labeled "D", then release the keys.
3. Press [▲].
4. Upon completion of a successful test, the message "OK" will appear to the right of the "RAM1" and or "RAM2" displayed on the screen.
5. To break out from the test, hold down [ON] and press the white key labeled "C", then release the keys.

There is no specific routine to run on the HP 48SX to test the EEPROM cards. You can suspect that a programmed card is bad or not properly plugged in if one of the following happens:

1. When you turn on the HP 48SX, the message "Invalid card data" is displayed.
2. The names of the programs in the card do not appear in the library menu.
3. When you attempt to run a program from the card, the HP 48SX displays "Invalid card data".

Appendix

Care of the Products:

1. Before using the products, read the instructions in this document and Section 34 of the HP 48SX Owner's Manual, "Using Plug-in Cards and Libraries".

2. When a memory card is not plugged into the HP 48SX or the CMT-48-P01, place it on your desk with the metal connector facing up. **Do not** let the metal connector come in contact with a conductive surface, such as a metal plate. Store or carry the card in the high-resistance anti-static plastic bag it originally came in. **Do not** wrap the CMT-48-128R or CMT-48-128KE memory card in plastic sheets or place in plastic bags that are not made of anti-static material.

3. **Do not** touch the exposed metal connectors of the memory cards with your fingers. If necessary, you may clean them with a swab moistened with rubbing alcohol.

4. With use, the coating on the metal fingers of the memory cards will gradually wear out. Do not plug or unplug the cards unnecessarily.

5. Use the products within their environmental specifications:

Operating temperature:	$0^{o}C$ to $45^{o}C$ ($32^{o}F$ to $113^{o}F$)
Storage temperature:	$-20^{o}C$ to $60^{o}C$ ($-4^{o}F$ to $140^{o}F$)
Operating and storage humidity:	90% relative humidity at $40^{o}C$ ($104^{o}F$) max

Battery Replacement:

Before replacing the battery of the RAM card, read the instructions given in Appendix A of the HP 48SX Owner's Manual (Vol II) - **"Changing a RAM Card Battery"**. Follow those instructions carefully to avoid losing valuable data. **Make sure that the battery is installed with the negative terminal facing the same side as the metal connector.**

Warranty and Service Information:

CMT-48-128R and CMT-48-128KE are warranted against defects in material and workmanship for a period of 90 days from the date of purchase. This warranty does not cover the batteries and any damages caused by the batteries. During this period, CMT will, at its option, either repair or replace these products if they prove to be defective.

This warranty shall not apply to defects or malfunctions resulting from improper or inadequate maintenance by the user, unauthorized modification, misuse or operation outside of the environmental specifications.

Should the CMT product require service, notify the Service Department of CMT.

Obtain a Return Authorization Number (RMA#) before returning any parts for repair. Make sure that the parts are properly packaged and the RMA# is clearly marked outside, as well as inside the package. The buyer shall prepay shipping charges to return the products to CMT for warranty service, repair or replacement. The buyer shall pay all shipping charges, duties and taxes for products returned to CMT from any country outside of the U.S.A.

Addendum to User's Instructions
for CMT-48-128R and CMT-48-128KE

Insert the CMT-48-128R or CMT-48-128KE card into the HP 48SX with the grip bar and Serial Number (eg. C10501269) closer to the back of the calculator.

When you turn on the HP 48SX after installing a RAM card for the first time into one of its ports, the HP 48SX displays "Invalid Card Data." This is because the RAM card has not yet been formatted by the HP 48 SX. Once you have merged the RAM card memory with the HP 48SX system memory, the RAM card becomes properly formatted.

To merge the memory in the CMT-48-128R RAM card installed in port 1 with built-in system memory:

1. Set the switch to READ AND WRITE position.

2. Execute the command

    [1][◄┐][MEMORY][NXT][NXT][MERGE]

To free the memory of the CMT-48-128R RAM card installed in port 1 and make it independent memory:

1. Set the switch to READ AND WRITE position.

2. Execute the command

    [◄┐][{ }][ENTER][1][◄┐][MEMORY][NXT][NXT][FREE]

If the card is inserted into port 2, substitute [2] for [1] in the above keystroke sequences.

For more information, see Chapter 34 in Volume II of the HP 48SX Owner's Manual (Page 635).