PCA7425

PROM Programming Adapter for M34570E8-XXXFP

User's Manual

Rev.1.00
August 1, 2003
REJ10J0256-0100Z

Renesas Technology
www.renesas.com

- TR4943, R4944A, R4945 and R4945A are trademarks of Advantest Corporation.

Keep safety first in your circuit designs!

- Renesas Technology Corporation and Renesas Solutions Corporation put the maximum effort into making semiconductor products better and more reliable, but there is always the possibility that trouble may occur with them. Trouble with semiconductors may lead to personal injury, fire or property damage. Remember to give due consideration to safety when making your circuit designs, with appropriate measures such as (i) placement of substitutive, auxiliary circuits, (ii) use of nonflammable material or (iii) prevention against any malfunction or mishap.

Notes regarding these materials

- These materials are intended as a reference to assist our customers in the selection of the Renesas Technology product best suited to the customer's application; they do not convey any license under any intellectual property rights, or any other rights, belonging to Renesas Technology Corporation, Renesas Solutions Corporation or a third party.
- Renesas Technology Corporation and Renesas Solutions Corporation assume no responsibility for any damage, or infringement of any third-party's rights, originating in the use of any product data, diagrams, charts, programs, algorithms, or circuit application examples contained in these materials.
- All information contained in these materials, including product data, diagrams, charts, programs and algorithms represents information on products at the time of publication of these materials, and are subject to change by Renesas Technology Corporation and Renesas Solutions Corporation without notice due to product improvements or other reasons. It is therefore recommended that customers contact Renesas Technology Corporation, Renesas Solutions Corporation or an authorized Renesas Technology product distributor for the latest product information before purchasing a product listed herein. The information described here may contain technical inaccuracies or typographical errors. Renesas Technology Corporation and Renesas Solutions Corporation assume no responsibility for any damage, liability, or other loss rising from these inaccuracies or errors. Please also pay attention to information published by Renesas Technology Corporation and Renesas Solutions Corporation by various means, including the Renesas home page (http://www.renesas.com).
- When using any or all of the information contained in these materials, including product data, diagrams, charts, programs, and algorithms, please be sure to evaluate all information as a total system before making a final decision on the applicability of the information and products. Renesas Technology Corporation and Renesas Solutions Corporation assume no responsibility for any damage, liability or other loss resulting from the information contained herein.
- Renesas Technology semiconductors are not designed or manufactured for use in a device or system that is used under circumstances in which human life is potentially at stake. Please contact Renesas Technology Corporation, Renesas Solutions Corporation or an authorized Renesas Technology product distributor when considering the use of a product contained herein for any specific purposes, such as apparatus or systems for transportation, vehicular, medical, aerospace, nuclear, or undersea repeater use.
- The prior written approval of Renesas Technology Corporation and Renesas Solutions Corporation is necessary to reprint or reproduce in whole or in part these materials.
- If these products or technologies are subject to the Japanese export control restrictions, they must be exported under a license from the Japanese government and cannot be imported into a country other than the approved destination. Any diversion or reexport contrary to the export control laws and regulations of Japan and/or the country of destination is prohibited.
- Please contact Renesas Technology Corporation or Renesas Solutions Corporation for further details on these materials or the products contained therein.

Precautions to be taken when using this product

- This product is a development supporting unit for use in your program development and evaluation stages. In mass-producing your program you have finished developing, be sure to make a judgment on your own risk that it can be put to practical use by performing integration test, evaluation, or some experiment else.
- In no event shall Renesas Solutions Corporation be liable for any consequence arising from the use of this product.
- Renesas Solutions Corporation strives to renovate or provide a workaround for product malfunction at some charge or without charge. However, this does not necessarily mean that Renesas Solutions Corporation guarantees the renovation or the provision under any circumstances.
- This product has been developed by assuming its use for program development and evaluation in laboratories. Therefore, it does not fall under the application of Electrical Appliance and Material Safety Law and protection against electromagnetic interference when used in Japan.

Renesas Tools Homepage http://www.renesas.com/en/tools

Contents

1. Precautions for Safety 4
1.1 Safety Symbols and Meanings 4
2. Introduction 6
2.1 Things to Check When Unpacking 6
3. Specifications 7
4. How to Write the Program 8
4.1 Programming Procedure 8
4.2 Attaching the Adapter to a PROM Programmer 9
4.3 Inserting an MCU into the Programming Adapter 9
4.4 Precautions When Opening and Closing the IC Socket 10
4.5 Precautions When Handling the Adapter 10
5. Recommended PROM Programmers 11
6. How to Request for Support 11

To use the product properly

Precautions for Safety:

- Both in this User's manual and on the product itself, several icons are used to insure proper handling of this product and also to prevent injuries to you or other persons, or damage to your properties.
- The icons' graphic images and meanings are given in "Chapter 1. Precautions for Safety" (page 4). Be sure to read this chapter before using the product.

1. Precautions for Safety

In both the User's manual and on the product itself, several icons are used to insure proper handling of this product and also to prevent injuries to you or other persons, or damage to your properties.

This chapter describes the precautions which should be taken in order to use this product safely and properly. Be sure to read this chapter before using this product.

1.1 Safety Symbols and Meanings

⚠ **WARNING**	If the requirements shown in the "WARNING" sentences are ignored, the equipment may cause serious personal injury or death.
⚠ **CAUTION**	If the requirements shown in the "CAUTION" sentences are ignored, the equipment may malfunction.
IMPORTANT	It means important information on using this product.

In addition to the three above, the following are also used as appropriate.

△ means WARNING or CAUTION.

Example: ⚠ **CAUTION AGAINST AN ELECTRIC SHOCK**

⃠ means PROHIBITION.

Example: **DISASSEMBLY PROHIBITED**

● means A FORCIBLE ACTION.

Example: **UNPLUG THE POWER CABLE FROM THE RECEPTACLE.**

The following page describes the symbols "WARNING", "CAUTION", and "IMPORTANT".

⚠ WARNING

Warnings for Use Environment:

- This equipment is to be used in an environment with a maximum ambient temperature of 35˚C. Care should be taken that this temperature is not exceeded.
- Select the proper programming mode of the PROM programmer.

⚠ CAUTION

Cautions to Be Taken for This Product:

- Do not disassemble or modify this product. Disassembling or modifying this product can cause damage. Disassembling and modifying the product will void your warranty.
- Use caution when handling this product. Be careful not to apply a mechanical shock such as falling.
- Do not directly touch the connector pins of this product.
- Be careful with the static electricity when handling this product and the MCU.

Caution for Keeping This Product:

- When not using this product for a long time:
  (1) Attach the connector pins of this product to the conductive sponge.
  (2) Put it into a conductive polyvinyl, and keep it in the package case shipped from the factory.
  (3) Store it in the place where humidity and temperature are low and direct sunshine does not strike.

IMPORTANT

When Using The Product:

- Attach this product to the IC socket on the PROM programmer properly.
- Insert the MCU to the IC socket of this product properly.
- When opening and closing the IC socket of this product, be sure to keep it horizontal.
- Be sure to set the programming area as described in this user's manual.
- Do not use the PROM programmer's device identification code readout function.

2. Introduction

The PCA7425 is a PROM programming adapter for Renesas 4500 Series of 4-bit microcomputers. The adapter is a tool that can be used to write a program into internal PROM of microcomputers using a commercially available PROM programmer.

This manual describes the specifications and operation of the PCA7425.

Figure 2.1 shows the external view of the PCA7425 and the constituent parts.

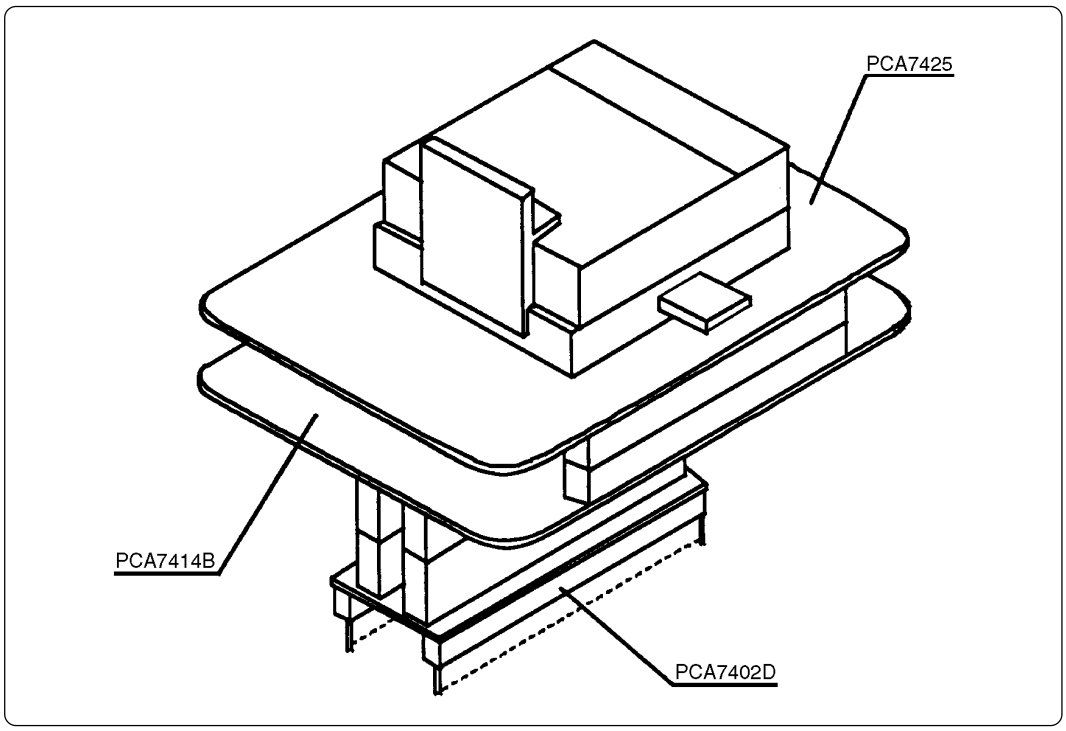

Figure 2.1 External view of the PCA7425 and its constituent parts

2.1 Things to Check When Unpacking

The PCA7425 package consists of the following parts. Check to see that it contains all of the components shown in below.

Contents of the PCA7425 package

Main unit	PCA7425
Interface unit	PCA7414B
Connector	PCA7402D (32-pin)
User's manual	This manual

If any part is missing or there is any doubt about your product package, contact your local distributor.

3. Specifications

Table 3.1 lists specifications of the PCA7425.

Table 3.1 Specifications of the PCA7425

MCU type		M34570E8-XXXFP
Operating clock frequency		1 MHz (Supplied by the ceramic oscillator mounted on the PCA7425.)
Power supply		Supplied from the Vcc of the PROM programmer
IC socket		IC51-0362-309 (Made by Yamaichi Electronics Co., Ltd.)
Board configuration	PCA7425	Board to insert a programmable MCU (IC socket for 36-pin SOP is mounted on this board.)
	PCA7414B	Interface board (Connected by two rows of standard-pitch 18-pin connectors and two rows of standard-pitch 16-pin connectors to the upper and lower boards.)
	PCA7402D	Board to be connected to the PROM programmer (Standard-pitch 28-pin pin-header to be connected to the PROM programmer is mounted.)

4. How to Write the Program

This chapter describes the programming procedure with a PROM programmer. For the operation of the PROM programmer, refer to the instructions of the PROM programmer.

4.1 Programming Procedure

Follow these procedures (1) through (6) to write the program into the MCU.

(1) Read the program.
Read the program into the PROM programmer.

▼

(2) Attach the adapter to the PROM programmer. (See Section 4.2)

▼

(3) Insert the MCU into the adapter. (See Section 4.3)

▼

(4) Check to erase the programming area.*
Using the PROM programmer's erase check function, check whether data can be written into the MCU's programming area.

▼

(5) Write the program into the MCU.*
Write the program into the programming area of the MCU using the PROM programmer.

▼

(6) Check to erase the programming area.*
Using the PROM programmer's erase check function, check whether data can be written into the MCU's programming area.

* Some PROM programmers automatically perform the procedures (4) through (6) written above.

4.2 Attaching the Adapter to a PROM Programmer

As shown in Figure 4.1, attach the pin No. 1 of the PCA7402D PROM programmer connector (Standard-pitch 28-pin pin-header mounted) to the pin No. 1 of the IC socket of the PROM programmer.

Be careful when attaching the adapter because incorrect insertion can cause fatal damage to the MCU.

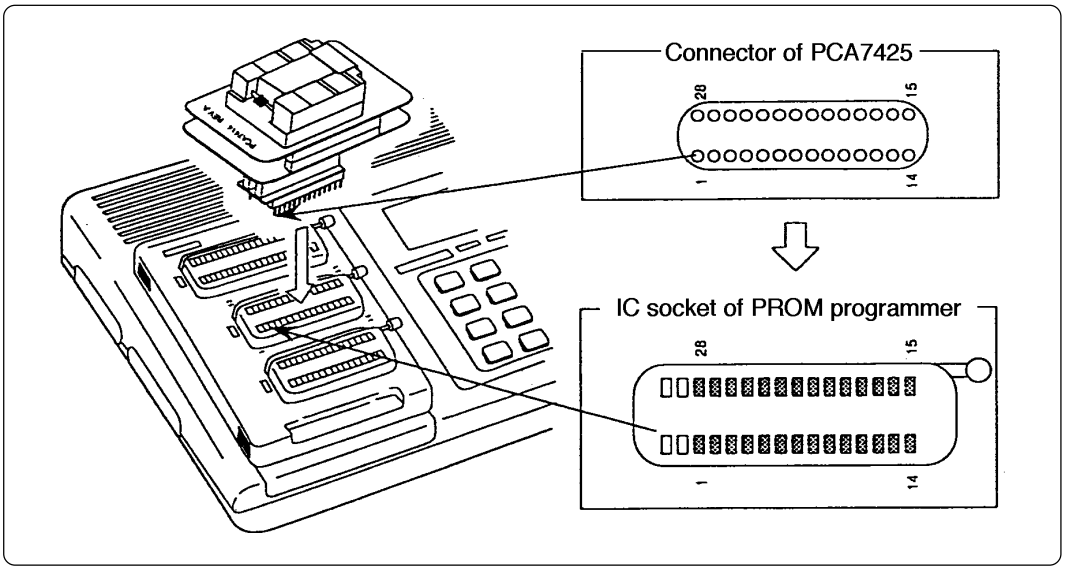

Figure 4.1 Attaching the adapter to a PROM programmer

4.3 Inserting an MCU into Programming Adapter

(1) As shown in Figure 4.2, set the slide bar of the IC socket to the right side (marked on the board).

(2) As shown in Figure 4.2, insert the MCU into the IC socket, with the pin No. 1 of the MCU matched to the pin No. 1 of the IC socket.

Be careful when inserting the MCU because incorrect insertion can cause fatal damage to the MCU.

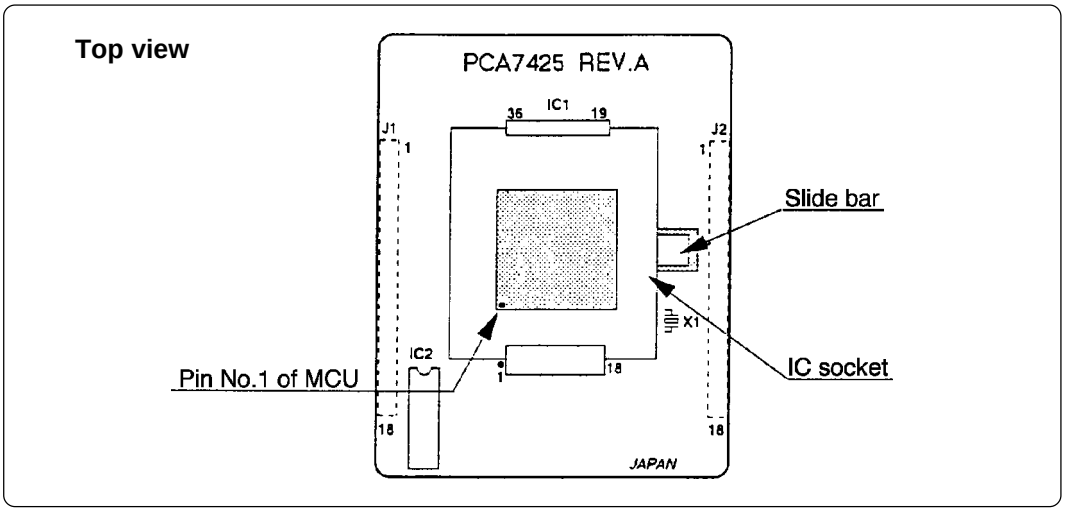

Figure 4.2 Inserting an MCU

4.4 Precautions When Opening and Closing the IC Socket

When opening and closing the IC socket to insert the MCU, hold the adapter horizontally. Otherwise the inside of the IC socket may become damaged and cause an electrical insulation failure. Figure 4.3 shows in diagrammatic form the opening and closing of the IC socket.

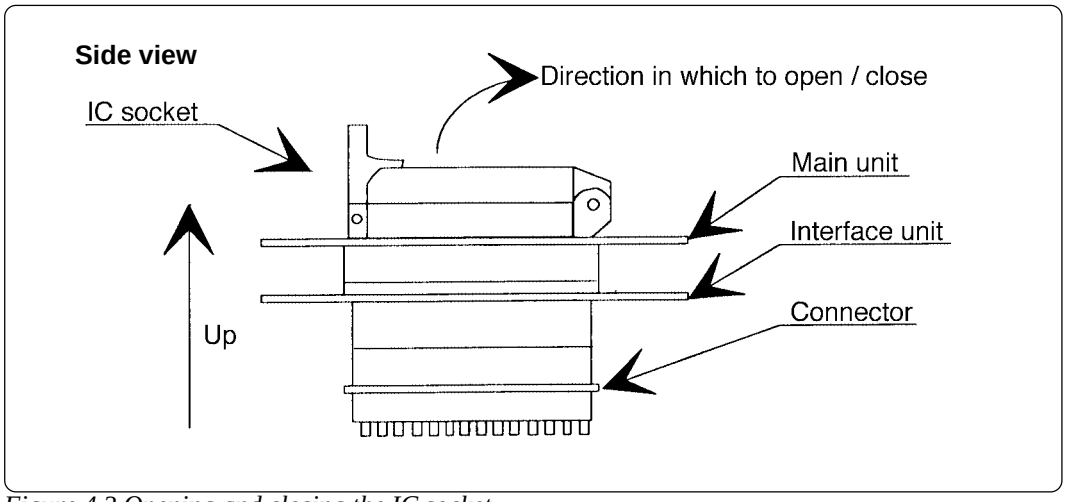

Figure 4.3 Opening and closing the IC socket

4.5 Precautions When Handling the Adapter

Do not touch the connector in the IC socket and the pins on the PROM programmer connector , otherwise it cause an electrical insulation failure because of dirt.

When not using, attach the connector pins of this product to the conductive sponge as it was shipped from the factory.

5. Recommended PROM Programmers

The PROM programmers listed in Table 5.1 are recommended for the adapter. Using the actual products, we have verified that these PROM programmers can be used to write programs without problem. Nonconformity occurring by using any other PROM programmers can not be supported. For the latest type of PROM programmers, contact the manufacturer to confirm whether it can be used for your product.

Table 5.1 Recommended PROM programmers

Manufacturer	Type name	Device	Programming voltage (V_{PP})
Advantest Corporation	TR4943	M5L27256 mode	12.5 V
	R4944A	M5M27C256 mode	
	R4945	M5M27C256A mode	
	R4945A	M5M27C256A mode	

6. How to Request for Support

After checking this manual, fill in the following information and email to your local distributor. For prompt response, please specify the following information:

(1) Contact address

- Company name
- Department
- Responsible person
- Phone number
- Fax number
- E-mail address

(2) Product information

- Name of the programming adapter
- Serial number
- Date of purchase
- Target MCU
- Symptoms (Fails blank check/Cannot write a program/Fails verification etc.)
- Detailed symptoms
- How often does the problem occur? (2 out of 10 etc.)
- When did the problem start to occur? (Since purchase/Used to work correctly)
- Type name of the PROM programmer (Advantest R4945A etc.)
- Specified device when writing to PROM (M27C101 etc.)
- Specified programming area when writing to PROM
- Switch settings of the adapter when writing to PROM

MEMO

PCA7425 User's Manual

Rev.1.00
August 1, 2003
REJ10J0256-0100Z

COPYRIGHT ©2003 RENESAS TECHNOLOGY CORPORATION
AND RENESAS SOLUTIONS CORPORATION ALL RIGHTS RESERVED

RENESAS

Renesas Technology Corp.
2-6-2, Ote-machi, Chiyoda-ku, Tokyo, 100-0004, Japan