To our customers,

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# H8S Series User System Interface Cable

## For H8S Series Compact Emulator

Microcomputer Development Environment System

User's Manual

2003.4

Renesas System Solutions Asia Pte.Ltd.
www.rss.renesas.com

# Microcomputer
# Development Environment System

# CE2000

## H8S Series User System Interface Cable
## For H8S/2215 TFP-120
## User's Manual

Renesas System Solutions Asia Pte. Ltd.

**H8S Series User System Interface Cable for Compact Emulator**
**User's Manual**

Published by : Renesas System Solutions Asia Pte. Ltd.
Date : April 1st, 2003, Version 1.0


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- **KEEP the user's manual handy for future reference.**

**Do not attempt to use the emulator product until you fully understand its mechanism.**

**Emulator Product:**
Throughout this document, the term 'emulator product' shall be defined as the following products produced only by Renesas System Solutions Asia Pte. Ltd.:

- Emulation system (SD01CE2238)
- User system interface cable (SD01UC2214TB2)
- User system interface cable (SD01UC2238FA0B)
- User system interface cable (SD01UC2215TC0)

The user system or a host computer is not included in this definition.

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This emulator product is a software and hardware development tool for systems employing the H8S series microcomputer. This emulator product must only be used for the above purpose.

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This emulator product should only be used by those who have carefully read and thoroughly understood the information and restrictions contained in the user's manual. Do not attempt to use the emulator product until you fully understand its mechanism.
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Renesas cannot anticipate every possible circumstance that might involve a potential hazard. The warnings in this user's manual and on the emulator product are therefore not all inclusive. Therefore, you must use the emulator product safely at your own risk.

# PREFACE

**About this manual**
This manual explains how to link the user cable to the Compact Emulator.

**Section 1** Introduction
Highlights the system package and specification.

**Section 2** Connection Procedures
Explains how to link the user system to the emulator via the user cable.

**Section 3** Dimensions of the User System Cable Head
Details the dimensions of the user system cable head needed.

**Section 4** Installing MCU to the user system
Describes the steps involved to place the MCU into the socket.

**Section 5** Warning
Emphasizes the precautionary measures when handling the user cable.

**Assumptions**

This manual assumes that the user has a working knowledge of

- Renesas Compact Emulator
- General Hardware Interface Circuitry

**Related Manuals:**

- Compact Emulator User's Manual
- H8S/2215 Series Hardware Manual

# Table of Contents

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# Section 1. Introduction

## 1.1 General Description

The user system interface cable (SD01UC2215TC0) connects the Compact Emulator (CE2000-H8S/2238) to the IC socket for a TFP 120-pin package. This user cable is able to support the H8S/2215 microcomputer.

This cable is required for the correct emulation of the H8S/2215 MCU. Unlike other user cables, it can work with or without the user target system.

## 1.2 IC Socket Type

The recommended IC socket used on the user system is from Yamaichi Electronics Co., Ltd. The part number for the TFP 120-pin package IC socket is given below:

- **IC149-120-043-B5**

## 1.3 Configuration

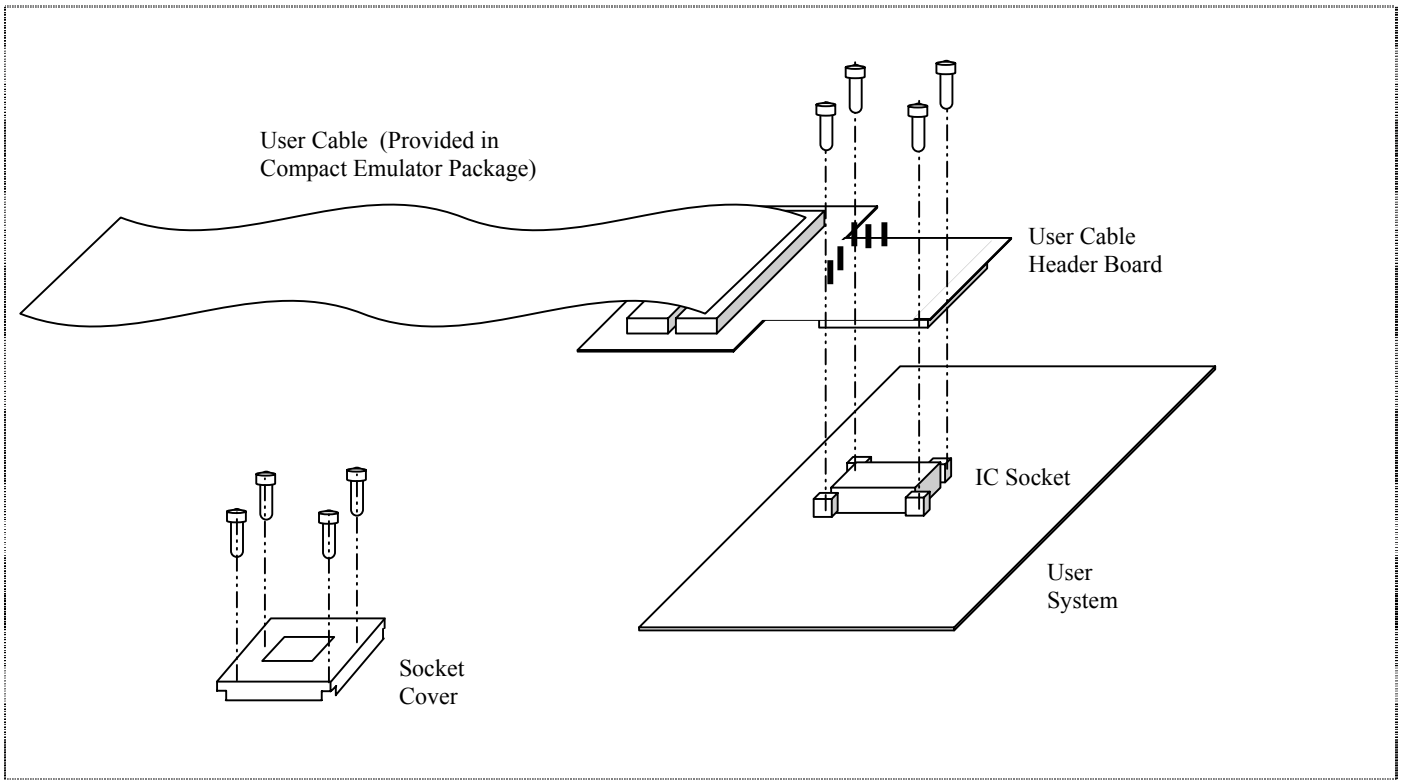


**Figure 1.1 SD01UC2215TC0 User System Interface Cable**

- Align pin 1 of the Adapter of user cable header to IC socket on the user system.
- Install Adapter to the socket with tightened screws.
- Connect the other ends of the 2 × 80-way connectors from the Compact Emulator to the User Cable header board.

## 1.4 Components

| No. | Component | Quantity | Remarks |
|---|---|---|---|
| 1 | User Cable Header Board | 1 | |
| 2 | IC Socket | 1 | For TFP 120-pin package |
| 3 | Socket Cover | 1 | For installing the MCU |
| 4 | Screws (M2×12) | 4 | For fastening cable head (with four flat washers) |
| 5 | Screws (M2×8) | 4 | For installing MCU (with four flat washers) |
| 6 | User's Manual | 1 | |

Note: The 2 × 80-way user cable assemblies are already provided in the Compact Emulator package.

# Section 2. Connection Procedures

WARNING: Always switch OFF the user system and the emulator product before the USER SYSTEM INTERFACE CABLE is connected to or removed from either of the boards. Before connecting, make sure that pin 1 is correctly aligned. Failure to do so may result in a FIRE HAZARD, which may damage the user system and the emulator product. PERSONAL INJURY may also be resulted.

## 2.1 Connecting User System Interface Cable to The Emulator

To connect the cable body to the emulator, follow the instructions below:

- Make sure the user system and emulator are powered off.
- Open the cover at the bottom of the emulator.
- Align the connectors on the cable body with those on the emulator according to the specified number, insert the cable body connectors to those on the emulator until they are locked. Refer to figure 2.1.

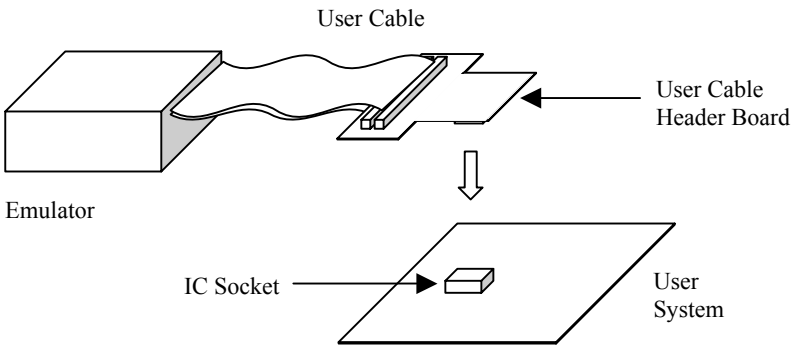


**Figure 2.1 Connect User System Interface Cable to the Emulator**

## 2.2 Connecting User System Interface Cable to User System

### 2.2.1 Soldering IC Socket

- Apply epoxy resin adhesive to the corner guides and bottom face of an IC socket for the TFP 120-pin package and fasten it to the user system.

- Align pin 1 on the IC socket with pin 1 on the user system interface cable head, and insert the user system interface cable head into the IC socket on the user system as shown in figure 2.2.

- Fasten the user system interface cable to the IC socket on the user system with the four screws provided. Each screw should be tightened a little at a time, alternating between screws on opposite corners. Use special care to prevent the soldered IC socket from being damaged by over-tightening the screws or twisting the components.

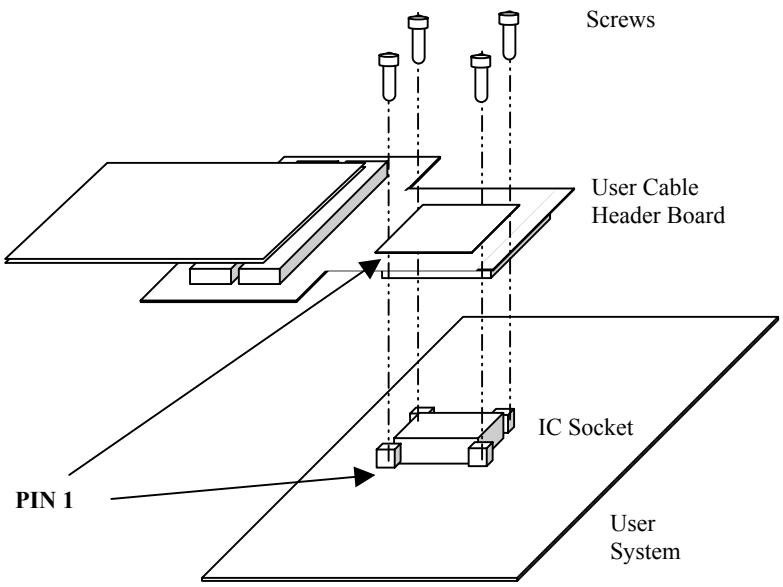


**Figure 2.2 Connecting User System Interface Cable to User System**

### 2.2.2 Jumpers Setting of the User Cable

The jumpers provide selection of:

1. main clock input
2. USB port
3. 48MHz clock input
4. emulation without target

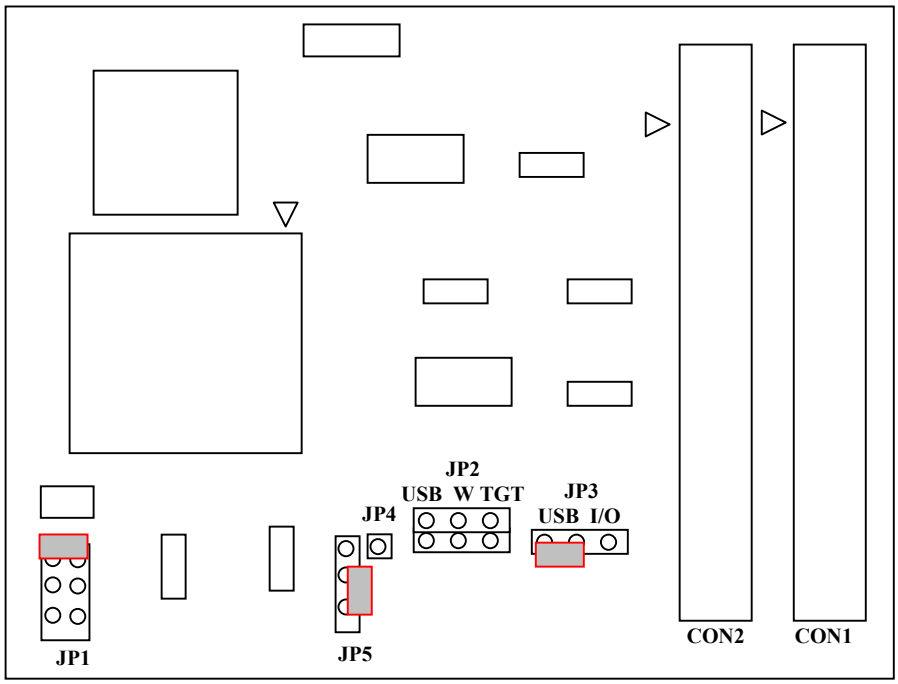


**Figure 2.3 Jumper Setting**

| Jumper | Description | Selection | Remark |
|---|---|---|---|
| JP1 | 48MHz selection | * Internal | On-board 48MHz clock for USB emulation |
| | | Target | 48MHz Clock input via target board |
| | | Target Crystal | 48MHz Clock input via target board crystal |
| | | | |
| JP2 | Emulation with target | *USB W TGT | Emulation of H8S/2215 with target board connected |
| | | Without target | Emulation of H8S/2215 without target board connected |
| | | | |
| JP3 | PORT Select | *USB | |
| | | I/O (Port 1) | |
| | | | |
| JP4 | Clock Input (Probe) | | Main Clock Input based on JP5 selection |
| | | | |
| JP5 | Main clock selection | Probe | Main Clock input at JP4 |
| | | *Target | Main Clock input via target board crystal |
| | | | |

*** Default Setting**

**WARNING**: Users are reminded to remove all the 3 jumpers for JP2 when the user cable is connected to the target system.

# Section 3. Dimensions of User Cable System

The dimensions for the recommended mount pad (footprint) for the user system shown in figure 3.1 for the IC socket used on a TFP-120-pin package manufactured by Yamaichi Electronics Co., Ltd. Note that the dimensions in figure 3.1 are slightly different from the dimensions of the actual chip mounting pad.

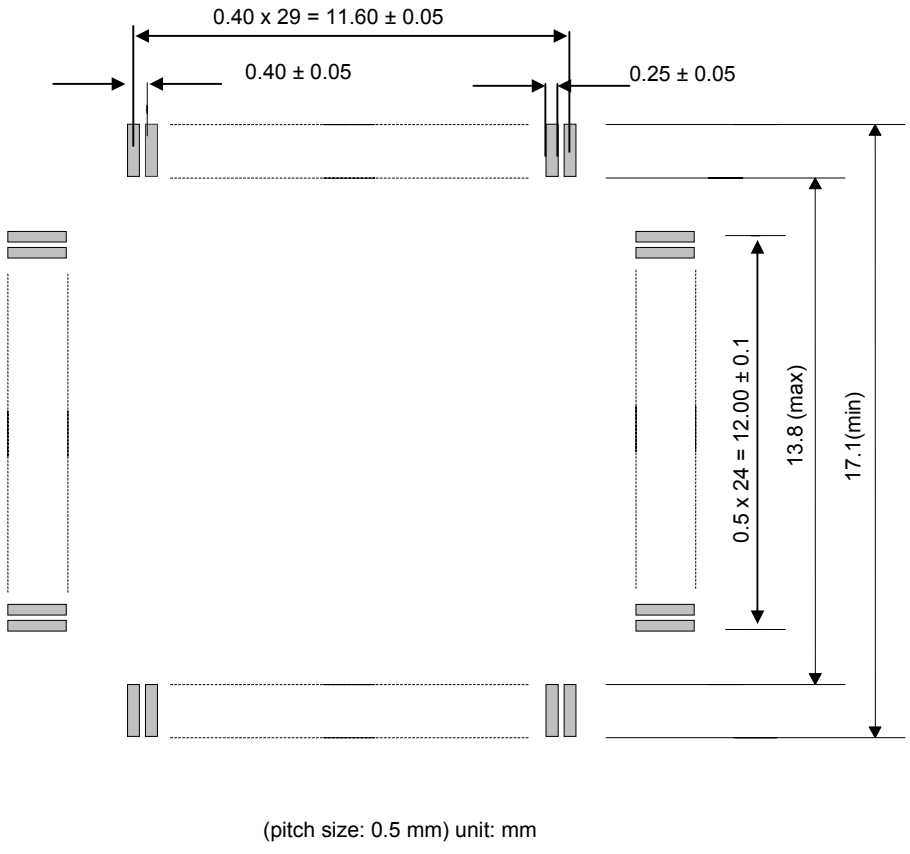


**Figure 3.1 PCB Footprint of User System Interface Cable Head**

The dimensions for the user system interface cable head is shown in figure 3.2.

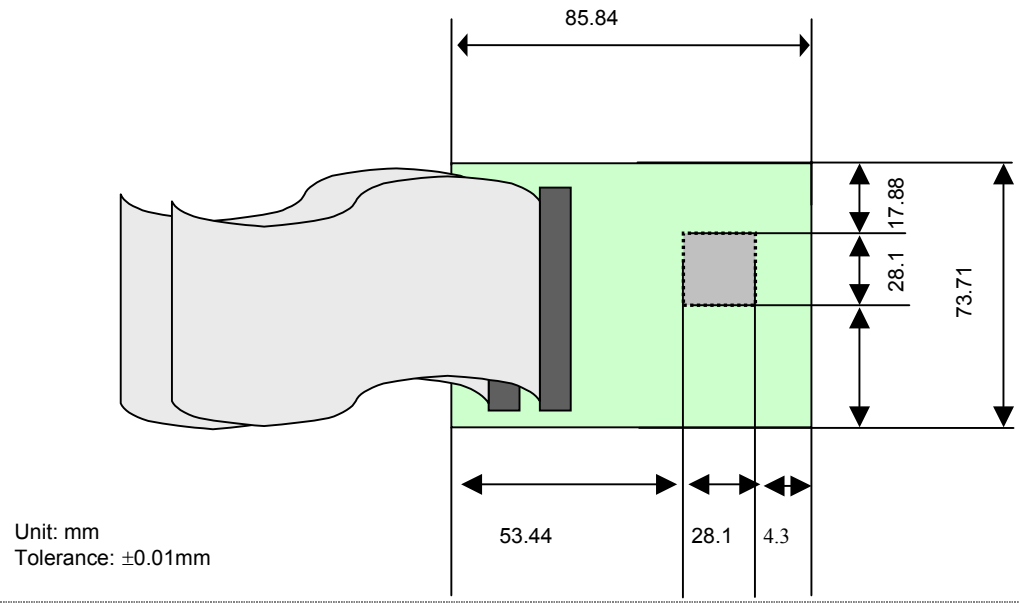


**Figure 3.2 User System Interface Cable (TOP View)**

The dimensions after connecting to User System Interface Cable to the user system.

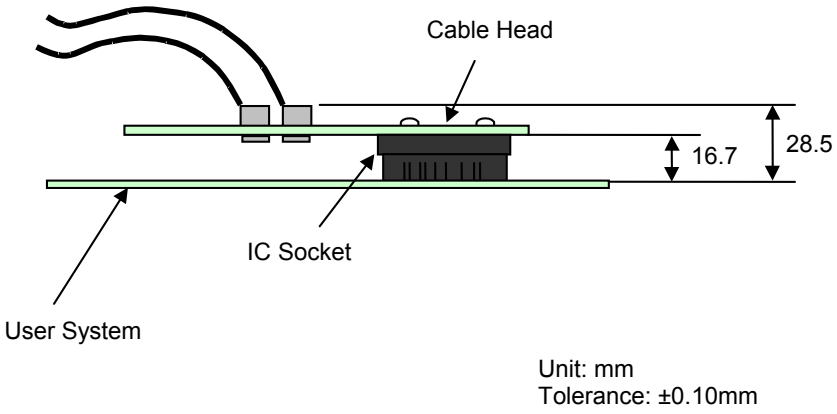


**Figure 3.3 User System Interface Cable (Side View)**

# Section 4. Installing MCU to the User System

- Check the location of pin 1 before inserting the MCU into the IC socket on the user system as shown in figure 4.1.
- After inserting the MCU, fasten the socket cover with the four screws provided.
- Take special care, such as manually securing the IC socket soldered area, to prevent the soldered IC socket from being damaged by over-tightening the screws or twisting the component.

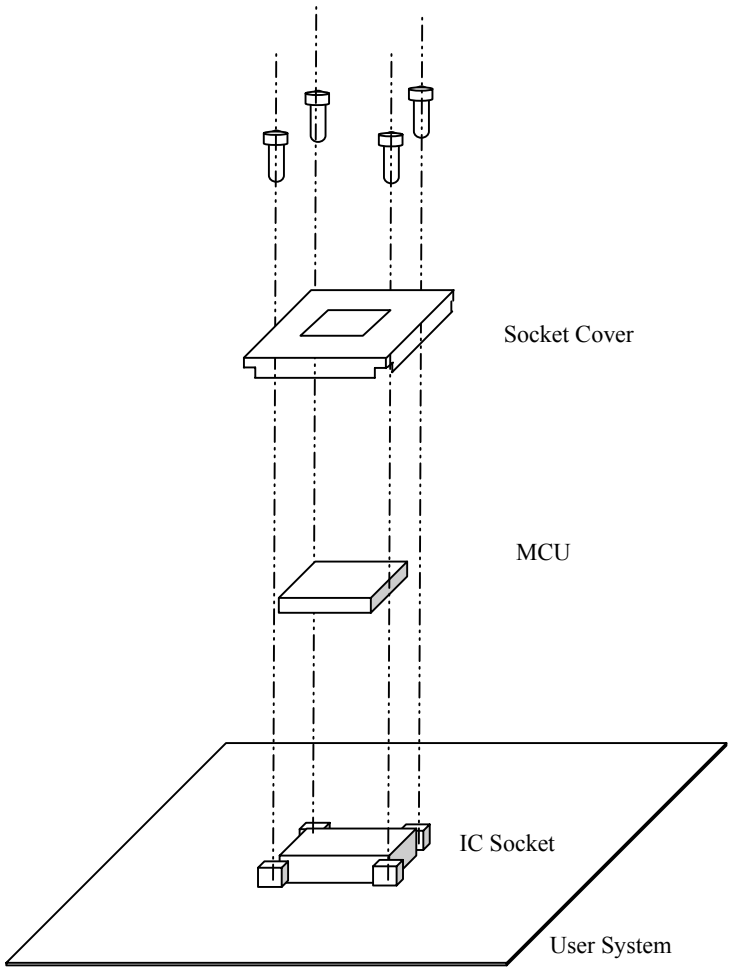


**Figure 4.1 Installing MCU to User System**

# Section 5. Warnings

- Make sure that pin 1 on the IC socket is correctly aligned with pin 1 on the cable head before inserting the cable head into the IC socket on the user system.
- Do not apply excessive force to the user system interface cable while it is connected to the user system.
- The dimensions of the recommended footprint for the IC socket are different from those of the actual chip.
- This user system interface cable is specifically designed for the Compact Emualtor. Do not use this cable with any other emulator.

While the emulator is connected to the user system with the user system interface cable, force must not be applied to the cable head

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# H8S Series User System Interface Cable

Renesas System Solutions Asia Pte. Ltd.