



E2 emulator Lite RTE0T0002LKCE00000R Manual

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Important

Before using the emulator, be sure to read this manual carefully.

Keep this manual, and refer to it when you have questions about the emulator.

When using the emulator:

- (1) Renesas Electronics Corporation cannot predict all possible situations and possible cases of misuse that carry a potential for danger. Therefore, the warnings in this manual and the warning labels attached to the emulator do not necessarily cover all such possible situations and cases. The customer is responsible for correctly and safely using the emulator.
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Some diagrams in this manual may differ from the objects they represent.

Precautions for Safety

This chapter, by showing the relevant diagrammatic symbols and their meanings, describes the precautions which should be taken in order to use this product safely and properly. Be sure to read and understand this chapter before using this product.

Contact us if you have any questions about the precautions described here.



WARNING

WARNING indicates a potentially dangerous situation that will cause death or heavy wound unless it is avoided.



CAUTION

CAUTION indicates a potentially dangerous situation that will cause a slight injury or a medium-degree injury or property damage unless it is avoided.

To avoid a possible danger, the following diagrammatic symbols are used to call your attention.

△ 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.



WARNING

Warnings for AC Power Supply:



Do not repair or remodel the emulator product by yourself in order to prevent danger such as an electric shock or fire and for the sake of quality assurance. For after-sale services in case of a mechanical or electrical fault, please contact your local distributor.

Always switch off the Host machine and user system before connecting or disconnecting any cables or parts. Neglect of this precaution will result in getting an electric shock or will result in the emulator product or user system emitting smoke or catching fire. Also, the user program under debug will be destroyed.

Make sure that the connectors on both ends of the user-system interface cable are facing the right way relative to the user-side connector on the emulator and the connector on the user system, respectively.

Neglect of this precaution will result in getting an electric shock or will result in the emulator product or user system emitting smoke or catching fire.

Warning for Modification:



Do not modify the emulator. Personal injury due to electric shock may occur if the emulator is modified. Modifying the product will void your warranty.

Warning for Installation:



Do not set the emulator in water or areas of high humidity. Make sure that the product does not get wet. Spilling water or some other liquid into the product may cause un-repairable damage.

Warning for Use temperature:



The emulator is to be used in an environment with an ambient temperature during operation no greater than 35°C.

Care should be taken that this temperature is not exceeded.



CAUTION

Caution to Be Taken for Handling the Emulator:



Exercise caution when handling the emulator. Be careful not to apply a mechanical shock.

Do not operate switches before removing static electricity from the operator's body. Doing so may lead to the discharge of static electricity and so damage the internal circuits. Also, do not directly touch connector pins.

When attaching and removing the cable, hold a fixture (such as a connector) to avoid pulling the cable.

Caution to Be Taken for System Malfunctions:



If the emulator malfunctions because of interference like external noise, do the following to remedy the trouble.

- (1) Exit the emulator debugger, and shut OFF the emulator and the user system.
- (2) After a lapse of 10 seconds, turn ON the power of the emulator and the user system again, then launch the emulator debugger.

Caution to Be Taken for Disposal:



Penalties may be applicable for incorrect disposal of this waste, in accordance with your national legislation.

WEEE Directive (2012/19/EU)

The Waste Electrical and Electronic Equipment Regulations 2013

For customers in the UK & European Union



The WEEE (Waste Electrical and Electronic Equipment) regulations put responsibilities on producers for the collection and recycling or disposal of electrical and electronic waste. Return of WEEE under these regulations is applicable in the UK and European Union.

This equipment (including all accessories) is not intended for household use. After use the equipment cannot be disposed of as household waste, and the WEEE must be treated, recycled and disposed of in an environmentally sound manner. Renesas Electronics Europe GmbH can take back end of life equipment. Register for this service at;

<https://www.renesas.com/eu/en/support/regional-customer-support/weee>

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User Registration

Renesas Electronics requests that customers who have purchased tool products register as users. After registration, customers can receive Tool News summarizing information on the release of new products, updating of versions, and usage notes by e-mail.

For details, refer to “Information about Tool User Registration” at the link below.

Tool User Registration: <https://www.renesas.com/software-tool/tool-user-registration>

User registration is available through “My Renesas”: <https://www.renesas.com/myrenesas>

Your registered information is only for use in after-sale services. Without user registration, you will not be able to receive maintenance services such as notifications of field changes or information on defects or problems. So be sure to register as a user.

Terminology

Some specific words used in this manual are defined below.

Integrated development environment

This tool provides powerful support for the development of embedded applications for Renesas microcomputers. It has an emulator debugger function allowing the emulator to be controlled from the host machine via an interface. Furthermore, it permits a range of operations from editing a project to building and debugging it to be performed within the same application. In addition, it supports version management.

Emulator debugger

This means a software tool that is started up from the integrated development environment, and controls the emulator and enables debugging.

Programming software

This means Renesas Flash Programmer that is available on the emulator.

Host machine

This means a personal computer used to control the emulator.

Target device

This means the device to be debugged.

User system

This means a user's application system in which the device to be debugged is used.

User program

This means the application program to be debugged.

User-system interface

This means the interface that the E2 emulator Lite connects to a user's application system.

SCP

This is an abbreviation of "self-check program".

1. Outline

This chapter describes the package components, the system configuration, and the specifications of the emulator functions and operating environment.

1.1 Features of the E2 emulator Lite from Renesas

The E2 emulator Lite (RTE0T00020LKCE00000R; hereafter referred to as the E2 Lite) from Renesas is a tool for debugging user programs in combination with a debugger such as CS+ or e² studio. It is equipped with a downloading function to flash memory, etc., enabling efficient debugging using these features.

The E2 Lite is also usable as a flash programming tool (Renesas Flash Programmer).

1.2 Configuration of Manuals

Documentation for the E2 Lite manual is in two parts. In using the E2 Lite, please be sure to read each of them.

- The E2 emulator Lite manual (this manual)
- The supplementary manual for E2 emulator, E2 emulator Lite, or E1/E20 emulator (for each device)

This manual describes mainly the hardware specifications of the E2 Lite. For information on emulator debuggers and other related products, please see the supplementary manuals and application notes included with each product.

You can download the latest manuals from the Renesas Tools homepage.

<https://www.renesas.com/e2lite>

For the restrictions on the target device, also read the following documents.

- Manual for the target device
- Documents describing restrictions on the target device

1.3 Package Components

The E2 Lite package consists of the following items. After you have unpacked the box, check if your E2 Lite contains all of these items. Table 1.1 shows the packing components for the E2 Lite.

Table 1.1 Package Components for the E2 Lite

Item	Description	Quantity
E2 Lite main unit	RTE0T00020LKCE00000R	1
USB interface cable	A plug — mini-B plug, 1.0 m	1
14-pin user-system interface cable	14-pin flat cable, 15 cm	1

1.4 System Configuration

The E2 Lite is used by connecting it to the target device mounted on the user system.

Figure 1.1 shows the configuration of the E2 Lite system.

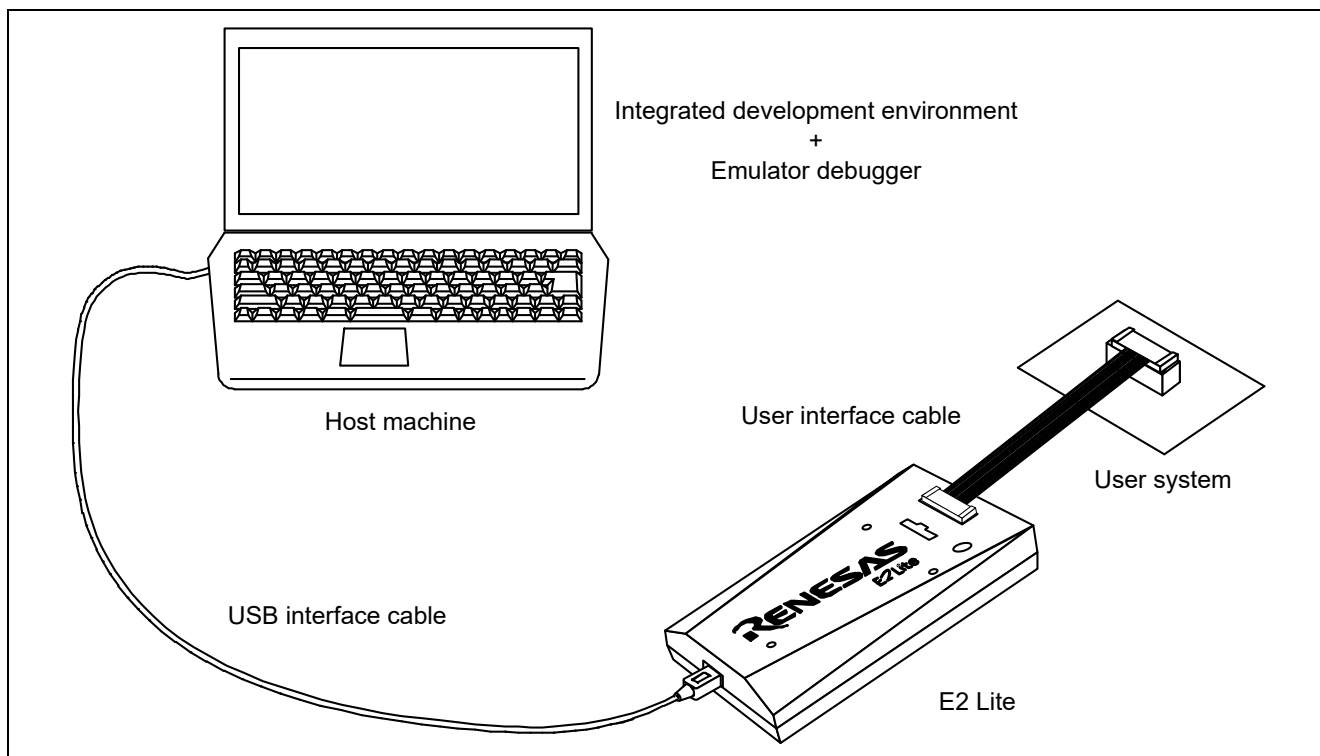


Figure 1.1 System Configuration of the E2 Lite

- (1) E2 Lite (this product)
- (2) USB interface cable (included)
- (3) 14-pin user-system interface cable (included)
 - 20-pin to 20-pin user-system interface cable; type name: RTE0T00020KCAC0000J (separately available)
 - 20-pin to 10-pin user-system interface cable; type name: RTE0T00020KCAC1000J (separately available)
- (4) User system
- (5) Host machine

1.5 PC Interface

- USB Interface*

USB 2.0 full speed (also connectable to USB 1.1- and USB 3.0-compatible host machines)

Note: Operation with all combinations of host machine, USB device, and USB hub is not guaranteed.

1.6 Specifications

Table 1.2 lists the specifications of the E2 Lite.

Table 1.2 Specifications of the E2 Lite

Item	Description
Emulator type	E2 emulator Lite Type name: RTE0T0002LKCE00000R
PC interface	USB 2.0 (full speed)
Target interface	14-pin (2.54-mm pitch) connector 20-pin (1.27-mm pitch) connector (when using RTE0T00020KCAC0000J) 10-pin (1.27-mm pitch) connector (when using RTE0T00020KCAC1000J)
Power voltage for the emulator	USB-bus power supply (VBUS 4.5 V min. / 500 mA max.)
Power supply for the target device	Supplied from the user system or the emulator (3.3 V: 200 mA max.*)
External dimension (main body)	96.2 mm × 52.7 mm × 17.2 mm
Weight	47 g

Note: When 500 mA is supplied from USB VBUS

1.7 Regulatory Compliance Notices

1.7.1 European Union regulatory notices

This product complies with the following EU Directives. (These directives are only valid in the European Union.)

CE Certifications:

- Electromagnetic Compatibility (EMC) Directive 2014/30/EU
EN 55032 Class A

WARNING: This is a Class A product. This equipment can cause radio frequency noise when used in the residential area. In such cases, the user/operator of the equipment may be required to take appropriate countermeasures under his responsibility.

EN 55035

- Information for traceability
 - Authorized representative & Manufacturer
Name: Renesas Electronics Corporation
Address: TOYOSU FORESIA, 3-2-24, Toyosu, Koto-ku, Tokyo 135-0061, Japan
 - Person responsible for placing on the market
Name: Renesas Electronics Europe GmbH
Address: Arcadiastrasse 10, 40472 Dusseldorf, Germany
 - Trademark and Type name
Trademark: Renesas
Product name: E2 emulator Lite
Type name: RTE0T0002LKCE00000R

Environmental Compliance and Certifications:

- Waste Electrical and Electronic Equipment (WEEE) Directive 2012/19/EU

1.7.2 United States regulatory notices

This product complies with the following EMC regulation. (This is only valid in the United States.)

FCC Certifications:

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

CAUTION: Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

1.8 E2 Lite Hardware Configuration

As shown in Figure 1.2, the E2 Lite consists of the E2 Lite main unit, a USB interface cable, and a user-system interface cable. The emulator is connectable to the host machine via a USB port compliant with USB 2.0 (Full-Speed) or USB 1.1.

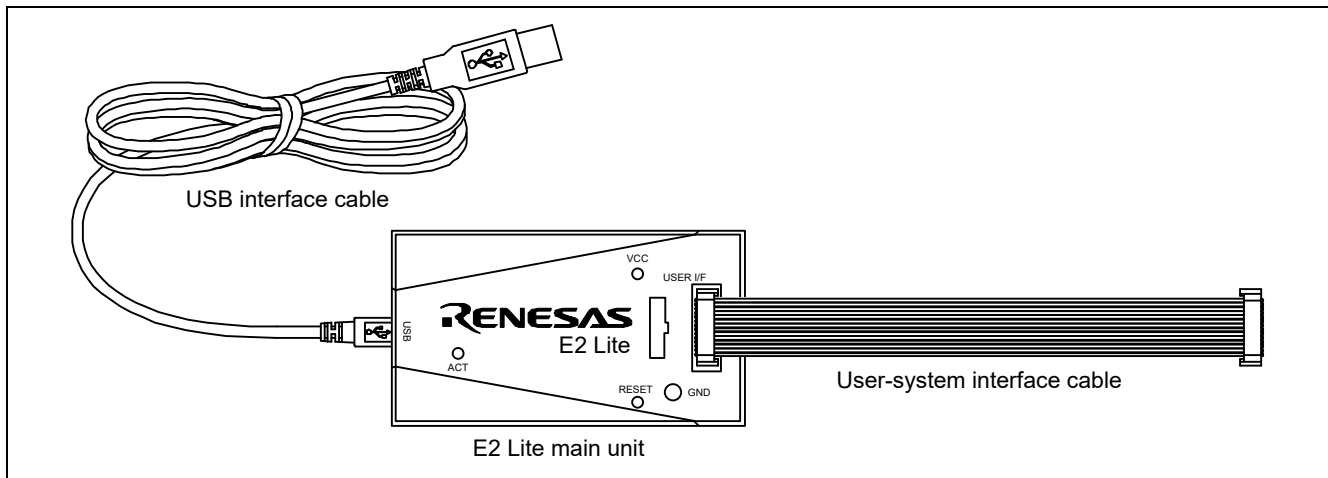


Figure 1.2 E2 Lite Hardware Configuration

1.9 Names of the Emulator Parts

The names of the parts of the E2 Lite are given in Figure 1.3 to Figure 1.5.

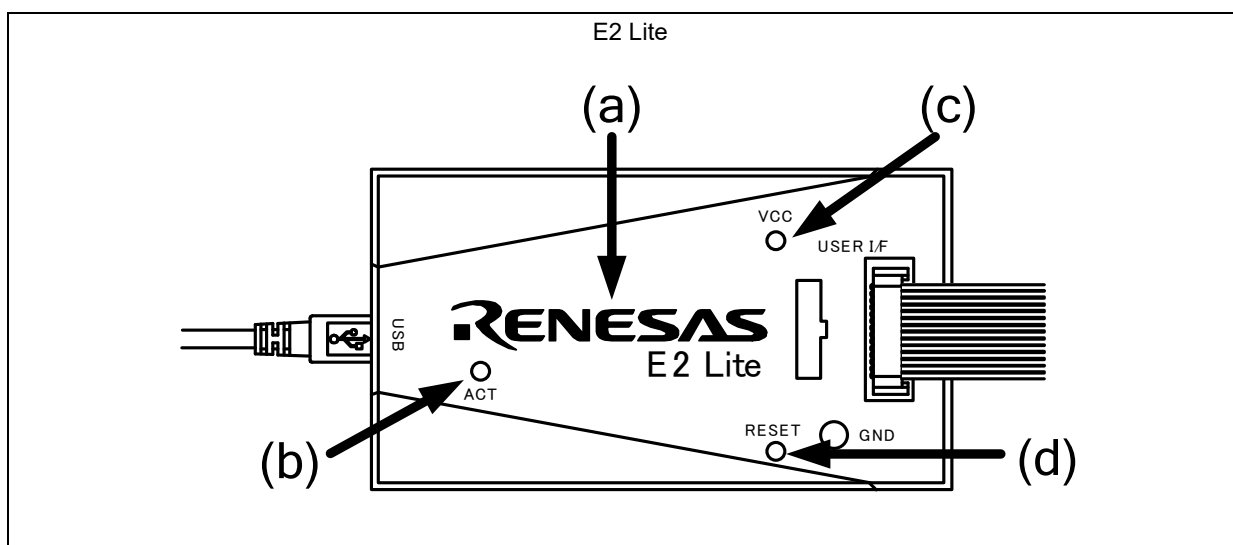


Figure 1.3 E2 Lite Top View

(a) Logotype	The casing bears the "RENESAS E2 Lite" logotype.
(b) ACTIVE LED	Marked 'ACT'. This LED indicates the operating state of the E2 Lite control software. You can check whether the USB driver is recognized in Device Manager. For the new USB driver (USB driver released with debuggers released in or after July 2026) Illuminated: Indicates that the host machine has recognized the E2 Lite as a USB device. Blinking: Indicates that the USB driver is disabled. Not illuminated: Indicates that the E2 Lite cannot be used for some reason. For the legacy USB driver (USB driver released with debuggers released before July 2026) Illuminated: Indicates that the E2 Lite is connected to the emulator debugger. Blinking: Indicates that the USB driver is disabled, or that the host machine has recognized the E2 Lite as a USB device. Not illuminated: Indicates that the E2 Lite cannot be used for some reason.
(c) VCC LED	Marked 'VCC'. This LED indicates the current state of power supply to the user system. Illuminated (orange): The emulator is supplying power to the user system or external power for the user system is on. Not illuminated: The user system is not being supplied with power.
(d) RESET LED	Marked 'RESET'. This LED indicates whether or not the signal on the target device RESET pin of the user system is being enabled. Illuminated: The reset signal is enabled. Not illuminated: The reset signal is disabled.

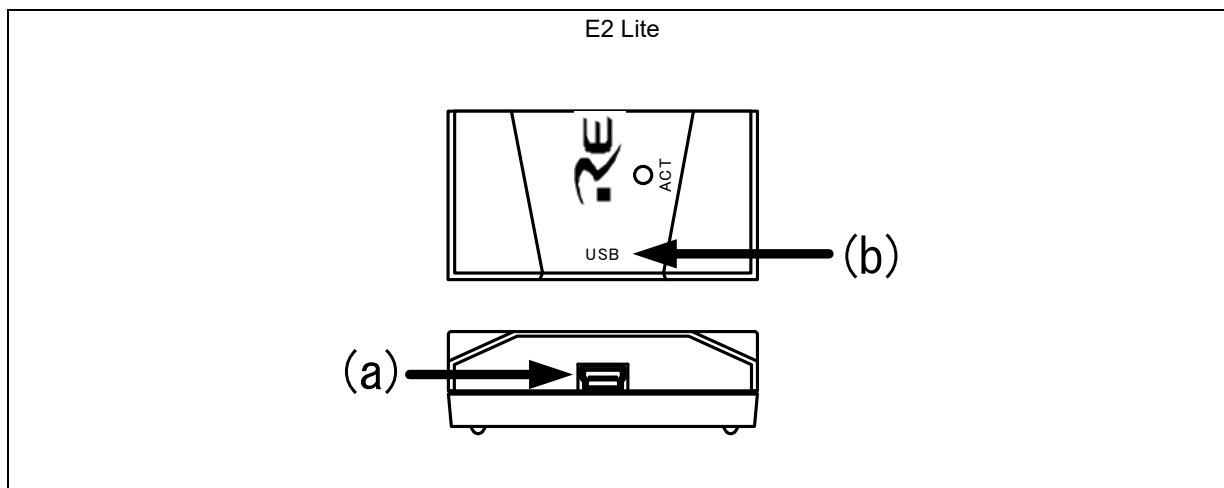


Figure 1.4 E2 Lite Host-Side View

(a) Host-side connector	A USB connector for the host machine. Be sure to connect the provided USB interface cable.
(b) Host-side connector mark	Marked "USB". A connector for the host machine is provided at the side of this mark.

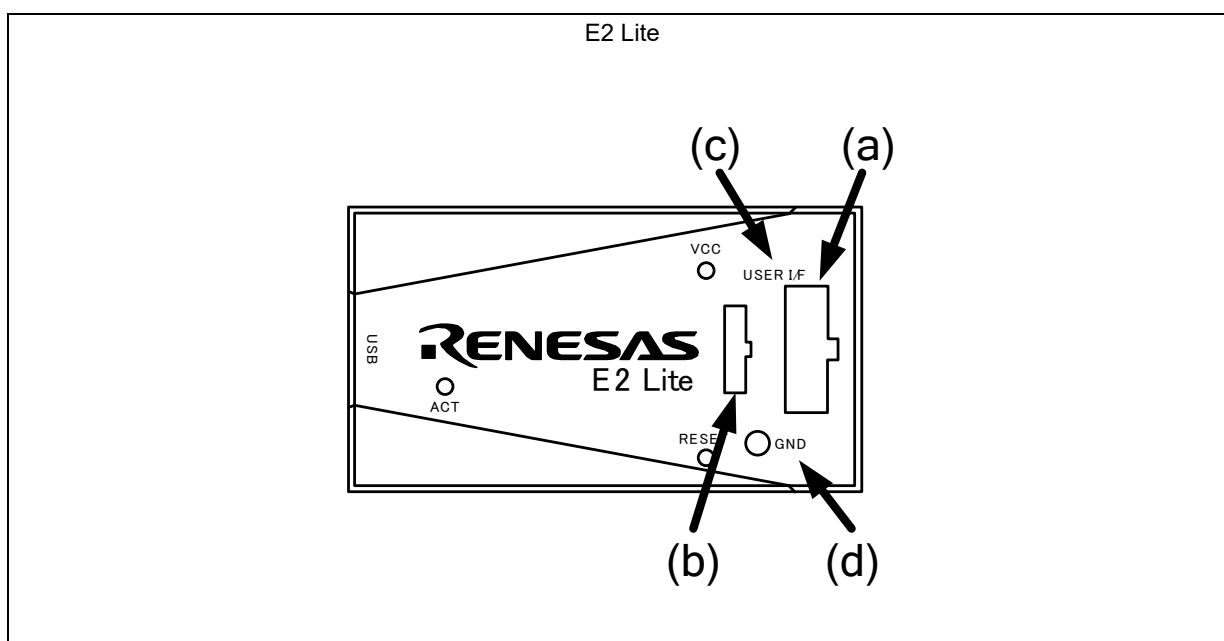


Figure 1.5 E2 Lite User-Side Top View

(a) 14-pin user-side connector	This is for the connection of a 14-pin user-system interface cable.
(b) 20-pin user-side connector	This is for the connection of a 20-pin to 20-pin user-system interface cable (separately available) or a 20-pin to 10-pin user-system interface cable.
(c) User-side connector mark	Marked "USER I/F". The connectors for the user-system interface cables is placed to the side of this mark.
(d) GND	This is not used.

1.10 Operating Environment

Observe the conditions listed in Table 1.3 when using the emulator.

Table 1.3 Operating Environmental Conditions

Item	Description
Temperature	Operating: +5°C to +35°C Storage: –10°C to +60°C
Humidity	35% RH to 80% RH, no condensation
Vibration	Operating: 2.45 m/s ² max. Storage: 4.9 m/s ² max. Transportation: 14.7 m/s ² max.
Ambient gases	No corrosive gases may be present.

2. Setup

2.1 Installing Emulator Software

If you are using the E2 Lite, download and install the latest integrated development environment or flash memory programming software from the following Web site.

https://www.renesas.com/e2lite_download

2.2 Connecting the E2 Lite to the Host Machine

Use the USB interface cable supplied with the product to connect the E2 Lite to the host machine as shown in Figure 2.1.

For the position of each connector of the E2 Lite, refer to section 1.7, Names of the Emulator Parts.

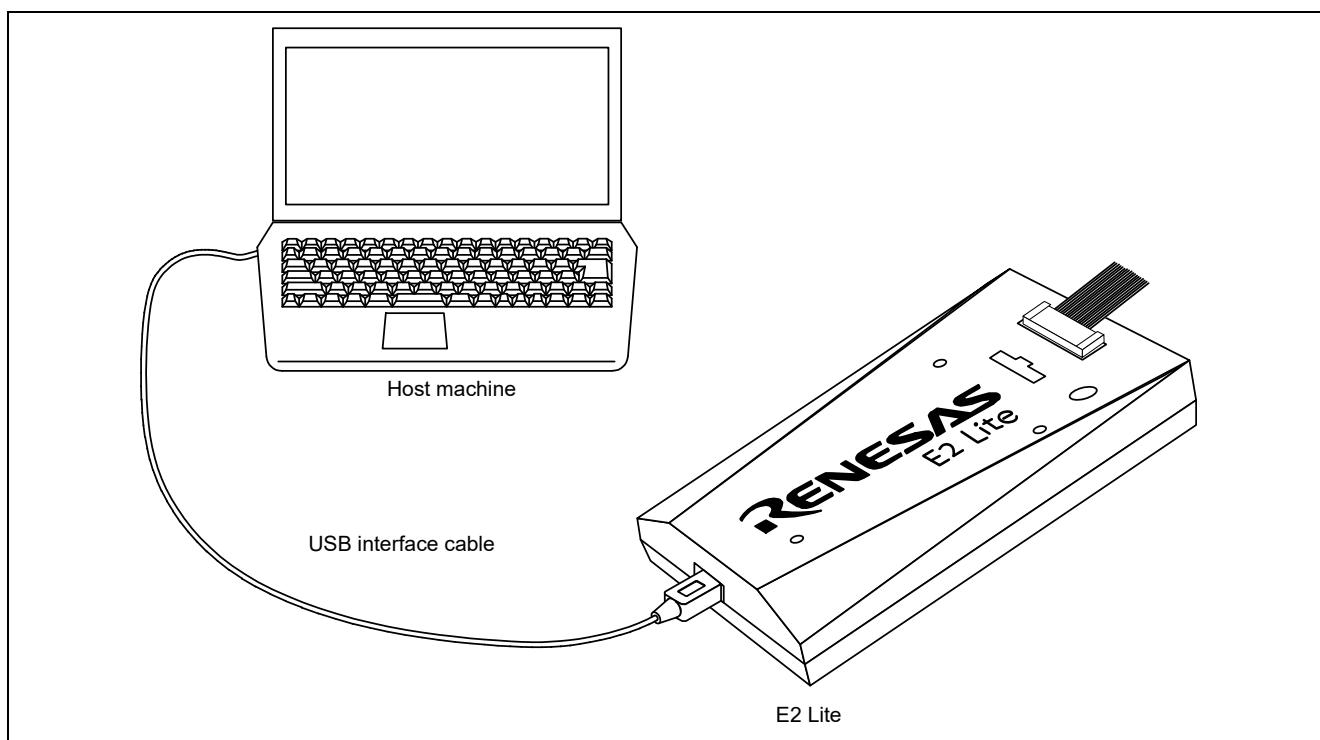


Figure 2.1 System Configuration when Connecting the E2 Lite to the Host Machine

- (1) Connect the A plug of the USB interface cable to the USB interface connector of the host machine.
- (2) Connect the mini-B plug of the USB interface cable to the USB interface connector of the E2 Lite.

When you use the E2 Lite, be sure to use the USB interface cable supplied with the product.

The E2 Lite is turned on by connecting the USB interface cable.

Do not connect the E2 Lite to your host machine before having installed the integrated development environment or Flash Programming software you will be using. The USB driver is automatically installed.

If the USB port of the host machine or the emulator to be connected is changed, the USB driver will be re-installed.

2.3 Connecting the E2 Lite to the User System

Use the procedure below to connect the E2 Lite to the user system with the user-system interface cable, or to disconnect them when moving the E2 Lite or the user system.

(1) Connect the user-system interface cable to the user-side connector of the E2 Lite.

When connecting the user-system interface cable to the E2 Lite, check the position of the erroneous insertion prevention key to ensure that the cable is plugged in correctly.

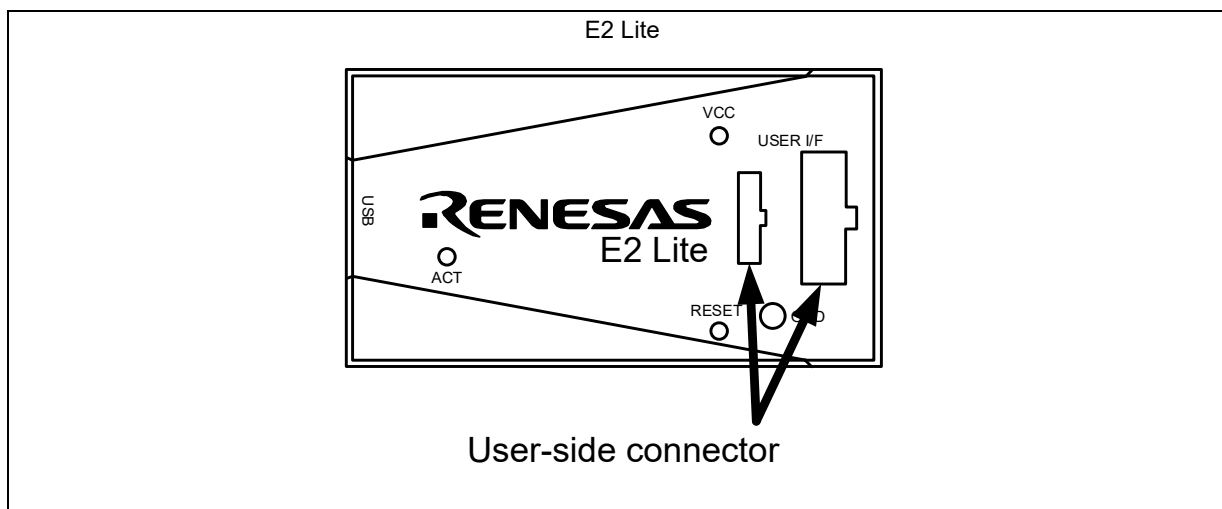


Figure 2.2 User-Side Connector on the E2 Lite

CAUTION

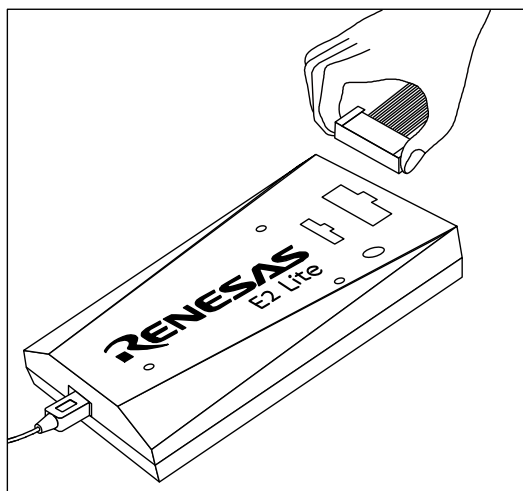
Notes on connector insertion and removal:



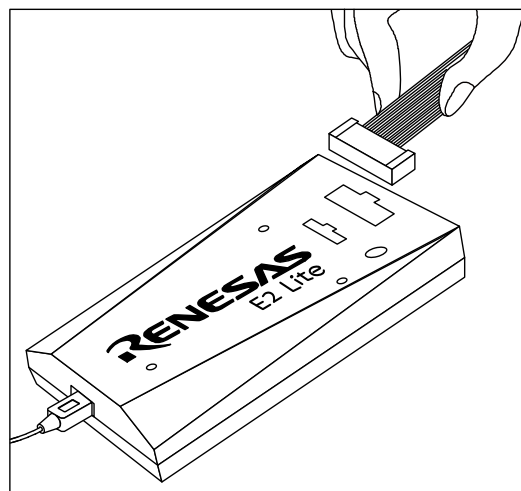
When connecting or disconnecting the user-system interface cable and the emulator, grasp the connector at the end of the cable. Pulling the cable itself will damage the wiring.

Also, be aware that the user-system interface cable has the direction in which it must be inserted. If the cable is connected in the wrong direction, it may be damaged.

Correct example



Incorrect example



- (2) A connector to the user-system interface cable must be installed on the user system. Table 2.1 shows the recommended connector for the emulator.

Table 2.1 Recommended Connector

Connector	Type Number	Manufacturer	Specifications
14-pin (2.54-mm pitch) connector	7614-6002	3M Japan Limited	14-pin straight type (Japan)
	2514-6002	3M Limited	14-pin straight type (other countries)
20-pin (1.27-mm pitch) connector	FTSH-110-01-L-DV-K	Samtec	20-pin surface-mount straight type
10-pin (1.27-mm pitch) connector	FTSH-105-01-L-DV-K	Samtec	10-pin surface-mount straight type
10-pin (1.27-mm pitch) connector	FTSH-105-01-L-DV* (no guide marking)	Samtec	10-pin surface-mount straight type

Note: When using the connector without a guide marking, take care regarding the direction for insertion of the cable.

- (3) For the pin assignments of the connector, refer to the additional document for manual for the E1/E20 emulator or E2 emulator Lite which corresponds to the target MCU.
- (4) Connect one end of the user-system interface cable to the E2 Lite and the other end to the connector on the user system as shown in Figure 2.3 and Figure 2.4.

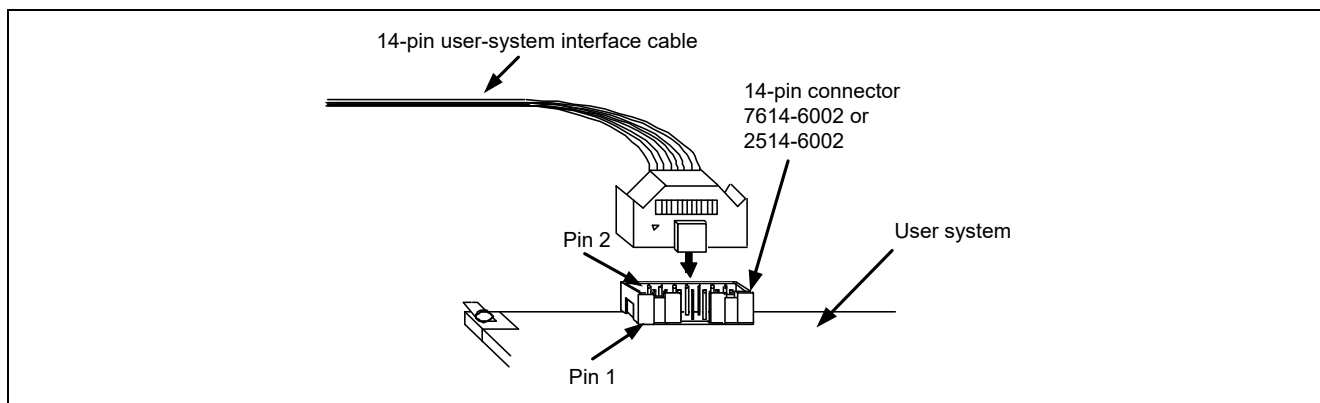


Figure 2.3 Connecting the User-System Interface Cable to the 14-Pin Connector when the E2 Lite is to be Used

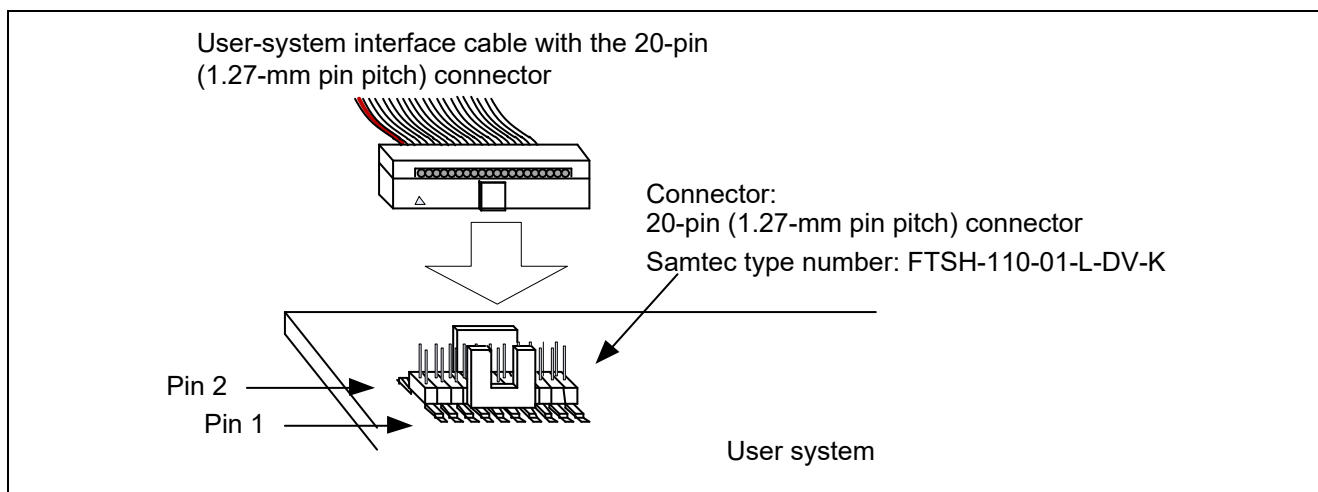


Figure 2.4 Connecting the User-System Interface Cable to the 20-Pin Connector when the E2 Lite is to be Used

! CAUTION

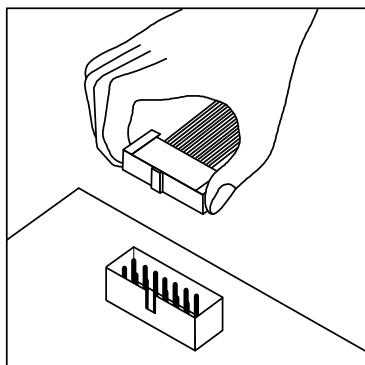
Notes on connector insertion and removal:



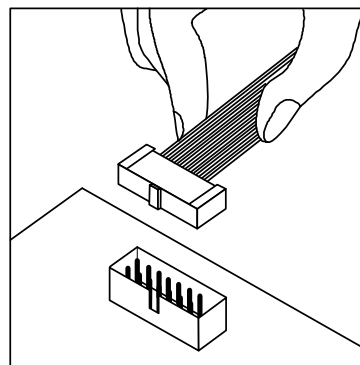
When connecting or disconnecting the user-system interface cable and the emulator or user system, grasp the connector at the end of the cable. Pulling the cable itself will damage the wiring.

Also, be aware that the user-system interface cable has the direction in which it must be inserted. If the cable is connected in the wrong direction, it may be damaged.

Correct example



Incorrect example



2.4 Hot plug-in

The hot plug-in function allows the E2 Lite to be connected to and used for debugging a user system that is already powered on and operating without the emulator connected. If a problem occurs while verifying the operation of the user system by itself, the E2 Lite can be connected to the user system in the fault condition and used for debugging.

(1) Hot Plug-in Using the 14-pin Connector

Using the optional hot-plug adapter for E1 emulators (R0E000010ACB00), sold separately, allows the E2 Lite to be connected to the user system while the user system remains powered on.

(2) Hot Plug-in Using the 20-pin Connector

Connect the GND pin of the 14-pin connector (Figure 2.5, red frame) to the GND of the user system in advance using a lead wire or similar means. The E2 Lite can then be connected to the user system while the user system remains powered on.



Figure 2.5 14-pin connector GND pin position

2.5 Turning the Power On/Off

Turn the power of the E2 Lite and the user system following the procedure below.

2.5.1 When a Separate Power Supply is Used for the User System

<When using the emulator>

- (1) Check that the power is off.
Check that the user system is turned off.
- (2) Connect the user system.
Follow the instructions in "2.3 Connecting the E2 Lite to the User System" to connect the emulator and the user system with a user-system interface cable.
- (3) Connect the host machine and turn on the emulator.
Follow the instructions in "2.2 Connecting the E2 Lite to the Host Machine" to connect the emulator and the host machine with a USB interface cable. The E2 Lite is turned on by connecting the USB interface cable.
- (4) Launch the emulator debugger or programming software.
- (5) Turn on the user system.
- (6) Connect the emulator debugger or programming software to the E2 Lite.
The method of connection may differ with the software.

<When finished using the emulator>

- (1) Disconnect the E2 Lite from the emulator debugger or programming software.
Disconnections may differ with the software.
- (2) Turn off the user system.
- (3) Close the emulator debugger or programming software.
- (4) Turn off and disconnect the emulator.
The E2 Lite is turned off by disconnecting from the USB interface cable.
- (5) Disconnect the user system.
Disconnect the user-system interface cable from the user system.



CAUTION

Note on the User System Power Supply:



While the power of the user system is on, do not turn off the host machine or unplug the USB interface cable.

The user system may be damaged due to leakages current.

2.5.2 When Power is Supplied to the User System from the Emulator

<When using the emulator>

(1) Connect the user system.

Follow the instructions in "2.3 Connecting the E2 Lite to the User System" to connect the emulator and the user system with a user-system interface cable.

(2) Connect the host machine and turn on the emulator.

Follow the instructions in "2.2 Connecting the E2 Lite to the Host Machine" to connect the emulator and the user system with a user-system interface cable, then turn on the emulator.

(3) Launch the emulator debugger or programming software and select the setting of power supply to the user system.

(4) Connect the emulator debugger or programming software to the E2 Lite.

Connections may differ with the software.

<When finished using the emulator>

(1) Disconnect the E2 Lite from the emulator debugger or programming software.

Disconnections may differ with the software.

(2) Close the emulator debugger or programming software.

(3) Turn off and disconnect the emulator.

Disconnect the USB interface cable from the emulator, then turn off the emulator.

(4) Disconnect the user-system interface cable from the user system.

2.6 Connecting System Ground

The emulator's signal ground is connected to the user system's signal ground.

In the emulator, the signal ground and frame ground are connected.

In the user system, connect the frame ground only; do not connect the signal ground to the frame ground (Figure 2.6).

If it is difficult to separate the frame ground from the signal ground in the user system, set the GND for DC power input (AC adapter) of the host machine and the frame ground of the user system as the same potential. If the GND potential is different between the host machine and the user system, an overcurrent will flow in the low-impedance GND line and thin lines might be burned.

 WARNING	
Connecting System Ground :	
	Separate the frame ground from the signal ground at the user system. Failure to do so will result in smoke, fire, or an electric shock due to the difference in ground potential.

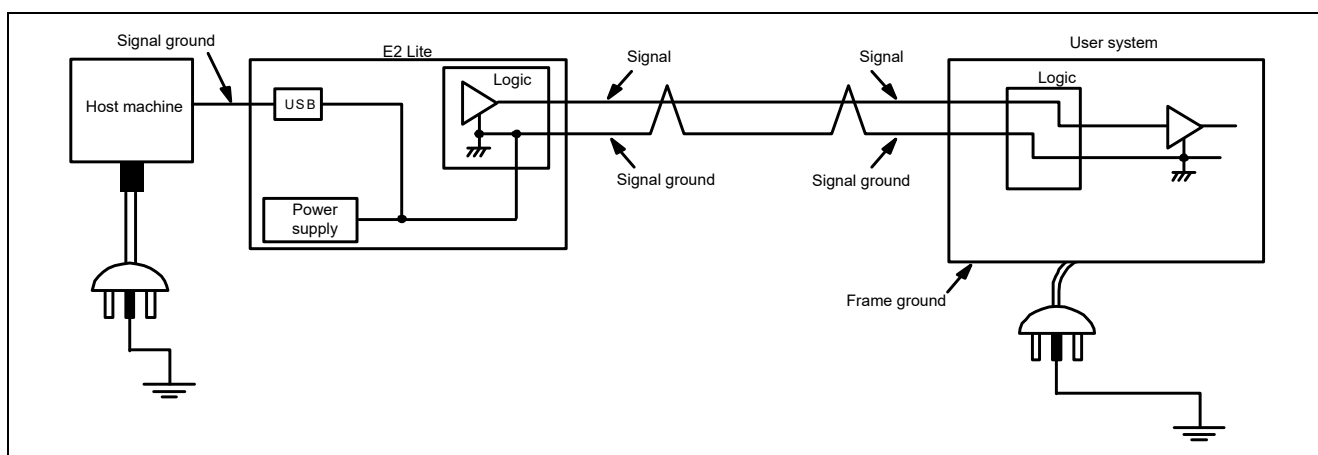


Figure 2.6 Connecting System Ground

For a debugging environment where there is a difference in potential between the GND of the user system and that of the host machine, use the isolator (R0E000010ACB10 or R0E000010ACB20) which is separately available from Renesas.

3. Troubleshooting (Action in Case of an Error)

3.1 How to Solve a Trouble

The following describes how to solve a trouble when any problem occurs before the emulator debugger starts after power has been supplied to the emulator and the user system. For the latest information on the emulator and emulator debugger, visit Renesas Electronics' development environment website (<http://www.renesas.com/tools>).

3.1.1 The ACTIVE LED does not flash or light up

[Cases where the ACTIVE LED does not flash while a USB interface cable is connected]

This means that the E2 Lite is in an unusable state for some reason. Check the following:

- Whether the E2 Lite and the host machine are connected with the USB interface cable.
- Whether the power for the host machine is turned on.

[Cases where the ACTIVE LED does not light up when you connect the tools.]

The USB driver is not installed correctly in the host machine.
Install the USB driver correctly.

3.1.2 Unconnectable with the debugger

(1) Check the connection between the emulator and the target device.

For details, refer to the supplementary manual for the E1/E20 emulator, E2 emulator, or E2 emulator Lite which corresponds to the target device.

- Whether the emulator and the target device are connected correctly.
- Whether the connected signal lines are pulled up to the power supply or down to GND properly.

(2) Check to see that the target MCU is in a ready state.

- The operating clock of the target MCU is on (= oscillating).
- The target MCU is supplied with power properly.
- The target MCU has been reset and is ready to go.

3.2 How to Request Support

After checking the items in "Troubleshooting", contact us from the following URL.

<http://www.renesas.com/contact/>

4. Maintenance and Warranty

This chapter provides information on product maintenance and warranty coverage.

4.1 Registering as a User

After you have purchased the product, be sure to register as a user. For more information, refer to “User Registration” in this manual.

4.2 Maintenance

- (1) If dust or dirt collects on this product, wipe it off with a dry soft cloth. Do not use thinner or other solvents because these chemicals can cause the surface coating to separate.
- (2) When you do not use this product for a long period, disconnect it from the power supply, host machine and user system.

4.3 Warranty

- (1) No repair service is provided for this product or its accessories.
- (2) In the case of replacement due to initial failure, please contact your local distributor within 30 days of the unit's arrival.

CAUTION

Note on Transporting the Product:

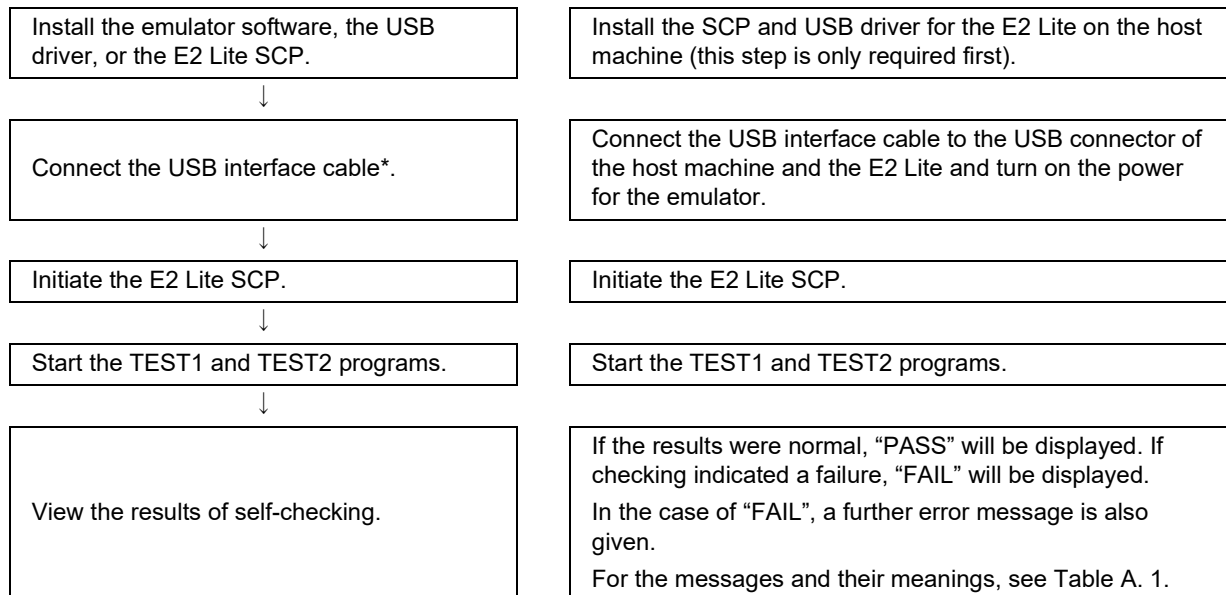


When sending your product, use the packing box and cushioning material supplied with the product when it was delivered to you and specify caution in handling (handling as precision equipment). If packing of your product is not complete, it may be damaged during transportation.

Appendix A E2 Lite Self-Check Program (SCP)

This chapter gives the procedure for using the self-check program (SCP) for the E2 Lite in fault analysis.

A.1 Flow of Self-Checking



Note: Fault analysis of the hardware by using the E2 Lite SCP only works correctly when a single emulator is connected to the host machine. When two or more emulators are connected, correct operation is not guaranteed.

A.2 Preparations for Self-Checking

(1) The following items are required to execute the E2 Lite SCP.

- E2 Lite main unit
- USB interface cable (included in the package)
- Host machine
- E2 Lite SCP (self-check program)

Install the E2 Lite SCP to the host machine by installing an integrated development environment from Renesas (e.g. CS+) or downloading the E2 Lite SCP installer from the following Web site.

https://www.renesas.com/e2lite_download

The USB driver is included in the installation of the integrated development environment from Renesas (e.g. CS+ or the e² studio). If you are using an integrated development environment not from Renesas, please contact a Renesas Electronics representative or distributor.

(2) Start up the host machine. Connect the USB interface cable to the USB connector of the host machine and the E2 Lite and turn on the power for the E2 Lite. The user-system interface cable is not used.

A.3 Executing the SCP

(1) Execute the E2 Lite SCP (E2Lite_SCP.exe).

When CS+ has been installed, open the start menu and select [Programs] -> [Renesas Electronics CS+] -> [E2 Lite Self Check Program].

If you are using any other debugger product, install the SCP by using the installer of the SCP that has been downloaded from the E2 Lite downloading site, then open the start menu and select [Programs] -> [Renesas Electronics Utilities] -> [E2 Lite Self Check Program].

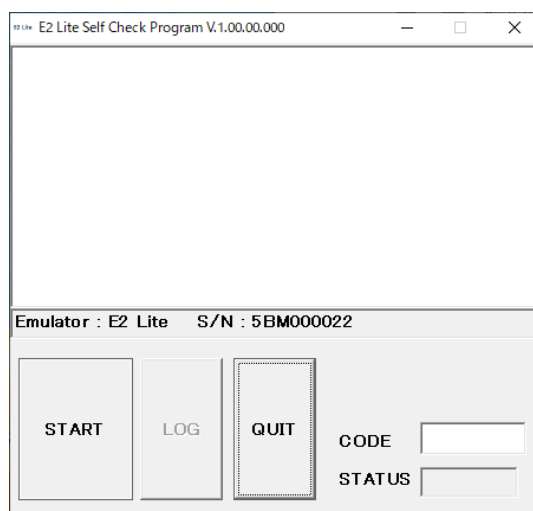


Figure A.1 Starting the E2 Lite SCP

(2) Click on the [START] button to start the SCP.

Do not enter any value in the [CODE] textbox since it is not used at this stage.

If the user-system interface cable is connected to the user system and you click on the [START] button, the following message is displayed:

“Please remove the user interface cable.”

If this message is displayed, disconnect the user-system interface cable from the user system and click on the [OK] button. The SCP then starts.

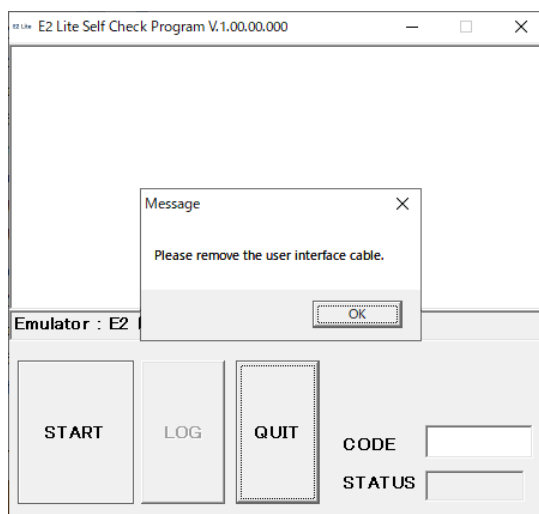


Figure A.2 Checking the Connection of the User-System Interface Cable

If the user-system interface cable is connected to the emulator when you click on the [OK] button, “FAIL” is displayed on the screen (see the figure below). Disconnect the user-system interface cable from the emulator and click on the [START] button again to start the SCP.

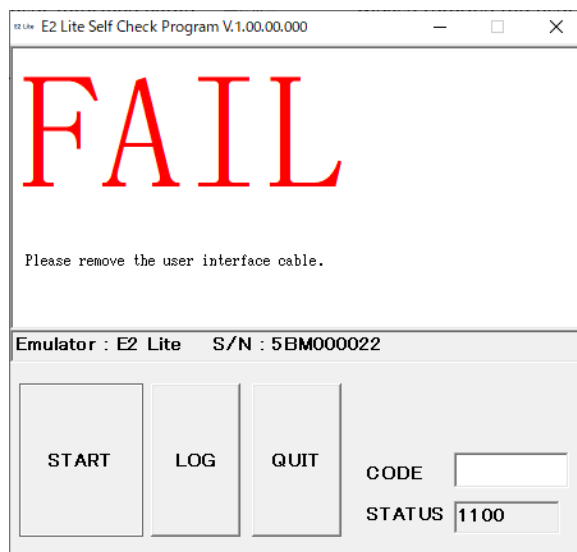


Figure A.3 [FAIL] at the Start of Self-Checking (when the User-System Interface Cable is Connected to the Emulator)

If the USB interface cable is removed from the emulator during the execution of the SCP, “FAIL” is displayed on the screen (see the figure below). Correctly connect the USB interface cable to the emulator and click on the [START] button again to start the SCP.

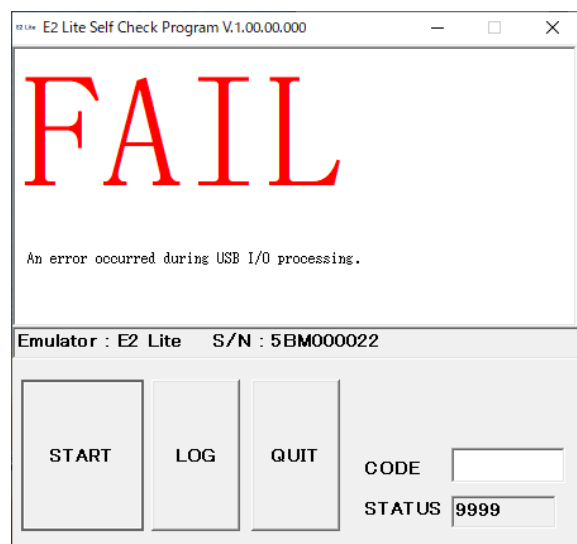


Figure A.4 [FAIL] Display that Appears when an Error Occurs in USB I/O Processing

(3) The SCP is started.

“TEST1 is running.” and “TEST2 is running.” are displayed on the screen.

If the emulator correctly completes TEST1 and TEST2, “TEST1: PASS” and “TEST2: PASS” are displayed on the screen.

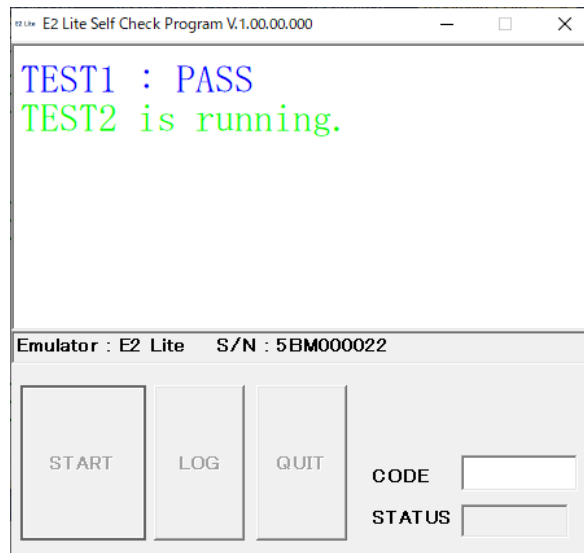


Figure A.5 Starting the SCP

(4) The result is displayed when execution of the SCP is completed.

“PASS” appears on the screen after result of the SCP is correct completion.

“PASS” indicates that the SCP has detected no faults in the E2 Lite.

Click on the [QUIT] button to end the SCP.

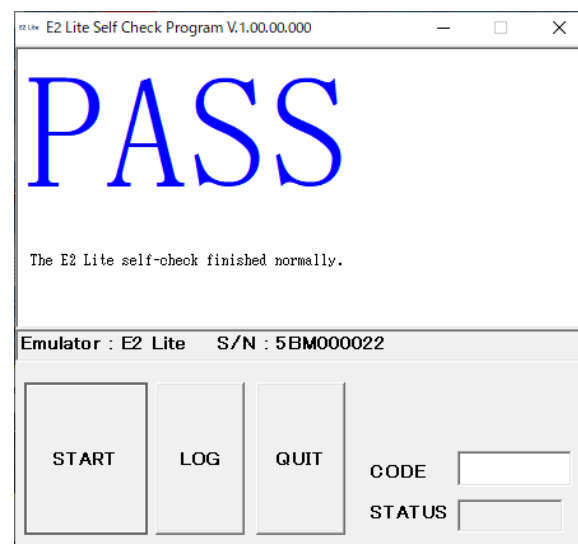


Figure A.6 Correct Completion of the SCP

If correct completion has not been obtained at the end of the SCP, the word “FAIL” is displayed, followed by an error message in the center of the window. Table A.1 lists the error messages.

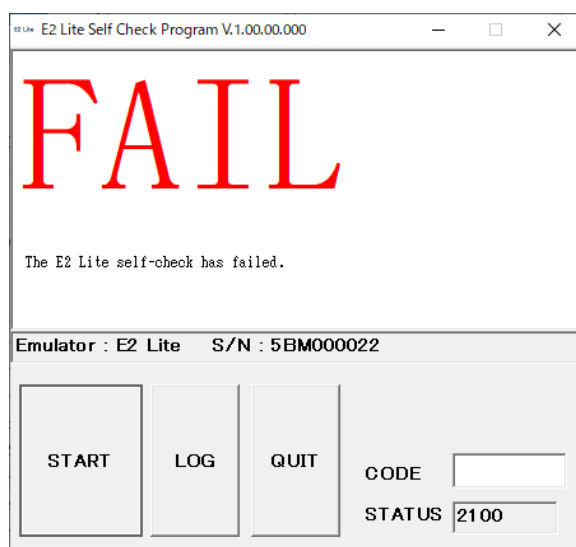


Figure A.7 Display for an Error Found in Self-Checking

Clicking on the [LOG] button opens the file selection dialog box. Specify the location where you want the results of self-checking to be saved. The results of self-checking are saved as a text file.

Table A.1 Error Messages

Message	Description
The E2 Lite self-check has failed.	The user-system interface cable is connected to the user system or the SCP has detected a fault in the E2 Lite after it was started. For information on the warranty coverage of the E2 Lite, refer to section 4.3, Warranty, in this manual.
An error occurred during USB I/O processing.	The USB interface cable is removed or the SCP detected a fault in the E2 Lite during execution of the checking. Connect the USB interface cable again and re-start the SCP. If this error message appears again, it indicates the detection of a fault in the E2 Lite.

Appendix B Internal Circuits of the E2 Lite

The internal interface circuits for the communication interface between the E2 Lite and the user system are shown in Figure B.1. Refer to this figure when determining board design parameters.

For the pin assignments of the 20-pin connector and 14-pin connector, refer to the supplementary manual for E2 emulator, E2 emulator Lite, or E1/E20 emulator which corresponds to the device.

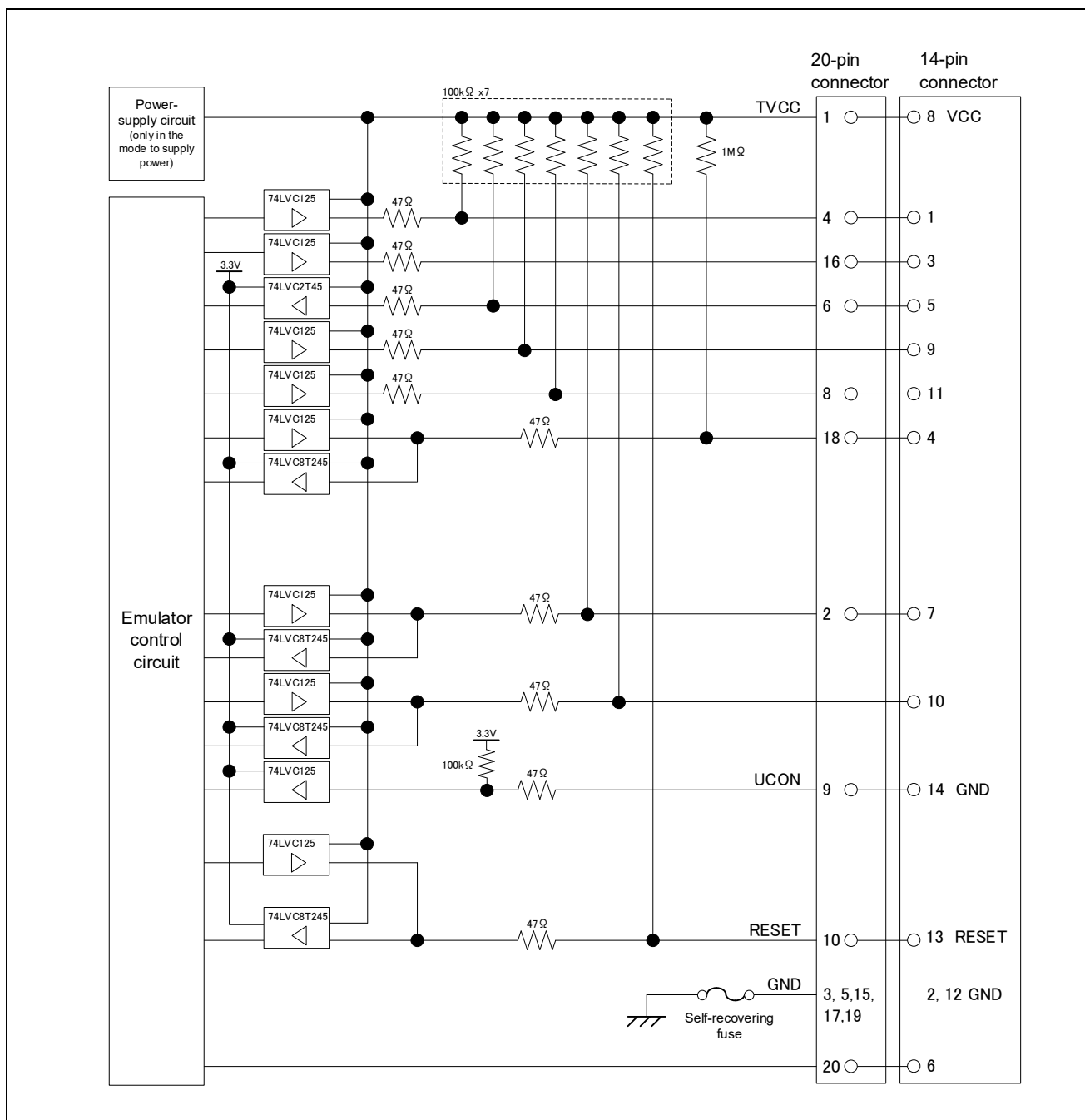


Figure B.1 Interface Circuits in the E2 Lite

Revision History	E2 emulator Lite RTE0T0002LKCE00000R Manual
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Rev.	Date	Description	
		Page	Summary
1.01	Jun. 1, 2015	—	First Edition issued.
1.02	Mar. 15, 2016	14	Regulatory Compliance Notices were changed.
2.00	Oct. 16, 2019	12	A statement regarding the user-system interface cables (that they are separately available) was added.
		13	Table 1.2: Descriptions of the 20-pin (1.27-mm pitch) and 10-pin (1.27-mm pitch) connectors were added.
		14	Regulatory Compliance Notices were changed.
		17	The description of the user-side connector (20 pins) was changed.
		21	Table 2.1: Recommended connectors were added to the list.
		22	Figure 2.4, Connecting the User-System Interface Cable to the 20-Pin Connector when the E2 Lite is to be Used, was added.
3.00	May.15.20	19	Appendix A, E2 Lite Self-Check Program (SCP), was added.
3.10	Oct. 16.23	13	2.4 Hot plug-in, were modified.
3.20	Jul. 21.26	24	Added Appendix B.

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