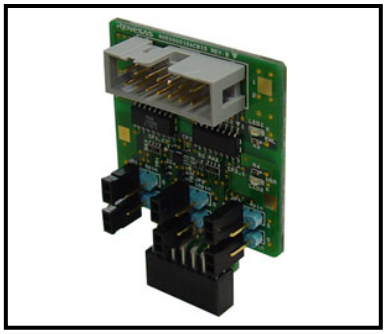
R0E000010ACB10

Isolator for the E1 Emulator

R20UT0164EJ0500
Rev.5.00
Jul 16, 2013



1. Preface

The R0E000010ACB10 is an isolator for the E1 and E8a emulators. This product is used for a debugging environment where there is a GND gap between the user system and emulator system.

Package Components

Before using this product, check if your R0E000010ACB10 contains all of these items.

Table 1.1 Package Components

Item	Qty.
R0E000010ACB10 (Isolator for the E1 emulator)	1
R0E000010ACB10 User's Manual (English) (This manual)	1
R0E000010ACB10 User's Manual (Japanese)	1

Note: Please handle this product as precision equipment for transportation.

Important

⚠ CAUTION

Caution on Isolation Voltage:

This product is intended to isolate a small and electrically safe GND gap between the user system and emulator system. In any case isolation voltage must be maintained within SELV limits i.e. less than 42.4VAC, or 60VDC.
The isolator must never be used as an element of a safety isolation system. The part could be expected to function correctly at higher voltage across the isolation barrier; but then the circuitry on both sides of the barrier must be regarded as operating at an unsafe voltage and further isolation/insulation systems must form a barrier between these circuits and any user-accessible circuitry according to safety standard requirements.

Caution to Be Taken for Disposal:

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

European Union regulatory notices:

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 European Union only. 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 “http://www.renesas.eu/weee”.

Cautions to Be Taken for Handling the Isolator:

- Take full care not to touch any parts or cause short circuits on this product.
- Protect this product from excessive physical shock.
- Do not modify this product. Modifying the product will void your warray.

Cautions for Use Temperature:

The isolator 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.

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⚠ CAUTION

Cautions to Be Taken for Connecting the Isolator:

- Always switch OFF the power before connecting or disconnecting this product.
- This product has some switches. Make settings depending on debugging interface you use. Before changing settings power off this product and other connected devices.
- To connect this product to the user system align the #1 pin of the connector to the right position.
- To connect this product to the emulator align the #1 pin of the connector to the right position.

Cautions to Be Taken for Power Supply When Disconnecting:

- Turn off the power supply of the user system when you disconnect the user system from the emulator debugger. Otherwise you may fail to reconnect the emulator debugger to the user system.
- When an attempt to reconnect to the user system has failed, turn off the user system and then unplug and plug the USB cable of the emulator before trying again.

European Union regulatory notices

This product complies with the following EU Directive.

Environmental Compliance and Certification:

- Waste Electrical and Electronic Equipment (WEEE) Directive 2002/96/EC

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2. Specifications

Table 2.1 Product Specifications

Item	Specification	Remark
Supported Emulator	1) E1 emulator 2) E8a emulator	This isolator is not usable with the E20 emulator.
Power supply	Both of the following two power supplies are necessary. 1) Supply from the user system (UVCC) Voltage: 3.0 V to 5.5 V 2) Supply from the emulator's power supply facility Voltage: 3.3 V	Supply from the user system (UVCC) needs to be 50 mA (max).
Acceptable GND gap voltage	less than 42.4VAC, or 60VDC	
Applicable MCU Series	RX600 Series RX200 Series RX100 Series R32C/100 Series M32C/80 Series M16C/60 Series *1 M16C/50 Series *1 M16C/30 Series M16C/Tiny Series R8C/Lx Series R8C/Mx Series R8C/5x Series R8C/3xT-A Series R8C/3x Series R8C/2x Series R8C/1x Series H8S/Tiny Series H8/300H Tiny Series H8/300H Super Low Power Series H8/300L Super Low Power Series 38000 Series	Isolator's switch settings vary depending on the target MCU you use. See 4.5 Switch Settings for Each MCU for switch setting.
Device for isolation	ACSL-6420-00TE (Avago Technologies US Inc.) IL260-3E (NVE Corporation) IL261-3E (NVE Corporation)	
LED indication	LED1: Illuminated when power is supplied from the emulator LED2: Illuminated when power is supplied from the user system	This isolator is only usable when both LEDs are illuminated.

*1 Clock-asynchronous serial (communication via CNVss pin) of the M16C/60 Series and the M16C/50 Series is not supported.

3. Notes on Usage

Note on Power-Supply Voltage:

When you use an emulator with this isolator connected, power-supply voltage of the MCU on your system should be between 3.0 V and 5.5 V. Power-supply voltage less than 3.0 V is not supported.

Note on Signal Delay:

When this isolator is connected, because of signal delay in the isolation circuit, speed of the communication interface may be limited. As an example, the JTAG frequency of the RX600 series needs to be 12.38 MHz or less.

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4. Usage

The sections 4.2 and 4.3 in this chapter explain the usage of this product taking an example of the E1 emulator. Read "E1" as "E8a" when using the E8a emulator.

4.1 Setting Switches (JP1-JP6)

To configure the circuit of this product depending on the communication method of the MCU you use, set switches JP1 through JP6. For details, see 4.5 Switch Settings for Each MCU.

4.2 Setup

Confirm both the user system and the emulator are switched OFF before installing this product. Do not connect the USB cable to the emulator. To connect this product to the user system or the emulator, be sure to align the #1 pin of the connector to the right position.

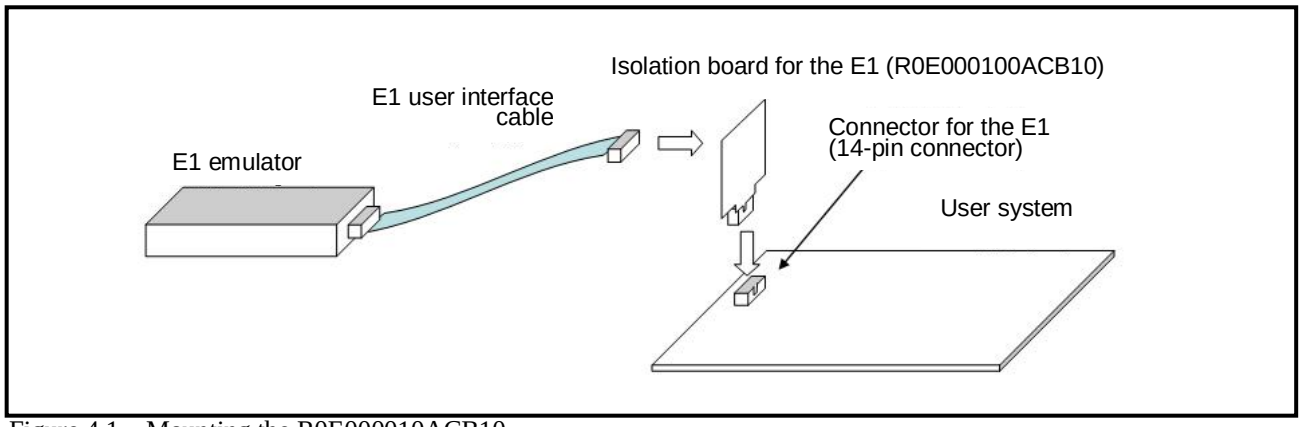


Figure 4.1 Mounting the R0E000010ACB10

4.3 Starting the Power Supply

Start the power supply following the procedure below.

(1) Turn ON the emulator.
Connect the host machine and the E1 emulator with the USB cable, then switch ON the E1 emulator.

(2) Turn ON the user system.
Turn ON the user system.

(3) Start the debugger (Power supply setting).
Start the debugger from the control PC, and set the power supply to the target device to ON in the initial setting screen. Select 3.3V for supply voltage regardless of the voltage used for the user system.

For the settings after the above, refer to the user's manual for the emulator used (E1 or E8a).

4.4 External Dimensions

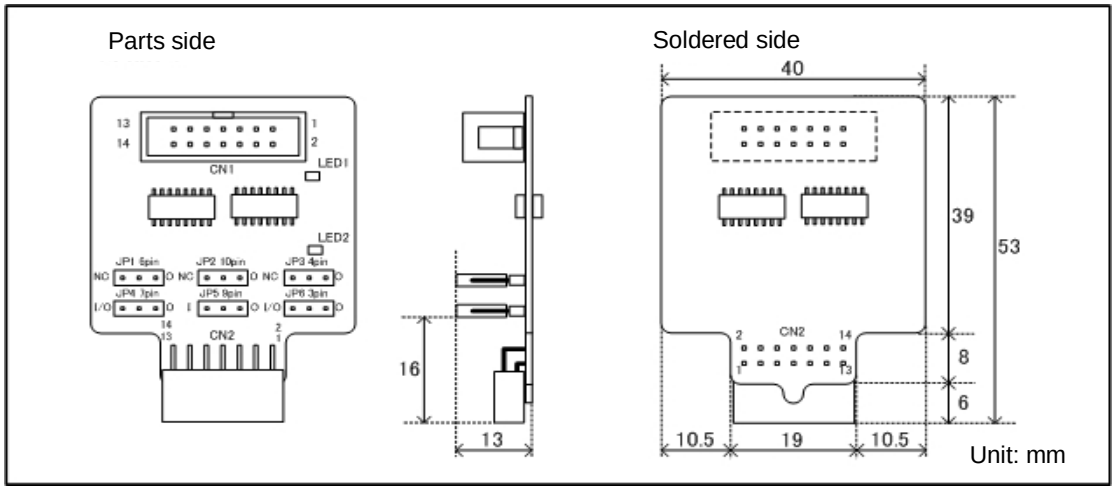


Figure 4.2 External Dimensions

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4.5 Switch Settings for Each MCU

Table 4.1 Correspondence between the MCUs Supported by the E1 and the Isolator Switch Settings

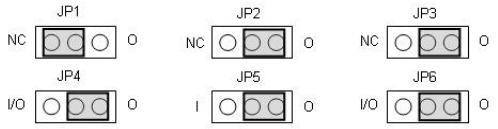
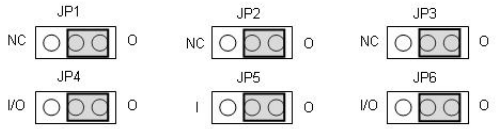
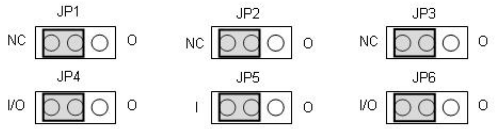
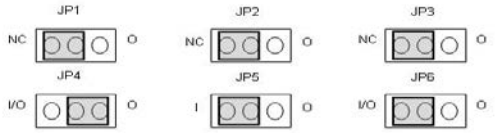
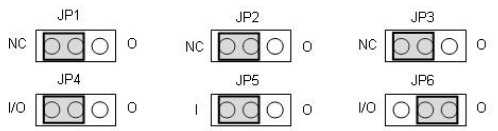
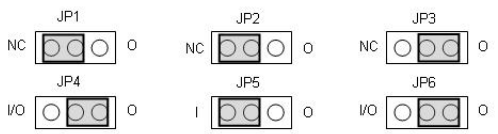
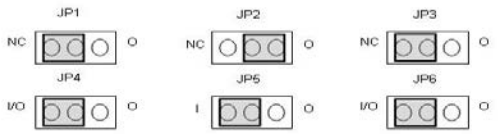
MCU	User interface	Switch setting No. See Table 4.3
RX Family RX600 Series	JTAG	Setting 1
	FINE	Setting 7
	When using Flash Development Toolkit	Setting 2
RX Family RX200 Series RX Family RX100 Series	FINE	Setting 7
	When using Flash Development Toolkit	Setting 2
R8C Family R8C/Lx Series	1-line clock-asynchronous serial (communication via MODE pin)	Setting 3
R8C Family R8C/5x Series		
R8C Family R8C/3xT-A Series		
R8C Family R8C/3x Series		

Table 4.2 Correspondence between the MCUs Supported by the E8a and the Isolator Switch Settings

MCU	User interface	Switch setting No. See Table 4.3
R8C Family R8C/Mx Series R8C Family R8C/Lx Series R8C Family R8C/3x Series R8C Family R8C/2x Series	1-line clock-asynchronous serial (communication via MODE pin)	Setting 3
R8C Family R8C/1x Series R8C/14,15,16,17,18,19,1A,1B Groups		
R8C Family R8C/1x Series R8C/10,11,12,13 Groups	Clock-synchronous serial (communication via P00/P37/CNVss pin)	Setting 4
	When using Flash Development Toolkit	Setting 3
M16C Family R32C/100 Series M16C Family M32C/80 Series	Clock-synchronous serial	Setting 6
M16C Family M16C/60 Series M16C/6S Group		
M16C Family M16C/60 Series M16C/6C,6B, 64A,65,63 Groups	Clock-asynchronous serial (communication via CNVss pin)	Not supported
	Clock-synchronous serial (communication via P64/P65/P66/P67)	Setting 6
M16C Family M16C/60 Series M16C/64,62P,6N Groups	Clock-synchronous serial (communication via P64/P65/P66/P67)	Setting 6
M16C Family M16C/50 Series	Clock-asynchronous serial (communication via CNVSS pin)	Not supported
	Clock-synchronous serial (communication via P64/P65/P66/P67)	Setting 6
M16C Family M16C/30 Series M16C Family M16C/Tiny Series	Clock-synchronous serial (communication via P64/P65/P66/P67)	Setting 6
H8 Family H8/300L Super Low Power Series	Clock-synchronous serial	Setting 4
H8 Family H8/300H Tiny Series H8 Family H8/300H Super Low Power Series H8S Family H8S/Tiny Series	When using Flash Development Toolkit	Setting 2
740 Family 38000 Series 38D5,38D2,3803L,3804L Groups	Clock-synchronous serial	Setting 5

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Table 4.3 Isolator Switch Setting

Switch setting No.	Settings of JP1 to JP6
Setting 1	
Setting 2	
Setting 3	
Setting 4	
Setting 5	
Setting 6	
Setting 7	

* Do not use the isolator with settings other than the above.

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5. Warranty

This product comes with a one-year warranty after purchase.

(1) Should the product break down or be damaged while you're using it under normal condition based on its user's manual, it will be replaced free of cost.

(2) However, if the following failure or damage occurs to the product under warranty, the product will be replaced at cost.
a) Failure or damage attributable to the misuse or abuse of the product or its use under other abnormal conditions.
b) Failure or damage attributable to improper handling of the product after purchase, such as dropping of the product when it is transported or moved.
c) Failure or damage to the product caused by other pieces of equipment connected to it.
d) Failure or damage attributable to fire, earthquakes, thunderbolts, floods, or other natural disasters or abnormal voltages, etc.
e) Failure or damage attributable to modifications, repairs, adjustments, or other acts made to the product by other than Renesas Electronics Corporation.

(3) This product is accessories product. We cannot accept any request for repair.

Precautions

This product is only intended for use in a laboratory environment under ambient temperature and humidity conditions. A safe separation distance should be used between this and any sensitive equipment. Its use outside the laboratory, classroom, study area or similar such area invalidates conformity with the protection requirements of the Electromagnetic Compatibility Directive and could lead to prosecution.

The product generates, uses, and can radiate radio frequency energy and may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment causes harmful interference to radio or television reception, which can be determined by turning the equipment off or on, you are encouraged to try to correct the interference by one or more of the following measures;

- ensure attached cables do not lie across the equipment
- reorient the receiving antenna
- increase the distance between the equipment and the receiver
- connect the equipment into an outlet on a circuit different from that which the receiver is connected
- power down the equipment when not is use
- consult the dealer or an experienced radio/TV technician for help

NOTE: It is recommended that wherever possible shielded interface cables are used.

The product is potentially susceptible to certain EMC phenomena. To mitigate against them it is recommended that the following measures be undertaken;

- The user is advised that mobile phones should not be used within 10m of the product when in use.
- The user is advised to take ESD precautions when handling the equipment.

This product does not represent an ideal reference design for an end product and does not fulfil the regulatory standards for an end product.

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Renesas Electronics America Inc.
2880 Scott Boulevard Santa Clara, CA 95050-2554, U.S.A.
Tel: +1-408-588-6000, Fax: +1-408-588-6130

Renesas Electronics Canada Limited
1101 Nicholson Road, Newmarket, Ontario L3Y 9C3, Canada
Tel: +1-905-898-5441, Fax: +1-905-898-3220

Renesas Electronics Europe Limited
Dukes Meadow, Millboard Road, Bourne End, Buckinghamshire, SL8 5FH, U.K
Tel: +44-1628-651-700, Fax: +44-1628-651-804

Renesas Electronics Europe GmbH
Arcadiastrasse 10, 40472 Düsseldorf, Germany
Tel: +49-211-65030, Fax: +49-211-6503-1327

Renesas Electronics (China) Co., Ltd.
7th Floor, Quantum Plaza, No.27 ZhiChunLu Haidian District, Beijing 100083, P.R.China
Tel: +86-10-8235-1155, Fax: +86-10-8235-7679

Renesas Electronics (Shanghai) Co., Ltd.
Unit 204, 205, AZIA Center, No.1233 Lujiazui Ring Rd., Pudong District, Shanghai 200120, China
Tel: +86-21-5877-1818, Fax: +86-21-6887-7858 / -7898

Renesas Electronics Hong Kong Limited
Unit 1601-1613, 16/F., Tower 2, Grand Century Place, 193 Prince Edward Road West, Mongkok, Kowloon, Hong Kong
Tel: +852-2886-9318, Fax: +852 2886-9022/9044

Renesas Electronics Taiwan Co., Ltd.
13F, No. 363, Fu Shing North Road, Taipei, Taiwan
Tel: +886-2-8175-9600, Fax: +886 2-8175-9670

Renesas Electronics Singapore Pte. Ltd.
80 Bendemeer Road, Unit #06-02 Hyflux Innovation Centre Singapore 339949
Tel: +65-6213-0200, Fax: +65-6213-0300

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Unit 906, Block B, Menara Amcorp, Amcorp Trade Centre, No. 18, Jln Persiaran Barat, 46050 Petaling Jaya, Selangor Darul Ehsan, Malaysia
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Renesas Electronics Korea Co., Ltd.
11F., Samik Lavied' or Bldg., 720-2 Yeoksam-Dong, Kangnam-Ku, Seoul 135-080, Korea
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