**Digital Output Unit with Relay-Isolation for USB**

**RRY-16CX-USB**

* Specifications, color and design of the products are subject to change without notice.

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**Features**

16 independent common reed relay contact outputs (with a single make contact)

This product has 16 reed relay outputs with a single make contact. Independent common terminal provided per channel, capable of supporting a different external power supply. High-capacity output rating is designed to be a maximum of 2A 125V (AC), 2A 30V (DC) per channel.

**Compatible to USB1.1/USB2.0**

Compatible to USB1.1/USB2.0 and capable to achieve high speed transfer at HighSpeed (480 Mbps).

**USB HUB function**

This product has the USB HUB function. Max. 4 RRY-16CX-USB can be used in 1 USB port of PC.*1 When you use 4 or more RRY-16CX-USB, you can do by connecting RRY-16CX-USB to the another USB port of PC side. Also, you can connect the CONTEC’s USB device other than RRY-16CX-USB to the USB port of RRY-16CX-USB.*2*3

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This product is an USB2.0-compliant digital output unit that output signals to reed relay contacts.

This product provides up to 16 independent common reed relay contact outputs. Independent common terminal provided per channel, capable of supporting a different external power supply. High-capacity output rating is designed to be a maximum of 2A 125V (AC), 2A 30V (DC) per channel.

As there is compatible with PCI bus-compatible board RRY-16C(PCI)H and PCI Express bus-compatible board RRY-16C-PE in terms of connector shape and pin assignments, it is easy to migrate from the existing system.

Windows driver is bundled with this product. Possible to be used as a data recording device for LabVIEW, with dedicated libraries.

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**Windows compatible driver libraries are attached.**

Using the attached digital I/O driver API-DIO(WDM) makes it possible to create applications of Windows. In addition, a diagnostic program by which the operations of hardware can be checked is provided.

**LabVIEW is supported by a plug-in of dedicated library VI-DAQ.**

Using the dedicated library VI-DAQ makes it possible to make a LabVIEW application.

*1 This product cannot be stacked up for installation.

*2 Do not connect the device other than that of CONTEC’s USB to the USB port included on the RRY-16CX-USB. Otherwise, this may cause a failure or malfunction.

*3 When connecting multiple units with USB HUB function and set up them, do one at a time and complete setup for the previous unit before starting to do the next unit.

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**Connectors are compatible with PCI/PCI Express bus-compatible board**

As there is compatible with RRY-16C(PCI)H and RRY-16C-PE in terms of connector shape and pin assignments, it is easy to migrate from the existing system. If the system of this product is created by the digital I/O driver API-DIO(98/PC), it is required to replace it with API-DIO(WDM).
### Specification

<table>
<thead>
<tr>
<th>No. of Output Channels</th>
<th>16 channels (independent common)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output Format</td>
<td>Need Relay (1a, make) Output</td>
</tr>
</tbody>
</table>

### Cable & Connector

#### Cable (Option)
- Flat cable with both-ends 37-pin D-SUB connector
  - CB37P-1.5 (1.5m)
  - CB37P-3 (3m)
  - CB37P-5 (5m)

- Shield cable with both-ends 37-pin D-SUB connector
  - PCB37PS-0.5P (0.5m)
  - PCB37PS-1.5P (1.5m)
  - PCB37PS-3P (3m)
  - PCB37PS-5P (5m)

- Flat cable with one-end 37-Pin D-SUB connector
  - PCA37P-1.5 (1.5m)
  - PCA37P-3 (3m)
  - PCA37P-5 (5m)

#### Connector (Option)
- 37pin D-SUB(male) connector Five-piece set
  - CN5-D37M

### Accessories

#### Accessories (Option)
- Screw Terminal (M3 x 37P)
  - EPD-37A *1, *2
  - EPD-37 *1

- General Purpose Terminal (M3 x 37P)
  - DTP-3A *1

- Screw Terminal (M2.6 x 37P)
  - DTP-4A *1

- USB I/O Unit Bracket for X Series
  - BRK-USB-X

- AC adapter (input: 90 - 264VAC, output: 5VDC 2.0A)
  - POA200-20-2 *3

- AC-DC power supply unit (input: 85 - 132VAC, output: 5VDC 3.0A)
  - POW-AC13GY

- DC-DC power supply unit (input: 10 - 30VDC, output: 5VDC 3.0A)
  - POW-DD22GY

- DC-DC power supply unit (input: 30 - 50VDC, output: 5VDC 3.0A)
  - POW-DD43GY

#### Packing List
- Unit [RRY-16CX-USB] ...1
- AC adapter ...1
- AC Cable (for 125VAC) ...1
- USB cable (1.8m) ...1
- USB cable attachment on the main unit's side (For Mini B connector side) ...1
- Clamps for prevention of cable on the main unit's side ...1
- CD-ROM *1 [API-USBP(WDM)] ...1
- First step guide ...1
- Power connector MC1,5/3-ST-3,5 ...1
- Ferrite core ...1

*1 PCB37P or PCB37PS optional cable is required separately.
*2 "Spring-up" type terminal is used to prevent terminal screws from falling off.
*3 It is the same as the one appended to the product. Please buy if necessary for maintenance.
* Check the CONTEC’s Web site for more information on these options.

### Support Software

Windows version of digital I/O driver API-DIO(WDM)

[Available for downloading (free of charge) from the CONTEC web site.]

This is a VI library to use in National Instruments LabVIEW. LabVIEW's Data Acquisition VI, allowing you to use various devices without complicated settings.

See http://www.contec.com/vidaq/ for details and download of VI-DAQ.

### Accessories

- Screw Terminal (M2.6 x 37P)
  - DTP-4A *1

- General Purpose Terminal (M3 x 37P)
  - DTP-3A *1

- Screw Terminal (M3 x 37P)
  - DTP-4A *1

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### Packing List

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- AC Cable (for 125VAC) ...1
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- USB cable attachment on the main unit's side (For Mini B connector side) ...1
- Clamps for prevention of cable on the main unit's side ...1
- CD-ROM *1 [API-USBP(WDM)] ...1
- First step guide ...1
- Power connector MC1,5/3-ST-3,5 ...1
- Ferrite core ...1

*1 The CD-ROM contains the driver software and User’s Guide (this guide)
**Connecting to a Connector**

To connect an external device to this product, plug the cable from the device into the interface connector (CN1) of unit shown below.

![Interface connector (CN1)](image)

*Please refer to the 2 page for more information on the supported cable and accessories.*

**Connector Pin Assignment**

<table>
<thead>
<tr>
<th>Pin No.</th>
<th>Signal name</th>
<th>Meaning</th>
<th>Pin No.</th>
<th>Signal name</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>19</td>
<td>N.C.</td>
<td></td>
<td>16</td>
<td>N.C.</td>
<td></td>
</tr>
<tr>
<td>37</td>
<td>Common of O-17</td>
<td>O-17</td>
<td>17</td>
<td>O-17</td>
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<tr>
<td>36</td>
<td>Common of O-16</td>
<td>O-16</td>
<td>18</td>
<td>Common of O-15</td>
<td>O-15</td>
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<tr>
<td>35</td>
<td>Common of O-15</td>
<td>O-15</td>
<td>19</td>
<td>Common of O-14</td>
<td>O-14</td>
</tr>
<tr>
<td>34</td>
<td>Common of O-14</td>
<td>O-14</td>
<td>20</td>
<td>Common of O-13</td>
<td>O-13</td>
</tr>
<tr>
<td>33</td>
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<td>21</td>
<td>Common of O-12</td>
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<tr>
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<td>22</td>
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<tr>
<td>31</td>
<td>Common of O-11</td>
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<td>23</td>
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<td>25</td>
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<tr>
<td>20</td>
<td>Common of O-0</td>
<td>O-0</td>
<td>34</td>
<td>Common of N.C.</td>
<td>N.C.</td>
</tr>
</tbody>
</table>

**O-00 - O-17** | 16 output signal pins. Connect these pins to the input signal pins of the external device.

**N00 - N17** | Common pin corresponding to each output pin.

**N.C.** | No connection to this pin.

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**Ver.1.00**

**RRY-16CX-USB**

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**Using the Connectors**

**Physical Dimensions**

- Connector used: 37-pin D-SUB connector [F(female) type]
  - DCLC-J37SAF-20L9E [mfd by JAE]
  - Lock nut: UNC #4-40 (inch screw thread)
- Compatible connector: 17JE-23370-02(D8C) [mfd by DDK, M(male) type]
  - FDCD-37P [mfd by HIROSE, M(male) type]
  - DC-37P-N [mfd by JAE, M(male) type]

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**Block Diagram**

[Diagram of block diagram]
Figures shows the output circuit at the interface section of the board. The signal output section uses a relay contact method to send signals to the external device.

**Output Circuit**

Output a "1" to a bit will light the LED that is connected to the related relay output. On the other hand, output a "0" to the bit will switch the LED off.

**Example of Connection**

When the power turned on, all outputs are reset to OFF.

**Connection with 5VDC Power Supply for Self-power**

This product must be connected with 5VDC power supply (in a self-powered state). Connect with 5VDC power supply by using +5VDC input pin.

When using the attached AC adapter [POA200-20-2], please connect directly to the input terminals. When the accompanying power connector (MC1,5/3-ST-3,5, suitable cable: AWG28 - 16) is used to supply power to this unit, strip the end of the suitable cable and insert it to the power connector before firmly securing it using a screw.

**Difference from RRY-16C-PE and RRY-16C(PCI)H**

<table>
<thead>
<tr>
<th>Item</th>
<th>RRY-16C-USB</th>
<th>RRY-16C-PE</th>
<th>RRY-16C(PCI)H</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. rating capacity</td>
<td>2A 125V(AC), 2A 30V(DC) (load resistor)</td>
<td>None</td>
<td>125V(AC), 30V(DC)</td>
</tr>
<tr>
<td>Max. permitted voltage</td>
<td>125V (Max.)</td>
<td>*1, *2</td>
<td>125V(AC), 30V(DC)</td>
</tr>
<tr>
<td>Current consumption</td>
<td>5VDC 600mA</td>
<td>5VDC 1100mA</td>
<td>5VDC 550mA</td>
</tr>
<tr>
<td>USB specification</td>
<td>USB Specification 2.0/1.1</td>
<td>PCI Express Base Specification Rev. 1.0 + x1</td>
<td>PCI(32bit, 33MHz, Universal key shapes supported)</td>
</tr>
<tr>
<td>Physical dimensions</td>
<td>(W) x (D) x (H)</td>
<td>(W) x (D) x (H)</td>
<td>(W) x (D) x (H)</td>
</tr>
<tr>
<td>Weight</td>
<td>400g</td>
<td>120g</td>
<td>120g</td>
</tr>
</tbody>
</table>

*1 Please exceed neither max. permitted voltage nor max. rating capacity of the use relay when using it by the voltage that exceeds 30VDC. Doing so can cause a malfunction.

*2 The potential difference between channels must not exceed 125V in the maximum. Doing so can cause a malfunction.