"SC08G" is a contact signal I/O card dedicated for Omron uninterruptible power supply (UPS).

- The SC08G can stop the UPS by outputting power outage and low battery level signals, and inputting an UPS stop signal from the outside.

Refer to Omron representatives for the latest compatible models.

### Intended use of contact signal I/O card (SC08G)

- This card unit is designed and manufactured for use with FA or OA equipment such as personal computers. Do not use it when very high reliability and safety are required as listed below.
  - Medical equipment that may affect human lives
  - Applications that may cause injury (applications that directly affect the operation and control of planes, ships, railroads, elevators, and so on)
  - Applications that are constantly subjected to vibrations such as cars and ships
  - Applications in which a failure of this card unit may cause significant damage or effect to the society and public (important computer systems, main communication equipment, public transportation systems, and so on)
  - Equipment with the same level of importance

- For equipment that greatly affects the safety of people and maintaining public functions, special considerations related to operation, maintenance, and management must be taken such as duplicating the system and emergency power generation facilities.

- When you want to use this card unit for an important system that requires very high reliability, contact the shop of purchase.

### Safety Precautions

To prevent injury, malfunction, fire, etc., be sure to read the precautions explained here.

**CAUTION** Misuse may cause injury or property damage

* Property damage means damage to houses/household effects, livestock, and pets.

- : Indicates prohibition. For example, indicates that disassembly is prohibited.

- : Indicates obligation. For example, indicates that grounding is necessary.

Note that events categorized as a caution required matter also may cause more serious results under certain conditions.
When inserting or removing this card unit, turn off the uninterruptible power supply (UPS) main body and connection apparatus, and then pull out the “AC Input” plug from the power receptacle.
- Failure to do so may cause electric shock.

Do not disassemble, repair, or modify the card unit.
- Doing so may cause electric shock or fire.

When you perform attachment and removal of this card unit to an uninterruptible power supply (UPS), please work by installing an uninterruptible power supply (UPS) in the stable place in a direction that is fall-proof. In addition, be care not to drop the unit.
- Dropping or toppling the card unit may cause injury.
- If you drop the unit, stop using it and have it inspected and repaired. For repair, contact the shop of purchase.

Securely ground the UPS in which the card unit is installed.
- If the UPS unconnected to a ground wire and another device contact at the same time, an electric shock may be caused.

Do not touch parts on the board end face or the board when installing, unpacking, removing the card unit.
- Contact with the sharp board end face or any part may cause injury.
- Contact with any hot part may cause burns.
- The card unit uses electrostatic sensitive parts. Therefore, do not touch the connector contact port and other parts with bare hands in particular.

Do not touch the liquid when it is present on the internal board.
- Doing so may cause blindness or burns.
  - If the liquid contacts your eyes or skin, wash it out thoroughly with a large amount of clean water, and then consult your doctor.

When there is an RS-232C connector (female DSUB 9P) on the UPS main body, provide secure wiring from the system side to the signal I/O connector (female DSUB 9P) of this card unit.
- Faulty wiring from the system side to the RS-232C connector (female DSUB 9P) may cause failure of the UPS, electric shock, or fire.

Comply with the signal I/O rating when connecting the card unit to the signal I/O connector, remote ON/OFF connector.
- Failure to do so may cause failure of the card unit, electric shock, or fire.

If smoke, abnormal smell, or abnormal sound is generated from the card unit, turn off the UPS and pull out the “AC Input” plug from the power receptacle.
- If you notice such a condition, stop using the card unit and contact the shop of purchase for inspection and repairs.

Observe the use and environment conditions described in this manual and the use and environment conditions of the UPS in which the card unit is installed.

Remove the pin for the jumper setting, and keep out of reach of infants and children.
- Failure to do so may cause infants or children to swallow and suffocate.

Do not allow the card unit to come in contact with water.
- Doing so may cause electric shock or fire.

Do not install/store the unit in places where there is flammable or corrosive gas, enclosed places such as cabinets, places exposed to direct sunlight, places with high temperature and humidity.
- Doing so may cause failure of the card unit, electric shock, or fire.

The operating and storage environments must not exceed the specification range.

<table>
<thead>
<tr>
<th>Environmental specification</th>
<th>Operating ambient temperature/humidity</th>
<th>Storage ambient temperature/humidity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>-10°C to 55°C/ 10 to 85%RH (With no condensation)</td>
<td>-20°C to 55°C/ 10 to 85%RH (With no condensation)</td>
</tr>
</tbody>
</table>

- Failure to do so may cause failure of the card unit, electric shock, or fire.

Disclaimers
We are not liable for any damage or secondary damage resulting from the use of our product, including malfunction and failure of equipment, connected devices, or software.
1. **Accessories**
   SC08G card unit........1
   Remote ON/OFF connector (Attached to the card unit) .......1
   Dsub-9 pin plug........1, Compliance information sheet .......1

2. **Name of each part**
   The figure below describes the name of each part of the SC08G.

3. **Installation of the SC08G**

<table>
<thead>
<tr>
<th>CAUTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before commencing the work, be sure to turn off the UPS, and pull out the “AC Input” plug from the commercial power outlet.</td>
</tr>
<tr>
<td>Check the insertion direction before inserting the card unit into the UPS. Never forcibly insert the card unit.</td>
</tr>
<tr>
<td>Do not forcibly pull or bend the black wire connected to the remote ON/OFF connector.</td>
</tr>
</tbody>
</table>

   (1) After pulling out the “AC Input” plug from the commercial power outlet, remove the 2 screws at the “Signal Card Expansion” slot on the rear of the UPS, and remove the slot carefully.
   (2) After confirming the settings of the card unit, carefully insert the card unit into the slot and securely fix it with the 2 screws.

4. **Signal I/O card**

4.1 **Signal Output**
   The card unit has 4 kinds of output signals.
   Reverse output or normal output can be set for each signal output, and all signals are set to the reverse output when shipped from the factory. The signal output is a relay contact output.

   - **Backup Signal output (BU, BU)**
     This signal indicates that the UPS is in battery mode operation.

     | Reverse output setting (Factory setting) | Normal output setting |
     |-----------------------------------------|-----------------------|
     | Battery mode                            | Open between pins 1 and 2 of the signal output connector |
     | Normal mode                             | Short circuit between pins 1 and 2 of the signal output connector |

   - **Low battery level signal output: (BL, BL)**
     This signal indicates that the UPS is in battery mode operation.

     | Reverse output setting (Factory setting) | Normal output setting |
     |-----------------------------------------|-----------------------|
     | Low battery level                      | Open between pins 3 and 4 of the signal output connector |
     | Normal mode                             | Short circuit between pins 3 and 4 of the signal output connector |
4.2 Signal input

- **Input of the Backup Power Supply Stop Signal (BS, BS)**
  This is an input signal for stopping outputs of the UPS.
  Note: Settings can be configured from the input of the backup power supply stop signal to the stop of the output of the UPS. For details, refer to “UPS operation mode settings” and “Setting (or Changing) the setting switches” in “Changing the setting of the functions” of the UPS instruction manual.

<table>
<thead>
<tr>
<th>Condition</th>
<th>Reverse output setting (Factory setting)</th>
<th>Normal output setting (Factory setting)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stops UPS</td>
<td>Input High signal between pins 8 and 9 of the signal output connector</td>
<td>Input Low signal between pins 8 and 9 of the signal output connector</td>
</tr>
<tr>
<td>Does not stop UPS</td>
<td>Input Low signal between pins 8 and 9 of the signal output connector</td>
<td>Input High signal between pins 8 and 9 of the signal output connector</td>
</tr>
</tbody>
</table>

- **Remote ON/OFF Signal**
  Remote ON/OFF signals can be used to start and stop the UPS, by using either an externally connected contact or the ON/OFF status of the open collector circuit.
  To use this function, turn on the Power Switch of the UPS. (Note: When there is no AC power supply, it is not possible to start up UPS by the remote ON/OFF signals even though cold start is set ON.)

4.3 Items that can be set using the contact signal card

<table>
<thead>
<tr>
<th>Setting switches (3 digits)</th>
<th>Jumper setting (7 pcs)</th>
<th>Jumper setting (7 pcs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>JP5</td>
<td>JP7</td>
<td>JP1</td>
</tr>
<tr>
<td>JP2</td>
<td>JP3</td>
<td>JP4</td>
</tr>
<tr>
<td>JP6</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


### Jumper Settings

#### Output signal function switching settings

By setting the jumper on the printed circuit board of the SC08G, switch the output signal function as follows:

<table>
<thead>
<tr>
<th>Jumper symbol</th>
<th>Jumper setting (Factory setting)</th>
<th>Function</th>
<th>Jumper setting</th>
<th>Jumper setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>JP1</td>
<td>BU side</td>
<td>Backup signal reverse output (BU)</td>
<td>BU side</td>
<td>Backup signal normal output (BU)</td>
</tr>
<tr>
<td>JP2</td>
<td>BL side</td>
<td>Low battery level signal reverse output (BL)</td>
<td>BL side</td>
<td>Low battery level signal normal output (BL)</td>
</tr>
<tr>
<td>JP3</td>
<td>TR side</td>
<td>Trouble signal reverse output (TR)</td>
<td>TR side</td>
<td>Trouble signal normal output (TR)</td>
</tr>
<tr>
<td>JP4</td>
<td>WB side</td>
<td>Battery replacement signal reverse output (WB)</td>
<td>WB side</td>
<td>Battery replacement signal normal output (WB)</td>
</tr>
</tbody>
</table>

#### Function switching settings of the backup power supply stop signal

By setting the jumper on the printed circuit board of the SC08G (jumper symbol: JP5), switch the stop signal function as follows:

<table>
<thead>
<tr>
<th>Jumper symbol</th>
<th>Jumper setting (Factory setting)</th>
<th>Function</th>
<th>Jumper setting</th>
<th>Jumper setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>JP5</td>
<td>BS side</td>
<td>The UPS stops upon receiving the High signal input.</td>
<td>BS side</td>
<td>The UPS stops upon receiving the Low signal input.</td>
</tr>
</tbody>
</table>

#### High signal input voltage range settings of the backup power supply stop signal

By setting the jumper on the printed circuit board of the SC08G (jumper symbol: JP7), set the input voltage range on the High side of the backup power supply stop signal as follows:

<table>
<thead>
<tr>
<th>Jumper symbol</th>
<th>Jumper setting (Factory setting)</th>
<th>Function</th>
<th>Jumper setting</th>
<th>Jumper setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>JP7</td>
<td>24 VDC side</td>
<td>High signal input voltage range from 8V to 24 V</td>
<td>12 VDC side</td>
<td>High signal input voltage range from 5V to 12 V</td>
</tr>
</tbody>
</table>

---

**CAUTION**

Do not apply voltage higher than the set High signal input voltage range. Doing so may cause failure or damage of the card unit, resulting in a fire or electric shock.

---

#### UPS Start/Stop setting of the remote ON/OFF signal

By setting the jumper on the printed circuit board of the SC08G (jumper symbol: JP7), set the UPS Start/Stop by the remote ON/OFF signal as follows:

<table>
<thead>
<tr>
<th>Jumper symbol</th>
<th>Jumper setting (Factory setting)</th>
<th>Function</th>
<th>Jumper setting</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>JP6</td>
<td>OP-OFF side</td>
<td>External contact open</td>
<td>CL-OFF side</td>
<td>External contact open</td>
</tr>
<tr>
<td></td>
<td></td>
<td>UPS stop</td>
<td></td>
<td>UPS start</td>
</tr>
<tr>
<td></td>
<td></td>
<td>External contact close</td>
<td></td>
<td>External contact close</td>
</tr>
<tr>
<td></td>
<td></td>
<td>UPS start</td>
<td></td>
<td>UPS stop</td>
</tr>
</tbody>
</table>
4.4 Signal I/O Connector (Female DSUB 9P)

<table>
<thead>
<tr>
<th>Pin assignment</th>
<th>Pin number</th>
<th>Signal name</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>Backup Signal output-1 (BU-1)</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Backup Signal output-2 (BU-2)</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Battery Low signal output-1 (BL-1)</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>Battery Low signal output-2 (BL-2)</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>Trouble signal output (TR)</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>COMMON (TR/WB-COM) of TR and WB signals</td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>Battery Replacement Signal output (WB)</td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>Backup stop signal input+ (BS+)</td>
</tr>
<tr>
<td></td>
<td>9</td>
<td>Backup stop signal input- (BS-)</td>
</tr>
</tbody>
</table>

4.5 Remote ON/OFF connector

<table>
<thead>
<tr>
<th>Pin assignment</th>
<th>Pin number</th>
<th>Signal name</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>Remote ON/OFF (+)</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Remote ON/OFF (-)</td>
</tr>
</tbody>
</table>

Use a wire that conforms to Table 1 when using the remote ON/OFF connector.

4.6 Signal I/O Rating

- **Signal Output (BU, BU, BL, BL, TR, TR, WB, WB)**
  - Relay rating
    - Applicable voltage: 30 VDC or less
    - Maximum current: 2A (under resistive load)
      - 1A (under inductive load)
- **Backup Power Supply Stop Signal Input (BS, BS)**
  - Input voltage
    - HIGH (ON) 8 to 24 VDC (at the setting of 24 VDC)
    - 5 to 12 VDC (at the setting of 12 VDC)
    - LOW (OFF) 0.7 VDC or less
  - High Sink current at signal input max. 20mA
- **Remote ON/OFF**
  - Voltage between terminals: 5 VDC
  - Current when closed: max.10 mA

- **Function settings using the setting switch**
  - The function of this setting switch varies depending on the UPS equipped with the SC08G.
  - For details, refer to the "Items that can be set using the contact signal card" in the instruction manual of the UPS equipped with the SC08G.
  - (Note 1: All setting switches are set to OFF when shipped from the factory.)
  - (Note 2: Always set the setting switch 3 to "OFF". Also, set the setting switch not described in the UPS instruction manual to "OFF").

**Table 1**

<table>
<thead>
<tr>
<th>Recommended cable size</th>
<th>AWG 14 to 28</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amount of stripped wire</td>
<td>6 to 7mm</td>
</tr>
</tbody>
</table>
4.7 Signal I/O circuit inside the SC08G

- **Output signal circuit**

- **Input signal circuit**

- **Remote ON/OFF signal circuit**
4.8 Signal I/O Circuit Usage Examples

- BU signal output circuit and connection circuit example

```
\begin{tabular}{|c|c|c|}
\hline
BU-1 & UPS side & BU-2 & System side \\
\hline
Connecting cable & (twisted or shielded) \\
\hline
\end{tabular}
```

- BS signal input circuit and connection circuit example

```
\begin{tabular}{|c|c|c|}
\hline
24V & BS+ & System side \\
\hline
Connecting cable & (twisted or shielded) & OUT \\
\hline

\begin{tabular}{|c|c|c|}
\hline
0V & BS- & System side \\
\hline
\hline
PLC output circuit & PLC & \\
\hline
\end{tabular}
```

- Remote ON/OFF connection circuit example

```
\begin{tabular}{|c|c|}
\hline
Remote ON/OFF(+) & Remote ON/OFF(-) \\
\hline
\end{tabular}
```

4.9 Precaution When Using Signal Outputs

**NOTE**

- For any device connected to the signal output circuit, its rating must not exceed the rating specified in signal outputs of "4.6 Signal I/O Rating" when turning on or off the signal output. (Add a surge killer circuit as necessary.)
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