1. SPECIFICATIONS

1.1 Input

- **Input current**
  - 1/2 and alternating current

- **Input power**
  - 105 mA at 24 V AC

- **Input condition**
  - 24 V AC

1.2 Output

- **Output current**
  - 250 mA at 24 V AC

- **Output condition**
  - 24 V DC

1.3 Dimensions

- **CB903**
  - 90 x 90 x 96 mm (3.5 x 3.5 x 3.8"")

- **CB403**
  - 40 x 40 x 45 mm (1.5 x 1.5 x 1.8"")

- **CB103**
  - 10 x 10 x 20 mm (0.4 x 0.4 x 0.8"")

1.4 Weight

- **CB903**
  - 200 g (0.4 lb)

- **CB403**
  - 50 g (0.1 lb)

- **CB103**
  - 10 g (0.02 lb)

2. MOUNTING

2.1 Mouting Cautions

- **WARNING**
  - To prevent electric shock, always turn off the power before mounting or removing the instrument.

- **CAUTION**
  - To prevent electric shock or instrument failure, always turn off the power before mounting or removing the instrument.

- **NOTICE**
  - The instrument cannot be used in locations subject to water, oil, chemicals, vapor or steam splashes.

- **NOTICE**
  - Do not mount this instrument directly above the equipment that generates large amount of heat (heaters, transformers, semiconductor device, functional devices, large engines).

- **NOTICE**
  - This product is intended for use with industrial machines, test and measuring equipment.

- **NOTICE**
  - This is a Class A instrument. In a domestic environment, this instrument may cause radio interference. When the instrument is used in such an environment, the user may be required to take additional measures.

2.2 Mounting Procedure

1. Place the instrument in the desired location.
2. Secure the instrument using screws to ensure stability.
3. Ensure the instrument is level and aligned correctly.
4. Connect all necessary power and signal connections.
5. Test the instrument to ensure proper operation.

3. WIRING

3.1 Wiring Cautions

- **WARNING**
  - To prevent electric shock or instrument failure, always turn off the power before wiring.

- **CAUTION**
  - To prevent electric shock or instrument failure, always turn off the power before wiring.

- **NOTICE**
  - The instrument cannot be used in locations subject to water, oil, chemicals, vapor or steam splashes.

- **NOTICE**
  - Do not mount this instrument directly above the equipment that generates large amount of heat (heaters, transformers, semiconductor device, functional devices, large engines).

- **NOTICE**
  - This product is intended for use with industrial machines, test and measuring equipment.

- **NOTICE**
  - This is a Class A instrument. In a domestic environment, this instrument may cause radio interference. When the instrument is used in such an environment, the user may be required to take additional measures.

3.2 Wiring Procedure

1. Turn off the power supply before wiring.
2. Connect all power and signal lines to their respective terminals.
3. Test the instrument to ensure proper operation.
4. If any problems are encountered, consult the manual or contact technical support.

4. Removal Procedures

- **Procedure 1**
  - When the mounting frame is removed, only mount the instrument on a grounded panel. For effective waterproofing, the gasket must be securely placed between instrument and panel without any gap. If the gasket is damaged, please contact RKC sales office or the agent.

- **Procedure 2**
  - When the mounting frame is removed, only mount the instrument on a grounded panel. For effective waterproofing, the gasket must be securely placed between instrument and panel without any gap. If the gasket is damaged, please contact RKC sales office or the agent.

5. Product Checking

- **CB103/CB403/CB903**
  - CB103 [C] [C] [C]
  - CB403 [C] [C] [C]
  - CB903 [C] [C] [C]

6. Precautions

- **WARNING**
  - To prevent injury to persons, damage to the instrument and the equipment, a suitable external protection device shall be required.

- **CAUTION**
  - All wiring must be completed before power is turned on to prevent electric shock, fire or damage to the instrument and the equipment.

- **NOTICE**
  - This instrument must be used in accordance with the specifications to ensure safety and the immunity to withstand noise.

- **NOTICE**
  - To improve safety and the immunity to withstand noise, mount this instrument as far as possible from high voltage equipment, power lines, and rotating machinery.

- **NOTICE**
  - Provide adequate ventilation space so that heat does not build up.

- **NOTICE**
  - The optional waterproof/dustproof on the front of the instrument conforms to IP66 when mounted on the panel. For effective waterproofing, the gasket must be securely placed between instrument and panel without any gap. If the gasket is damaged, please contact RKC sales office or the agent.

- **NOTICE**
  - Be sure to provide an appropriate surge control circuit respectively for the following: Power supply, signal line, control output, and power lines of other electric equipment.

- **NOTICE**
  - For the current input specification, an external resistor (250 Ω) must be used. If the screw has been rotated too tight, the screw may turn idle. In such a case, loosen the screw and rotate it by 1/2 turn.

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  - For the current input specification, an external resistor (250 Ω) must be used. If the screw has been rotated too tight, the screw may turn idle. In such a case, loosen the screw and rotate it by 1/2 turn.

- **NOTICE**
  - The instrument is designed for installation in an enclosed instrument panel. All high-voltage connections such as power supply terminals must be enclosed in the instrument panel to prevent shock to operating personnel.

- **NOTICE**
  - Always install the noise filter on a grounded panel. Minimize the wiring distance between the noise filter output and the instrument power supply terminals to achieve the most effective noise reduction.

- **NOTICE**
  - For the current input specification, an external resistor (250 Ω) must be used. If the screw has been rotated too tight, the screw may turn idle. In such a case, loosen the screw and rotate it by 1/2 turn.

- **NOTICE**
  - Never mount this instrument without the front panel frame. If the gasket is damaged, please contact RKC sales office or the agent.

- **NOTICE**
  - For RTD input, use low resistance lead wire with no difference in resistance between the wires.

- **NOTICE**
  - The accuracy of the instrument is not guaranteed with an input current of 10 ppm/°C or less.

- **NOTICE**
  - For the current input specification, an external resistor (250 Ω) must be used. If the screw has been rotated too tight, the screw may turn idle. In such a case, loosen the screw and rotate it by 1/2 turn.
3.2 Terminal Configuration

5. SETTING

### Operation Menu

**Power ON**

- Input type and trend range display
- SV/SV monitor

**SV/SV display Mode**

- Press the SET key
- Displays the measured value (PV) or the set value (SV) in the STEP state

**SV setting Mode**

- With/step function
- Displays the following parameter symbols on the PV display
- Set value (SV1)
- SV1 setting
- SV2 setting
- SV3 setting

**Parameter Setting Mode**

- This mode is used to set the parameters such as alarms, PID constants, etc.
- The following parameter symbols are displayed as the SET key is pressed.

- **Current transformer (CT) input**
  - Alarm 1 set value (ALM1)
  - Alarm 2 set value (ALM2)
  - Alarm 3 set value (ALM3)

- **Relay contact**
  - Heat alarm break (HBA)
  - Control loop break alarm (LBA)

- **Triac output** (OUT1)
  - CTL-12
  - PV/SV monitor lights in the STEP state while Parameter setting mode is being displayed.

**Prompt key**

- Used for setting up parameters and set value registration.

**[Set key]**

- Selects the parameter to be set.

**[Shift key]**

- Shifts when settings are changed.

**[SELECT key]**

- Selects the RUN/TSTEP mode.

**[DOWN key]**

- Increases numerals.

**[UP key]**

- Increases numerals.

To avoid damage to the instrument, never use a sharp object to press keys.

### Input type and input range display

This instrument immediately confirms the input type symbol and input range following power ON.

#### Example: When sensor type of input is Pt100 temperature

**Input Type Symbol Table**

<table>
<thead>
<tr>
<th>Sensor Type</th>
<th>Input Type</th>
<th>Input Range</th>
<th>Input Character</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pt100</td>
<td>1</td>
<td>0 to 1000</td>
<td>°C</td>
</tr>
<tr>
<td>Pt100</td>
<td>2</td>
<td>0 to 2000</td>
<td>°C</td>
</tr>
<tr>
<td>Pt100</td>
<td>3</td>
<td>0 to 4000</td>
<td>°C</td>
</tr>
<tr>
<td>Pt100</td>
<td>4</td>
<td>0 to 6000</td>
<td>°C</td>
</tr>
</tbody>
</table>

**Notice**

- **At least 3 seconds after power ON**.
- **At least 3 seconds after parameter setting**.
- **At least 3 seconds after alarm reset**.
- **At least 3 seconds after RUN/TSTEP mode change**.
- **At least 3 seconds after input range change**.
- **At least 3 seconds after relay switch, etc.**