1. PARTS DESCRIPTION

1.1 Module Mainframe

- **Indication lamps**
  - **FAIL / RUN**
    - When normal (RUN):
    - Self-diagnosis error (FAIL):
  - **FAIL**
    - During data send and receive:
    - When an error occurs:
  - **Power supply terminals**
    - Power supply:
      - Supply power to one of the joined modules, and all of the joined modules will communicate.
    - Communication terminals:
      - Connect communication wires to any one of the joined modules, and all of the joined modules will communicate.

- **BASE**
  - Mounting holes (M3 screws)
  - Joint connector (SRZP-01)
  - Communication terminals (PG-45P)
  - Communication terminals (PG-45P) connect communication wires to any one of the joined modules, and all of the joined modules will communicate.

2. COMMUNICATION SETTING

Set communication setting before mounting and wiring of the Z-CT.

2.1 Module Address Setting

Set an address for the module using a small blade switch.

- **Address setting switch**
  - Factory set value: 0

   - For RKC communication, the value obtained by adding "33" to the set address corresponds to the address used for the actual program.
   - For Modbus, the value obtained by adding "31" to the set address is valid for the actual program.

- **To avoid problems or malfunctions, do not duplicate an address on the same communication line.

2.2 Protocol Selection and Communication Speed Setting

Use the DIP switch on the right side of module to select communication speed, data bit configuration and protocol. These data changes become valid when the power is turned on again or when changed to RUN/STOP mode.

- **DIP switch**
  - **Right side view**

3. MOUNTING

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

3.1 Mounting Cautions

1. (1) Do not disassemble any of the joined modules. (2) Do not separate the module mainframe from the base with the power turned on. (3) Do not use abrasive material or push with a hard object.

- **NOTICE**
  - This manual assumes that the reader has a fundamental knowledge of the principles of electricity, process control, computer technology and communications.
  - The figures, diagrams and numeric values used in this manual are for purpose of illustration.
  - RKC is not responsible for any damage or injury that is caused as a result of using this instrument, instrument failure or indirect damage.
  - The information in this manual is subject to change without prior notice.
  - This instrument is not intended for use in locations subject to flammable or explosive gases.
  - Do not install high-voltage connections such as power supply terminals, etc. to avoid electric shock.
  - This instrument is designed for installation in an enclosed instrumentation panel. All high-voltage connections such as power supply terminals must be enclosed in the instrumentation panel to avoid electric shock by operating personnel.
  - All precautions described in this manual shall be taken to avoid damage to the instrument or equipment.
  - The figures, diagrams and numeric values used in this manual are for purpose of illustration.
  - The information in this manual is subject to change without prior notice.

4. WIRING

4.1 Wiring Cautions

- **To avoid noise-induced error, keep input/output signals away from instrument power line, load lines and power supply wiring.
- For Modbus, connect the Z-CT module as shown in the figure to the PLC module. The Z-CT module cannot be connected to PLCs which do not correspond to Modbus.

- **WARNING**
  - If power supply line wiring is not bonded, do not install the unit in a location where it could result in electric shock or injury to personnel.
  - All wiring must be completed before power is turned on to prevent electric shock. Do not disassemble the unit.
  - This instrument must be used in accordance with the specifications to prevent fire or damage to instrument and equipment.
  - This instrument is not intended for use in locations subject to flammable or explosive gases.
  - Do not install high-voltage connections such as power supply terminals, etc. to avoid electric shock.
  - This instrument is designed for installation in an enclosed instrumentation panel. All high-voltage connections such as power supply terminals must be enclosed in the instrumentation panel to avoid electric shock by operating personnel.
  - All precautions described in this manual shall be taken to avoid damage to the instrument or equipment.
  - All wiring must be in accordance with local codes and regulations.
6. COMMUNICATION DATA MAP

<table>
<thead>
<tr>
<th>Pin No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT1</td>
<td>1: Automatic setting for heater</td>
</tr>
<tr>
<td></td>
<td>2: Overcurrent alarm set value</td>
</tr>
<tr>
<td></td>
<td>3: Heater temperature monitor</td>
</tr>
<tr>
<td></td>
<td>4: Heater overcurrent alarm</td>
</tr>
<tr>
<td></td>
<td>5: COM</td>
</tr>
</tbody>
</table>

- **Pin No. Description**
  - Pin No. 1: Automatic setting for heater
  - Pin No. 2: Overcurrent alarm set value
  - Pin No. 3: Heater temperature monitor
  - Pin No. 4: Heater overcurrent alarm
  - Pin No. 5: COM

- **Symbols used in MAP**
  - Data for each channel
  - Data for each module

- **Communication data (RKC Modbus)**

<table>
<thead>
<tr>
<th>Name</th>
<th>Address</th>
<th>Data</th>
<th>Message</th>
<th>Factory address</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heater breaker alarm (HBA)</td>
<td>0x0A</td>
<td>0x00</td>
<td>0x0F</td>
<td>0x19</td>
</tr>
<tr>
<td>Heater overcurrent alarm</td>
<td>0x0B</td>
<td>0x01</td>
<td>0x0F</td>
<td>0x19</td>
</tr>
<tr>
<td>Heater temperature monitor</td>
<td>0x0C</td>
<td>0x02</td>
<td>0x0F</td>
<td>0x19</td>
</tr>
<tr>
<td>Heater overcurrent alarm</td>
<td>0x0D</td>
<td>0x03</td>
<td>0x0F</td>
<td>0x19</td>
</tr>
</tbody>
</table>

- **Pin No. Description**
  - Pin No. 1: Automatic setting for heater
  - Pin No. 2: Overcurrent alarm set value
  - Pin No. 3: Heater temperature monitor
  - Pin No. 4: Heater overcurrent alarm
  - Pin No. 5: COM

- **Symbols used in MAP**
  - Data for each channel
  - Data for each module

7. AUTOMATIC SETTING FUNCTION

- **Heater breaker alarm (HBA) set value**
  - Automatic setting function is enabled.
  - Automatic setting function is automatically set by the push button command.

- **Heater overcurrent alarm**
  - Automatic setting function is enabled.
  - Automatic setting function is automatically set by the push button command.

- **Procedure for automatic setting of the heater break alarm (HBA) set value by push button**
  - Before performing automatic setting, complete all connections and settings so that the system is ready for operation.
  1. Perform automatic setting of the heater break alarm (HBA) set value, set the following ZCT module and heater break alarm (HBA) data from the host computer (breaker alarm can also be used).
  2. Configure the set values according to your operation conditions.

8. MODEL CODE

<table>
<thead>
<tr>
<th>Model Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ZCT-A</td>
<td>Single CT A</td>
</tr>
</tbody>
</table>

- **Model Code**
  - Model Code: ZCT-A
  - Description: Single CT A

- **Connector type**
  - Connector type: CT (CT1-CT12)

- **Current transformer (CT) input**
  - Number of inputs: 12 points
  - Current transformer (CT) input range: 0 to 30.0 A
  - Current transformer (CT) input range: 0 to 100.0 A
  - Sampling cycle: 3 seconds

- **Performance**
  - Ambient temperature: 25°C ± 5°C
  - Relative humidity: 5 to 95% RH
  - Installation environment:
    - Temperature: -10 to +50°C
    - Humidity: 5 to 95% RH
    - Ambient altitude: 5 to 5,000 m

- **Connector type**
  - Connector type: CT (CT1-CT12)
  - Power terminals (CT1-CT12)
  - Communication terminals (CT1-CT12)

- **Base**
  - Power supply terminals
  - Communication terminals
  - Terminal No. Description
    - 1: Pin A (CT1-CT2)
    - 2: Pin B (CT1-CT2)
    - 3: Pin C (CT1-CT2)

- **Automatic setting function**
  - When using the heater break alarm (HBA) or heater overcurrent alarm, be sure to assign the CT input channels (modular address assignments for CT input channel module assignments for CT input)