1. Safety Precautions

The following symbol is used in the instrument. It indicates the possibility of injury to the user or damage to the instrument, and signifies that the user must refer to the operation guide or user’s manual for information. The symbol is used in the operation guide and user’s manual on pages that the user needs to refer to, together with the term “WARNING” or “CAUTION.”

Calls attention to actions or conditions that could cause serious or fatal injury to the user, and indicates precautions that should be taken to prevent such occurrences.

WARNING

Calls attention to actions or conditions that could cause injury to the user or damage to the instrument or property and indicates precautions that should be taken to prevent such occurrences.

CAUTION

2. Model and Suffix Codes

UT35A-L

Model | Suffix code | UP/UR | Description
--- | --- | --- | ---
UT35A-L | [suffix code] | U1 | Analog input and generator with wireless subject, 2 DIs, and 3 DiO (Power supply: 100-240 V AC)
UT35A-L | [suffix code] | U2 | Analog input and generator with wireless subject
UT35A-L | [suffix code] | U3 | Analog input
UT35A-L | [suffix code] | R1 | Local control type
UT35A-L | [suffix code] | R2 | Remote control type (with SSR relay)
UT35A-L | [suffix code] | R3 | Remote control type (with motor relay)
UT35A-L | [suffix code] | N1 | N marking (UL, CSA, CE, etc.)
UT35A-L | [suffix code] | N2 | N marking (UL, CSA, CE, etc.)
UT35A-L | [suffix code] | N3 | N marking (UL, CSA, CE, etc.)
UT35A-L | [suffix code] | N4 | N marking (UL, CSA, CE, etc.)
UT35A-L | [suffix code] | N5 | N marking (UL, CSA, CE, etc.)
UT35A-L | [suffix code] | N6 | N marking (UL, CSA, CE, etc.)
UT35A-L | [suffix code] | N7 | N marking (UL, CSA, CE, etc.)
UT35A-L | [suffix code] | N8 | N marking (UL, CSA, CE, etc.)
UT35A-L | [suffix code] | N9 | N marking (UL, CSA, CE, etc.)
UT35A-L | [suffix code] | N10 | N marking (UL, CSA, CE, etc.)
UT35A-L | [suffix code] | N11 | N marking (UL, CSA, CE, etc.)
UT35A-L | [suffix code] | N12 | N marking (UL, CSA, CE, etc.)
UT35A-L | [suffix code] | N13 | N marking (UL, CSA, CE, etc.)
UT35A-L | [suffix code] | N14 | N marking (UL, CSA, CE, etc.)
UT35A-L | [suffix code] | N15 | N marking (UL, CSA, CE, etc.)
UT35A-L | [suffix code] | N16 | N marking (UL, CSA, CE, etc.)
UT35A-L | [suffix code] | N17 | N marking (UL, CSA, CE, etc.)
UT35A-L | [suffix code] | N18 | N marking (UL, CSA, CE, etc.)
UT35A-L | [suffix code] | N19 | N marking (UL, CSA, CE, etc.)
UT35A-L | [suffix code] | N20 | N marking (UL, CSA, CE, etc.)

Note:

1. YOKOGAWA makes no warranties regarding the product except those stated in the WARRANTY that is provided separately.
2. The product is provided on an “as is” basis. YOKOGAWA assumes no liability to any person or entity for any loss or damage, direct or indirect, arising from the use of the product or from any unpredictable defect of the product.
**Input Specifications**

**Universal Input (Equipped as standard)**

- **Input type**, instrument range, and measurement accuracy: See the table below.

<table>
<thead>
<tr>
<th>Input Type</th>
<th>Instrument Range</th>
<th>Accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td>K</td>
<td>-200°C to 1300°C</td>
<td>±0.2°C/ºC</td>
</tr>
<tr>
<td>J</td>
<td>-200°C to 1300°C</td>
<td>±0.2°C/ºC</td>
</tr>
<tr>
<td>T</td>
<td>-30°C to 1300°C</td>
<td>±0.2°C/ºC</td>
</tr>
<tr>
<td>N</td>
<td>-200°C to 1000°C</td>
<td>±0.2°C/ºC</td>
</tr>
<tr>
<td>B</td>
<td>-30°C to 500°C</td>
<td>±0.2°C/ºC</td>
</tr>
<tr>
<td>W</td>
<td>-200°C to 260°C</td>
<td>±0.2°C/ºC</td>
</tr>
</tbody>
</table>

**Step Response Time Specifications**

- A rise in X (05%) of analog output response time when a step change of 10 to 90% of input span is applied.

**Relay Contact Output Specifications**

- **Contact type** and number of outputs: Limit control output, contact point: 1 point
- **Alarm output**: contact point: 1 point
- **Contact rating**: Contact point 1c (limit control output): 250 V AC, 3 A or 30 V DC, 3 A (resistance load)
- **Contact point 1a (alarm output)**: 240 V AC, 1 A or 30 V DC, 1 A (resistance load)
- Use: Alarm output can be used as an input to an external relay.
- Time resolution of limit control output: 10 ms or 0.1% of output, whichever is larger. The control output should always be used with a load of 1 mA or more.
- **Retransmission Output Specifications**
  - **Number of outputs**: Retransmission output: 1
  - **Current output**: 2 to 20 mA (DC) or 20 mA (AC/DC), load resistance of 600 Ω or less.
  - **Current output accuracy**: (conversion accuracy from PV display on the set scale) ±0.1% of span (2% of span if 1 mA or more).
  - **Accuracy**: ±1% of span (2% of span if 1 mA or more).

**Contact Input Specifications**

- **Number of inputs**: 2 points
- **Input type**: No-voltage contact input or transistor contact input
- **Input contact rating**: 12 V DC, 10 mA or more
- Use a contact with a minimum on-current of 1 mA or less.
- **ON/OFF detection**: No-voltage contact input.

**Environmental Conditions**

- **Ambient temperature**: -10°C to 50°C (4°F to 122°F, 12°C to 158°F) with a relative humidity of 95%. (Non-condensation allowed)
- **Relative humidity**: 95% RH (non-condensation allowed)
- **Operating altitude**: 2000 m or less above sea level
- **Warm-up time**: 30 minutes or more after the power is turned on
- **Installation category**: Within 3 meters
- **Pollution**: Type 3 (Permissible for industrial locations), EN 61326-1-2 A Table A.2 (For use in industrial locations), EN 61326-2-3
- **Electromagnetic wave interference prevention standard**: Electromagnetic wave protection standard compliance
- **Material**: Polycarbonate (Flame retardancy: UL94V-0)
- **Case color**: White (Light gray) or Black (Light charcoal gray)
- **Weight**: 2.5 kg or less
- **External dimensions**: mm (W) x (H) x (D) (60 x 150 x 165 mm)
- **Depth**: (Depths beyond the projection on the rear panel)
- **Installation**: Direct panel mounting; bracket mounting, each one for upper and lower mounting
- **Panel cut dimensions (mm)**: 92 +3/-0 (W) x 92 +3/-0 (H)
- **Mounting altitude**: Up to 30 degrees above the horizontal. Normal trimmed tilt allowed.

**Construction, Installation, and Wiring**

- **Degree of protection provided by Enclosures**: IP66 (for front panel) Not available for waterproofing and water resistance
- **Material**: Polycarbonate (Flame retardancy: UL94V-0)
- **Case color**: White (Light gray) or Black (Light charcoal gray)
- **Weight**: 2.4 kg or less
- **External dimensions**: mm (W) x (H) x (D) (100 x 150 x 165 mm)
- **Depth**: (Depths beyond the projection on the rear panel)
- **Installation**: Direct panel mounting; bracket mounting, each one for upper and lower mounting
- **Panel cut dimensions (mm)**: 92 +3/-0 (W) x 92 +3/-0 (H)
- **Mounting altitude**: Up to 30 degrees above the horizontal. Normal trimmed tilt allowed.
- **Wiring**: 50 mm square terminal with square washer (for signal wiring and power wiring)

**Power Supply Specifications and Isolation**

- **Power supply**: Rated input: 100–240 V AC (±10%)–50/60 Hz
- **Power consumption**: 18 VA (9 CIR; 9 AC; 14 VA DC option is specified)
- **Data backup**: Nonvolatile memory
- **Power backup**: 20 min for 100 V AC drive
- **Withstanding voltage**: Between primary and secondary terminals: 2300 V AC for 1 minute (UL, CSA) Between primary terminals and secondary terminals: 3000 V AC for 1 minute (CE) Between primary terminals and ground: 2500 V AC for 1 minute
  - **Alarm output**: 2500 V AC for 1 minute
- **Alarm output**: 250 V AC for 1 minute
- **Alarm output**: 250 V AC for 1 minute
  - **Primary terminals**: Power and relay output terminals
  - Secondary terminals: Analog 1 signal terminals, contact input terminals, communication terminals and functional grounding terminals
- **Power terminals**: 24 V AC/DC models are the secondary terminals
  - **Isolation resistance**: Between power supply terminals and a grounding terminal 20 MΩ or more at 500 V DC

**Transcription and Storage Conditions**

- **Temperature**: -25°C to 70°C
- **Temperature change rate**: 20°C/h or less
- **Humidity**: 95% RH (non-condensation allowed)

**Effects of Operating Conditions**

- **Effect of ambient temperature**: Voltage to TC input, ±0.5% or ±0.05% of F.S./µV, whichever is larger
- **Current input**: ±0.01% of F.S./µV
- **RTD input**: ±0.05% ±0.05°C/ºC (ambient temperature) or less
- **Analogue output**: ±0.02% of F.S./µV or less
- **Effect of power supply voltage fluctuation**: Analogue input: ±0.05% of F.S. or less
- Analogue output: ±0.05% of F.S. or less
  - (Each within rated voltage range)
5. How to Connect Wires

- Wiring work must be carried out by a person with basic electrical knowledge and practical experience.
- Be sure to turn OFF the power supply to the controller before wiring to avoid an electric shock. Use a tester or similar device to ensure that no power is being supplied to a cable to be connected.
- For the wiring cable, the temperature rating is 75 °C or more.
- As a safety measure, always install a circuit breaker (an IEC 60947-compliant product, 5 A, 100 V or 220 V AC) in an easily accessible location near the instrument. Moreover, provide indication that the switch is a device for turning off the power to the instrument.
- Install the power cable keeping a distance of more than 1 cm from other signal wires.
- The power cable is required to meet the IEC standards concerned with the requirements of the area in which the instrument is being installed.
- Wiring should be installed to conform to NEC (National Electrical Code: ANSI/NFPA-70) or the wiring construction standards in countries or regions where wiring will be installed.
- Since the insulation provided to each relay output terminal is Functional insulation, provide Reinforced insulation to the external of the device as necessary. (Refer to the drawing below.)

- When connecting two or more crimp-on terminal lugs to the single terminal block, bend the crimp-on terminal lugs before tightening the screw.
- Note that the wiring of two or more crimp-on terminal lugs to the single high-voltage terminal of the power supply and relay does not comply with the safety standard.

- Provide electricity from a single-phase power supply. If the power is relay, install an isolation transformer on the primary side, and use a line filter on the secondary side. When measures against noise are taken, do not install the primary and secondary power cables close to each other.
- If there is a risk of external lightning surges, use a lightning arrester etc.
- For TC input, use shielded compensating lead wires for wiring. For RTD input, use shielded wires that have low conductor resistance and cause no significant differences in resistance between the three wires.
- Since the limit control output relay has a life span (resistance load of 100,000 times), use the auxiliary relay to perform ON/OFF control.
- The use of inducance (L) loads such as auxiliary relays, motors and solenoid valves causes malfunction or relay failure; always insert a CR filter for use with alternating current or a diode for use with direct current, as a spark-removal surge suppression circuit, into the line in parallel with the load.
- After completing the wiring, the terminal cover is recommended to be used for the instrument.

6. Terminal Wiring Diagrams

- Do not use an unassigned terminal as the relay terminal. Do not use a 100-240 V AC power supply for the 24 V AC/DC model; otherwise, the instrument will malfunction.

---

### 5. How to Connect Wires

- **WARNING**

**CAUTION**

This product

Functional insulation, provide Reinforced insulation to the external of the device as necessary. (Refer to the drawing below.)

**CAUTION**

When connecting two or more crimp-on terminal lugs to the single terminal block, bend the crimp-on terminal lugs before tightening the screw.

Note that the wiring of two or more crimp-on terminal lugs to the single high-voltage terminal of the power supply and relay does not comply with the safety standard.

- **Recommended Crimp-on Terminal Lugs**

![Recommended tightening torque: 0.6 N·m](image)

<table>
<thead>
<tr>
<th>Applicable wire size</th>
<th>Applicable wire size</th>
<th>Crimp-on terminal type</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.25 mm²</td>
<td>0.3 mm²</td>
<td>UT's contact 35A-L</td>
</tr>
<tr>
<td>0.5 mm²</td>
<td>0.6 mm²</td>
<td>UT's contact 35A-L</td>
</tr>
<tr>
<td>1.0 mm²</td>
<td>1.25 mm²</td>
<td>UT's contact 35A-L</td>
</tr>
</tbody>
</table>

![Cable Specifications and Recommended Cables](image)

- **Recommended Crimp-on Terminal Lugs**

![Recommended tightening torque: 0.6 N·m](image)

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<tr>
<td>0.5 mm²</td>
<td>0.6 mm²</td>
<td>UT's contact 35A-L</td>
</tr>
<tr>
<td>1.0 mm²</td>
<td>1.25 mm²</td>
<td>UT's contact 35A-L</td>
</tr>
</tbody>
</table>

![DC Relay Wiring](image)

**UT35A-L**

- **External DC power supply**
- **Relay** (Use one with a relay coil rating less than the UT’s contact rating.)
- **Diode** (Mount it directly to the relay coil terminal (socket).)

![AC Relay Wiring](image)

**UT35A-L**

- **External AC power supply**
- **Relay** (Use one with a relay coil rating less than the UT’s contact rating.)
- **CR filter** (Mount it directly to the relay coil terminal (socket).)

---

### Terminal Wiring Diagrams

- **CAUTION**

Do not use an unassigned terminal as the relay terminal. Do not use a 100-240 V AC power supply for the 24 V AC/DC model; otherwise, the instrument will malfunction.

**UT35A-L**

- **Limit control output**
  - OUT: (Equipped as standard)
  - Factory default: PV input

**PV input**

- **Power supply**
  - 100-240 V AC power supply

**Contact input**

- **DI** (Equipped as standard)
  - Factory default: No function
  - Function can be assigned to the terminals with no function.
  - (However, setup parameter CNF=DI)

**Contact output**

- **AL** (Equipped as standard)
  - Factory default: PV input

**Retransmission output**

- **RE** (Equipped as standard)

**Ethernet communication (with gateway function)**

- **RS-485**
  - (Suffix code: Type 3=2)
  - Ethernet communication (with gateway function)

**Contact output**

- **AL** (Equipped as standard)
  - Factory default: PV input

**Retransmission output**

- **RE** (Equipped as standard)

**Contact input**

- **DI** (Equipped as standard)

**Ethernet communication (with gateway function)**

- **RS-485**
  - (Suffix code: Type 2=2)

---

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## 1. Names and Functions of Display Parts

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>PV display (white or red)</td>
<td>Displays alarm set value and error occurrence. Displays the setting guide in the Menu Display and Parameter Setting Display when the guide display is shown in the Startup display.</td>
</tr>
<tr>
<td>2</td>
<td>Setup display (green)</td>
<td>Displays the set display.</td>
</tr>
<tr>
<td>3</td>
<td>Setting display (brown)</td>
<td>Displays parameter setup and menu values.</td>
</tr>
<tr>
<td>4</td>
<td>Display indicator (orange)</td>
<td>Shows the display brightness of the input, output, and alarm.</td>
</tr>
<tr>
<td>5</td>
<td>Setting display (green)</td>
<td>Shows the setting value.</td>
</tr>
<tr>
<td>6</td>
<td>Setting display (red)</td>
<td>Shows the setting value.</td>
</tr>
<tr>
<td>7</td>
<td>Parameter display (blue-green)</td>
<td>Shows the parameter setting value.</td>
</tr>
</tbody>
</table>

## 2. Setup Procedure

1. **Setup**

   **Installation and setting**

   Install and wire a controller.

   **Power ON**

   - **NO**
     - Set control type setup
     - Input setup
     - Alarm setup

   - **YES**
     - Set the alarm parameters as needed.
     - Set the other parameters as needed.

   **Operation**

   - Monitoring and control of regular operations

## 3. Quick Setting Function

The Quick setting function is a function to easily set the basic function of the control.

### Operation in Initial Display

- Press the SET/ENTER key while YES is displayed to start the Quick setting function.
- It will display YES to NO and press the SET/ENTER key. Operation Display will appear without starting the Quick setting function.
- Operation for Setting

  - To select the parameter setting displayed as the initial value, press the Down arrow key to move to the next parameter.
  - To change and set the parameter setting, press the SET/ENTER key to start the setup saving.
  - To change the parameter setting, use the Up/Down/Left/Right arrow keys to change the setpoint. Press the SET/ENTER key to complete the setup.

### Making Settings Using Quick Setting Function

#### Example: Setting to the low limit control type and the thermocouple type K (range of 0.0 to 500.0°C)

For the detailed procedure and switches of displays, see "Flow of Quick Setting Function" below. For the parameters to set, see the next column.

1. **Power ON**

   - **YES**
     - Select NO with the Down arrow key and press the SET/ENTER key.

2. **Select NO**

   - Turn on the controller to start the Quick setting function.
   - This function allows you to easily set the limit control type and input, and quickly start the control.
   - The items (parameters) to be set by Quick setting function are as follows:
     1. Limit control type (High limit control or low limit control)
     2. Input function type (input, range, scale, or voltage input, etc.)

   - After turning on the controller, first decide whether or not to use the Quick setting function.
   - The Quick setting function is useful when you want to set the parameter quickly.

3. **Quick Setting Function**

   - Flow of Quick Setting Function
     - In Quick setting function, the parameter guide appears on PV display. This guide can be turned on/off with the PV key.

   - Parameters to be set
     - Limit Control Function

### Input Function

<table>
<thead>
<tr>
<th>Parameter No.</th>
<th>Parameter Symbol</th>
<th>Name of Parameter</th>
<th>Setting Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>14, 15, 68</td>
<td>PID parameter</td>
<td>Photovoltaic</td>
<td>-500.0°C to 500.0°C</td>
</tr>
<tr>
<td>14, 15, 68</td>
<td>I parameter</td>
<td>Photovoltaic</td>
<td>-500.0°C to 500.0°C</td>
</tr>
<tr>
<td>14, 15, 68</td>
<td>D parameter</td>
<td>Photovoltaic</td>
<td>-500.0°C to 500.0°C</td>
</tr>
<tr>
<td>14, 15, 68</td>
<td>P parameter</td>
<td>Photovoltaic</td>
<td>-500.0°C to 500.0°C</td>
</tr>
</tbody>
</table>

### Operation Display

- Displayed the measured input value (PV), display the target setpoint (SP).
- Follow the same procedure to set RL to 0. B. Set other parameters as required.
- Finally, EXIT is displayed. Press the SET/ENTER key to switch to the setting mode. Change HNO to YES and press the SET/ENTER key to complete the setup of the basic function.
- Operation Display appears. The Quick setting function continues in the NO state.
4. Setting Limit Control Type
The following operating procedure describes an example of changing limit control type (factory set default: high limit type) to low limit type.

1. Show the Operation Display.

2. Hold down the keys for 3 seconds. When a password is set, PASS is displayed.

3. Press the SET/ENTER key.

4. The parameter HI/LO (limit control type) is displayed.

5. Press the SET/ENTER key.

6. LOW is displayed. Blinks during the change.

7. Press the Down arrow key.

8. The setpoint has been registered. After the adjustment is completed, press the DISPLAY key once to return to the Operation Display.

5. Setting Alarm Type
The following operating procedure shows an example of changing the alarm-1 type (factory default: PV high limit alarm) to PV low limit alarm (setpoint: 02).

1. Show the Operation Display.

2. Hold down the key for 3 seconds.

3. SP menu is displayed.

4. Press the Right arrow key until ALRM menu appears.

5. Press the SET/ENTER key.

6. The parameter A1 (alarm-1 type) is displayed.

7. Press the SET/ENTER key.

8. The last digit of the setpoint blinks.

9. Change the setpoint using the Up/Down arrow keys to increase and decrease the value and the Left/Right arrow keys to move between digits.

10. Press the SET/ENTER key.

11. The alarm-1 type setpoint 02 (PV low limit) is registered.

12. After the setup is completed, press the DISPLAY key or DISP key once to return to the Operation Display.

13. Stand-by action and excitation are turned on or off by selecting 1 or 0. (See “Setting Display of Alarm Type.”)

14. For the latch action, see User’s Manual.

6. Setting Alarm Setpoint
The following operating procedure shows an example of setting the alarm-1 setpoint of group 1 to 180.0.

1. Show the Operation Display.

2. Hold down the key for 3 seconds.

3. SP menu is displayed.

4. Press the SET/ENTER key.

5. Press the Down arrow key until A1 appears.

6. The parameter A1 is displayed.

7. Press the SET/ENTER key.

8. The setpoint has been registered. After the setup is completed, press the DISPLAY key once to return to the Operation Display.
2. Setting Target Setpoint (SP)

1. Show the SP Display (Operation Display). (This is an example of setting the target setpoint to 150.0).

Ex) SP = 120.0, PV= 115.0, Hysteresis= 4.0

2. Press the SET/ENTER key to start the display of the set point. (Blinking allows you to change the value. The set point is displayed on the display window.)

3. To set the setpoint, use the Left or Right arrow keys to move between digits and the Up/Down arrow keys to increase and decrease the value.

4. (When the required value is displayed, press the SET/ENTER key to register the setpoint.)

2. Confirmation of the Limit Output

When PV exceeds the setpoint for limit control (SP), the following sequence may be performed.

Ex) SP = 120.0, PV= 115.0, Hysteresis= 4.0

1. Show the Operation Display. Ex) SP= 120.0, PV= 115.0, Hysteresis= 4.0

OUT lamp is lit. EXCEED lamp is off.

2. Press the SET/ENTER key to start the display of the set point. (Blinking allows you to change the value. The set point is displayed on the display window.)

3. To set the setpoint, use the Left or Right arrow keys to move between digits and the Up/Down arrow keys to increase and decrease the value.

4. (When the required value is displayed, press the SET/ENTER key to register the setpoint.)

3. Operation in Confirmation Display

Following parameters can be seen in the confirmation display. These parameters can be confirmed and read by pressing the "RST" key at each parameter display.

1. Show the Operation Display. Ex) SP= 120.0, PV= 115.0, Hysteresis= 4.0

2. Press the DISPLAY key once to display the parameter "TIME".

The SP display shows the duration time after PV exceeds SP. If "0.00" shows here, PV has not exceeded SP or the time is already confirmed.

3. If you want to reset the duration time, press the RST key for about one second.

4. For "high limit control" type

Press the DISPLAY key. If the controller is specified as the high limit control type, "HIGH" will be displayed. The maximum value of PV that has been measured up to now is shown in the SP display. Press the RST key if reset is designated.

5. For "low limit control" type

Press the DISPLAY key. If the controller is specified as the low limit control type, "LOW" will be displayed. The minimum value of PV that has been measured up to now is shown in the SP display. Press the RST key if reset is designated.

5. Troubleshooting

Troubleshooting Flow

If the Operation Display does not appear after turning on the controller’s power, check the procedures in the following flowchart. If a problem appears to be complicated, contact our sales representatives.

NOTE

Write down the settings of parameters for a repair request.
Errors at Power On

The errors below may occur in the fault diagnosis when the power is turned on. (For details of Setpoint display and input/output action when each error occurs, see User’s Manual.

<table>
<thead>
<tr>
<th>Error No.</th>
<th>Error Code</th>
<th>Error Description</th>
<th>Error Cond.</th>
<th>Remedial Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>SYS</td>
<td></td>
<td>System error</td>
<td>-</td>
<td>Contact for repair</td>
</tr>
<tr>
<td>ERR</td>
<td>User parameter value error</td>
<td>-</td>
<td>Contact for repair</td>
<td></td>
</tr>
<tr>
<td>ERR</td>
<td>Setup parameter error</td>
<td>-</td>
<td>Contact for repair</td>
<td></td>
</tr>
<tr>
<td>RJC</td>
<td>Screen operation error</td>
<td>-</td>
<td>Contact for repair</td>
<td></td>
</tr>
</tbody>
</table>

Errors during Operation

The errors below may occur during operation. (For input/output action when each error occurs, see User’s Manual.

<table>
<thead>
<tr>
<th>Error No.</th>
<th>Error Code</th>
<th>Error Description</th>
<th>Error Cond.</th>
<th>Remedial Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>AD. ERR</td>
<td></td>
<td>Analog input terminal AD.E error</td>
<td>-</td>
<td>Contact for repair</td>
</tr>
<tr>
<td>RJC.(RJC)</td>
<td></td>
<td>Universal terminal RJC.E error</td>
<td>-</td>
<td>Contact for repair</td>
</tr>
<tr>
<td>B.OUT</td>
<td></td>
<td>Analog input terminal output error</td>
<td>-</td>
<td>Contact for repair</td>
</tr>
<tr>
<td>OVER</td>
<td></td>
<td>Analog input terminal output error</td>
<td>-</td>
<td>Contact for repair</td>
</tr>
<tr>
<td>OVER</td>
<td>0.00-0.0000</td>
<td>Digital point on the left of the terminal display (class 1)</td>
<td>0.00-0.0000</td>
<td>Contact for repair</td>
</tr>
<tr>
<td>OVER</td>
<td></td>
<td>Digital point on the right of the terminal display (class 1)</td>
<td>0.00-0.0000</td>
<td>Contact for repair</td>
</tr>
</tbody>
</table>

6. Description of Limit Control Functions

In Case of Low Limit Control

When PV exceeds a setpoint (SP) “EXCEEDED” lamp lights, and “OUT” lamp turns on (point A). The limit control output relay is de-energized when “EXCEEDED” lamp turns off when PV goes into normal condition, while “OUT” lamp stays on as it is (point B) “OUT” lamp turns off when a confirming operation is done by an operator (point C). The way to confirm is pushing the “RST” key (or by an external contact, according to the setting of setup parameter CNF). The confirming operation is not accepted during PV exceeds SP (point D). State of output relay is de-energized whenever “OUT” lamp is on. (NC terminal: CLOSE, NO terminal: OPEN)

Power on Status

The state of output relay at power-on can be set by a setup parameter reset mode.

- Reset mode R.M.D.: 0 : Limit output relay is de-energized at power on. 1 : Limit output relay is energized at power on.

- When parameter R.M.D. is set to 0.

The limit output relay is always de-energized at power on, even if PV doesn’t exceed SP (point A). (NC terminal: CLOSE, NO terminal: OPEN) “OUT” lamp is off. After the confirmation, state of output relay is energized (NC terminal: OPEN, NO terminal: CLOSE) and “OUT” lamp turns on (if the PV doesn’t exceed SP (point B). In Case of High Limit Control

Maximum/Minimum Value

The maximum or minimum value of PV is stored in the memory and displayed in the “HIGH” or “LOW” display in the confirmation display.

When the control type is specified as high limit control, the maximum value is displayed in the “HIGH” display, and control type is specified as low limit control, the maximum value is displayed in the “LOW” display. When the PV exceeds SP and then returns to the normal status, Maximum/Minimum Value is retained as it is, but when PV exceeds SP again, it is automatically reset and starts taking new value for its minimum/maximum value.

- To RESET
  - Push the “RST” key for about one second to reset the maximum / minimum value in the confirmation display where “HIGH” or “LOW” is displayed. The value is reset, and the value immediately after the confirmation should be recognized as a maximum or minimum value.
  - When the power is turned on, the memory should be reset and the first PV should be recognized as maximum.
  - Maximum/Minimum Value cannot be reset by an external contact input.
  - It is impossible to reset the maximum / minimum value while PV exceeds SP by any operation.

7. Parameters in the Confirmation Displays

Duration Time

The time value PV exceeds SP is counted and stored in the memory. It is displayed in the “TIME” display in the confirmation display.

Display time range: 0.00 to 99.99

Unit of time is either “hour:minute” or “minute:second”, and can be set by operation parameter TMU.

- To RESET
  - Push “RST” key for about one second to reset the duration time in the confirmation display where “TIME” is displayed.
  - The time count is reset when power is turned on.
  - If PV exceeds SP during the time count data is retained in the memory, the old data should be automatically reset, and the new time counting starts from 0 (point A).
  - It is impossible to reset the time count while PV exceeds SP by any operation.
  - Duration time cannot be reset by an external contact input.
### Operation Guide

#### Parameters

<table>
<thead>
<tr>
<th>Parameter symbol</th>
<th>Name of Parameter</th>
<th>Setting Range</th>
<th>Initial setting</th>
<th>Display level</th>
</tr>
</thead>
<tbody>
<tr>
<td>R1 (A2)</td>
<td>Alarm-1 type</td>
<td>1-5</td>
<td>1</td>
<td>EASY</td>
</tr>
<tr>
<td>R2 (A2)</td>
<td>Alarm-2 type</td>
<td>1-5</td>
<td>1</td>
<td>EASY</td>
</tr>
<tr>
<td>R3 (A2)</td>
<td>Alarm-3 type</td>
<td>1-5</td>
<td>1</td>
<td>EASY</td>
</tr>
<tr>
<td>R4 (A2)</td>
<td>Alarm-4 type</td>
<td>1-5</td>
<td>1</td>
<td>EASY</td>
</tr>
</tbody>
</table>

#### Operation Parameters

Hold down the PARAMETER key for 3 seconds to move from the Operation Display to the Operation Parameter Setting Display. Press the DISPLAY key once to return to the Operation Display.

#### Operation for Setting

- To select the parameter setting displayed as the initial value, press the Down arrow key to move to the next parameter.
- To change and set the parameter setting, press the SET/ENTER key to start the set-point blinking. The blinking state allows you to make changes (setting mode). Use the Up/DOWN key to change the setpoint. Press the SET/ENTER key to register the setting.

Note that there are some parameters which are not displayed depending on the suffix codes. The parameters for professional setting mode (EASY, PRO) are not described in this manual. See User's Manual.

### SP and Alarm Setpoint Setting Parameter

#### Menu symbol: SP (A2)

#### PV-related setting parameter

<table>
<thead>
<tr>
<th>Parameter symbol</th>
<th>Name of Parameter</th>
<th>Setting Range</th>
<th>Initial setting</th>
<th>Display level</th>
</tr>
</thead>
<tbody>
<tr>
<td>B1 (A2)</td>
<td>PV input bias</td>
<td>0-0.5/0-100% of PV input range span (0-32)</td>
<td>0-0.5/0-100% of PV input range span (0-32)</td>
<td>EASY</td>
</tr>
<tr>
<td>B2 (A2)</td>
<td>PV input filter</td>
<td>0.1 to 10s</td>
<td>0.1</td>
<td>EASY</td>
</tr>
</tbody>
</table>

#### PV-related setting parameter

<table>
<thead>
<tr>
<th>Parameter symbol</th>
<th>Name of Parameter</th>
<th>Setting Range</th>
<th>Initial setting</th>
<th>Display level</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1 (T)</td>
<td>Time until for burnout</td>
<td>1-1000 minutes and second</td>
<td>1000 minutes and second</td>
<td>EASY</td>
</tr>
</tbody>
</table>
### network Parameter

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Name of Parameter</th>
<th>Setting Range</th>
<th>Default</th>
<th>User setting</th>
<th>Display level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parameter</td>
<td>Physical address</td>
<td>IP address 1 to IP address 4</td>
<td>0.0.0.0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>