Safety, Protection, and Modification of the Product

1. In order to protect the system, controlled by this product and the product itself, and to ensure safe operation, observe the safety precautions described in the operating guide. Use of the instrument in a manner not prescribed herein may compromise the product’s functions and the protection features inherent in the device. We assume no liability for safety or responsibility for the products’ quality performance or functionality should users fail to observe these instructions when using the product.

2. Installation of protection and/or safety circuits with respect to a lightning protection device for the equipment or the product itself, as provided by the product and the product itself, footprint or fault-safe design of a process or line using the system controlled by the product or the product itself, and the design and installation of other protective and safety circuits are to be appropriately implemented as the manufacturer recommends.

3. Be sure to use the spare parts approved by YOKOGAWA when replacing parts or consumables.

4. This product is not designed or manufactured to be used in applications that directly affect or threaten human lives or health. Such applications include nuclear power engineering, devices using radiocentrity, railway facilities, aviation equipment, air navigation services, aviation facilities, and medical equipment. If so used, it is the user’s responsibility to include in the system additional equipment and services that ensure personnel safety.

5. Modification of the product is strictly prohibited.

6. This product is intended to be used by experienced personnel for electronic devices.

7. This product is UL Recognized Component. In order to comply with UL standards, equipment and circuitry that are necessary to be designed by those who have knowledge of the requirements.

Power Supply

- Ensure the instrument’s supply voltage matches the voltage provided to the end user of the product.
- Do Not Use in an Explosive Atmosphere
- Do not operate the instrument in locations with combustible or explosive gases or steam. Operation in such environments constitute extreme safety hazard. Use of the instrument in environments with high concentrations of corrosive gases (H₂S, SO₂, Cl₂) or elevated humidity periods of time may cause a failure.
- Do Not Remove Internal Unit
- The internal unit must not be removed by anyone other than YOKOGAWA’s service personnel. There are dangerous high voltage parts. Additionally, do not replace the fuse by yourself.
- Damage to the Protective Construction
- Operation of the instrument in a manner not specified in the operation guide may damage its protective construction.

This instrument is an EMC class A product. In a domestic environment this product may cause radio interference in which case the user needs to take adequate measures.

2. Model and Suffix Codes

UT32A eEntry Models

<table>
<thead>
<tr>
<th>Model</th>
<th>Suffix code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type 1</td>
<td></td>
<td>Fused power indicator (Fused power indicator)</td>
</tr>
<tr>
<td>Type 2</td>
<td></td>
<td>Fused power indicator (Fused power indicator)</td>
</tr>
<tr>
<td>Type 3</td>
<td></td>
<td>Fused power indicator (Fused power indicator)</td>
</tr>
<tr>
<td>Type 4</td>
<td></td>
<td>Fused power indicator (Fused power indicator)</td>
</tr>
<tr>
<td>Type 5</td>
<td></td>
<td>Fused power indicator (Fused power indicator)</td>
</tr>
</tbody>
</table>

Note

Identifies important information required to operate the instrument.

3. How to Install

Installation Location

The instrument should be installed in indoor locations meeting the following conditions:

- Instrumental panel
  - This instrument is designed to be mounted in an instrumental panel. Mount the instrument so that its terminals will not inadvertently be touched.
  - Well ventilated locations
    - Mount the instrument in a well-ventilated location to prevent the instrument’s internal temperature from rising. However, ensure that the terminal portions are not exposed to wind. Exposure to wind may cause the temperature sensor accuracy to deteriorate. To mount multiple indicating controllers, see the external dimensions/panel cutout dimensions that follow. If mounting other instruments adjacent to the instrument, comply with the panel cutout dimensions to provide sufficient clearance between the instruments.
  - Locations with little mechanical vibration
    - Install the instrument in a location subject to little mechanical vibration.
  - Horizontal location
    - Mount the instrument horizontally and ensure that it is level, with no inclination to the right or left.

If the instrument is moved from a location with low temperature and low humidity to a place with high temperature and high humidity, or if the temperature changes rapidly, condensation may form. Moreover, in the case of thermoplastic materials, measurement error will result. To avoid such a situation, leave the instrument in the new environment ambient conditions for more than 1 hour prior to using it.

Do not mount the instrument in the following locations:

- Outdoor
  - Locations subject to direct sunlight or close to a heater
    - Install the instrument in a location subject to direct sunlight or close to a heater, which may adversely affect the instrument.
  - Locations with substantial amounts of oily fumes, steam, moisture, dust, or corrosive gases
    - The instrument may cause fume, steam, moisture, dust, or corrosive gases adversely affect the instrument. Do not mount the instrument in locations subject to any of these substances.
  - Areas near electromagnetic field generating sources
    - Do not mount the instrument in locations subject to strong electromagnetic field generating sources. The magnetic field may cause measurement errors.
  - Locations where the display is difficult to see
    - The instrument’s LCD for the display unit, and this can be difficult to see from extremely oblique angles. Mount the instrument in a location where it can be seen as much as possible from the front.
  - Areas close to flammable articles
    - Absolutely do not place the instrument directly on flammable surfaces. If such environment is unavoidable, and the instrument must be placed close to a flammable item, provide a shield for at least 1.5 mm steel plate or 1.6 mm thick unplated steel with a space of at least 150 mm between it and the instrument on the top, bottom, and sides.
  - Areas subject to being splashed with water

Be sure to turn OFF the power supply to the controller before installing it on the panel to avoid an electric shock.
4. Hardware Specifications

This instrument is for Measurement Category No.1. Do not use it for measurements in locations falling under Measurement Categories No.2, No.3, and No.4.

- Allowable signal source resistances: TC or mV input: 250 O or less
  Effects of signal source resistance: 0.1 µV/O or less
  DC voltage input: 2 A or less

- Effects of signal source resistance: 0.1% of full span

- Allowable sensor resistance
  RTD input: Max. 150 Ohm (The conductor resistance between the three wires shall be equal.)
  Wiring resistance effect: ±1ºC/100 Ohm

- Allowable input volatages
  TC, mV, and RTD input: ±10 V DC
  V input: ±20 V DC
  mV input: ±400 mV

- Noise rejection ratio: Normal mode: 40 dB or more (at 50/60 Hz)
  Common mode: 120 dB or more (at 50/60 Hz)

- For 100-240 AC, the power line frequency can be set manually. Automatic detection is also available.
  ±24 V DC/AC, the power line frequency can be set manually.

- Reference junction compensation error:
  TC: ±0.1ºC (15 to 35ºC), ±1ºC (from -5ºC to 55ºC and from 55ºC to 85ºC)
  ±1ºC (±0.1% of the input range) for TC and RTD

## Input Specifications

**Universal Input (Equipped as standard)**

- **Number of inputs:** 1
- **Input type, instrument range, and measurement accuracy:** See the table below.

### Input Specifications

<table>
<thead>
<tr>
<th>Input Type</th>
<th>Instrument Range</th>
<th>Accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td>K</td>
<td>±0.3% of span</td>
<td>±0.5%</td>
</tr>
<tr>
<td>J</td>
<td>±0.3% of span</td>
<td>±0.5%</td>
</tr>
<tr>
<td>T</td>
<td>±0.3% of span</td>
<td>±0.5%</td>
</tr>
<tr>
<td>E</td>
<td>±0.3% of span</td>
<td>±0.5%</td>
</tr>
<tr>
<td>R</td>
<td>±0.3% of span</td>
<td>±0.5%</td>
</tr>
<tr>
<td>S</td>
<td>±0.3% of span</td>
<td>±0.5%</td>
</tr>
<tr>
<td>B</td>
<td>±0.3% of span</td>
<td>±0.5%</td>
</tr>
<tr>
<td>W</td>
<td>±0.3% of span</td>
<td>±0.5%</td>
</tr>
</tbody>
</table>

### Analog Output Specifications

- **Number of outputs:** 2
- **Output type:** Control output I, Control output II
- **Current output:** 4 to 20 mA DC or to 0 to 20 mA DC (depending on the resistance of the load)
- **Current output accuracy:** ±0.2% of the instrument range (i.e., ±0.2% of span)
- **Operating temperature:** 23±5ºC
- **Power frequency at 50/60 Hz:**
  - ±24 V DC/AC, the power line frequency can be set manually.
  - Reference frequency compensation error:
    TC: ±0.1% (15 to 35ºC), ±1% (from -5ºC to 55ºC and from 55ºC to 85ºC)

### Relay Contact Output Specifications

- **Contact type and number of outputs:**
  - Control output: contact point 1: 1 contact
  - Contact rating:
    - Contact point 1: control output: 250 V AC, 3A or 30 V DC, 3A (reistance load)
    - Use: Time proportional output, ON/OFF output
    - On-time: 10% to 100% of full span
    - Off-time: 10% to 100% of full span

### Safety and EMC Standards

- **Safety:** Compliant with IEC61010-1 (IEC), IEC61010-2-020 (IEC), IEC61010- 2-030 (IEC), approved by CAN/CSA C22.2 No.1101-1 (CSA), approved by UL 61010-1
  - Installation category: II
  - Pollution degree: 2

- **Rated measurement input voltage:** 10 V DC
  - Rated measurement input voltage: 10 V DC
  - Rated measurement input voltage: 10 V DC

- **EMC standards:**
  - Compliance with CE marking
  - EN 61326-1: Electromagnetic compatibility of industrial measurements equipment
  - EN 61326-2-3

### Environmental Conditions

- **Temperature:** -25ºC to 70ºC
- **Humidity:** 5 to 95% RH

### Electrical Characteristics

- **Effect of ambient temperature:**
  - Voltage: ±0.5% of F.S. ±0.5% of F.S. per degree Celsius
  - Current: ±0.5% of F.S.
  - RTD input: ±0.05% of F.S. per degree Celsius

### Power Supply Specifications

- **Rated power consumption:**
  - 100-240 V AC (10%-15%, 50/60 Hz)
  - 24 V DC (10%-15% for DC option)

- **Power consumption:**
  - 15 VA 24 DC or 5 W 24 DC (AC option is specified)

- **Input voltage and frequency:**
  - 230 V AC or 200 V AC for 1 minute
  - 150 V AC for 1 minute

- **Primary terminals:** Power and relay output terminals
  - Secondary terminals:
    - Analog I/O signal terminals, communication terminals and functional ground terminals

### Installation, Storage, and Transportation

- **Installation:**
  - Mounting: 2-to-3 holes (±3 mm in diameter)
  - Mount range: 32 mm to 95 mm

- **Storage and Transportation:**
  - Operational temperature: -25ºC to 70ºC
  - Storage temperature: -25ºC to 85ºC (without insulation)

### Maintenance and Service

- **Wiring:**
  - Remove the screws with appropriate tightening torque within 0.25 Nm. Otherwise it may cause the case deformation or the breakage damage.
  - Make sure that foreign materials do not enter the inside of the instrument through the case’s slit holes.

### External Dimensions and Panel Cutout Dimensions

- **Panel cutout dimensions:** 48 (W) x 96 (H) x 65 (depth from the panel face)

### Installation:

- **Direct panel mounting: braiding, one each for upper and lower mounting.

- **Panel cutout dimensions:** 48 (W) x 96 (H) x 65 (depth from the panel face)

- **Note:** Exposed to 5000 V DC/AC for 1 minute (above the horizontal. No-down tilting allowed.

- **Wiring:** M3 screw terminal with square washer for signal wiring and power wiring.

### Control Specifications and Isolation

- **Power supply:**
  - Rated power consumption: 240 V AC (10%-15%, 50/60 Hz)

- **Power consumption:**
  - 15 VA 24 DC or 5 W 24 DC (AC option is specified)

- **Data output:** Non-memorial power memory

- **Storage and Transportation:**
  - Operational temperature: -25ºC to 70ºC
  - Storage temperature: -25ºC to 85ºC (without insulation)

- **General mounting:**
  - Through the case’s slit holes
  - Mounting: 2-to-3 holes (±3 mm in diameter)
  - Mount range: 32 mm to 95 mm
  - Mounting hardware:
    - 2-to-3 holes (±3 mm in diameter)
  - Mounting hardware:
    - 2-to-3 holes (±3 mm in diameter)
  - Mounting hardware:
    - 2-to-3 holes (±3 mm in diameter)
  - Mounting hardware:
    - 2-to-3 holes (±3 mm in diameter)
  - Mounting hardware:
    - 2-to-3 holes (±3 mm in diameter)
  - Mounting hardware:
    - 2-to-3 holes (±3 mm in diameter)
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 60841-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.
- For the wiring cable, a distance of more than 1 cm from other signal wires.
- The power cable is required to meet the IEC standards concerned or wiring standards in countries or regions where wiring will be installed.
- Since the insulation provided to each relay output terminal is insulating, provide 2.5 mm reinforced insulation to the external of the device as necessary. (Referring to the drawing below.)
- Since the control wiring is carried out in the same manner as the power supply wiring, use of a tester or similar device is recommended.
- The power supply wiring is of category 2, and the control wiring is of category 1.

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.

Cable Specifications and Recommended Cables

- Recommended tightening torque: 0.5 to 0.6 N·m

Recommended Crimp-on Terminal Lugs

- Recommended tightening torque: 0.3 to 0.5 N·m

Applicable wire size: Power supply wiring 1.25 mm² or more

Terminal Lug

- Applicable terminal lug
  - Applicable wire size: [Wire size]
  - Applicable voltage: [Voltage]
1. Names and Functions of Display Parts

- Display window: Displays the current display.
- Alarm display: Shows the status of the alarm.
- Display“A”/“B”/“C”/“D”/“E”/“F”/“G”/“H”/“I”/“J”/“K”/“L”/“M”/“N”/“O”/“P”/“Q”/“R”/“S”/“T”/“U”/“V”/“W”/“X”/“Y”/“Z”/“0”/“1”/“2”/“3”/“4”/“5”/“6”/“7”/“8”/“9”: Indicate the current setting.
- The communication controller (maintenance terminal) of LCP (Parameter Setting Software) is on the top of the display.

2. Setup Procedure

The following flowchart shows the setup procedure for UT32A.

```
<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Install and wire a controller.</td>
</tr>
<tr>
<td>2.</td>
<td>Quick setting starts.</td>
</tr>
<tr>
<td>3.</td>
<td>Control type setup.</td>
</tr>
<tr>
<td>4.</td>
<td>Input setup.</td>
</tr>
<tr>
<td>5.</td>
<td>Output setup.</td>
</tr>
<tr>
<td>6.</td>
<td>Other setup.</td>
</tr>
<tr>
<td>7.</td>
<td>Set the parameters as needed.</td>
</tr>
<tr>
<td>8.</td>
<td>Adjust PID using auto-tuning or manually for PID control.</td>
</tr>
<tr>
<td>9.</td>
<td>Monitoring and control of regular operations.</td>
</tr>
</tbody>
</table>
```

3. Quick Setting Function (Setting of Input and Output)

The quick setting function is a function to easily set the basic function of the controller.

- Turn on the controller to start the quick setting function.
- This function allows you to easily set the control type and input, and quickly start the control action. For time proportional output, you can select the cycle time.
- The items (parameters) to be set by Quick setting function are as follows:
  1. Control type (PID control, ON/OFF control).
  2. Input function (PV input type, range, scale (at voltage input), etc.)
  3. Output function (cycle time)

After turning on the controller, first decide whether or not to use the Quick setting function.

```
Operation in Initial Display:
- Press the SET/ENTER key if YES is displayed to start the quick setting function.
- If you change YES to NO and press the SET/ENTER key, Operation Display will appear without starting the Quick setting function.
```

For details of each function, see the electronic manual.

---

**Contents**

1. Names and Functions of Display Parts
2. Setup Procedure
3. Quick Setting Function (Setting of Input and Output)
4. Setting Alarm Type
5. Setting Alarm Setpoint

---

**Operation Guide**

UT32A-V, -C, -R
Digital Indicating Controller
Operation Guide

YOKOGAWA
Voyage I Tech Corporation

This operation guide describes basic settings and operations of the UT32A.

For details of each function, refer to the electronic manual.

The quick setting function can be turned on/off with the [F1] key.

For details of the each function, refer to the electronic manual.

- Website: [http://www.yokogawa.com/us/ut32a](http://www.yokogawa.com/us/ut32a)

---

**Parameters**

- PV display: Shows the measured value.
- Alarm display: Shows the status of the alarm.
- Setpoint display: Shows the setpoint value.
- Display“A”/“B”/“C”/“D”/“E”/“F”/“G”/“H”/“I”/“J”/“K”/“L”/“M”/“N”/“O”/“P”/“Q”/“R”/“S”/“T”/“U”/“V”/“W”/“X”/“Y”/“Z”/“0”/“1”/“2”/“3”/“4”/“5”/“6”/“7”/“8”/“9”: Indicate the current setting.
- The communication controller (maintenance terminal) of LCP (Parameter Setting Software) is on the top of the display.

---

**Operation**

- 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 blinking. The blinking state allows you to make changes (setting mode).
- Use the Up/Down/Left/Right arrow keys to change the setup. Press the SET/ENTER key to register the setting.

---

**Making Settings Using Quick Setting Function**

**Example:** Setting to PID control and thermocouple type K (range of 0.0 to 500.0 °C)

For the detailed procedure and switching of displays, see “Flow of Quick Setting Function” below. For the parameters to set, see the next page.

1. Press the SET/ENTER key while YES for GSM (Quick setting mode) is displayed.
2. Set the control type parameter (CNT) to PID (PID control).
3. Set the PV input type parameter (IN) to K1 (270.0 to 1370.0 °C).
4. Set the PV input unit parameter (UNIT) to C (Degree Celsius).
5. Set the maximum value of PV input range parameter (RH) to 500.0.
6. Set the minimum value of PV input range parameter (RL) to 0.0.
7. Finally, EXIT is displayed. Change NO to YES and press the SET/ENTER key to complete the setup. Operation Display appears.

---

**Flow of Quick Setting Function**

In Quick setting mode, the parameter guide appears on the display. This guide can be turned on/off with the [F1] key.

```
1. Press the SET/ENTER key while YES is displayed to start the Quick setting function.
2. Set the other parameters as needed.
3. Change NO to YES and press the SET/ENTER key.
4. Select NO with the Down arrow key and press the SET/ENTER key.
5. Press the Up arrow key.
6. Select NO to return to the Operation Display.
7. The PV input unit parameter (UNIT) is displayed. Initial value: C (Degree Celsius).
8. Press the Down arrow key.
9. The last digit of the upper limit value blinks.
10. Press the SET/ENTER key.
11. The setpoint for the parameter RH has been registered.
12. Finally, EXIT is displayed. Press the SET/ENTER key to switch to the setting mode. Change NO 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.

---

**Notes:**

- The communication controller (maintenance terminal) of LCP (Parameter Setting Software) is on the top of the display.
- The communication controller (maintenance terminal) of LCP (Parameter Setting Software) is on the top of the display.
4. 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.**
   - Hold down the key for 3 seconds.

2. **MODE menu is displayed.**
   - Press the Right arrow key until ALRM menu appears.

3. **ALRM menu is displayed.**
   - Press the SET/ENTER key.

4. **The parameter AL1 (alarm-1 type) is displayed.**
   - Press the SET/ENTER key.

5. **The last digit of the setpoint blinks.**
   - 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.
   - Press the SET/ENTER key.

6. **The alarm-1 type setpoint 02 (PV low limit) is registered.**
   - After the setup is completed, press the DSP key once to return to the Operation Display.

### 5. Setting Alarm Setpoint

The following operating procedure shows an example of setting the alarm-1 setpoint of group 1 to 1800.

Before setting the alarm setpoint, check the alarm type. To change the alarm type, see "3. Setting Alarm Type."

1. **Show the Operation Display.**
2. **Display MODE menu with the same procedure as described in Setting Alarm Type.**
   - Press the Right arrow key.

3. **SP menu is displayed.**
   - Press the SET/ENTER key.

4. **The parameter A1 is displayed.**
   - A1 to A4 represent the alarm-1 to -4 setpoints.
   - Up/Down arrow keys: parameters
   - Left/Right arrow keys: groups
   - Display the parameter and group that need to be changed.

5. **Blinks during the change.**
   - Change the setpoint using the Up/Down arrow and keys to increase the parameter value and the Left/Right arrow keys to move between digits.
   - Press the SET/ENTER key.

6. **The setpoint has been registered.**
   - After the setup is completed, press the DSP key once to return to the Operation Display.

### Initialization parameter values

Parameters that you have changed cannot be initialized to factory default values or user default values. For details, see "Parameter Initialization" in the User's Manual (IM-05P01F31-01EN).

### Changing the parameter display levels

This operation guide does not explain all the parameters. To display all the parameters, you need to change the parameter display level to professional setting mode. For details, see "Setting Security Functions" in the User’s Manual (IM-05P01F31-01EN).
When the required value is displayed, displays the measured input value on PV display. Display the target setpoint (SP) on Setpoint display (SP can be changed).

■ Operation Display Switching Diagram

1. SP Display
2. OUT Display
3. Setpoint display (SP) on Setpoint display (SP can be changed).
4. OUT display (OUT can be changed).

After showing the OUT Display, press the DISP key to show the following displays conditionally. For details, see User’s Manual (IM 05P01F31-01EN).

1. SET/ENTER key
2. SPN0 key
3. AUTO key
4. MAN key

5. Displaying the Operation Display

When the setpoint has been registered. Press the SET/ENTER key once to return to the Operation Display.

6. Changing the setpoint using the Up/Down arrow keys.

7. SPNO has been changed to 2.

8. MAN lamp is lit in MAN mode.

Each time you press the AUTO and MAN is switched alternately.

When AUTO is switched into MAN, the control output value in AUTO mode is held. The controller can be operated manually from the hold value. If the manual preset output is set (MPON parameter x OFF), the controller can be operated manually from the arbitrary output value (MP01 to MP05 parameters).

5. Switching between AUTO and MAN

AUTO and MAN switching can be performed using any of the following: (1) A/M key, (2) Communication, and (3) User function key.

The figure below shows the direct operation using the A/M key.

6. Switching between RUN and STOP

RUN and STOP switching can be performed using any of the following: (1) Parameter, (2) Communication, and (3) User function key.

For details of overwriting methods and the display appearing when the operation is started, see User’s Manual (IM 05P01F31-01EN).

When the controller is stopped, input and outputs are as follows:

- MPO5 parameter (SP is determined by the parameter just before STOP)
- Out parameter
- Out parameter

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5. Change the operation mode using the Up/Down arrow keys. Shifts during the change.

6. Press the SET/ENTER key.

The REM lamp is lit.

6. Manipulating Control Output in Manual Mode

**NOTE**

In manual mode, control output is manipulated by operating the keys (the value is changed using the Up/Down arrow keys, then outputted as it is). Even if the SET/ENTER key is not pressed, the control output value changes according to the displayed value. If stop mode (when the STOP lamp is lit), control output cannot be manipulated.

Up arrow key: increases control output.
Down arrow key: decreases control output.

9. 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.

#### Remedies if Power Failure Occurs during Operations
- Power failure occurs within 20 ms. A power failure is not detected. Normal operation continues.
- Power failure for less than about 5 seconds, or for about 5 seconds or more.

Affects the “settings” and “operation status.”

For details, see User’s Manual (IM OSPF/F31-01EN).

---

**NOTE**

Write down the settings of parameters for a repair request.

---

**Errors at Power On**

The errors shown below may occur in the fault diagnosis when the power is turned on. (For details of Setpoint display and input/output actions when each error occurs, see User’s Manual (IM OSPF/F31-01EN).

---

**Errors during Operation**

The errors shown below may occur during operation. (For input/output actions when each error occurs, see User’s Manual (IM OSPF/F31-01EN).

---

**Errors at Power On**

The errors shown 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 (IM OSPF/F31-01EN).
For details of each function, refer to the electronic manual. Manuals can be downloaded or viewed at the following URL:


### Operation Parameters

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

#### Operation 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 setpoint tracing. This blinking state allows you to make changes (setting mode).** Use the Up/Down/Left/Right arrow keys 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 model and suffix codes, control type (CNT), etc. The parameters for professional mode (LEVEL: PRO) are not described in this manual. See User's Manual (M OSF0131-01EN).

### Parameters

#### SELECT Parameter (C)

<table>
<thead>
<tr>
<th>Parameter name (CNT)</th>
<th>Setting range of a parameter symbol</th>
<th>Initial setting</th>
<th>Manual setting</th>
<th>Level: (PRO)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rp IN</td>
<td>0.095 ~ 0.95 to 16.095% of PV input range (SP90 ~ 900%)</td>
<td>1.0%</td>
<td>Safe</td>
<td>Safe</td>
</tr>
<tr>
<td>Rp OUT</td>
<td>0.095 ~ 0.95 to 16.095% of PV input range (SP90 ~ 900%)</td>
<td>1.0%</td>
<td>Safe</td>
<td>Safe</td>
</tr>
<tr>
<td>SP1 to SP6 (R to 6)</td>
<td>0.095 ~ 0.95 to 16.095% of PV input range (SP90 ~ 900%)</td>
<td>0.1%</td>
<td>Safe</td>
<td>Safe</td>
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</table>

#### SP and Alarm Setpoint Setting Parameter

<table>
<thead>
<tr>
<th>Parameter number (SP to A1)</th>
<th>Name of Parameter</th>
<th>Setting range</th>
<th>Initial setting</th>
<th>Display level</th>
</tr>
</thead>
<tbody>
<tr>
<td>SP1</td>
<td>Target setpoint</td>
<td>0 ~ 100.5% of PV input range</td>
<td>5.0%</td>
<td>Easy</td>
</tr>
<tr>
<td>SP2</td>
<td>Sparger setpoint (when two parameters have been set)</td>
<td>0.095 ~ 0.95 to 16.095% of PV input range (SP90 ~ 900%)</td>
<td>1.0%</td>
<td>Easy</td>
</tr>
<tr>
<td>SP3</td>
<td>P1 parameter group selection (to set)</td>
<td>0 ~ 4000 mV</td>
<td>0</td>
<td>Easy</td>
</tr>
<tr>
<td>SP4</td>
<td>P1 alarm-1 to alarm-4 setpoint (when the time parameter is selected)</td>
<td>0 ~ 4000 mV</td>
<td>0</td>
<td>Easy</td>
</tr>
<tr>
<td>SP5</td>
<td>PV input filter</td>
<td>OFF to 100% OFF</td>
<td>OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>SP6</td>
<td>Auto tuning function</td>
<td>OFF to 100% OFF</td>
<td>OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>SP7</td>
<td>PID parameter group selection</td>
<td>0 ~ 4000 mV</td>
<td>0</td>
<td>Easy</td>
</tr>
<tr>
<td>SP8</td>
<td>PID parameter group selection</td>
<td>0 ~ 4000 mV</td>
<td>0</td>
<td>Easy</td>
</tr>
<tr>
<td>SP9</td>
<td>PID parameter group selection</td>
<td>0 ~ 4000 mV</td>
<td>0</td>
<td>Easy</td>
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</tbody>
</table>

#### PV-related Setting Parameter

<table>
<thead>
<tr>
<th>Parameter number (PV to P5)</th>
<th>Name of Parameter</th>
<th>Setting range</th>
<th>Initial setting</th>
<th>Display level</th>
</tr>
</thead>
<tbody>
<tr>
<td>PV1</td>
<td>PV input filter</td>
<td>OFF to 100% OFF</td>
<td>OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>PV2</td>
<td>Auto tuning function</td>
<td>OFF to 100% OFF</td>
<td>OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>PV3</td>
<td>PID parameter group selection</td>
<td>0 ~ 4000 mV</td>
<td>0</td>
<td>Easy</td>
</tr>
<tr>
<td>PV4</td>
<td>PID parameter group selection</td>
<td>0 ~ 4000 mV</td>
<td>0</td>
<td>Easy</td>
</tr>
<tr>
<td>PV5</td>
<td>PID parameter group selection</td>
<td>0 ~ 4000 mV</td>
<td>0</td>
<td>Easy</td>
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</table>

#### PID Setting Parameter

<table>
<thead>
<tr>
<th>Parameter number (P to PD)</th>
<th>Name of Parameter</th>
<th>Setting range</th>
<th>Initial setting</th>
<th>Display level</th>
</tr>
</thead>
<tbody>
<tr>
<td>P1</td>
<td>Proportional band</td>
<td>OFF to 100.0%</td>
<td>5.0%</td>
<td>Easy</td>
</tr>
<tr>
<td>P2</td>
<td>Derivative time</td>
<td>0.01 ~ 1000.0 s</td>
<td>0.01</td>
<td>Easy</td>
</tr>
<tr>
<td>P3</td>
<td>Integral time</td>
<td>0.01 ~ 100.0 h</td>
<td>0.01</td>
<td>Easy</td>
</tr>
<tr>
<td>P4</td>
<td>Output control high limit</td>
<td>OFF to 100.0%</td>
<td>OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>P5</td>
<td>Output control low limit</td>
<td>OFF to 100.0%</td>
<td>OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>P6</td>
<td>Integral reset</td>
<td>OFF to 100.0%</td>
<td>OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>P7</td>
<td>Integral reset</td>
<td>OFF to 100.0%</td>
<td>OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>P8</td>
<td>Integral reset</td>
<td>OFF to 100.0%</td>
<td>OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>P9</td>
<td>Integral reset</td>
<td>OFF to 100.0%</td>
<td>OFF</td>
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<tr>
<td>P10</td>
<td>Integral reset</td>
<td>OFF to 100.0%</td>
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</table>

### PID Tuning Parameter

#### Parameter number (PT to PD)

<table>
<thead>
<tr>
<th>Parameter number (PT to PD)</th>
<th>Name of Parameter</th>
<th>Setting range</th>
<th>Initial setting</th>
<th>Display level</th>
</tr>
</thead>
<tbody>
<tr>
<td>PT1</td>
<td>Reference point 1</td>
<td>OFF to 100.0%</td>
<td>OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>PT2</td>
<td>Reference point 2</td>
<td>OFF to 100.0%</td>
<td>OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>PT3</td>
<td>Reference point 3</td>
<td>OFF to 100.0%</td>
<td>OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>PT4</td>
<td>Reference point 4</td>
<td>OFF to 100.0%</td>
<td>OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>PT5</td>
<td>Reference point 5</td>
<td>OFF to 100.0%</td>
<td>OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>PT6</td>
<td>Reference point 6</td>
<td>OFF to 100.0%</td>
<td>OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>PT7</td>
<td>Reference point 7</td>
<td>OFF to 100.0%</td>
<td>OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>PT8</td>
<td>Reference point 8</td>
<td>OFF to 100.0%</td>
<td>OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>PT9</td>
<td>Reference point 9</td>
<td>OFF to 100.0%</td>
<td>OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>PT10</td>
<td>Reference point 10</td>
<td>OFF to 100.0%</td>
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<td>OFF</td>
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</table>

### Zone Control Parameter

#### Parameter number (ZO to ZN)

<table>
<thead>
<tr>
<th>Parameter number (ZO to ZN)</th>
<th>Name of Parameter</th>
<th>Setting range</th>
<th>Initial setting</th>
<th>Display level</th>
</tr>
</thead>
<tbody>
<tr>
<td>ZP1</td>
<td>Reference selection</td>
<td>OFF to 100.0%</td>
<td>OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>ZP2</td>
<td>Reference selection</td>
<td>OFF to 100.0%</td>
<td>OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>ZP3</td>
<td>Reference selection</td>
<td>OFF to 100.0%</td>
<td>OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>ZP4</td>
<td>Reference selection</td>
<td>OFF to 100.0%</td>
<td>OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>ZP5</td>
<td>Reference selection</td>
<td>OFF to 100.0%</td>
<td>OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>ZP6</td>
<td>Reference selection</td>
<td>OFF to 100.0%</td>
<td>OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>ZP7</td>
<td>Reference selection</td>
<td>OFF to 100.0%</td>
<td>OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>ZP8</td>
<td>Reference selection</td>
<td>OFF to 100.0%</td>
<td>OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>ZP9</td>
<td>Reference selection</td>
<td>OFF to 100.0%</td>
<td>OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>ZP10</td>
<td>Reference selection</td>
<td>OFF to 100.0%</td>
<td>OFF</td>
<td>OFF</td>
</tr>
</tbody>
</table>

For the registration of SELECT parameters, see User's Manual (M OSF0131-01EN).
Setup Parameters
Hold down the PARA key and Left arrow key simultaneously for 3 sec.
Move to the Operation Display or Parameter Setting Display by pressing the PARA key. Press the PARA key twice 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 the parameter setting displayed, press the SET/ENTER key to start the setting.

■ Control Function Setting Parameter

| Parameter symbol | Name of Parameter Setting Range | Initial value | User setting range | EASY
<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
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<tbody>
<tr>
<td>(CTU)</td>
<td>Control type</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>C.T.U. ON/OFF</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>C.T.U. OFF/ON</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>C.T.U. OFF</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>C.T.U. OFF</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>(SP)</td>
<td>Number of SP groups</td>
<td>4</td>
<td></td>
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<tr>
<td>(SP)</td>
<td>Zone PID selection</td>
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<td>STD</td>
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<tr>
<td>(SP)</td>
<td>Number of PID groups</td>
<td>4</td>
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</tr>
</tbody>
</table>

■ PV Input Setting Parameter

| Parameter symbol | Name of Parameter Setting Range | Initial value | User setting range | EASY
<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>(IPV)</td>
<td>PV input type</td>
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<tr>
<td>(IPV)</td>
<td>PV input unit</td>
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</tr>
</tbody>
</table>

■ Display Function Setting Parameter

| Parameter symbol | Name of Parameter Setting Range | Initial value | User setting range | EASY
<table>
<thead>
<tr>
<th></th>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>(PSF)</td>
<td>Output display</td>
<td></td>
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</tr>
</tbody>
</table>

■ Error and Version Confirmation Parameter (for display only)

| Parameter symbol | Name of Parameter Setting Range | Initial value | User setting range | EASY
<table>
<thead>
<tr>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>(EVR)</td>
<td>Parameter error status</td>
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<tr>
<td>(EVR)</td>
<td>Station error status</td>
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<tr>
<td>(EVR)</td>
<td>AD converter error status 1</td>
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<tr>
<td>(EVR)</td>
<td>PV input error status</td>
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<td>(EVR)</td>
<td>RS485 error status</td>
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<tr>
<td>(EVR)</td>
<td>Product version</td>
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</tr>
</tbody>
</table>

■ System Display Parameter

| Parameter symbol | Name of Parameter Setting Range | Initial value | User setting range | EASY
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>(SDF)</td>
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<tr>
<td>(SDF)</td>
<td>Product version</td>
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<tr>
<td>(SDF)</td>
<td>Parameter display level</td>
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<tr>
<td>(SDF)</td>
<td>Key lock</td>
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</table>

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