



Forced Convection Constant Temperature Oven

DKV400/600/610/810/910 Series

Instruction Manual

- Operation -

Second Edition

Thank you for choosing a product of Yamato Scientific Co., Ltd.

For proper equipment operation, please read this instruction manual thoroughly before use. Always keep equipment documentation safe and close at hand for convenient future reference.



The warnings given in the instruction manual are important for the safe use of the product. Please read carefully and familiarize yourself with the product before use.

Yamato Scientific Co. Ltd.

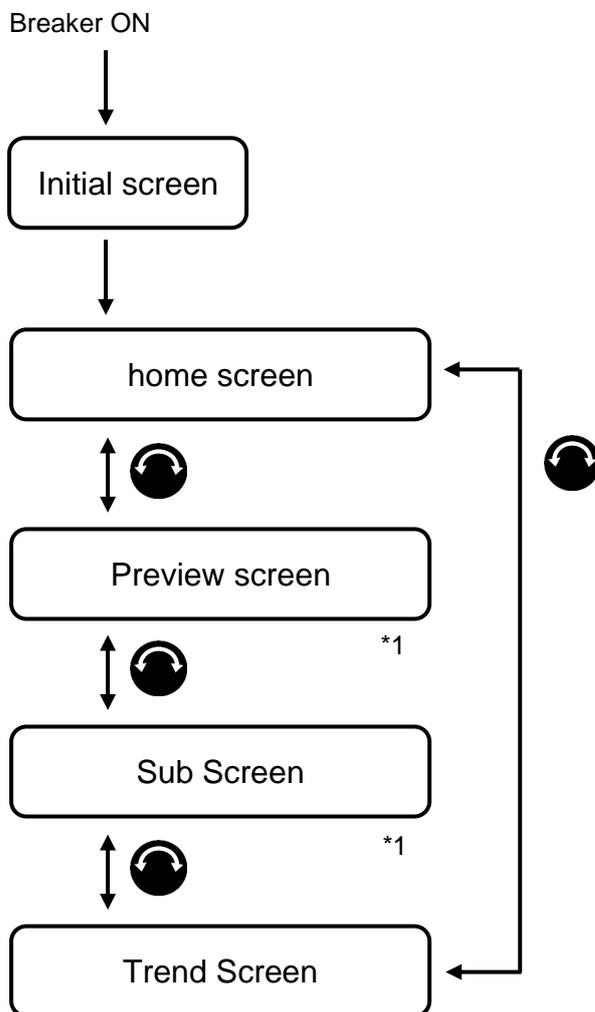
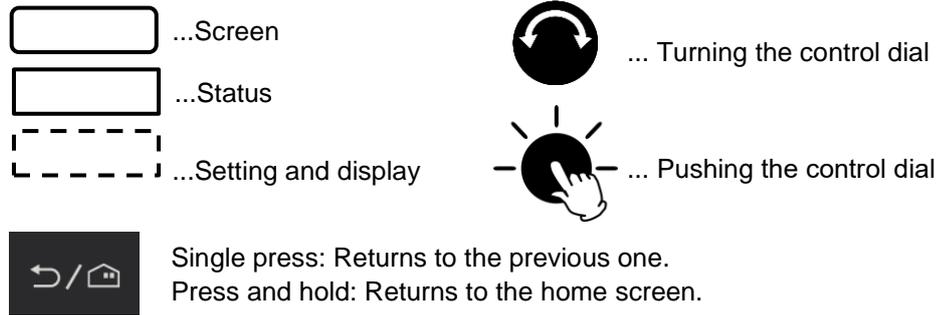
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1. CONTROLLER

Screen Flow



*1: Displayed only when setting program operation mode.

1. CONTROLLER

Screen Flow

 ...Screen

 ...Status

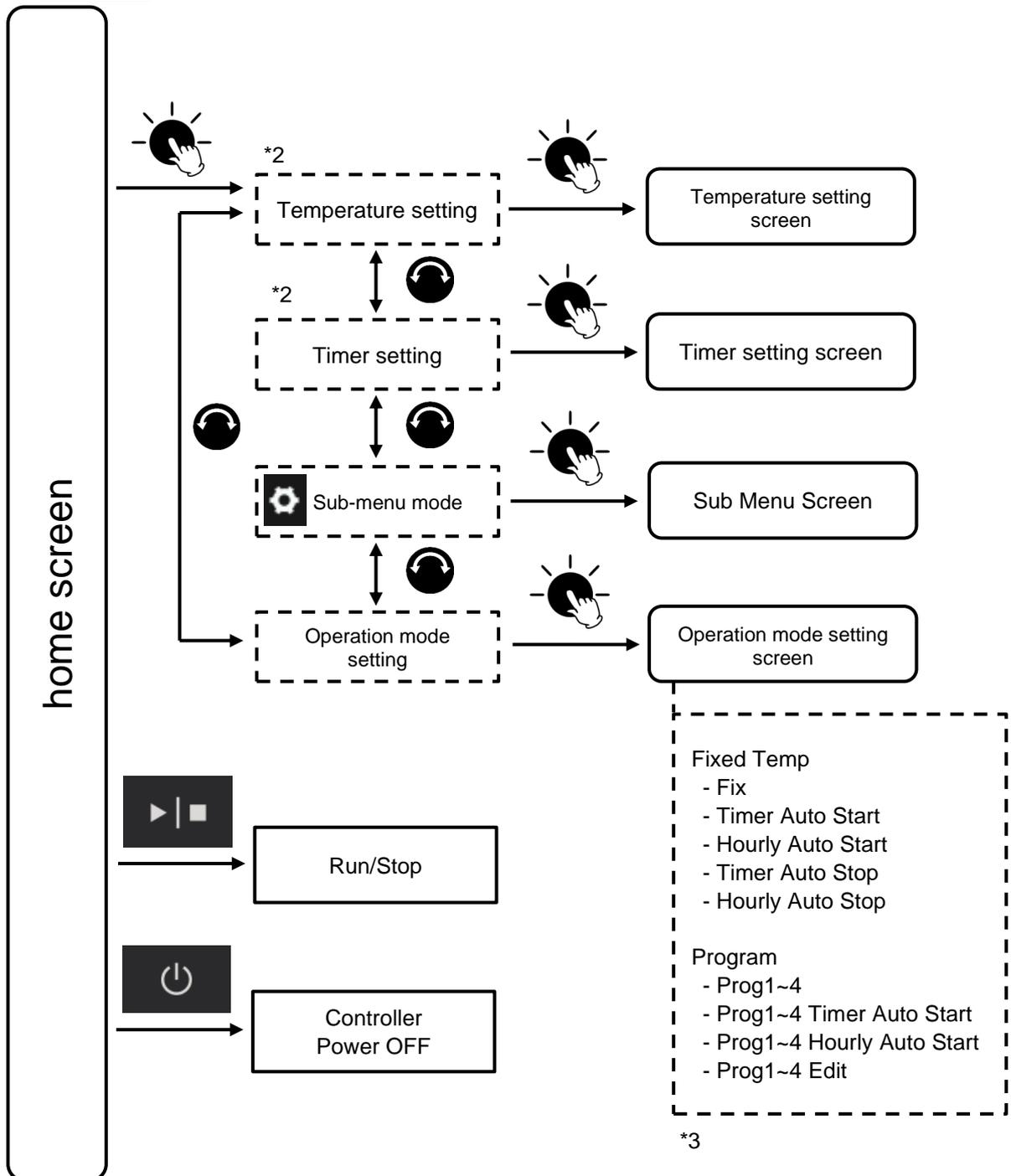
 ...Setting and display

 ... Turning the control dial

 ... Pushing the control dial



Single press: Returns to the previous one.
Press and hold: Returns to the home screen.

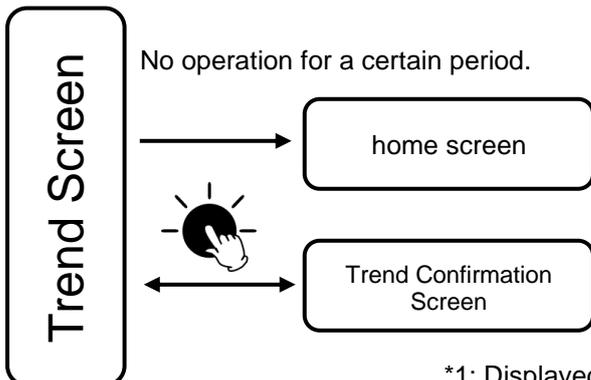
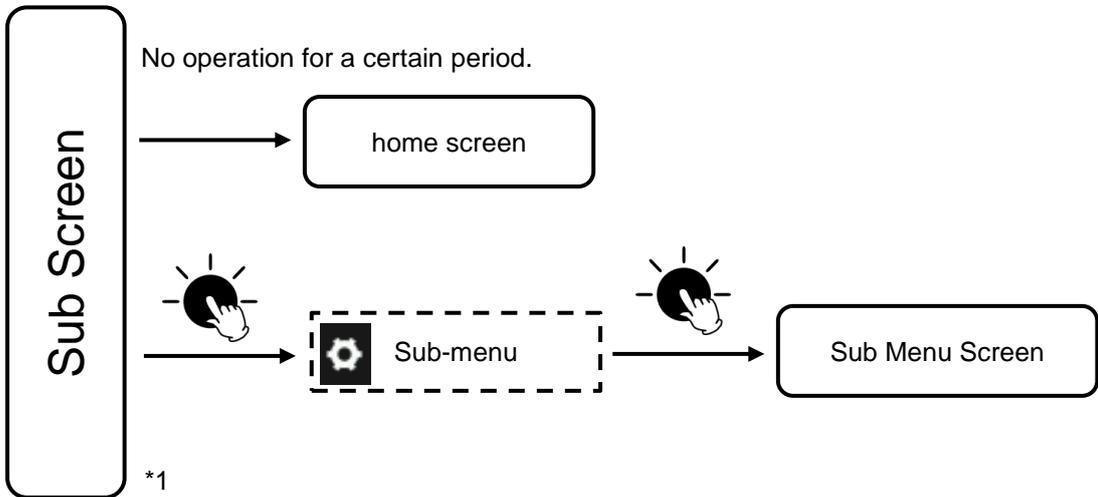
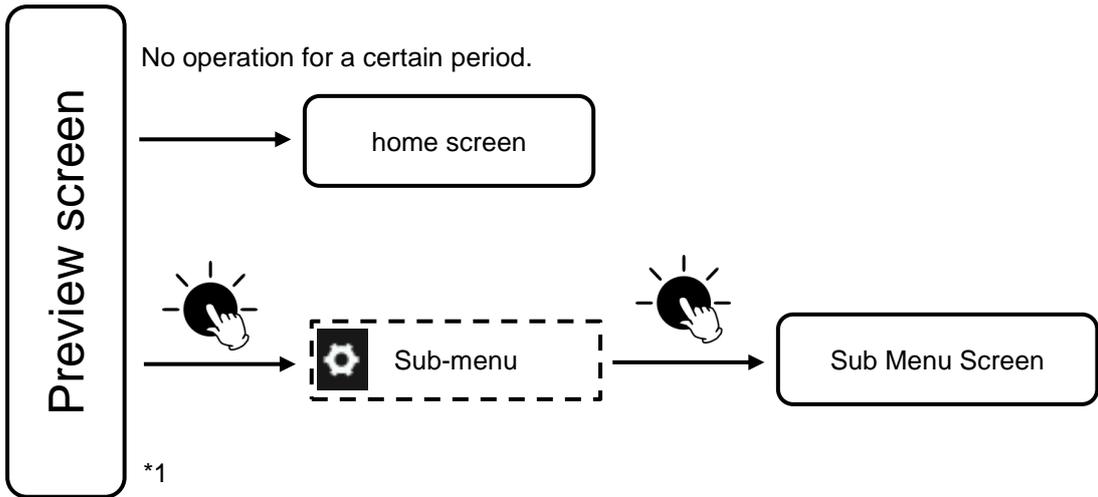
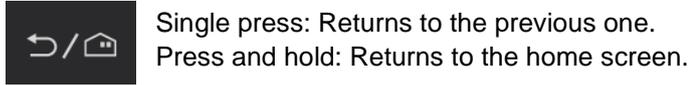
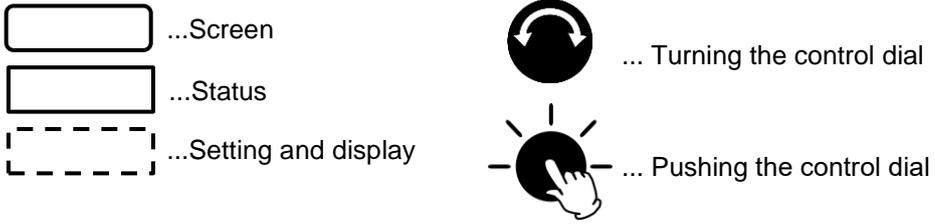


*2: This cannot be set depending on the operation mode setting.

*3: Select and set with the control dial.

1. CONTROLLER

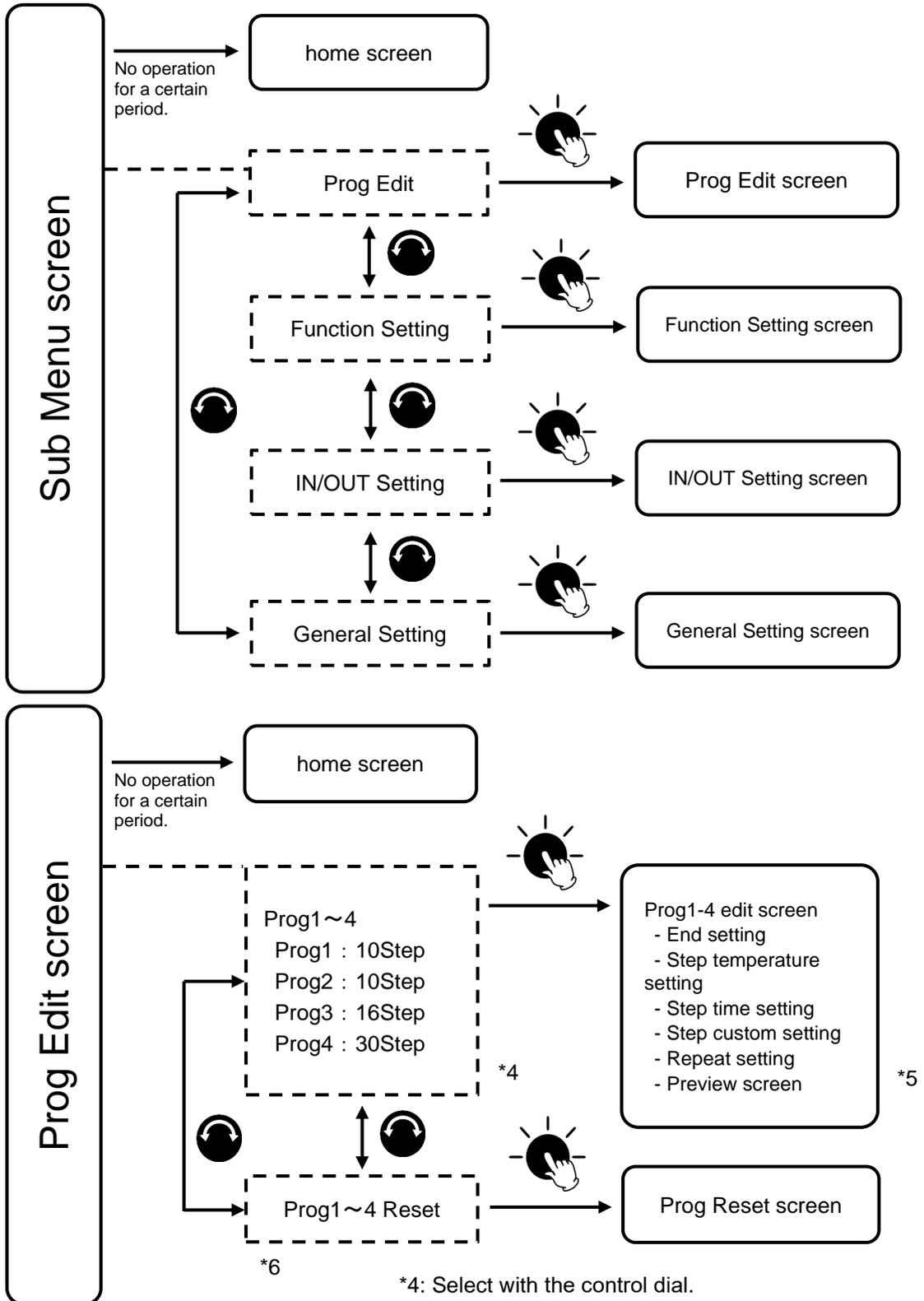
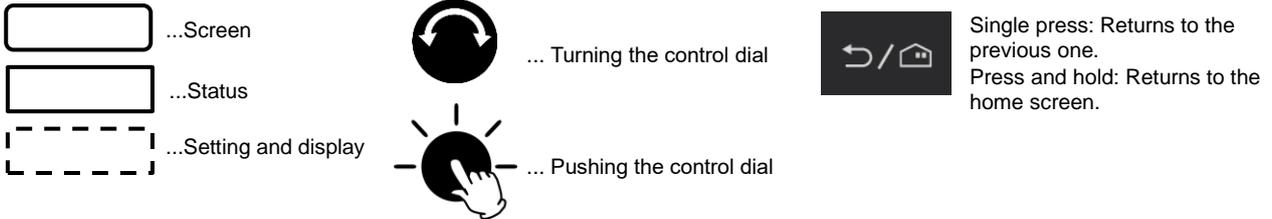
Screen Flow



*1: Displayed only when setting program operation mode.

1. CONTROLLER

Screen Flow



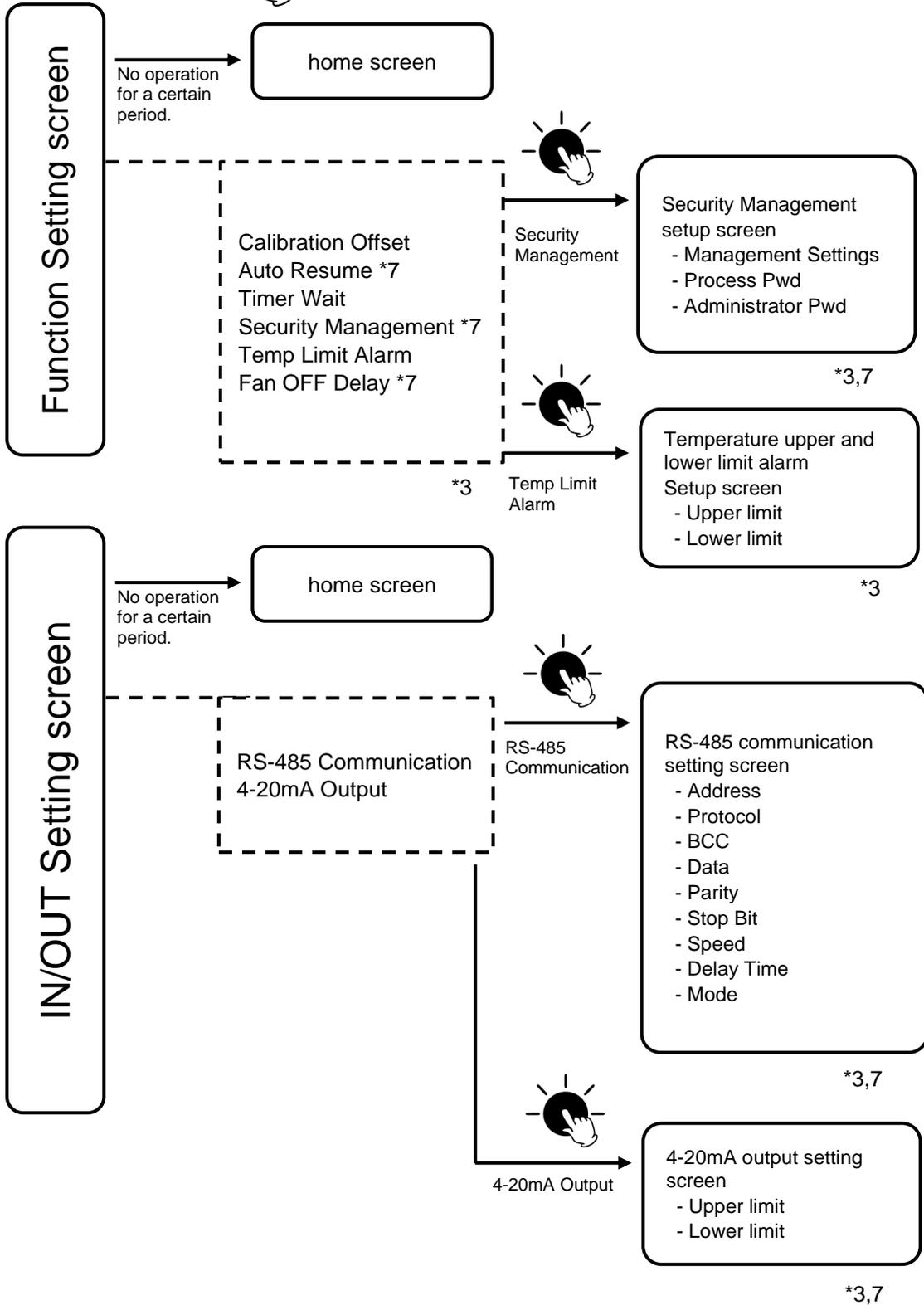
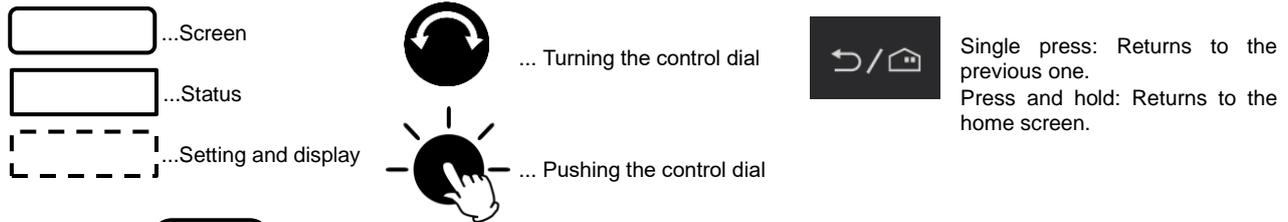
*4: Select with the control dial.

*5: Select, set, and confirm with the control dial.

*6: Cannot be selected during PROGRAM operation.

1. CONTROLLER

Screen Flow



*3: Select and set with the control dial.
 *7: Cannot be selected or set during operation.

1. CONTROLLER

Screen Flow

 ...Screen

 ...Status

 ...Setting and display



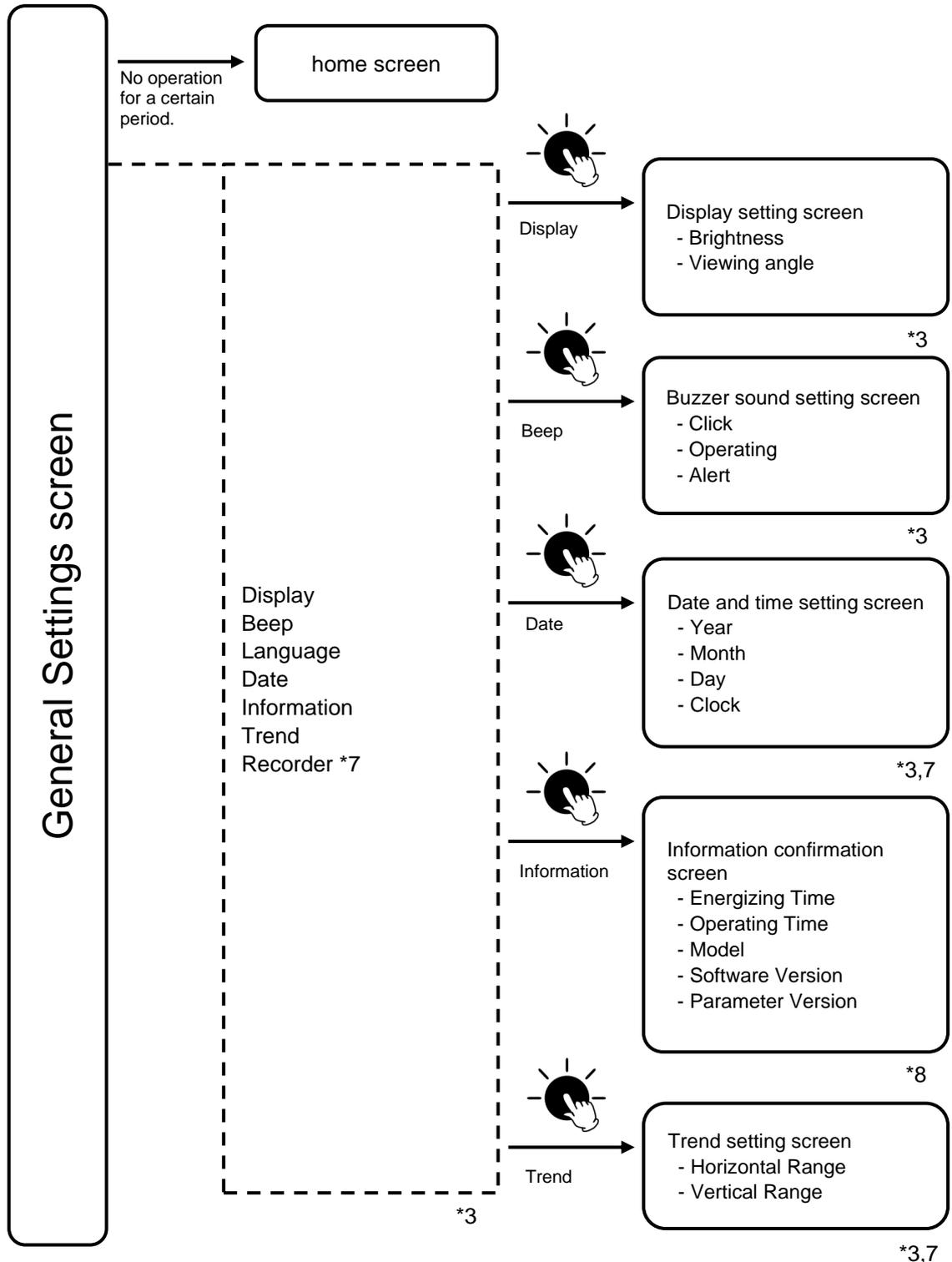
... Turn the control dial



Single press: Returns to the previous one.
Press and hold: Returns to the home screen.



... Control dial
Push button operation.



*3: Select and set with the control dial.

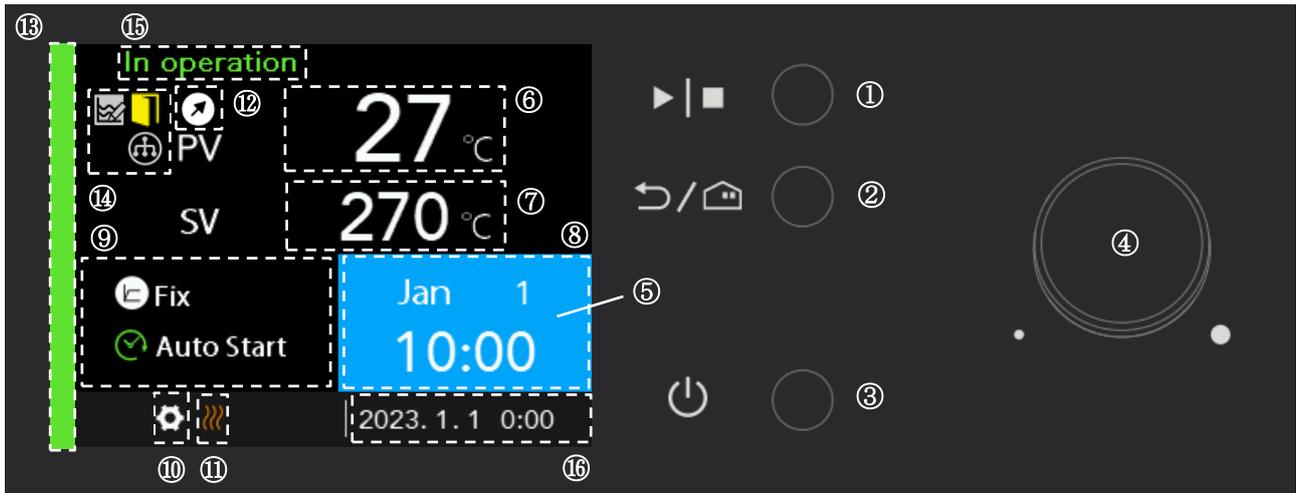
*7: Cannot be selected or set during operation.

*8: Select and confirm with the control dial.

1. CONTROLLER

home screen

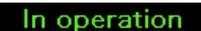
The home screen displays and operates the following



No.	Description	Display and Operation
①	Run/Stop key	Press to start or stop an operation.
②	Esc/Home key	Single press (Esc): Used to return to the previous item. Press and hold (Home): Used to return to the home screen. * If pressed during a setting change, the setting change will be canceled.
③	Controller Power key	Turn the controller power ON/OFF. Pressing and holding the key turns the controller power ON/OFF. If the controller is turned off during run, it will stop operation and then turn OFF. If a power failure occurs while the controller's power is OFF and then the power is restored, the controller will be restored with the controller's power OFF. If the remote operation function is used and the controller is turned off during remote run, the remote operation state is canceled and then the power is turned OFF. For details on the remote operation function, refer to "DKV400/600/610/810/910 Series Instruction Manual, Additional Functions and Errors".
④	Control dial	Rotation operation increases or decreases the set value. The cursor also moves over items on the screen. Push operation makes the cursor appear, transitions on the screen, and confirms the setting values.
⑤	Cursor (displayed in blue)	Displays the current selection. To make screen transitions or change setting values, operate the control dial so that the cursor is aligned with the target item.
⑥	Measuring temperature (PV)	Displays the measured temperature in the chamber.
⑦	Setting temperature (SV)	Displays the set temperature. The set temperature can be changed during Fixed temperature operation, Timer/Hourly quick auto stop mode, Timer/Hourly auto stop operation, and Timer/Hourly auto start operation settings.

1. CONTROLLER

home screen

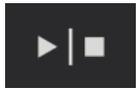
⑧	Setting timer	<p>Displays the timer for Timer/Hourly quick auto stop operation, Timer/Hourly auto stop operation, Timer/Hourly auto start operation, Timer/Hourly program auto start operation and Program operation.</p> <p>The set timer can be changed during Timer/Hourly quick auto stop operation, Timer/Hourly auto stop operation, Timer/Hourly auto start operation, or Timer/Hourly program auto start operation (during auto start counting).</p> <p>Timer setting: The set time is displayed during standby, and the remaining time is displayed during operation. The timer counts down from the set value during the count.</p> <p>Time setting: Displays the set time both in standby and in operation. The ":" in the time display blinks during counting.</p>															
⑨	Operation mode	<p>Displays the set operation mode. See Display Icons (p. 10) for information on what each icon displays.</p>															
⑩	Sub menu icon	<p>Displays the submenu screen.</p>															
⑪	Heater icon	<p>Illuminates while heater is ON</p>															
⑫	Temperature control status icon	<p>Displays the temperature control status during operation. See Display Icons (p. 10) for information on what each icon displays.</p>															
⑬	Operation status bar	<p>Indicates the operating status in colors.</p> <table border="0"> <tr> <td>Ash</td> <td></td> <td>Standby</td> </tr> <tr> <td>Green</td> <td></td> <td>Running</td> </tr> <tr> <td>Purple</td> <td></td> <td>Auto start timer counting in progress</td> </tr> <tr> <td>Blue</td> <td></td> <td>Waiting for operation to end (End display)</td> </tr> <tr> <td>Red</td> <td></td> <td>Abnormalities occurring.</td> </tr> </table>	Ash		Standby	Green		Running	Purple		Auto start timer counting in progress	Blue		Waiting for operation to end (End display)	Red		Abnormalities occurring.
Ash		Standby															
Green		Running															
Purple		Auto start timer counting in progress															
Blue		Waiting for operation to end (End display)															
Red		Abnormalities occurring.															
⑭	Additional function/alarm icon	<p>Displays the status of various additional functions and alarms. See Display Icons (p. 10) for information on what each icon displays.</p>															
⑮	Status display	<p>Status  flashes during operation.</p>															
⑯	Current time	<p>Displays the current date and time.</p>															

1. CONTROLLER

Display Icons

The icons that appear on the controller are as follows

Key



Run/Stop



Esc/Home



Controller Power



Control dial Small/Large

Operation mode



Fixed Temp



Program



Hours Timer



Clock Timer

Menu



Sub-menu

Indicator



Heater



Rising



Falling



Stable

Additional Functions and Alarms



Door opening



Remote in progress



Recorder

Program Editing



With repeat



Custom OFF /Reset completed

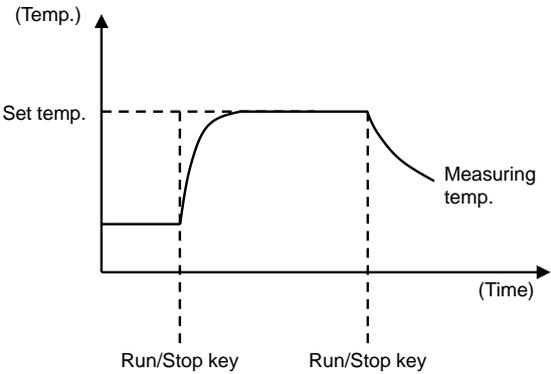
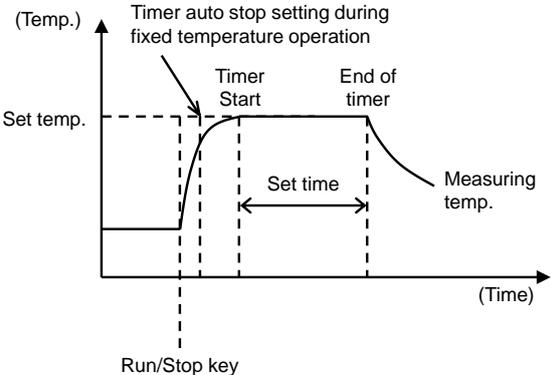
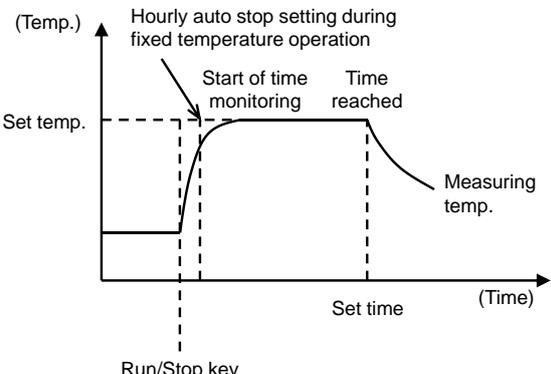
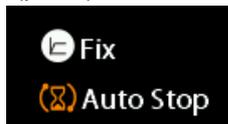
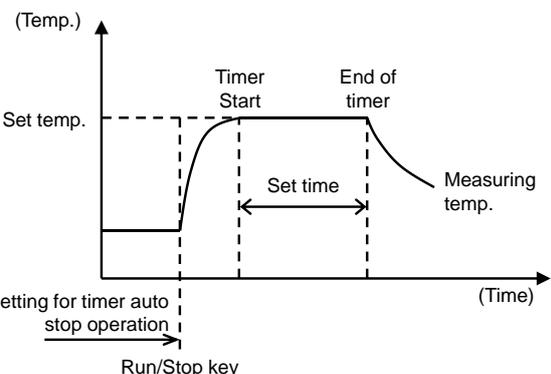


Custom ON /Reset incomplete

2. OPERATION PROCEDURES

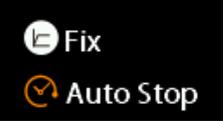
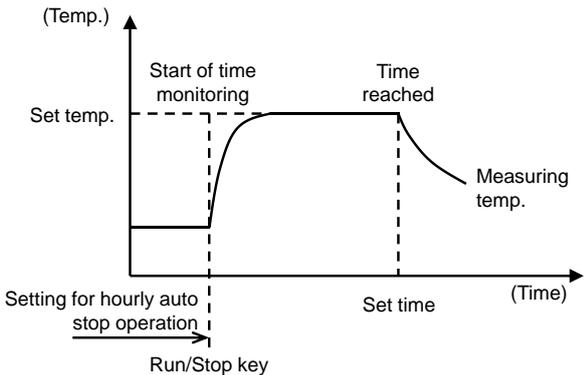
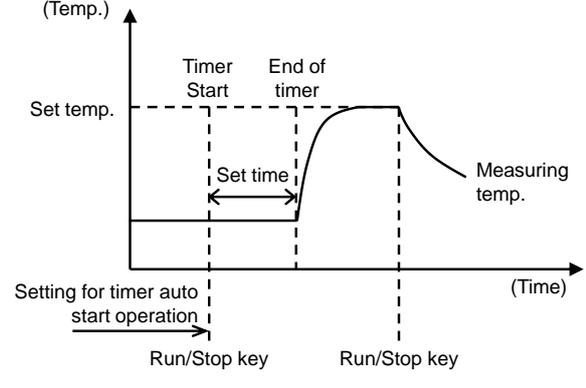
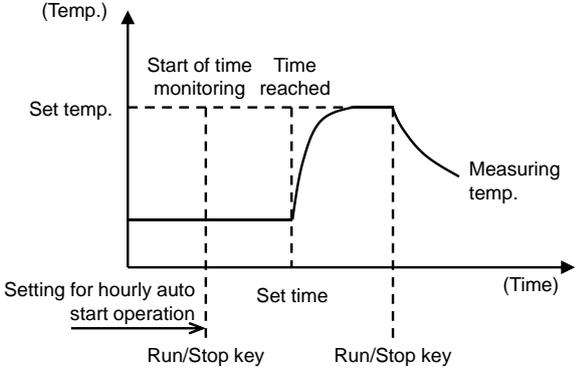
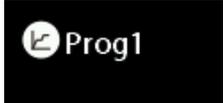
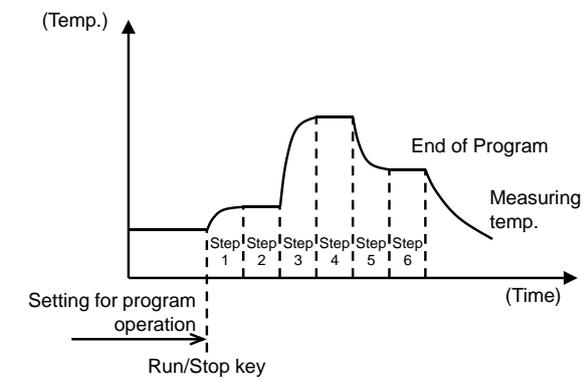
Operation Modes

Operation modes for this unit are defined in the table below

№	Panel Item	Description
1	<p>Fixed temperature operation (p. 14)</p>  <p>This mode runs unit at a constant selected temperature.</p>	 <p>(Temp.)</p> <p>Set temp.</p> <p>Measuring temp.</p> <p>(Time)</p> <p>Run/Stop key</p>
2	<p>Timer quick auto stop operation (p. 21)</p>  <p>This mode is used to automatically stop an operation when a specified time has passed (decided during operation). This function performs Timer auto stop operation during the Fixed temperature operation.</p>	 <p>(Temp.)</p> <p>Set temp.</p> <p>Measuring temp.</p> <p>(Time)</p> <p>Run/Stop key</p> <p>Timer auto stop setting during fixed temperature operation</p> <p>Timer Start</p> <p>End of timer</p> <p>Set time</p>
3	<p>Hourly quick auto stop operation (p. 25)</p>  <p>This mode is used to automatically stop an operation at the set time (decided during operation). This function performs Hourly auto stop operation during the Fixed temperature operation.</p>	 <p>(Temp.)</p> <p>Set temp.</p> <p>Measuring temp.</p> <p>(Time)</p> <p>Run/Stop key</p> <p>Hourly auto stop setting during fixed temperature operation</p> <p>Start of time monitoring</p> <p>Time reached</p> <p>Set time</p>
4	<p>Timer auto stop operation (p. 29)</p>  <p>This mode is used to automatically stop the Fixed temperature operation when a specified time has passed. The timer starts counting after the set temperature is reached.</p>	 <p>(Temp.)</p> <p>Set temp.</p> <p>Measuring temp.</p> <p>(Time)</p> <p>Run/Stop key</p> <p>Timer auto stop operation</p> <p>Timer Start</p> <p>End of timer</p> <p>Set time</p>

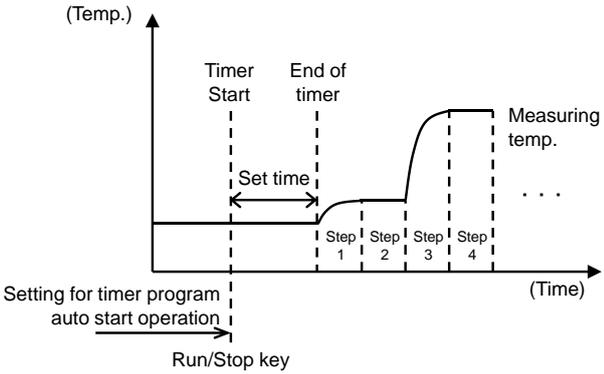
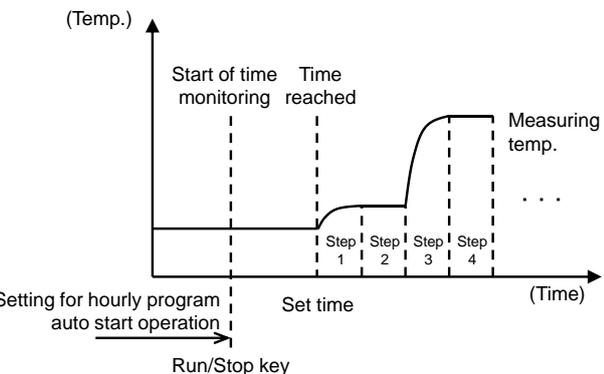
2. OPERATION PROCEDURES

Operation Modes

<p>5</p>	<p>Hourly auto stop operation (p. 34)</p>  <p>This mode is used to automatically stop the Fixed temperature operation at the set time.</p>	
<p>6</p>	<p>Timer auto start operation (p. 40)</p>  <p>This mode is used to automatically start the Fixed temperature operation when a specified time has passed.</p>	
<p>7</p>	<p>Hourly auto start operation (p. 45)</p>  <p>This mode is used to automatically start the Fixed temperature operation at the set time.</p>	
<p>8</p>	<p>Program operation (p. 50)</p>  <p>This mode is used for operations in which the temperature varies with time. A set temperature for one set time indicated by a curve or a straight line is called a "Step," and a combination of these steps is called a "Program".</p>	

2. OPERATION PROCEDURES

Operation Modes

<p>9</p>	<p>Timer program auto start operation (p. 78)</p>  <p>This mode is used to automatically start the program operation when a specified time has passed.</p>	
<p>10</p>	<p>Hourly program auto start operation (p. 83)</p>  <p>This mode is used to automatically start the program operation at the set time.</p>	
<p>* Operation mode cannot be changed while the unit is running. (except for quick auto stop operation) If a mode change is required, operation must be terminated, and a new mode of operation must be set.</p>		

2. OPERATION PROCEDURES

Fixed temperature operation

About Fixed temperature operation

This mode runs unit at a constant selected temperature.

The factory default operation mode is set to the Fixed temperature operation.

Fixed temperature operation procedure

1. Turn on the power. (Turn on (I) the breaker.)

Turn the breaker of the product "ON (I)". The initial screen is displayed for approximately 5 to 10 seconds.

After the initial screen appears, the user is automatically taken to the home screen.

After moving to the home screen, check the time display and if it does not match the current time, use the date/time setting function to change the time.

For details on the date/time setting function, refer to "DKV400/600/610/810/910 Series Instruction Manual, Additional Functions and Errors".

About the initial screen

This screen is displayed for approximately 5 to 10 seconds when the controller setting values are being read after the product breaker is turned "ON (I)".

The initial screen is displayed in the same way when the  key is pressed and held, and the controller is turned on.

After the initial screen display is complete, the user is automatically taken to the home screen.

Initial screen



2. OPERATION PROCEDURES

Fixed temperature operation

About the home screen

The home screen is the screen that is automatically shifted to after the product breaker is "turned on (I)" and the initial screen is displayed.

Temperature and timer settings can be changed. You can also move to the sub-menu screen, the operation mode selection screen (p. 16), and the operation trend function screen.

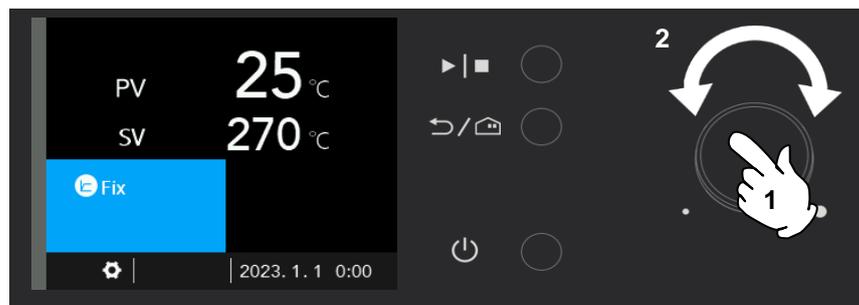
Pressing the  key starts operation with the settings shown on the home screen. Refer to "DKV400/600/610/810/910 Series Instruction Manual, Additional Functions and Errors" for sub-menu screen and operation trend function screen.

home screen

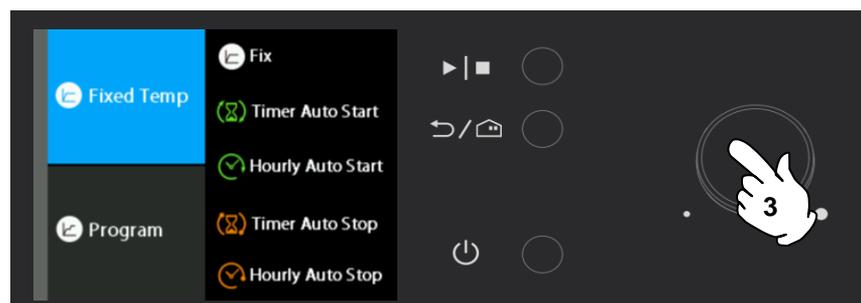


2. Operation mode selection

- (1) Press the control dial on the home screen. A cursor appears on the screen.
- (2) Turn the control dial to align the cursor with the operation mode display.



- (3) Press the control dial in the state described in (2). Moves to the operation mode selection screen.



2. OPERATION PROCEDURES

Fixed temperature operation

About the operation mode selection screen

The operation mode selection screen is for setting the product operation mode.

The following operation modes can be selected by operating the control dial.

For more information on operating modes, see “Operation Modes (p. 11)”.

There is also a shortcut display that takes you to the Edit Program screen.

Fixed temperature operation mode selection

Fixed Temp - Fix: Fixed temperature operation

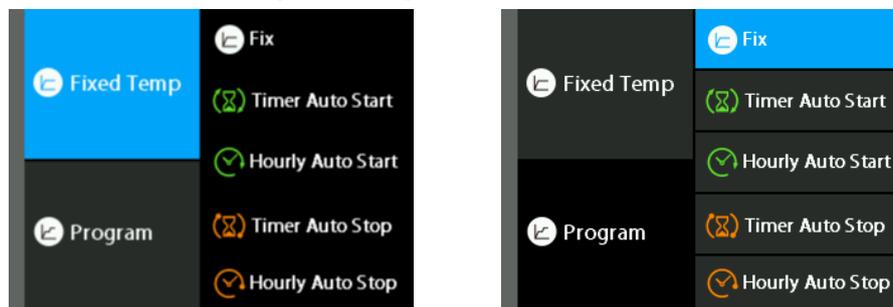
Fixed Temp - Timer Auto Start: Timer auto start operation

Fixed Temp - Hourly Auto Start: Hourly auto start operation

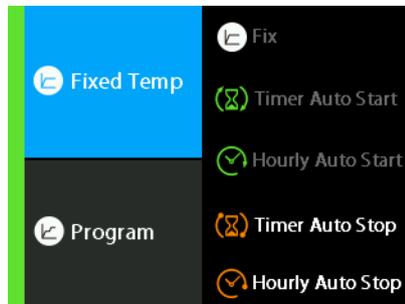
Fixed Temp - Timer Auto Stop: Timer auto stop operation

Fixed Temp - Hourly Auto Stop: Hourly auto stop operation

Fixed temperature operation mode selection screen



During the Fixed temperature operation (operation status bar is green), the items that can be selected are limited.

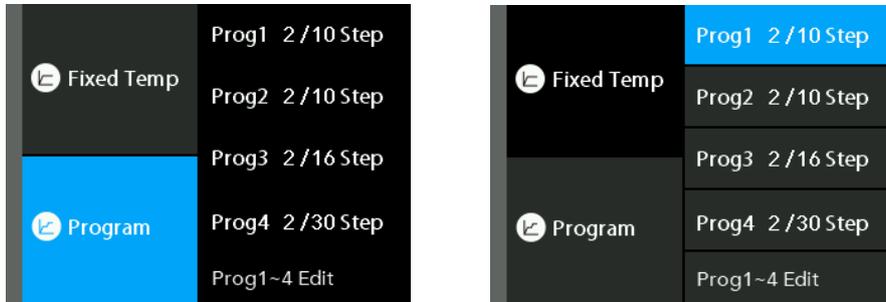


2. OPERATION PROCEDURES

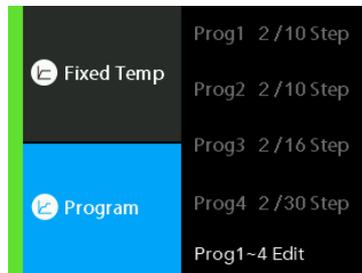
Fixed temperature operation

- Select Program
 - Prog1-4: Program No. selection
 - Prog1-4 Edit: Shortcut to go to the Program edit screen.

Program Selection Screen



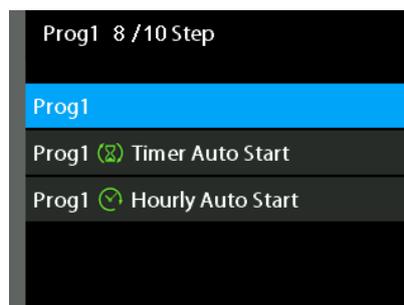
During operation (operation status bar is green), the items that can be selected are limited.



Mode selection for program operation

- Prog1-4: Program operation
- Prog1~4 - Prog1~4 Timer Auto Start: Timer program auto start operation
- Prog1~4 - Prog1~4 Hourly Auto Start: Hourly program auto start operation

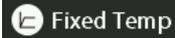
Program operation mode selection screen



2. OPERATION PROCEDURES

Fixed temperature operation

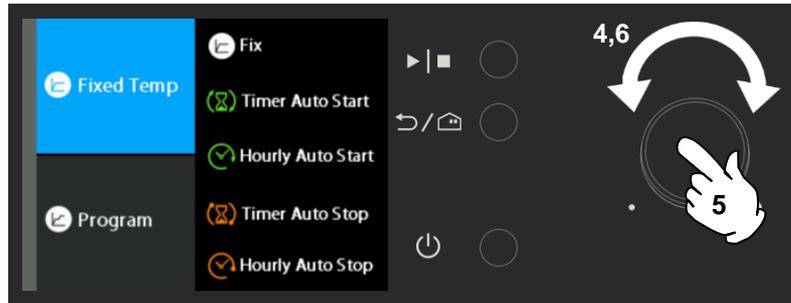
(4) Turn the control dial to align the cursor with



(5) Press the control dial in the state described in (4).

The cursor moves to the item on the right side of the operation mode selection screen.

(6) Turn the control dial to align the cursor with



(7) Press the control dial in the state described in (6).

The operation mode is confirmed with the Fixed temperature operation mode "Fix", and the home screen is shifted to the home screen.

The home screen will change to



the running mode display.



2. OPERATION PROCEDURES

Fixed temperature operation

3. Temperature setting

- (1) Press the control dial on the home screen. A cursor appears on the screen.
- (2) Turn the control dial to match the set temperature display.



- (3) Press the control dial in the state described in (2).
The set temperature is indicated by blinking.
- (4) Turn the cursor to set the desired temperature.



- (5) Press the control dial to complete the setting.
The cursor will automatically disappear after 10 seconds of inactivity.

If you want to erase the cursor immediately, you can do so by pressing .

4. Start operation

Press the  key. Operation is started.

Appears in the status display **In operation**, the operating status bar changes to green, and temperature control is started.

The temperature control status icon is displayed according to the control status at the start.



2. OPERATION PROCEDURES

Fixed temperature operation

5. End operation

Press the  key. Operation is terminated and the display shifts to the pre-operation screen.



◆About temperature setting

The temperature setting range is 0°C to 270°C (DKV400, 600, 610, 810) and 220°C (DKV910).

The setting is in 1°C increments.

Turning the control dial quickly increases the number of digits in the setting value, allowing a significant change in the setting value.

Turn slowly for fine adjustment.

The temperature setting range is the same for all operation modes.

◆Editing set temperature during run.

To change the temperature setting during run, follow the same procedure as described in "3. Temperature Setting (p. 19)".

2. OPERATION PROCEDURES

Timer quick auto stop operation

Timer quick auto stop operation

This mode is used to automatically terminate an operation when a specified time period has passed (decided during operation).

◆ Wait mode for Timer quick auto stop operation

Before operation, check whether the "Wait mode for timer" is set to "OFF" or "ON".

When "ON" is set, Timer quick auto stop operation is started, and if the measured temperature falls outside the set temperature range of $\pm 3^{\circ}\text{C}$ due to disturbance after the measured temperature stabilizes, the timer stops counting for the set time and resumes counting when the measured temperature returns to within the $\pm 3^{\circ}\text{C}$ range.

When "OFF" is set, Timer quick auto stop operation is started, and the time timer counts from after the measured temperature stabilizes and continues counting regardless of the relationship between the measured temperature and the set temperature.

* Wait mode for timer "DKV400/600/610/810/910 Series Instruction Manual, Additional Functions and Errors" for details.

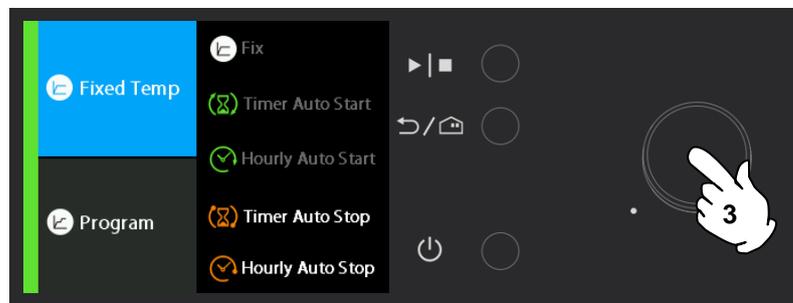
Timer quick auto stop procedure

1. **Switch to Timer auto stop operation mode during Fixed temperature operation. (Operation status bar is green)**

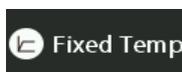
- (1) Press the control dial on the home screen during Fixed temperature operation. A cursor appears on the screen.
- (2) Control dial and move the cursor to the operation mode display.



- (3) Press the control dial in the state described in (2). Moves to the operation mode selection screen.



- (4) Turn the control dial to align the cursor with



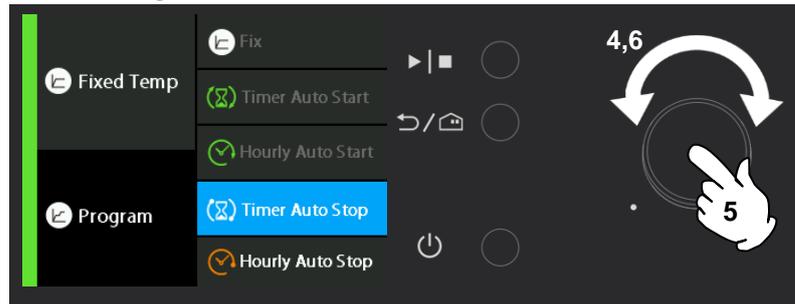
- (5) Press the control dial in the state described in (4).

The cursor moves to the item on the right side of the operation mode selection screen.

2. OPERATION PROCEDURES

Timer quick auto stop operation

(6) Turn the control dial to align the cursor with



(7) Press the control dial in the state described in (6).

The operation mode is changed from "Fixed Temp - Fix" to "Fixed Temp - Timer Auto Stop", which shifts to the home screen.

The operation mode display on the home screen changes to



At this time, the timer appears in the setting timer display.

If the measured temperature has reached the set temperature, the timer starts counting.



2. Timer setting for Timer quick auto stop operation

- (1) Press the control dial on the home screen. A cursor appears on the screen.
- (2) Turn the control dial to align the cursor with the setting timer display.



2. OPERATION PROCEDURES

Timer quick auto stop operation

- (3) Press the control dial in the state described in (2). The setting timer (hour side) becomes a blinking display.
- (4) Rotate control dial to desired time (hour side) setting value.



- (5) Press the control dial. The setting timer (minute side) becomes a blinking display. At this point, the setting has not yet been finalized.
- (6) Turn the control dial to set the desired time (minute side).



- (7) Press the control dial to complete the setting. The cursor will automatically disappear after 10 seconds of inactivity.

If you want to erase the cursor immediately, you can do so by pressing the key .

3. Stop or end operation

- (1) Operation is automatically stopped after the set time has elapsed. A buzzer sounds for about 5 seconds when the operation is stopped. At this time, the setting timer display shifts to the "End" display and the operation status table bar changes to blue.

- (2) Press the key . The timer quick auto stop operation is terminated and the screen shifts to the preparation screen.



2. OPERATION PROCEDURES

Timer quick auto stop operation

◆Timer function

The timer setting range is 1 minute to 99 hours and 59 minutes. The setting is in 1-minute increments.

Turning the control dial quickly increases the number of digits in the setting value, and turning it slowly decreases the number of digits, allowing fine adjustment of the setting value.

The time setting range is the same for all operation modes.

Set the operation mode to "Program operation (p. 50)" and use two or more steps to set the time timer beyond 99 hours and 59 minutes.

Alternatively, set the operation mode to "Hourly quick auto stop operation (p. 25)" and operate with the time timer setting.

◆Editing set temperature and time during run.

To change the temperature setting during run, follow the same procedure as described in "3. Temperature Setting (p. 19)".

To change the set time during run, follow the same procedure as described in "2. Timer setting for Timer quick auto stop operation (p. 22)".

2. OPERATION PROCEDURES

Hourly quick auto stop operation

About Hourly quick auto stop operation

Used to automatically stop at a set time during Fixed temperature operation.

◆Wait mode for Hourly quick auto stop operation

In Hourly quick auto stop operation, the timer wait operation is not executed regardless of which setting is set for the timer wait function.

The timer continues counting until the set time is reached and automatically stops operation when the set time is reached.

Hourly quick auto stop procedure

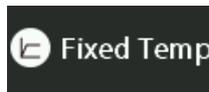
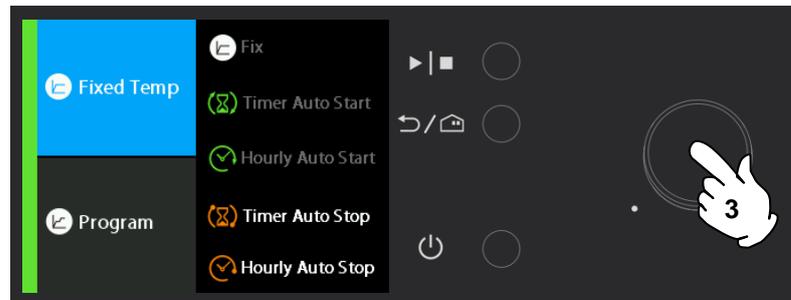
1. Switch to Hourly auto stop operation mode during Fixed temperature operation. (Operation status bar is green)

(1) Press the control dial on the home screen during Fixed temperature operation. A cursor appears on the screen.

(2) Turn the control dial to align the cursor with the operation mode display.



(3) Press the control dial in the state described in (2). Moves to the operation mode selection screen.



(4) Turn the control dial to align the cursor with

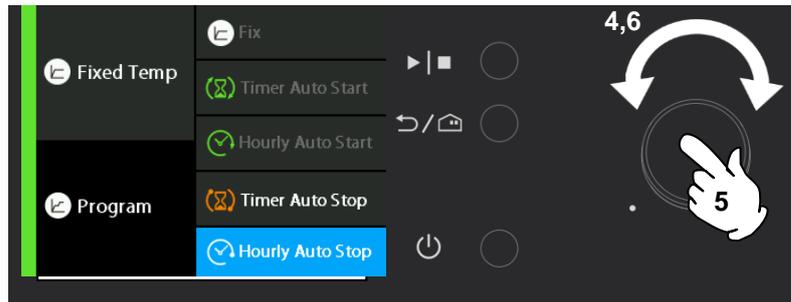
(5) Press the control dial in the state described in (4).

The cursor moves to the item on the right side of the operation mode selection screen.

2. OPERATION PROCEDURES

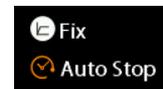
Hourly quick auto stop operation

(6) Turn the control dial to align the cursor with



(7) Press the control dial in the state described in (6).

The operation mode changes from "Fixed Temp - Fix" to "Fixed Temp - Hourly Auto Stop" and shifts to the home screen.



The operation mode display on the home screen changes to

At this time, the Hourly timer appears in the setting timer display.

The time timer starts counting from the timing when the display switches.



2. Timer setting for Hourly quick auto stop operation

(1) Press the control dial on the home screen. A cursor appears on the screen.

(2) Turn the control dial and move the cursor to the setting timer display.



(3) Press the control dial in the state described in (2). The setting timer (hour side) becomes a blinking display.

2. OPERATION PROCEDURES

Hourly quick auto stop operation

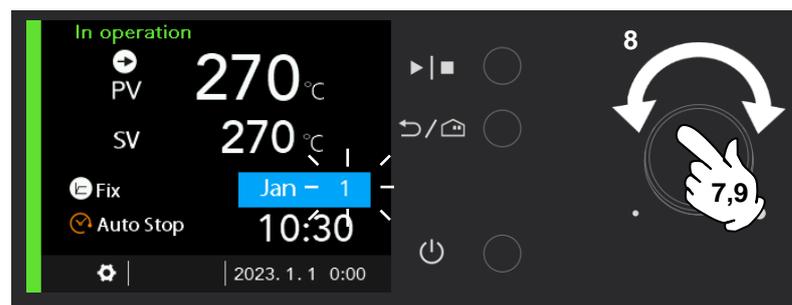
- (4) Turn the control dial to set the desired time (hour side).



- (5) Press the control dial. The setting timer (minute side) becomes a blinking display.
At this point, the setting has not yet been finalized.
- (6) Turn the control dial to set the desired time (minute side).



- (7) Press the control dial. The setting timer (date) becomes a blinking display.
The setting timer (month) is automatically switched when the setting timer (date) is changed.
At this point, the setting has not yet been finalized.
- (8) Turn the control dial to set the desired date.
The "---- -- --" setting is a setting that automatically stops at the nearest set time from the point of setting.



- (9) Press the control dial to complete the setting.
The cursor will automatically disappear after 10 seconds of inactivity.

If you want to erase the cursor immediately, you can do so by pressing the  key.

2. OPERATION PROCEDURES

Hourly quick auto stop operation

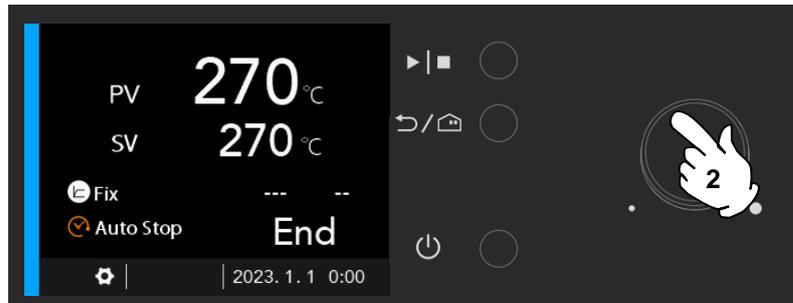
3. Stop or end operation

(1) At the set time, the unit automatically stops operation.

A buzzer sounds for about 5 seconds when the operation is stopped. At this time, the set time display shifts to the "End" display and the operation status bar changes to blue.

(2) Press the  key.

Hourly quick auto stop operation is terminated and the display shifts to the pre-operation screen.



◆About the set time

The setting range of the hourly timer is as follows, depending on the time to be set.

If set later than current time: Can be set until 23:59, 30 days after the current date/time.

If the time is set earlier than the current time: The time can be set up to 23:59, 31 days after the current date and time.

Turning the control dial quickly increases the number of digits in the setting value, and turning it slowly decreases the number of digits, allowing fine adjustment of the setting value.

The time setting range is the same for all operation modes.

◆Editing set temperature and time during run.

To change the temperature setting during run, follow the same procedure as described in "3. Temperature Setting (p. 19)".

To change the time setting during run, follow the same procedure as described in "2. Timer Setting for Hourly quick auto stop operation (p. 26)".

2. OPERATION PROCEDURES

Timer auto stop operation

About Timer auto stop operation

Used to automatically stop the Fixed temperature operation after a set time.

◆Wait mode for Timer auto stop operation

Before operation, check whether the "Wait mode for timer" is set to "OFF" or "ON".

In the case of the "ON" setting, if the measured temperature falls outside the set temperature range of $\pm 3^{\circ}\text{C}$ due to disturbance after the measured temperature has stabilized, the timer stops counting for the set time and resumes counting when the measured temperature returns to within the $\pm 3^{\circ}\text{C}$ range.

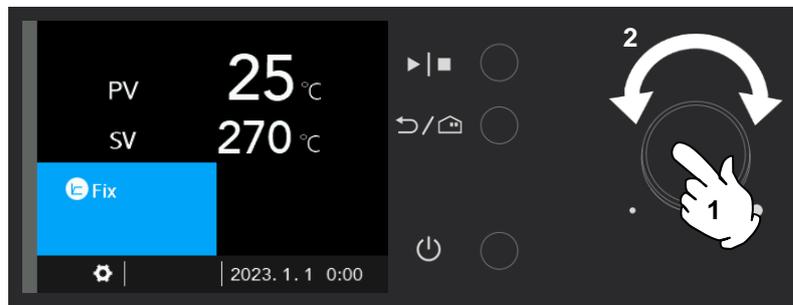
When "OFF" is set, the time timer counts after the measured temperature stabilizes and continues counting regardless of the relationship between the measured and set temperatures.

For timer wait function, refer to "DKV400/600/610/810/910 Series Instruction Manual, Additional Functions and Errors" for details.

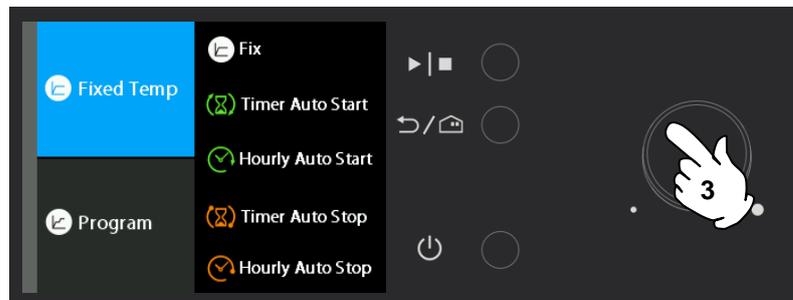
Timer auto stop operation procedure

1. Operation mode selection

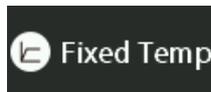
- (1) Press the control dial on the home screen. A cursor appears on the screen.
- (2) Turn the control dial to align the cursor with the operation mode display.



- (3) Press the control dial in the state described in (2). Moves to the operation mode selection screen.



- (4) Turn the control dial to align the cursor with



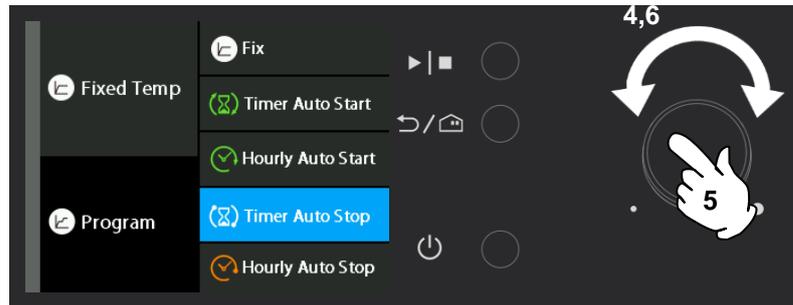
- (5) Press the control dial in the state described in (4).

The cursor moves to the item on the right side of the operation mode selection screen.

2. OPERATION PROCEDURES

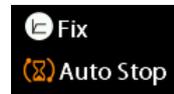
Timer auto stop operation

(6) Turn the control dial to align the cursor with



(7) Press the control dial in the state described in (6).

The operation mode changes to "Fixed Temp - Timer Auto Stop" and the display shifts to the home screen.



The operation mode display on the home screen changes to

In addition, the currently set timer setting value is displayed in the set timer display.



2. Temperature setting

(1) Press the control dial on the home screen. A cursor appears on the screen.

(2) Turn the control dial to adjust to the set temperature display.



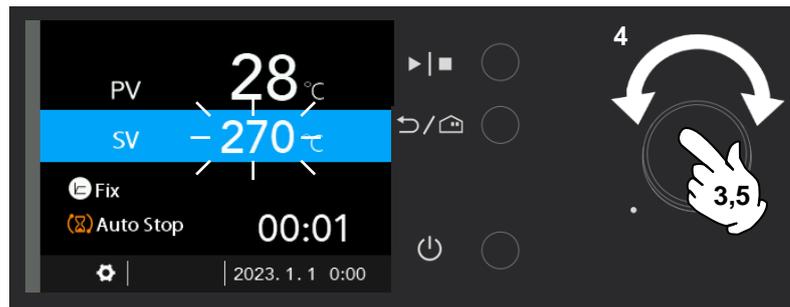
(3) Press the control dial in the state described in (2).

The set temperature is indicated by blinking.

2. OPERATION PROCEDURES

Timer auto stop operation

(4) Control dial to set the desired temperature.



(5) Press the control dial to complete the setting.

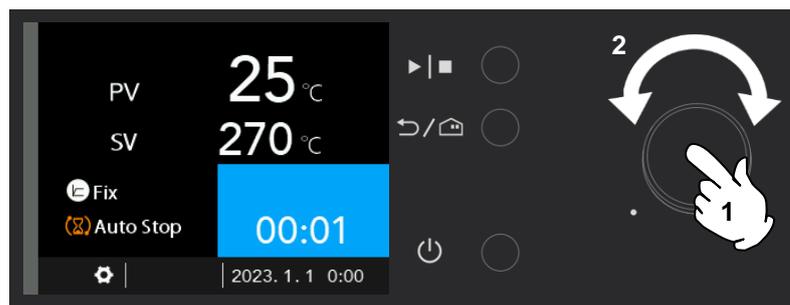
The cursor will automatically disappear after 10 seconds of inactivity.

If you want to erase the cursor immediately, you can do so by pressing the  key.

3. Timer setting for Timer auto stop operation

(1) Press the control dial on the home screen. A cursor appears on the screen.

(2) Turn the control dial and move the cursor to the setting timer display.



(3) Press the control dial in the state described in (2). The setting timer (hour side) becomes a blinking display.

(4) Turn the control dial to set the desired time (hour side).



(5) Press the control dial. The setting timer (minute side) becomes a blinking display.

At this point, the setting has not yet been finalized.

2. OPERATION PROCEDURES

Timer auto stop operation

(6) Turn the control dial to set the desired time (minute side).



(7) Press the control dial to complete the setting.
The cursor will automatically disappear after 10 seconds of inactivity.

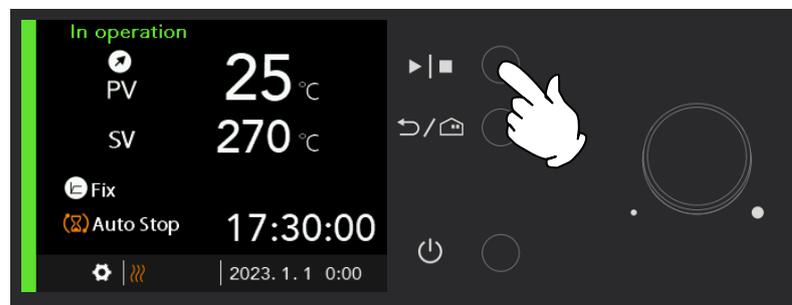
If you want to erase the cursor immediately, you can do so by pressing the  key.

4. Start operation

Press the  key. Operation is started.

Appears on the status display **In operation**, the operating status bar turns green, and the temperature control starts.

The temperature control status icon is displayed according to the control status at the start.



5. Stop or end operation

(1) Operation is automatically stopped after the set time has elapsed.

A buzzer sounds for about 5 seconds when the operation is stopped. At this time, the setting timer display shifts to the "End" display and the operation status table bar changes to blue.

(2) Press the key .

Auto stop operation is terminated and the screen shifts to the preparation screen.



2. OPERATION PROCEDURES

Timer auto stop operation

◆About temperature setting

The temperature setting range is 0°C to 270°C (DKV400, 600, 610, 810) and 220°C (DKV910). The setting is in 1°C increments.

Turning the control dial quickly increases the number of digits in the setting value, and turning it slowly decreases the number of digits, allowing fine adjustment of the setting value.

The temperature setting range is the same for all operation modes.

Set the operation mode to "Program operation (p. 50)" and use two or more steps to set the time timer beyond 99 hours and 59 minutes.

Alternatively, set the operation mode to "Hourly auto stop operation (p. 34)" and operate with the time timer setting.

◆About the set time.

The timer setting range is 1 minute to 99 hours and 59 minutes. The setting is in 1-minute increments.

Turning the control dial quickly increases the number of digits in the setting value, and turning it slowly decreases the number of digits, allowing fine adjustment of the setting value.

The time setting range is the same for all operation modes.

◆Editing set temperature and time during run.

To change the temperature setting during run, follow the same procedure as described in "2. Temperature Setting (p. 30)".

To change the set time during run, follow the same procedure as described in "3. Timer setting for timer auto stop operation (p. 31)".

2. OPERATION PROCEDURES

Hourly auto stop operation

About Hourly auto stop operation

Used to automatically stop the Fixed temperature operation at a set time.

◆About Hourly auto stop timer wait operation

In Hourly auto stop operation, the timer wait operation is not executed regardless of which "Timer Wait Function" setting is set.

The timer continues counting until the set time is reached and automatically stops operation when the set time is reached.

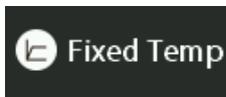
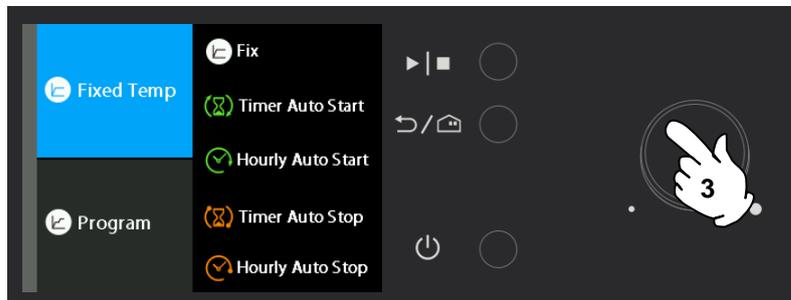
Hourly auto stop operation procedure

1. Operation mode selection

- (1) Press the control dial on the home screen. A cursor appears on the screen.
- (2) Turn the control dial to align the cursor with the operation mode display.



- (3) Press the control dial in the state described in (2). Moves to the operation mode selection screen.



- (4) Turn the control dial to align the cursor with

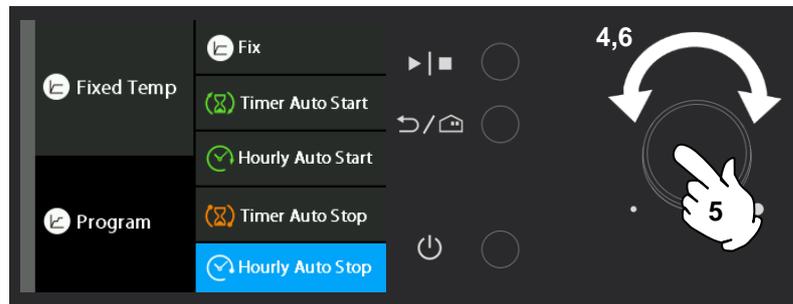
- (5) Press the control dial in the state described in (4).

The cursor moves to the item on the right side of the operation mode selection screen.

2. OPERATION PROCEDURES

Hourly auto stop operation

(6) Turn the control dial to align the cursor with



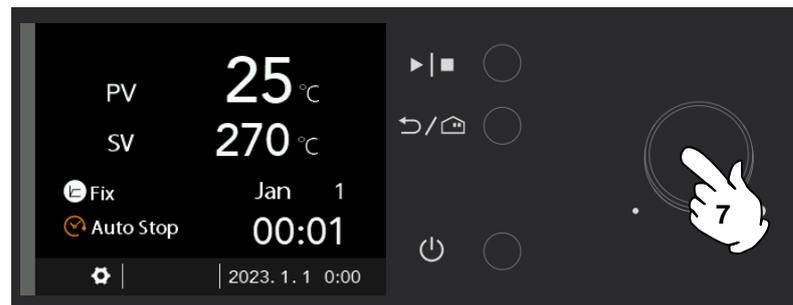
(7) Press the control dial in the state described in (6).

The operation mode is changed to "Fixed Temp - Hourly Auto Stop", and the user is transferred to the home screen.



The operation mode display on the home screen changes to

In addition, the currently set timer setting value is displayed in the set timer display.

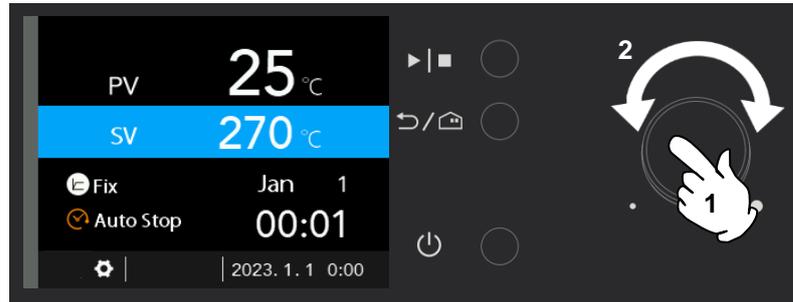


2. OPERATION PROCEDURES

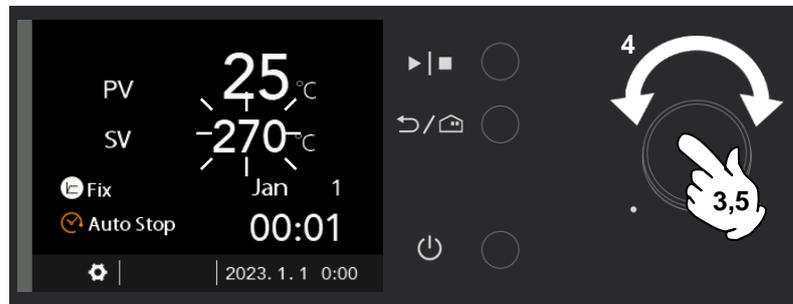
Hourly auto stop operation

2. Temperature setting

- (1) Press the control dial on the home screen. A cursor appears on the screen.
- (2) Turn the control dial to match the set temperature display.



- (3) Press the control dial in the state described in (2).
The set temperature is indicated by blinking.
- (4) Turn the control dial to set the desired temperature.



- (5) Press the control dial to complete the setting.
The cursor will automatically disappear after 10 seconds of inactivity.

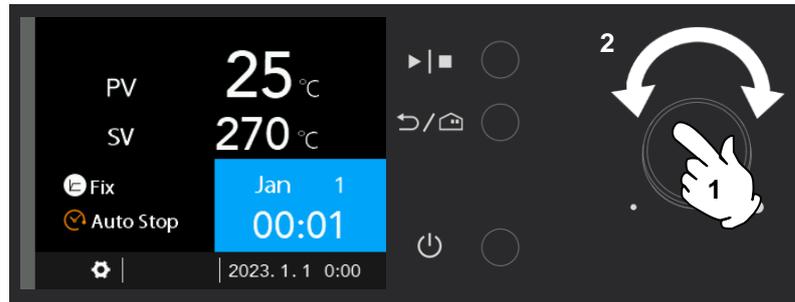
If you want to erase the cursor immediately, you can do so by pressing the  key.

2. OPERATION PROCEDURES

Hourly auto stop operation

3. Timer setting for Hourly auto stop operation

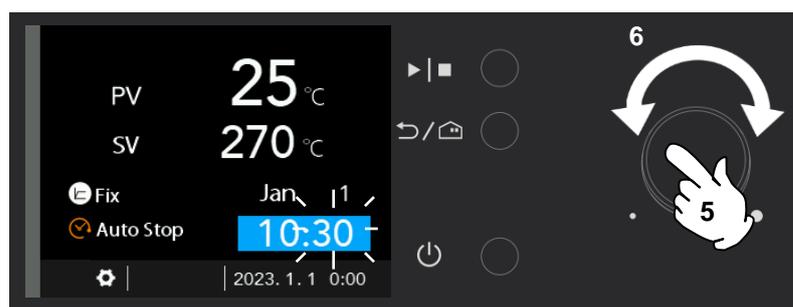
- (1) Press the control dial on the home screen. A cursor appears on the screen.
- (2) Turn the control dial and move the cursor to the setting timer display.



- (3) Press the control dial in the state described in (2). The setting timer (hour side) becomes a blinking display.
- (4) Turn the control dial to set the desired time (hour side).



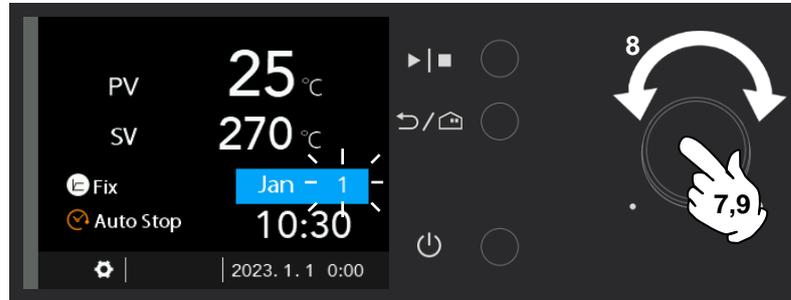
- (5) Press the control dial. The setting timer (minute side) becomes a blinking display. At this point, the setting has not yet been finalized.
- (6) Turn the control dial to set the desired time (minute side).



2. OPERATION PROCEDURES

Hourly auto stop operation

- (7) Press the control dial. The setting timer (date) becomes a blinking display.
The setting timer (month) is automatically switched when the setting timer (date) is changed.
At this point, the setting has not yet been finalized.
- (8) Turn the control dial to set the desired date.
The "--- -- --" setting is a setting that automatically stops at the nearest set time from the point of setting.



- (9) Press the control dial to complete the setting.
The cursor will automatically disappear after 10 seconds of inactivity.

If you want to erase the cursor immediately, you can do so by pressing the  key.

4. Start operation

Press the  key. Operation is started.

Appears on the status display **In operation**, the operating status bar turns green, and the temperature control is started.

The temperature control status icon is displayed according to the control status at the start.



2. OPERATION PROCEDURES

Hourly auto stop operation

5. Stop or end operation.

(1) At the set time, the unit automatically stops operation.

A buzzer sounds for about 5 seconds when the operation is stopped.

At this time, the set time display shifts to the "End" display and the operation status bar changes to blue.

(2) Press the  key.

Hourly auto stop operation is terminated and the display shifts to the pre-operation screen.



◆About temperature setting

The temperature setting range is 0°C to 270°C (DKV400, 600, 610, 810) and 220°C (DKV910). The setting is in 1°C increments.

Turning the control dial quickly increases the number of digits in the setting value, and turning it slowly decreases the number of digits, allowing fine adjustment of the setting value.

The temperature setting range is the same for all operation modes.

◆About the set time

The setting range of the time timer is as follows, depending on the time to be set.

If set later than current time: Can be set until 23:59, 30 days after the current date/time.

If the time is set earlier than the current time: The time can be set up to 23:59, 31 days after the current date and time.

Turning the control dial quickly increases the number of digits in the setting value, and turning it slowly decreases the number of digits, allowing fine adjustment of the setting value.

The time setting range is the same for all operation modes.

◆Editing set temperature and time during run.

To change the temperature setting during run, follow the same procedure as described in "2. Temperature Setting (p. 36)".

To change the set time during run, follow the same procedure as described in "3. Timer setting for Hourly auto stop operation (p. 37)".

2. OPERATION PROCEDURES

Timer auto start operation

About Timer auto start operation

Used to automatically start the Fixed temperature operation after a set time.

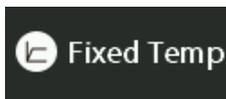
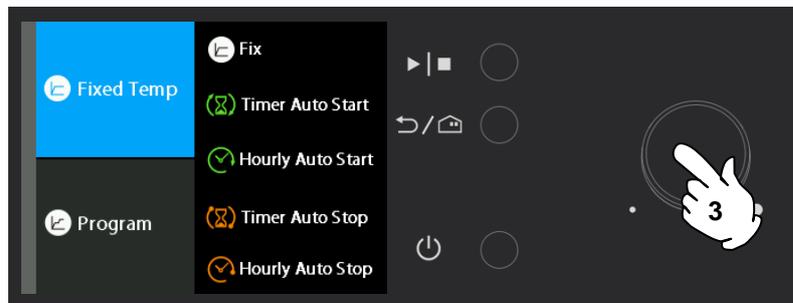
Timer auto start operation procedure

1. Operation mode selection

- (1) Press the control dial on the home screen. A cursor appears on the screen.
- (2) Turn the control dial to align the cursor with the operation mode display.



- (3) Press the control dial in the state described in (2). Moves to the operation mode selection screen.

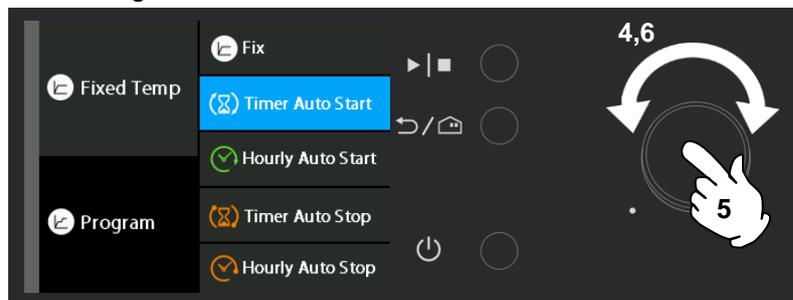


- (4) Turn the control dial to align the cursor with

- (5) Press the control dial in the state described in (4).

The cursor moves to the item on the right side of the operation mode selection screen.

- (6) Turn the control dial to align the cursor with



2. OPERATION PROCEDURES

Timer auto start operation

- (7) Press the control dial in the state described in (6).
The operation mode is changed to "Fixed Temp - Timer Auto Start", and the system moves to the home screen.



The operation mode display on the home screen changes to

In addition, the currently set timer setting value is displayed in the set timer display.

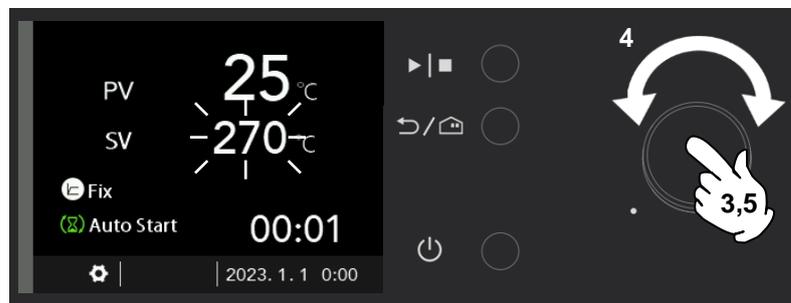


2. Temperature setting

- (1) Press the control dial on the home screen. A cursor appears on the screen.
(2) Turn the control dial to adjust to the set temperature display.



- (3) Press the control dial in the state described in (2).
The set temperature is indicated by blinking.
(4) Turn the control dial to set the desired temperature.



- (5) Press the control dial to complete the setting.
The cursor will automatically disappear after 10 seconds of inactivity.

If you want to erase the cursor immediately, you can do so by pressing the  key.

2. OPERATION PROCEDURES

Timer auto start operation

3. Timer setting for timer auto start operation

- (1) Press the control dial on the home screen. A cursor appears on the screen.
- (2) Turn the control dial to align the cursor with the setting timer display.



- (3) Press the control dial in the state described in (2). The setting timer (hour side) becomes a blinking display.
- (4) Turn the control dial to set the desired time (hour side).



- (5) Press the control dial. The setting timer (minute side) becomes a blinking display. At this point, the setting has not yet been finalized.
- (6) Turn the control dial to set the desired time (minute side).



- (7) Press the control dial to complete the setting. The cursor will automatically disappear after 10 seconds of inactivity.

If you want to erase the cursor immediately, you can do so by pressing the  key.

2. OPERATION PROCEDURES

Timer auto start operation

4. Start operation

(1) Press the  key. Operation is started.

The operation status bar changes to purple and the set timer display starts counting down.



(2) When the set time elapses, the status display automatically shows **In operation**, the buzzer sounds, the operating status bar changes to green, and temperature control starts.

The temperature control status icon is displayed according to the control status at the start.

5. Stop or end operation

Press the  key.

The timer auto start operation is terminated and the screen shifts to the pre-operation screen.



2. OPERATION PROCEDURES

Timer auto start operation

◆About temperature setting

The temperature setting range is 0°C to 270°C (DKV400, 600, 610, 810) and 220°C (DKV910). The setting is in 1°C increments.

Turning the control dial quickly increases the number of digits in the setting value, and turning it slowly decreases the number of digits, allowing fine adjustment of the setting value.

The temperature setting range is the same for all operation modes.

◆About the setting time

The timer setting range is 1 minute to 99 hours and 59 minutes. The setting is in 1-minute increments.

Turning the control dial quickly increases the number of digits in the setting value, and turning it slowly decreases the number of digits, allowing fine adjustment of the setting value.

The time setting range is the same for all operation modes.

To set the time timer beyond 99 hours and 59 minutes, set the operation mode to "Hourly auto start operation (p. 45)" and operate with the time timer setting.

◆Editing set temperature and time during run.

To change the temperature setting during run, follow the same procedure as described in "2. Temperature setting (p. 41)".

To change the set time during run, follow the same procedure as in "3. Timer setting for timer auto start operation (p. 42)".

2. OPERATION PROCEDURES

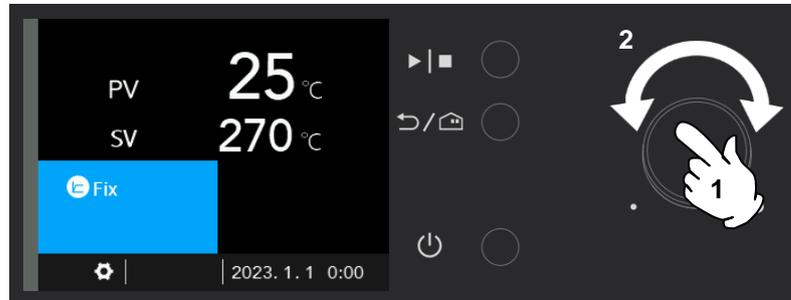
Hourly auto start operation

About Hourly auto start operation

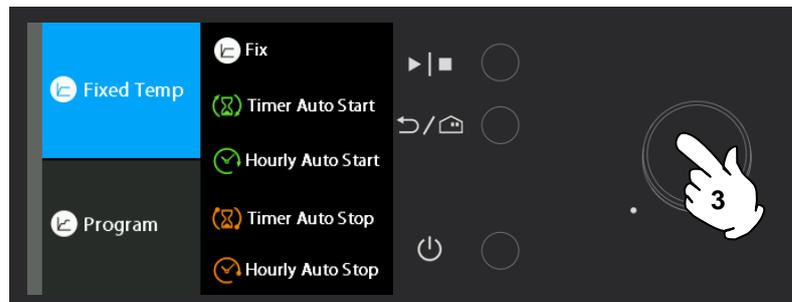
Used to automatically start the Fixed temperature operation at the set time.

Hourly auto start procedure

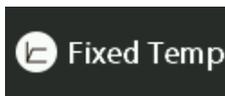
1. Operation mode selection
 - (1) Press the control dial on the home screen. A cursor appears on the screen.
 - (2) Turn the control dial to align the cursor with the operation mode display.



- (3) Press the control dial in the state described in (2). Moves to the operation mode selection screen.



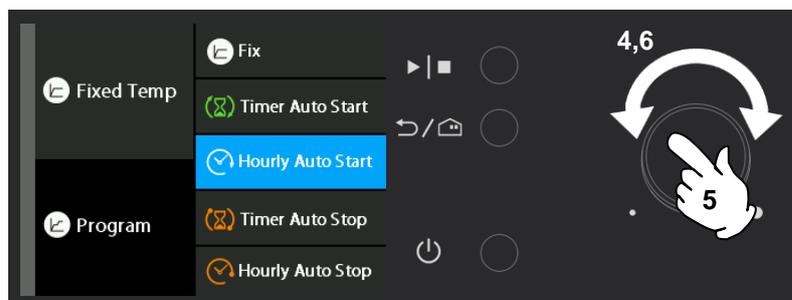
- (4) Turn the control dial to align the cursor with



- (5) Press the control dial in the state described in (4).

The cursor moves to the item on the right side of the operation mode selection screen.

- (6) Turn the control dial to align the cursor with



2. OPERATION PROCEDURES

Hourly auto start operation

- (7) Press the control dial in the state described in (6).
The operation mode is changed to "Fixed Temp - Hourly Auto Start", and the system moves to the home screen.



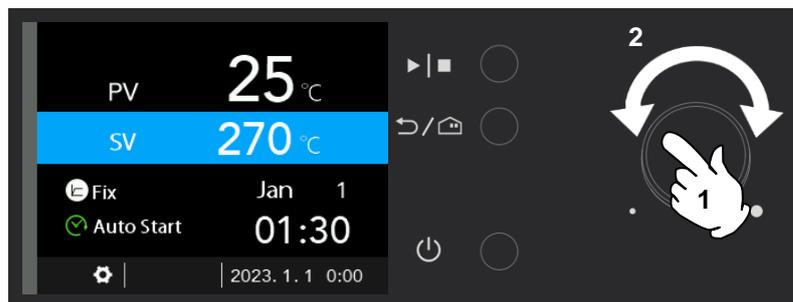
The operation mode display on the home screen changes to

In addition, the currently set timer setting value is displayed in the set timer display.

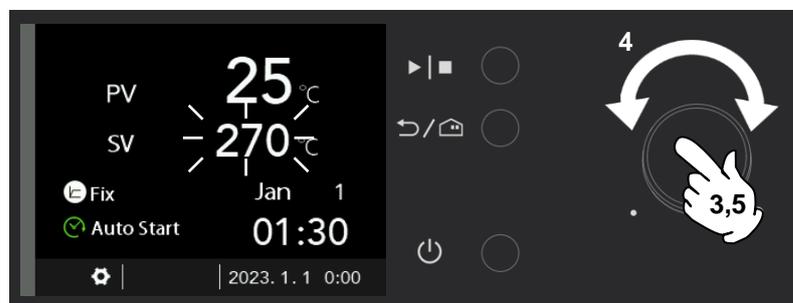


2. Temperature setting

- (1) Press the control dial on the home screen. A cursor appears on the screen.
(2) Turn the control dial to match the set temperature display.



- (3) Press the control dial in the state described in (2).
The set temperature is indicated by blinking.
(4) Turn the control dial to set the desired temperature.



- (5) Press the control dial to complete the setting.
The cursor will automatically disappear after 10 seconds of inactivity.

If you want to erase the cursor immediately, you can do so by pressing the  key.

2. OPERATION PROCEDURES

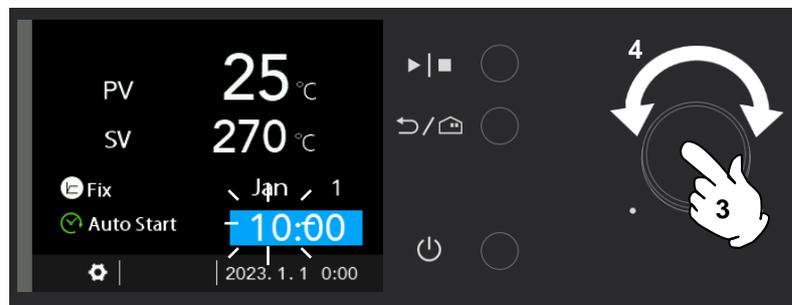
Hourly auto start operation

3. Time setting for Hourly auto start operation

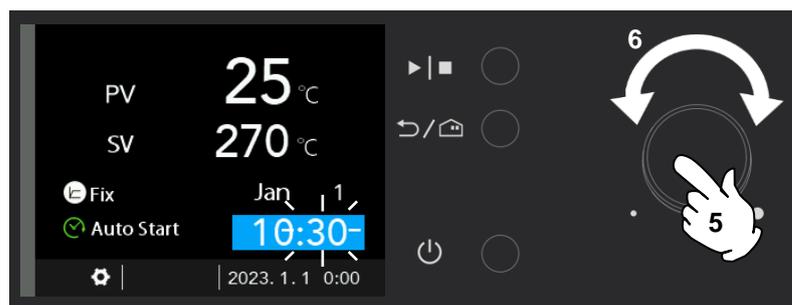
- (1) Press the control dial on the home screen. A cursor appears on the screen.
- (2) Turn the control dial to align the cursor with the setting timer display.



- (3) Press the control dial in the state described in (2). The setting timer (hour side) becomes a blinking display.
- (4) Turn the control dial to set the desired time (hour side).



- (5) Press the control dial. The setting timer (minute side) becomes a blinking display. At this point, the setting has not yet been finalized.
- (6) Turn the control dial to set the desired time (minute side).

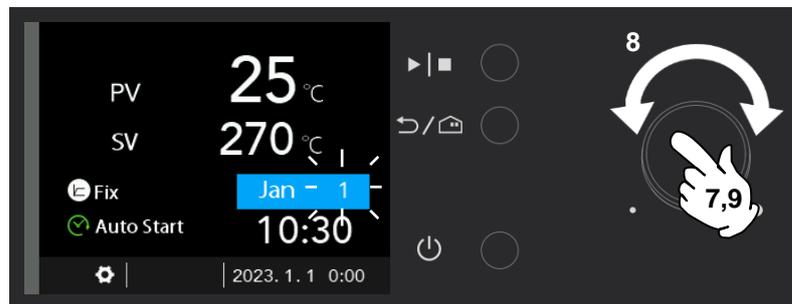


- (7) Press the control dial. The setting timer (date) becomes a blinking display. The setting timer (month) is automatically switched when the setting timer (date) is changed. At this point, the setting has not yet been finalized.

2. OPERATION PROCEDURES

Hourly auto start operation

- (8) Turn the control dial to set the desired date.
The "-- --" setting is for automatic operation at the nearest set time from the point of setting.



- (9) Press the control dial to complete the setting.
The cursor will automatically disappear after 10 seconds of inactivity.

If you want to erase the cursor immediately, you can do so by pressing the  key.

4. Start operation

- (1) Press the  key. Operation is started.
The operation status bar changes to purple and the setting timer display starts counting.



- (2) At the set time, the status display automatically shows **In operation** and a buzzer sounds.
The alarm sounds, the operation status bar changes to green, and the temperature control is started.
The temperature control status icon is displayed according to the control status at the start.

2. OPERATION PROCEDURES

Hourly auto start operation

5. Stop or end operation

Press the  key.

Hourly auto start operation is terminated and the display shifts to the preparation screen.



◆About temperature setting

The temperature setting range is 0°C to 270°C (DKV400, 600, 610, 810) and 220°C (DKV910). The setting is in 1°C increments.

Turning the control dial quickly increases the number of digits in the setting value, and turning it slowly decreases the number of digits, allowing fine adjustment of the setting value.

The temperature setting range is the same for all operation modes.

◆About the set time

The setting range of the time timer is as follows, depending on the time to be set.

If set later than current time: Can be set until 23:59, 30 days after the current date/time.

If the time is set earlier than the current time: The time can be set up to 23:59, 31 days after the current date and time.

Turning the control dial quickly increases the number of digits in the setting value, and turning it slowly decreases the number of digits, allowing fine adjustment of the setting value.

The time setting range is the same for all operation modes.

◆Editing set temperature and time during run.

To change the temperature setting during run, follow the same procedure as described in "2. Temperature Setting (p. 46)".

To change the set time during run, follow the same procedure as described in "3. Time setting for Hourly auto start operation (p. 47)".

2. OPERATION PROCEDURES

Program operation

About program operation

This operation is used to run a combination of temperatures, times and modes as one operation.

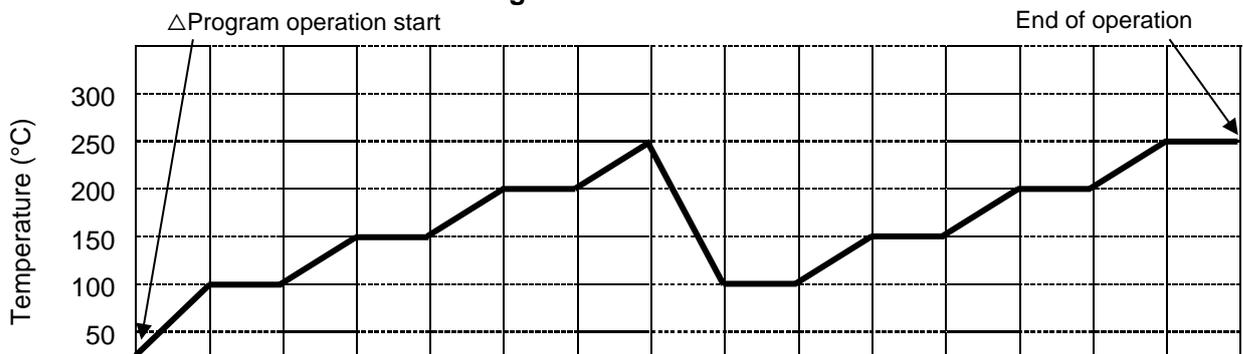
A line pattern of time variation of a set temperature, as shown in the figure below, is called a "Program," while a straight line that is a combination of one set temperature and one set time is called a "Step."

◆Program Type

Up to 4 patterns of program types can be set. The maximum number of steps that can be set for each program is as follows.

Prog1	Up to 10 steps of the program can be set.
Prog2	
Prog3	Up to 16 steps can be programmed.
Prog4	Up to 30 steps of the program can be set.

Program Pattern



Step No.	1	2	3	4	5	6	7	Repeat function Number of repeats: 1 ←—————→ When using the repeat function, it is not necessary to count it as the number of steps.								8
Set temp. (°C)	100	100	150	150	200	200	250									250
Setting time (h)	1.5	0.5	0.5	0.5	0.5	0.5	0.5									0.5
Timer Wait	ON									ON						

◆Before program operation

In order to run the program operation, program has to be set up first.

(1) Using the "Program Creation Sheet (p. 88)", check the number of steps and temperature/time for each step of the program to be created in advance.

(2) Check the temperature rise and fall capacity of the product. The time setting must be made within the range of the temperature rise and fall capabilities of the product.

Example: In the case of a device with the ability to descend or ascend 50°C in 10 minutes, it takes about 20 minutes to descend or ascend 100°C from the current temperature.

(3) Make sure that the number of steps to be set is within the number of steps that can be set for the program to be used.

Example: If the program requires 20 steps, only Prog4 can be set. However, when using the repeat function (p. 74), it can be excluded from the number of steps.

2. OPERATION PROCEDURES

Program operation

◆ Useful function

A convenient repeat function can be used when repeating steps of the same program.
See "Repeat function (p. 74)" for details on how to use this function.

◆ DKV temperature rise and fall times

The temperature drop and rise times for the DKV models are generally as follows. Numeric values signify time needed (in minutes) for temperature to rise or fall for every 50°C. (example: DKV400 model needs approximately 15 mins to increase from 100°C to 150°C)

Temperature stabilization time is an added factor and not included in the table below. Be sure to conduct a test run before finalizing program pattern times.

Conditions: room temperature 23 °C, no load, exhaust port closed (unit: minute)

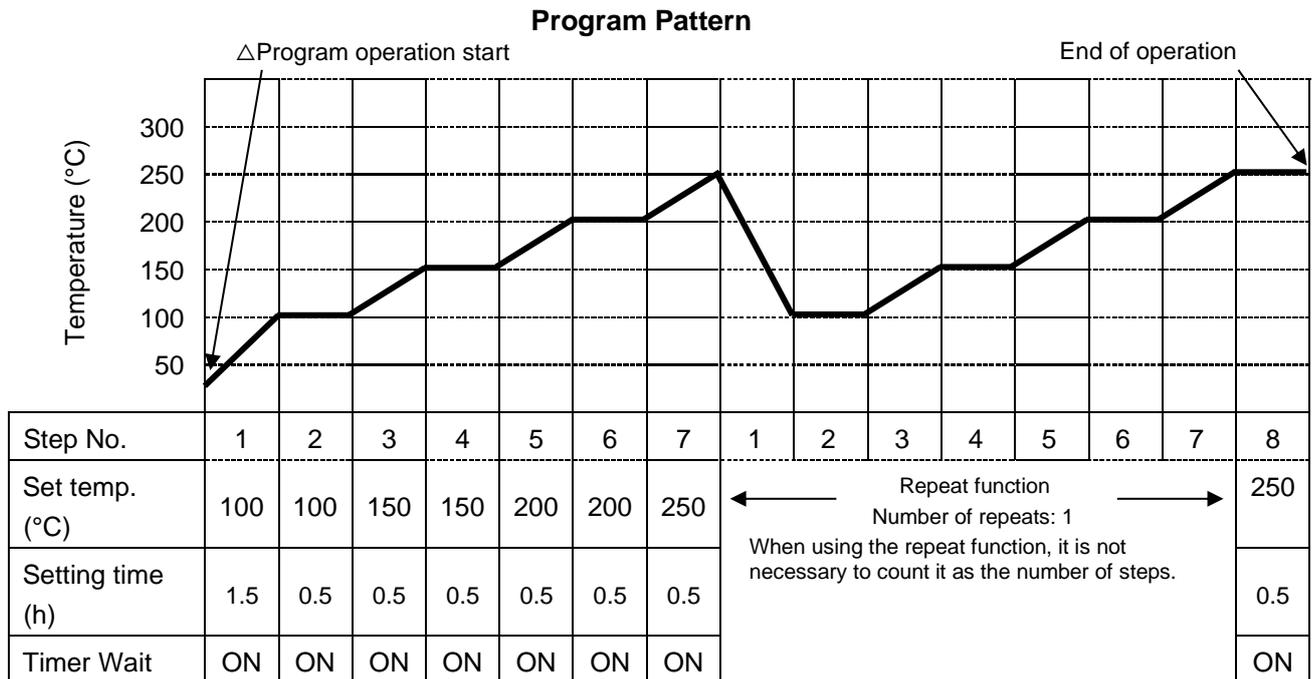
	DKV400		DKV410		DKV600		DKV610		DKV810		DKV910	
	Rising time	Falling time										
270 °C	approx .15	approx .15	approx .10	approx .20	approx .20	approx .20	approx .20	approx .20	approx .30	approx .35	-	-
250 °C (DKV910: 220°C)	approx .25	approx .30	approx .20	approx .35	approx .35	approx .35	approx .30	approx .40	approx .40	approx .60	approx .25	approx .30
200 °C	approx .20	approx .30	approx .15	approx .40	approx .30	approx .45	approx .20	approx .45	approx .30	approx .55	approx .30	approx .45
150 °C	approx .15	approx .45	approx .15	approx .55	approx .25	approx .55	approx .25	approx .50	approx .35	approx .60	approx .40	approx .70
100 °C	approx .15	approx .80	approx .15	approx .100	approx .30	approx .100	approx .30	approx .90	approx .25	approx .105	approx .40	approx .145
50 °C	approx .10	approx .115	approx .10	approx .115	approx .10	approx .110	approx .10	approx .125	approx .10	approx .260	approx .20	approx .195

2. OPERATION PROCEDURES

Program operation

Program procedure

The following program pattern is used as an example here.



1. Edit Program

Editing of the Program is done in the following manner.

- (1) Select Program to edit (p. 52)
- (2) Program End settings (p. 56)
- (3) Step setting of Program (p. 57)
- (4) Program repeat setting (p. 62)
- (5) Confirmation of Program Preview (p. 65)
- (6) Change of operation mode (p. 67)

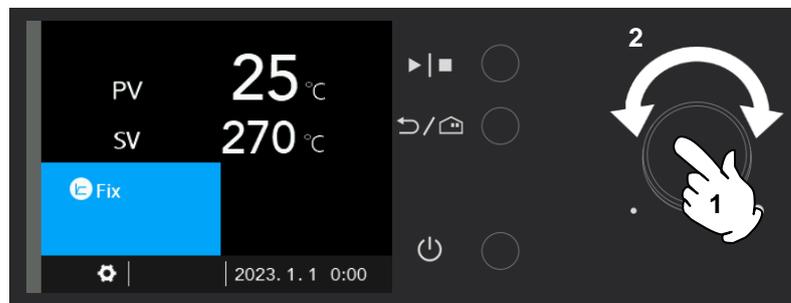
The following section describes the detailed setup procedure.

1-1. Select Program to edit

Select the Program No. to be edited.

Select the program that corresponds to the number of steps used in the program.

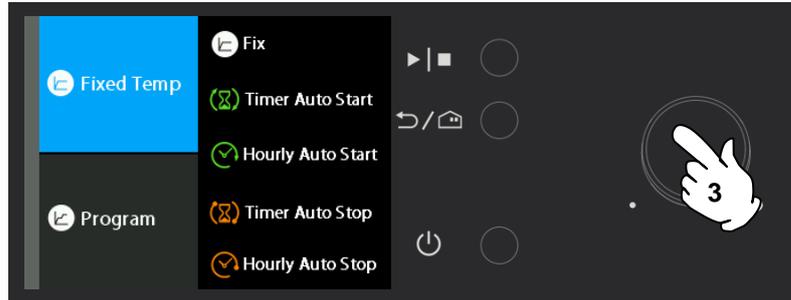
- (1) Press the control dial on the home screen. A cursor appears on the screen.
- (2) Turn the control dial to align the cursor with the operation mode display.



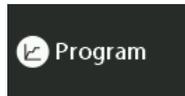
2. OPERATION PROCEDURES

Program operation

- (3) Press the control dial in the state described in (2). Moves to the operation mode selection screen.



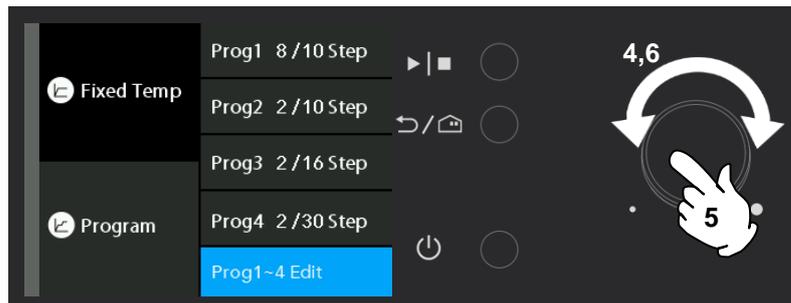
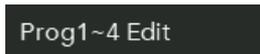
- (4) Turn the control dial to align the cursor with



- (5) Press the control dial in the state described in (4).

The cursor moves to the item on the right side of the operation mode selection screen.

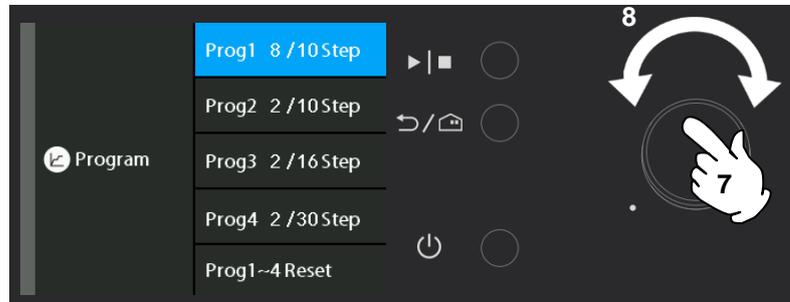
- (6) Turn the control dial to align the cursor with



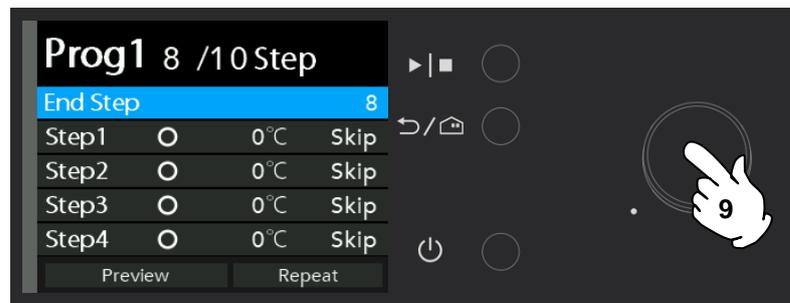
2. OPERATION PROCEDURES

Program operation

- (7) Press the control dial in the state described in (6).
Moves to the screen for selecting the program to be edited.
This screen can also be transitioned from the "Prog editing" item in the "Submenu Screen".
- (8) Turn the control dial and move the cursor to the Program No. you wish to edit,
(In the program reference example, select "Prog1" because the maximum number of steps is 8.)



- (9) Press the control dial in the state described in (8).
Go to the edit screen of the program you wish to edit.



2. OPERATION PROCEDURES

Program operation

About the Program Edit Screen



No.	Parameter	Display and Operation
①	Editing program number display	Displays the program being edited.
②	Program step number display	Displays the number of available steps and the number of steps used in the program being edited. Numerator: Total number of steps used Denominator: Number of available steps
③	Program repeat icon	The icon is displayed when the repeat function is enabled (repeat status setting "ON") in the program being edited. Not displayed if the repeat function is disabled (repeat status setting "OFF").
④	Program end setting	This is the setting for the total number of steps in the program being edited. The setting range differs for each page to be set. See "Program End Settings (p. 56)" for details.
⑤	Program Step setting display	The value of the step setting is displayed as follows.  <ul style="list-style-type: none"> Ⓐ : Step No. Ⓑ : Custom status Ⓒ : Step temperature setting display Ⓓ : Step time setting display
⑥	Program preview screen	The preview screen of the editing program will be displayed.
⑦	Program repeat setting	Moves to the repeat setting screen of the program being edited.

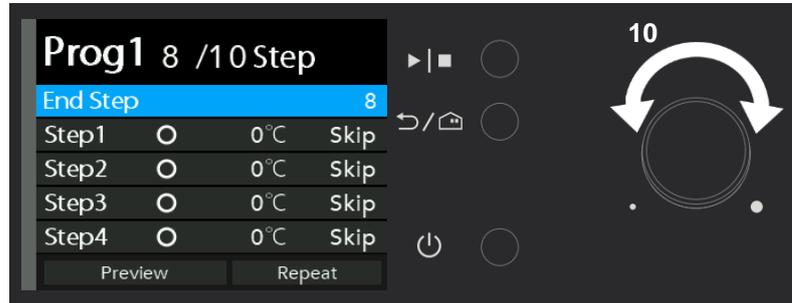
2. OPERATION PROCEDURES

Program operation

1-2. Program End Settings

Set the total number of steps in the program to be used.

- (10) On the edit screen of each program, turn the control dial to "End Step" in the edit screen of each program.

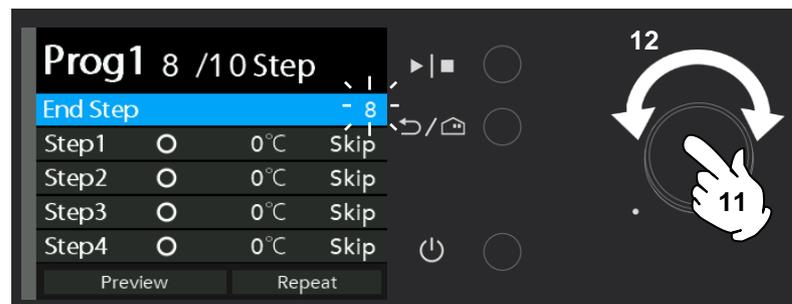


- (11) Press the control dial in the state described in (10).

The "End Step" setting value will blink.

- (12) Turn the control dial to set the total number of steps to be used.

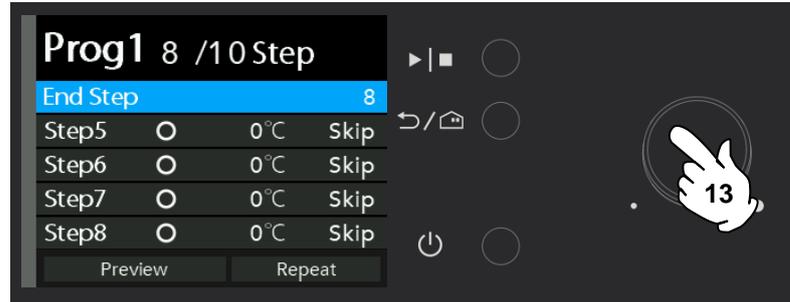
(In the program reference example, "8" is set because up to 8 steps are used.)



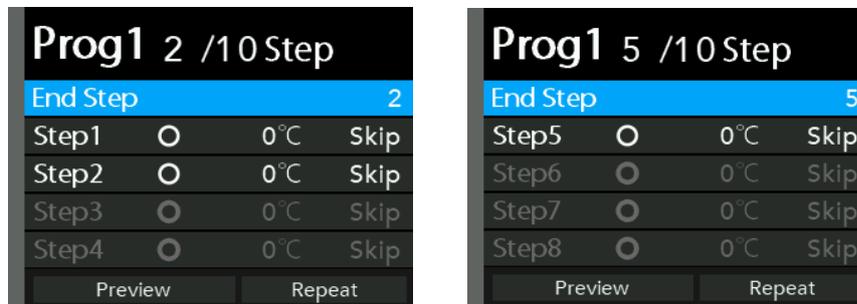
2. OPERATION PROCEDURES

Program operation

- (13) Press the control dial to complete the Program End setting.
The "End Step" setting value will be illuminated again.



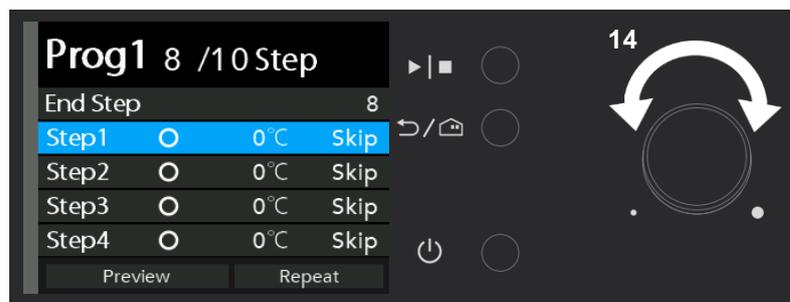
- * The setting items for the "End Step" setting are available on each page of the Edit Program screen, but the setting range differs. The minimum value of the setting range is the minimum number of steps displayed on the Program edit screen.



1-3. Step setting of Program

Set each step temperature, step timer, and step custom for program.

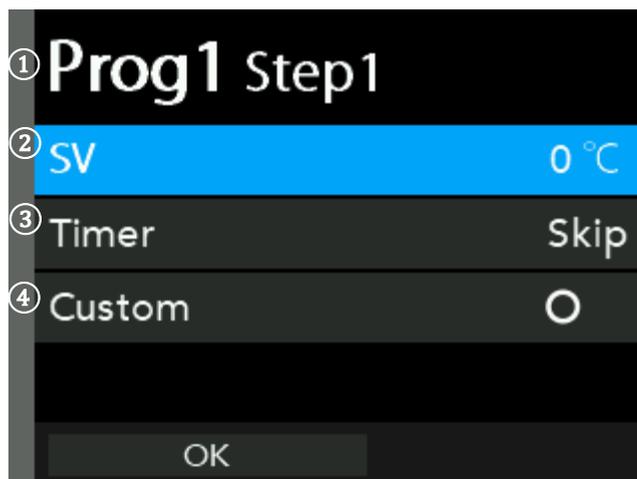
- (14) Turn the control dial and move the cursor to the step of the program you wish to set.



2. OPERATION PROCEDURES

Program operation

About program's step edit screen



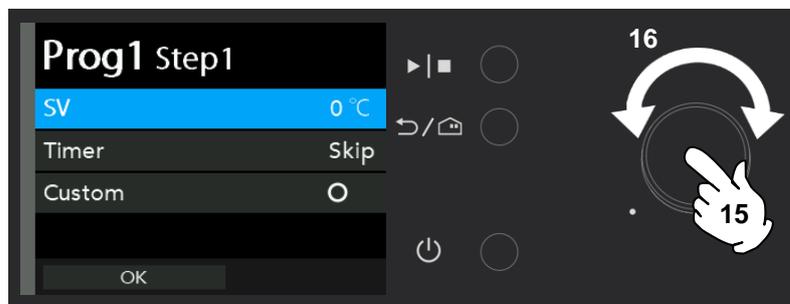
No.	Parameter	Display and Operation
①	Editing program step No.	Displays the program and step No. being edited.
②	Temperature setting for step	Step temperature can be set.
③	Timer setting for step	Timer settings for step can be made.
④	Custom settings for step	Go to step's custom settings screen.

(15) Press the control dial in the state described in (14).

Go to the step edit screen of program.

(16) Set the temperature of step.

Turn the control dial and move the cursor to "SV."

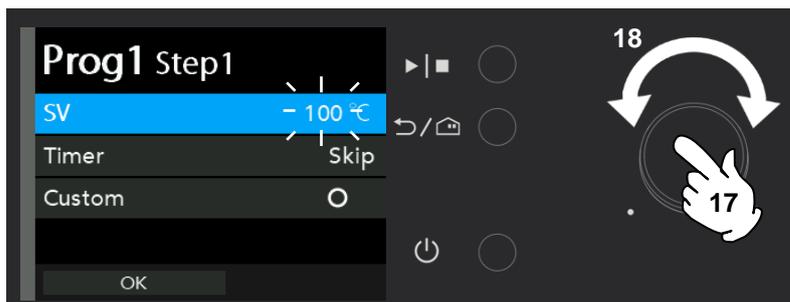


(17) Press the control dial in the state of 16).

The set value of step "SV" will blink.

(18) Turn the control dial to set the desired step temperature.

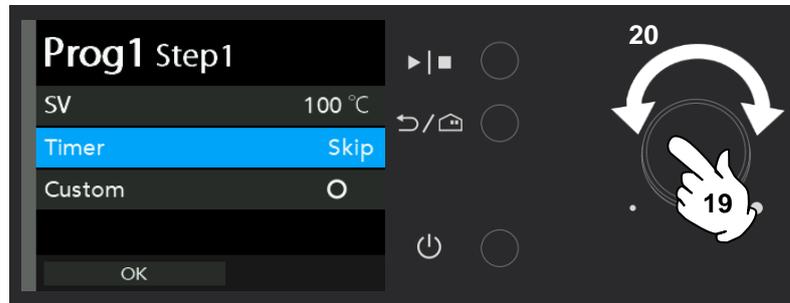
(See the In step 1 of the program reference example, "100" is set.)



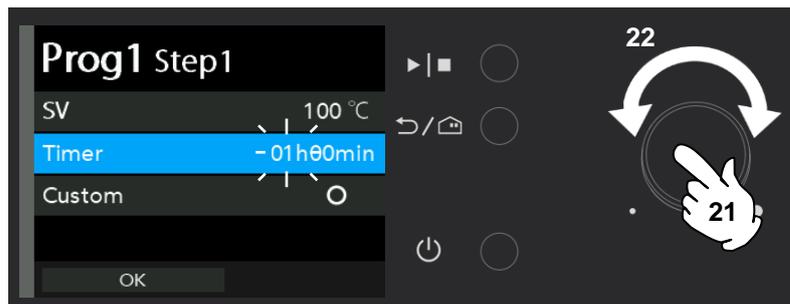
2. OPERATION PROCEDURES

Program operation

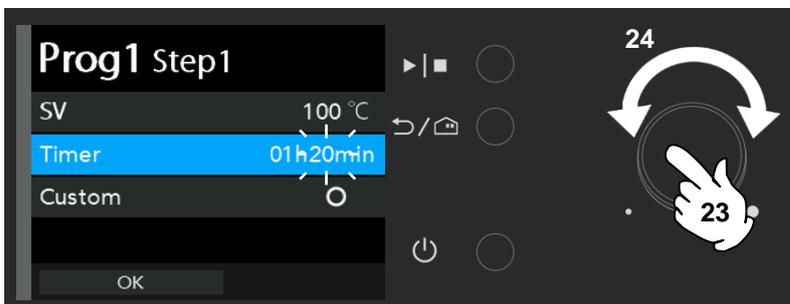
- (19) Press the control dial to complete the temperature setting for step.
The set value of step "SV" will be lit and displayed again.
- (20) Set the timer for step.
Turn the control dial to align the cursor with the setting timer display.



- Press the control dial in the state described in (21) (20).
The set value (hour side) of step "Timer" will blink.
When set to Skip, Full, or Hold, the entire set value will blink.
- (22) Turn the control dial to set the desired step timer (hour side).
(In step 1 of the reference example, it is set to "1".)



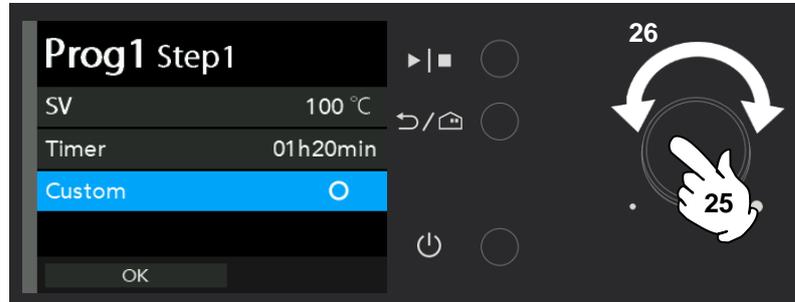
- (23) Press the control dial. The setting timer (minute side) becomes a blinking display.
At this point, the setting has not yet been finalized.
- (24) Turn the control dial to set the desired step timer (minute side).
(In step 1 of the reference example, it is set to "20".)



2. OPERATION PROCEDURES

Program operation

- (25) Press the control dial to complete the timer setting for step.
The set value of step "Timer" will be lit and displayed again.
* Before setting the timer, be sure to confirm temperature rise/fall capability of unit.
- (26) Set the custom of step.
Turn the control dial and move the cursor to "Custom".



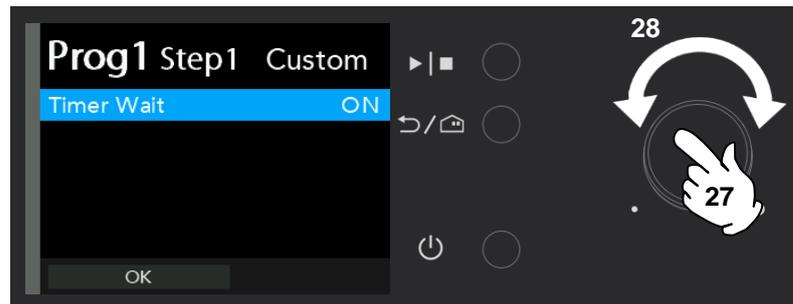
- (27) Press the control dial in the state described in (26).
Go to the custom item selection screen in step.

The step custom items of the DKV type program are as follows.

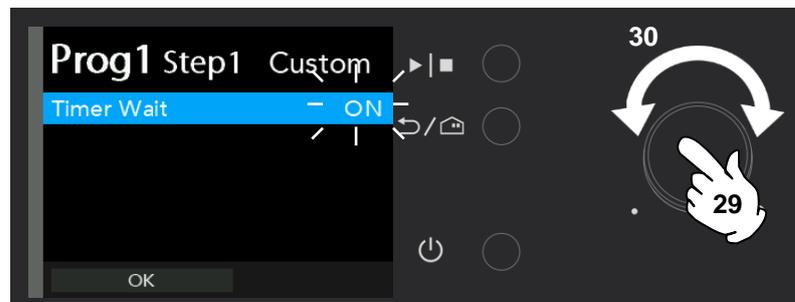
- Timer wait

* Refer to "Timer wait function for Program operation (p. 71)".

- (28) Turn the control dial to move the cursor to the custom item of the step to be set.



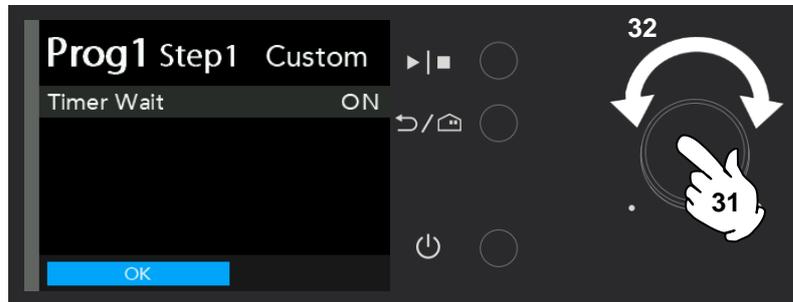
- (29) Press the control dial in the state described in (28).
The setting value of the selected custom item will blink.
- (30) Turn the control dial to set the desired custom item.
(In step 1 of the reference example, the timer wait is set to "ON".)
The setting range of the step custom item of the DKV type program is as follows.
Timer wait: ON or OFF



2. OPERATION PROCEDURES

Program operation

- (31) Press the control dial to complete the setting of custom items in step.
The set value of the custom item in step will be illuminated again.
- (32) After completing the setting of the custom item, turn the control dial and move the cursor to "OK".



- (33) Press the control dial in the state described in (32).
Return to program's step edit screen.
At this time, if the Step Custom setting is different from the following default values, the step Custom setting is considered valid and the custom display changes from a white circle to a green circle.

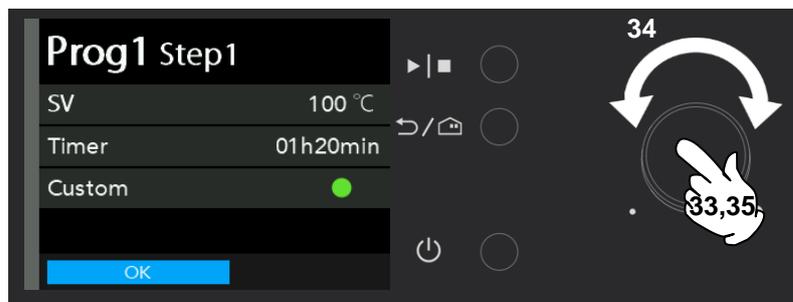
Default value of step custom setting for DKV type

custom item	Default values
Timer wait	ON

Step Custom Display

Setting	Error message
Disabled (initial value)	Custom 
Enabled (changed from default)	Custom 

- (34) After completing the settings for the applicable step (Step Temperature, Step Timer, and Step Custom), turn the control dial and move the cursor to "OK".
- (35) Press the control dial in the state described in (34). Return to the Program edit screen.
- (36) Follow the same procedure to set up the step to be used, according to the Program Creation Form.



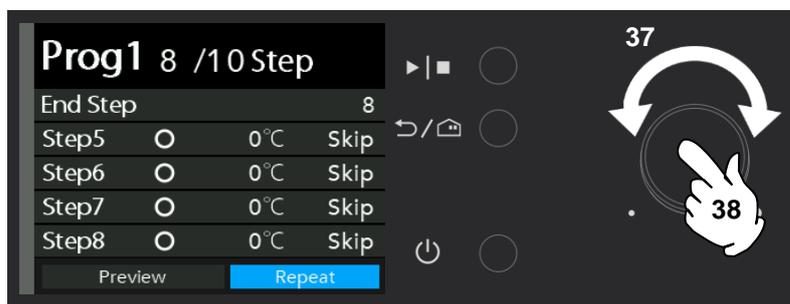
2. OPERATION PROCEDURES

Program operation

1-4. Program repeat settings

Set the repeat function (p. 74) to be used in program.

(37) Turn the control dial and move the cursor to "Repeat."



(38) Press the control dial in the state of (37).

Moves to the Program Repeat setting screen.

About the Program Repeat Settings Screen

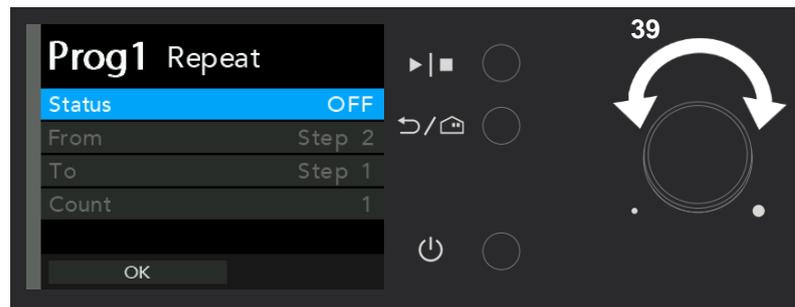


No.	Parameter	Display and Operation
①	Status Setting	Program repeat status can be set. ON: Repeat setting enabled OFF: Repeat setting disabled
②	Starting Step Setting	You can set the starting step of Program Repeat. Setting range: Step2 to End Step
③	Return Step Setting	The return step of Program Repeat can be set. Setting range: Step1 to starting point Step-1Step
④	Number of repeats set	The number of repeats for Program Repeat can be set. Setting range: 1 to 99, ∞

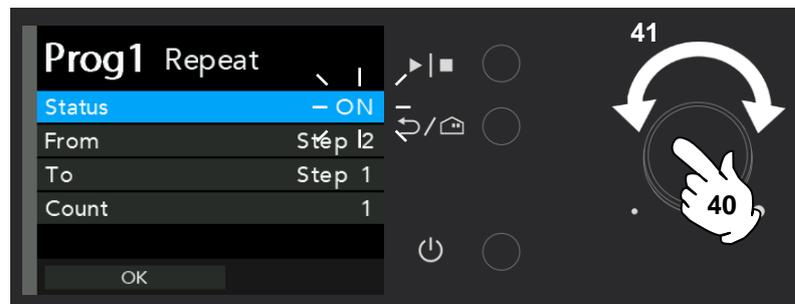
2. OPERATION PROCEDURES

Program operation

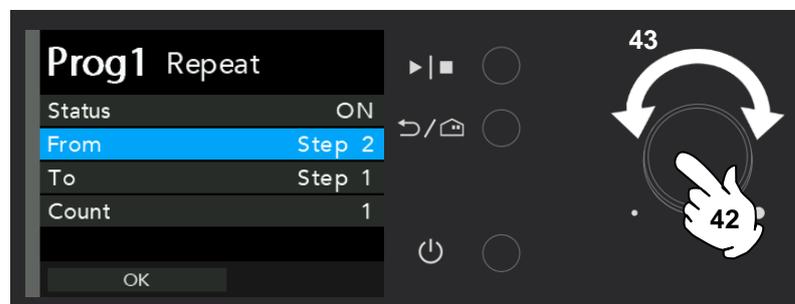
- (39) Set Program repeat status.
Turn the control dial and move the cursor to "Status".



- (40) Press the control dial in the state described in (39).
The "Status" setting value will blink.
- (41) Turn the control dial to the desired status setting.
(In the program reference example, set the status to "ON".)



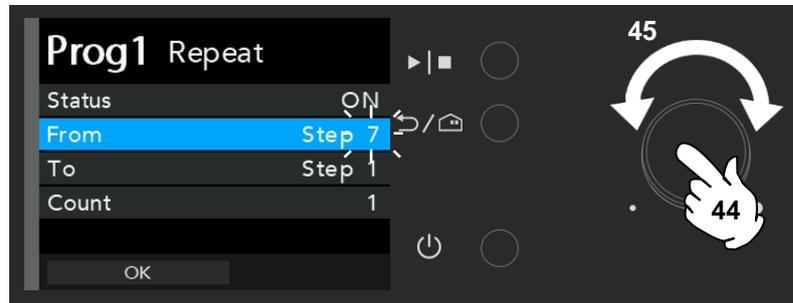
- (42) Press the control dial to complete the Program Repeat status setting.
When the status is set to "ON", the "From", "To", and "Count" of the repeat setting can be set.
If set to ON, go to step (43).
If set to OFF, go to step (49).
- (43) Sets the starting step for Program repeat.
Turn the cursor to the "From".



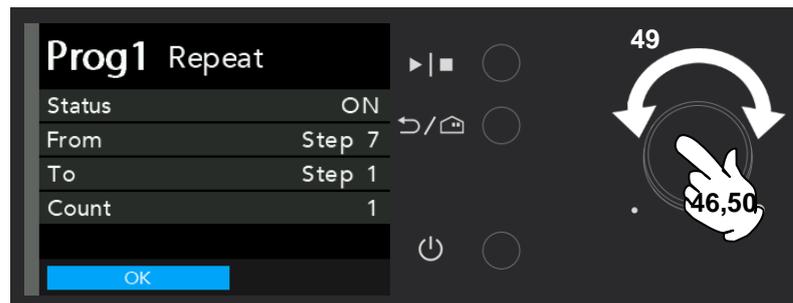
2. OPERATION PROCEDURES

Program operation

- (44) Press the control dial in the state described in (43).
The "From" setting value will blink.
- (45) Turn the control dial to the desired starting point setting.
(In the program reference example, the starting point is set to "Step 7.")



- (46) Press the control dial to complete the program repeat starting point setting.
- (47) Follow the same procedure as for "From" to set "To" to set the return step.
(In the program reference example, the return is set to "Step 1".)
- (48) Follow the same procedure as for "From" to set the "Count" to set the number of times.
(In the program reference example, the number of times is set to "1".)
- (49) After completing the repeat settings (status, starting point, return, and number of times), turn the control dial,
Move the cursor over "OK."



- (50) Press the control dial in the state of (49).
Return to the Program Edit screen.

If the status of the repeat setting is "ON",  will appear in the upper right corner of the Edit Program screen.

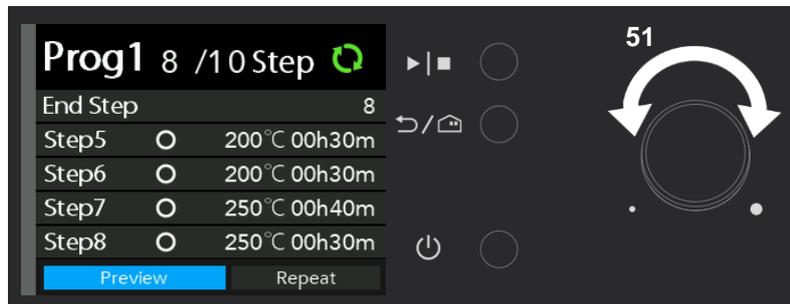
2. OPERATION PROCEDURES

Program operation

1-5. Confirmation of Program Preview

Confirm the contents of the program you have set up.

(51) Turn the control dial and move the cursor to "Preview."



(52) Press the control dial in the state described in (51).
Go to the Program Preview screen.



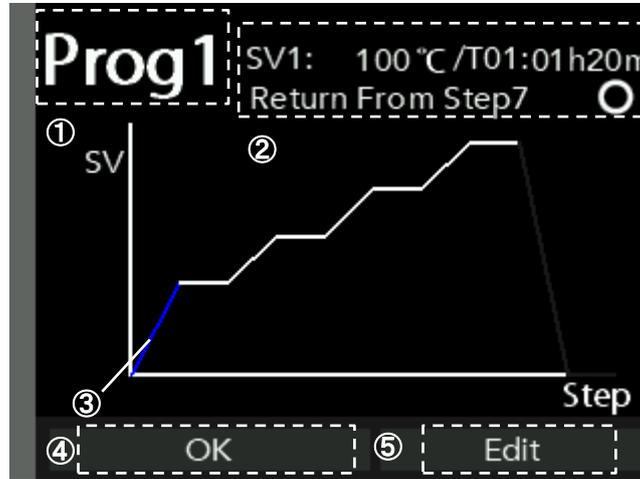
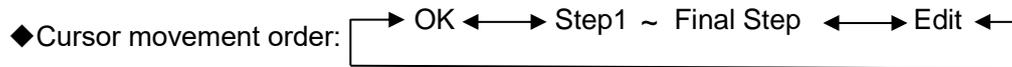
2. OPERATION PROCEDURES

Program operation

About the Program Preview Screen

In the Program Preview, you can check the setting information for each step by turning the control dial.

The cursor moves as follows



No.	Parameter	Display and Operation				
①	Preview Program No.	Displays the previewed Program No.				
②	Step Information	<p>Displays configuration information for the selected step. The configuration information for the displayed step is as follows</p> <p> </p> <p> (A): Set temperature (B): Set timer (C): Repeat setting </p> <table border="1"> <tr> <td>When the cursor is hovered over the return step</td> <td>The starting step is displayed. Example.) </td> </tr> <tr> <td>When the cursor is hovered over the starting step</td> <td>The return step is displayed. Example.) </td> </tr> </table> <p>* Not displayed in step without repeat setting.</p> <p>(D): with or without custom settings</p>	When the cursor is hovered over the return step	The starting step is displayed. Example.) 	When the cursor is hovered over the starting step	The return step is displayed. Example.)
When the cursor is hovered over the return step	The starting step is displayed. Example.) 					
When the cursor is hovered over the starting step	The return step is displayed. Example.) 					
③	Cursor	Displays the current selection. The information of the step where this cursor is located is displayed in ②.				
④	OK	Select this option upon completion of preview confirmation. Moves to the screen for changing the operation mode.				
⑤	Editing	Return to the Program Edit screen. Select when editing again.				

2. OPERATION PROCEDURES

Program operation

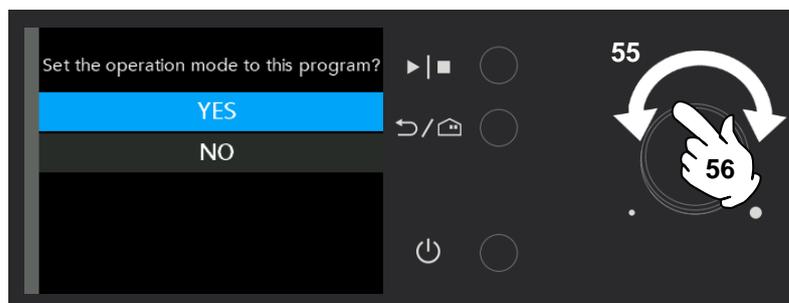
- (53) If the settings confirmed in the program preview are the same as those on the program creation form, turn the control dial and move the cursor to "OK". To edit again, move the cursor to "Edit".
- (54) Press the control dial.
If the cursor was set to "OK" in step (53), the operation mode change screen will be displayed.
If the cursor was set to "Edit" in step (53), the display returns to "1-2. Program End Settings (p.56)".



1-6. Change of operation mode

Select whether to set the edited program in operation mode.

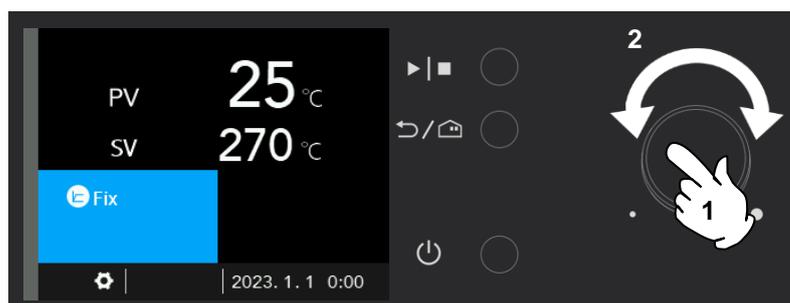
- (55) To set the edited program to the operation mode, turn the control dial and move the cursor to "Yes".
If you do not want to set the edited program to the operation mode, turn the control dial and move the cursor to "No".
- (56) Press the control dial.
If the cursor was set to "Yes" in step (55), the display shifts to "(8) program operation mode selection screen" in "2. Operation mode selection" below.
If the cursor was moved to "No" in step (55), the home screen will be shifted to the home screen.



2. Operation mode selection

* This operation is not necessary if the operation mode was changed in "1-6. Change of operation mode"

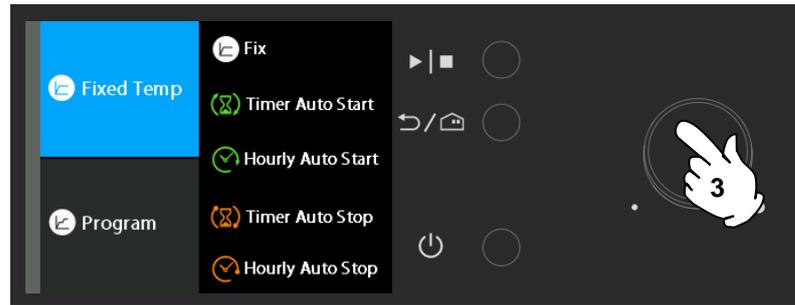
- (1) Press the control dial on the home screen. A cursor appears on the screen.
(2) Turn the control dial to align the cursor with the operation mode display.



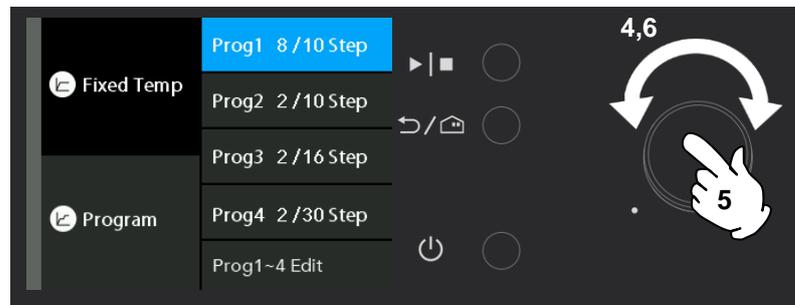
2. OPERATION PROCEDURES

Program operation

- (3) Press the control dial in the state described in (2). Moves to the operation mode selection screen.



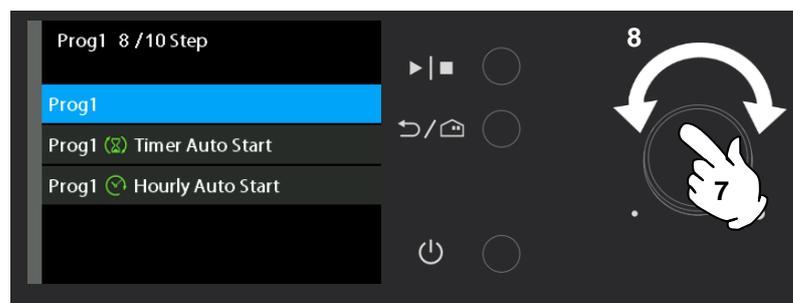
- (4) Turn the control dial to align the cursor with "Program".
(5) Press the control dial in the state described in (4).
The cursor moves to the item on the right side of the operation mode selection screen.
(6) Turn the control dial and move the cursor to the Program No. you wish to operate.
(In the program reference example, "Prog1" is selected.)



- (7) Press the control dial in the state (6). Moves to the Program operation mode selection screen.
(8) Turn the control dial and set the cursor to the desired Program operation mode.
The selectable operation modes are as follows.

- Prog1 or 2 or 3 or 4: Program operation
- Prog1 or 2 or 3 or 4 Timer Auto Start: Timer program auto start operation (p. 78)
- Prog1 or 2 or 3 or 4 Hourly Auto Start: Hourly program auto start operation (p. 83)

Turn the control dial and move the cursor to "Prog1 or 2 or 3 or 4".
(In the program reference example, "Prog1" is selected.)



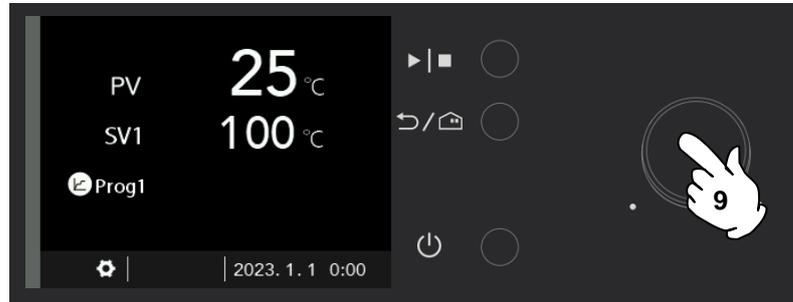
2. OPERATION PROCEDURES

Program operation

(9) Press the control dial in the state described in (8).

The operation mode is confirmed in the operation mode of the selected program and moves to the home screen.

The operation mode display on the home screen changes to the selected Program No.



◆Verification run

Before running the sample installation, be sure to run the program with no-load operation to check the program.

3. Start operation

Press the  key. Operation is started.

appears on the status display **In operation**, the operating status bar changes to green, and temperature control is started.

The temperature control status icon is displayed according to the control status at the start.

In addition, the set timer display shows the timer set value of the operating step and starts the countdown.



When a program step is shifted, the set temperature display and set timer display automatically change to the set value of the shifted step. Also, a buzzer sounds during step transition.

4. Stop or end operation

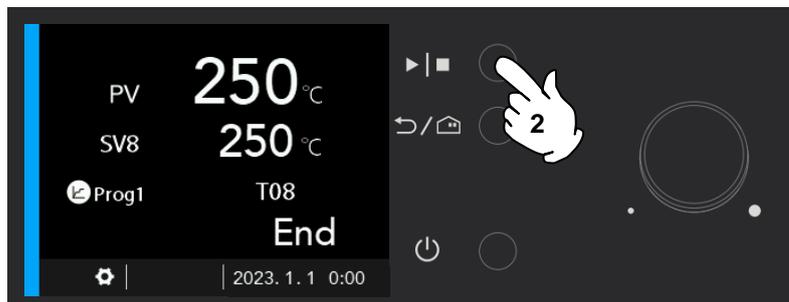
(1) Operation is automatically stopped when Program operation is completed.

When stopped, a buzzer sounds for approximately 5 seconds. At this time, the setting timer display shifts to the "End" display, and the operation status bar changes to blue.

2. OPERATION PROCEDURES

Program operation

(2) Press the  key. Program operation is terminated and the screen shifts to the pre-operation screen.



◆Temperature settings for each step

The temperature setting range is 0°C to 270°C (DKV400, 600, 610, 810) and 220°C (DKV910). The setting is in 1°C increments.

Turning the control dial quickly increases the number of digits in the setting value, and turning it slowly decreases the number of digits, allowing fine adjustment of the setting value.

The temperature setting range is the same for all operation modes.

◆The setting time for each step

The timer setting range is 1 minute to 99 hours and 59 minutes. The setting is in 1-minute increments.

Turning the control dial quickly increases the number of digits in the setting value, and turning it slowly decreases the number of digits, allowing fine adjustment of the setting value.

The time setting range is the same for all operation modes.

By using two or more steps, a time timer can be set beyond 99 hours and 59 minutes.

Example) When using a 100-hour time timer. Timer setting for Step 1: 50 hours, Timer setting for Step 2: 50 hours → Total 100 hour timer setting

Program's step has "Skip function (Skip function of step)"

"Full function (Full power function of step)" and "Hold function (Hold function of step)" as time timer functions.

•Skip function (Skip function of step)

This function allows you to skip step by step. If the following procedure is set, the operation of the set step will not be performed, and the next step will be shifted to the next step.

When setting the "timer" in step (hour side), from 00h, turn the 2-click control dial to the left to display "Skip" and press the control dial in that state to make the setting.

•Full function (Full power function of step)

This function controls the temperature of each step at Full power. When the following procedure is set, operation of the set step is performed at Full power until the set temperature is reached, and when the measured temperature reaches $\pm 3^{\circ}\text{C}$ of the set temperature, it moves to the next step.

When setting the "timer" (hour side) in Step 1, from 00h, turn the control dial one clicks to the left to display "Full" and press the control dial in that state to make the setting.

When set to Full, the timer wait in the custom is forced to be set to "ON" and is displayed grayed out.

2. OPERATION PROCEDURES

Program operation

Hold function (Hold function of step)

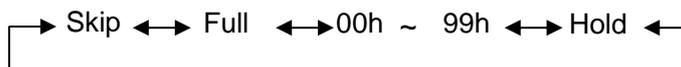
This function allows you to Hold each step (fixing the operation at the step selected to Hold).

When the following procedure is set, operation is held and continued at the set step.

When setting the "timer" (hour side) in Step 1, from 00h, turn the 3-click control dial to the left to display

"Hold" and press the control dial in that state to make the setting.

The "timer" setting (hour side) of step loops through the set values as follows.



◆Editing set program during run.

To change program settings during run, follow the same procedure as described in "1. Editing Programs (p. 52)".

However, since the operation mode cannot be changed while operation, the procedure in "1-6. Change of operation mode (p. 67)" cannot be performed.

◆Timer wait function for Program operation

The timer wait function for Program operation is a function to operate program giving priority to the time to reach and stabilize the set temperature over the set timer. It consists of two functions: the attained wait function and the stable wait function.

The function can be set to "ON" or "OFF" for each step from the timer wait in the custom settings of the step.

The following functions are enabled when the setting is set to "ON".

•Attained wait function

This function prioritizes the set temperature when the temperature rises or falls.

When shifting from one step to the next step, if the measurement temperature is outside the range of $\pm 3^{\circ}\text{C}$ from the set temperature when the step setting timer counts up, the next step will not be shifted.

When the program is waiting to move to the next step, the setting timer display on the home screen automatically switches from the countdown display to the count up display, allowing the user to check the execution time of the timer wait function. (Up to 99h59min).

Unit will go on to next step when the temperature comes within the range of target temperature $\pm 3^{\circ}\text{C}$

Attained wait function count-up screen



2. OPERATION PROCEDURES

Program operation

• Stable wait function

This function prioritizes the set temperature when the temperature is stable.

If the measured temperature falls outside the set temperature $\pm 3^{\circ}\text{C}$ range during the countdown of the step timer due to external disturbances, the timer count on the home screen will pause with a blinking display, and a buzzer will sound at the same time.

Counting resumes when the measured temperature returns to within $\pm 3^{\circ}\text{C}$ of the set temperature.

Screen during stable wait



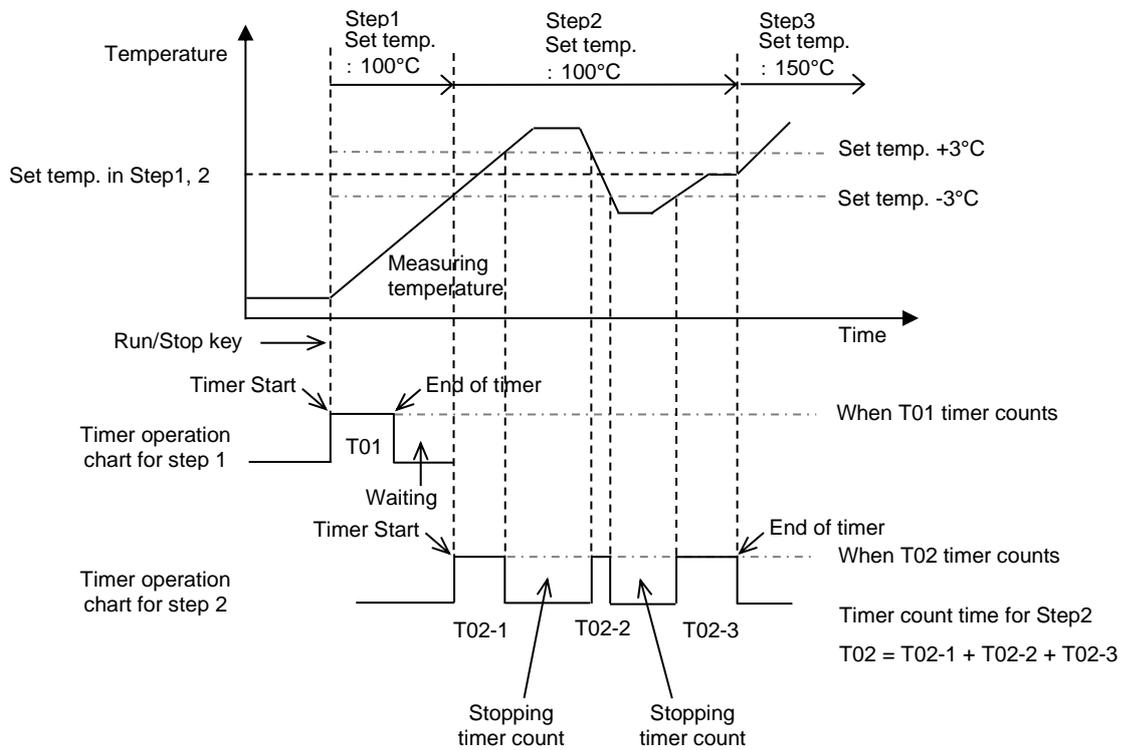
When the setting is set to "OFF," priority is given to the set time and the wait function is disabled. In this case, even if the measured temperature is outside the range of $\pm 3^{\circ}\text{C}$ from the set temperature, when the step timer counts up, it moves to the next step.

The initial value is set to "ON".

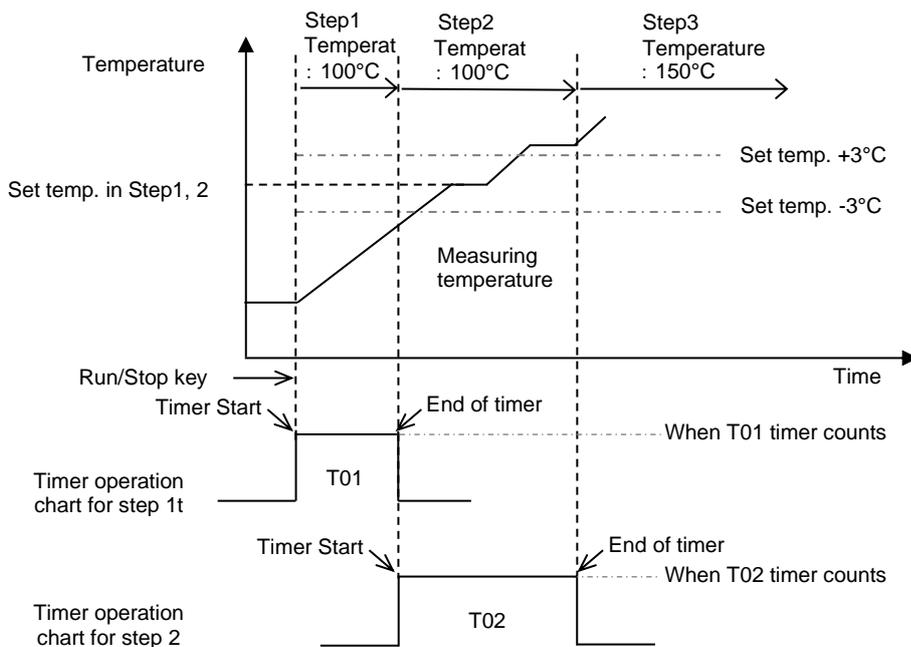
2. OPERATION PROCEDURES

Program operation

Schematic of operation when the timer wait of each step is "ON".



Schematic of operation when the timer wait of each step is "OFF".

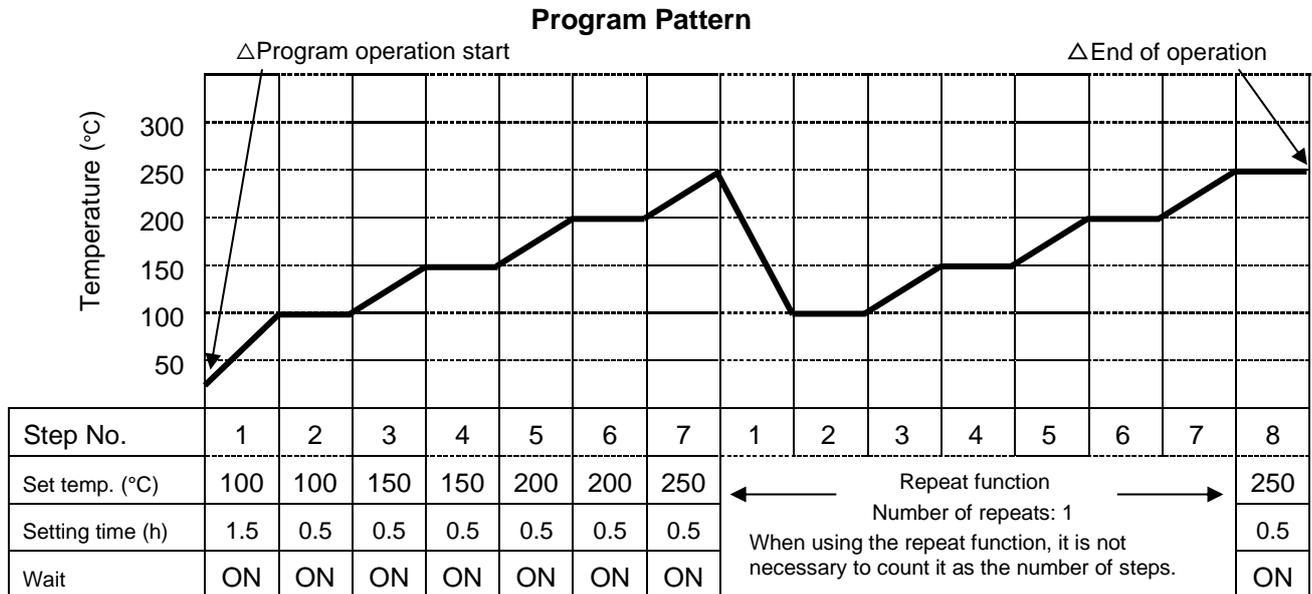


2. OPERATION PROCEDURES

Program operation

◆ Repeat function

The repeat function is a function that allows the user to repeat a step pattern in the middle of a Program operation. Up to one repeat can be set for each Program.



The repeat function can be used by setting the following items.

• Status

Status" sets whether the repeat function is enabled (ON) or disabled (OFF).

When set to "ON", the repeat function is enabled, and the program repeats according to the set "starting step (From)", "return step (To)", and "number of repeats (Count)". The initial value is set to OFF.

When set to "OFF," the repeat function is disabled.

• Starting step (From)

In "From", the starting step of the repeat function is set. When the step set in "From" is completed, the repeat is executed, and the machine runs back to the step set in "To".

The setting range is from return step + 1 step to End Step. The initial value is set to Step 2.

(In the Program Pattern reference example, the starting point is set to Step 7.)

• Return step (To)

"To" sets the return destination step for the repeat function. When a repeat is executed, the machine runs from the step set as "starting point" back to the step set as "return".

The setting range is from step 1 to the starting point step -1 step. The initial value is set to Step 1.

(In the Program Pattern reference example, "Return" is set to Step 1.)

• Number of repeats (Count)

In "Count," the number of times the repeat function is executed is set. The "Count" is set to 1 when the operation from "Starting step (From)" to "Return step (To)" is executed. The setting range is 1 to 99 and ∞. The initial value is set to 1. Note that if the "Count" setting is set to "∞", the repeat operation will continue to be executed and the Program operation will not be terminated. (In the Program pattern reference example, "Count" is set to 1.)

* If End Step is set to a step smaller than the starting step setting, the repeat setting is initialized. Be careful to set the End Step and the Starting step.

2. OPERATION PROCEDURES

Program operation

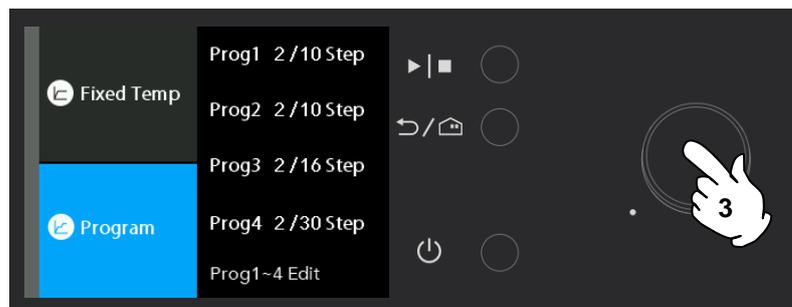
◆Reset program during run.

This product has a function to reset the edited contents of Program (write back the settings to the default values). Resetting edits can be performed as follows

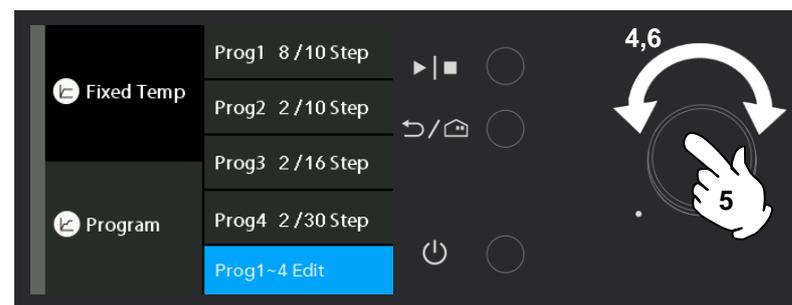
- (1) Press the control dial on the home screen. A cursor appears on the screen.
- (2) Turn the control dial to align the cursor with the operation mode display.



- (3) Press the control dial in the state described in (2). Moves to the operation mode selection screen.
- (4) Turn the control dial and move the cursor to "Program".



- (5) Press the control dial in the state described in (4).
The cursor moves to the item on the right side of the operation mode selection screen.
- (6) Turn the control dial and move the cursor to "Prog1-4 Edit".



2. OPERATION PROCEDURES

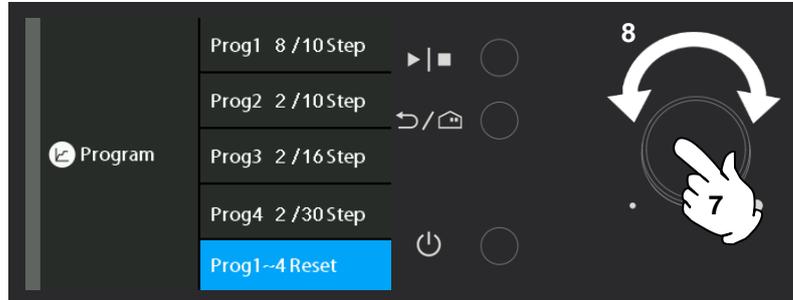
Program operation

(7) Press the control dial in the state described in (6).

Moves to the screen for selecting the Program to be edited.

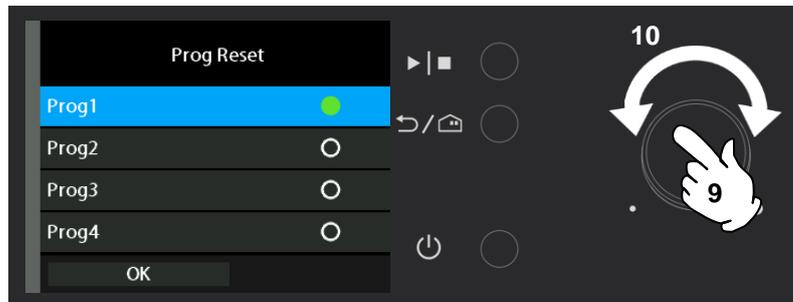
This screen can also be accessed from the "Prog Edit" item in the "Submenu Screen".

(8) Turn the control dial and move the cursor to "Prog1~4 Reset".



(9) Press the control dial in the state described in (8). Go to the Program reset screen.

(10) Turn the control dial and move the cursor to the program you wish to reset.



(11) Press the control dial in the state described in (10). Moves to the Program Reset Execute screen.

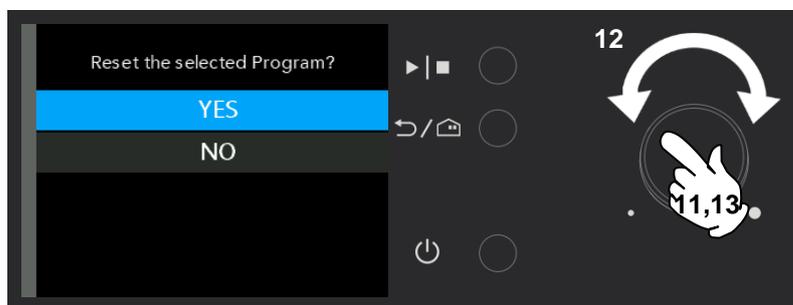
(12) Turn the control dial and move the cursor to "Yes" to reset.

Move the cursor to "No" if you do not want to reset.

(13) Press the control dial in the state of (12).

If the cursor is set to "Yes," go to step 14).

If you move the cursor to "No," you will be taken to the Program reset screen.



2. OPERATION PROCEDURES

Program operation

(14) A reset of the Program is performed.

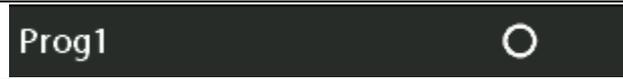
During the reset execution, "Reset in progress" is displayed at the bottom of the screen.

*** Do not turn the breaker off (O) or operate keys or dial while "resetting" is displayed.**

When the reset is complete, you will automatically be taken to the Program reset screen.

At this time, the display of the reset Program changes from a green circle to a white circle.

Program reset indication

setting (of a computer or file, etc.)	Error message
Reset has been performed (Default value)	
Reset not performed (Changed from the default value)	

(15) Turn the control dial and move the cursor to "OK."

(16) Press the control dial in the state described in (15). Return to the home screen.

If there is no operation on the submenu screen for 120 seconds, it will automatically switch to the home screen.

2. OPERATION PROCEDURES

Timer program auto start operation

About timer program auto start operation

Used to automatically start the program auto start operation after a set time.

Timer program auto start procedure

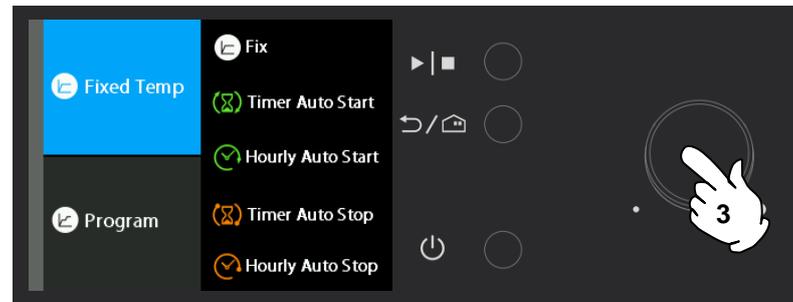
1. Operation mode selection

- (1) Press the control dial on the home screen. A cursor appears on the screen.

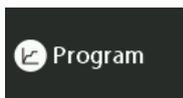


- (2) Turn the control dial to align the cursor with the operation mode display.

- (3) Press the control dial in the state described in (2). Moves to the operation mode selection screen.



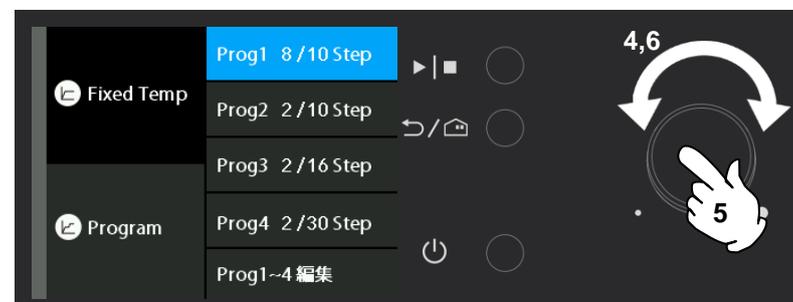
- (4) Turn the control dial to align the cursor with



- (5) Press the control dial in the state described in (4).

The cursor moves to the item on the right side of the operation mode selection screen.

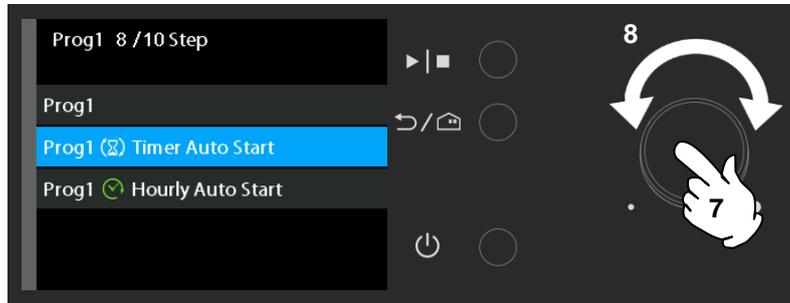
- (6) Turn the control dial and move the cursor to the Program No. you wish to operate.



2. OPERATION PROCEDURES

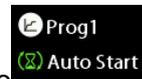
Timer program auto start operation

- (7) Press the control dial in the state described in 6). Moves to the Program operation mode selection screen.
- (8) Turn the control dial and move the cursor to "Prog1 or 2 or 3 or 4 Timer Auto Start".



- (9) Press the control dial in the state described in (8). The operation mode is fixed in the timer auto start operation mode of the selected Program and moves to the home screen.

The operation mode display on the home screen changes to

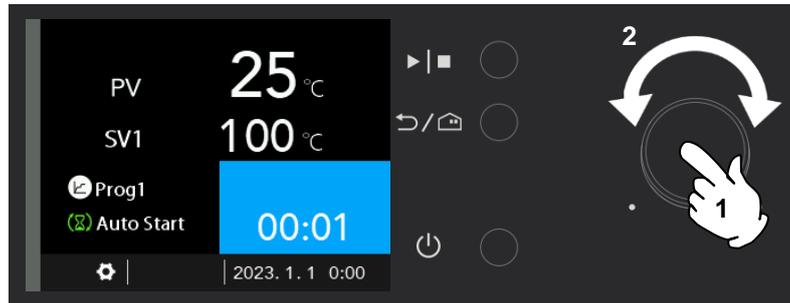


2. OPERATION PROCEDURES

Timer program auto start operation

2. Timer setting for timer program auto start operation

- (1) Press the control dial on the home screen. A cursor appears on the screen.
- (2) Turn the control dial to align the cursor with the setting timer display.

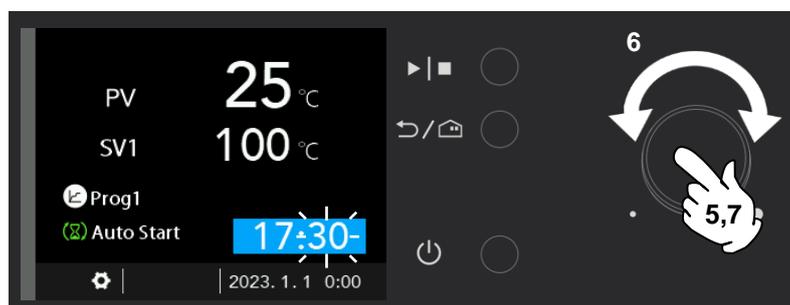


- (3) Press the control dial in the state described in (2). The setting timer (hour side) becomes a blinking display.
- (4) Turn the control dial to set the desired time (hour side).



- (5) Press the control dial. The setting timer (minute side) becomes a blinking display. At this point, the setting has not yet been finalized.
- (6) Turn the control dial to set the desired time (minute side).
- (7) Press the control dial to complete the setting. The cursor will automatically disappear after 10 seconds of inactivity.

If you want to erase the cursor immediately, you can do so by pressing the  key.

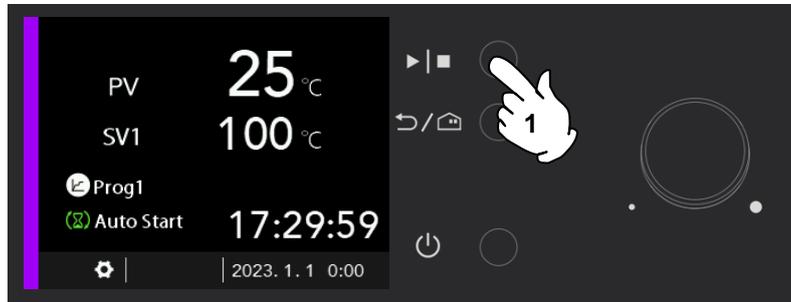


2. OPERATION PROCEDURES

Timer program auto start operation

3. Start operation

- (1) Press the  key. Operation is started.
The operation status bar changes to purple and the set timer display starts counting down.



- (2) When the set time elapses, the status display automatically shows **In operation**, the buzzer sounds, the operation status bar changes to green, and the set Program operation starts. When Program operation starts, the setting timer display changes to the setting timer of the first step. In addition, the temperature control status icon is displayed according to the control status at the start.



4. Stop or end operation

- (1) When Program operation is finished, it automatically stops.
When stopped, a buzzer sounds for approximately 5 seconds. At this time, the setting timer display shifts to the "End" display, and the operation status bar changes to blue.

- (2) Press the  key.
Timer program auto start operation is terminated and the screen shifts to the pre-operation screen.



2. OPERATION PROCEDURES

Timer program auto start operation

◆About the timer set for auto start

The timer setting range is 1 minute to 99 hours and 59 minutes. The setting is in 1-minute increments.

Turning the control dial quickly increases the number of digits in the setting value, and turning it slowly decreases the number of digits, allowing fine adjustment of the setting value.

The time setting range is the same for all operation modes.

To set the time timer beyond 99 hours and 59 minutes, set the operation mode to "Hourly program auto start operation (p. 83)" and operate with the time timer setting.

◆Editing set auto start timer during run.

To change the auto start time during run, follow the same procedure as in "2. Timer setting for timer program auto start operation (p. 80)".

Note, however, that changes can only be made while the auto start timer is counting and cannot be made once the timer counts, and Program operation begins.

2. OPERATION PROCEDURES

Hourly program auto start operation

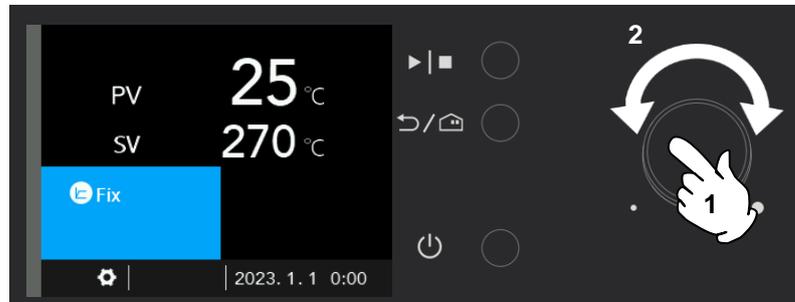
About Hourly program auto start operation

Used to automatically start Program operation at a set time.

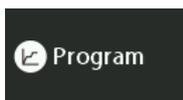
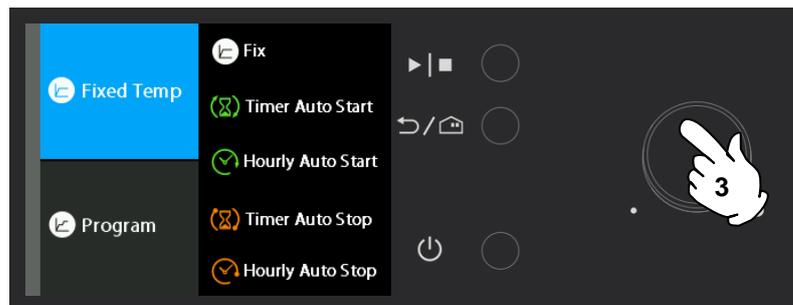
Hourly program auto start procedure

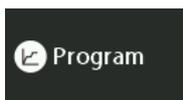
1. Operation mode selection

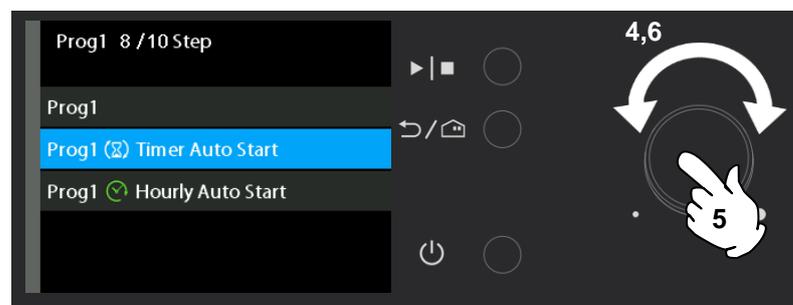
- (1) Press the control dial on the home screen. A cursor appears on the screen.
- (2) Turn the control dial to align the cursor with the operation mode display.



- (3) Press the control dial in the state described in (2). Moves to the operation mode selection screen.



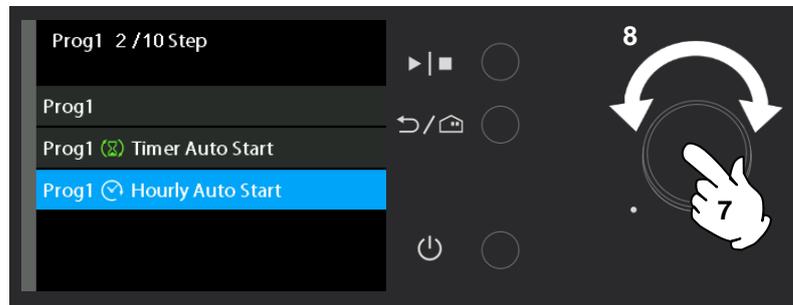
- (4) Turn the control dial to align the cursor with .
- (5) Press the control dial in the state described in (4).
The cursor moves to the item on the right side of the operation mode selection screen.
- (6) Turn the control dial and move the cursor to the Program No. you wish to operate.



2. OPERATION PROCEDURES

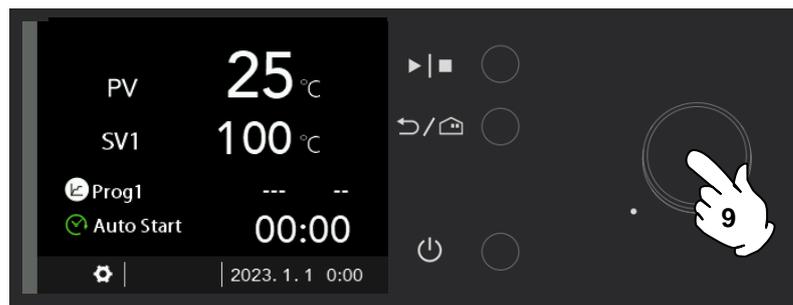
Hourly program auto start operation

- (7) Press the control dial in the state described in (6). Moves to the Program operation mode selection screen.
- (8) Turn the control dial to move the cursor to "Prog1 or 2 or 3 or 4 Hourly Auto Start".



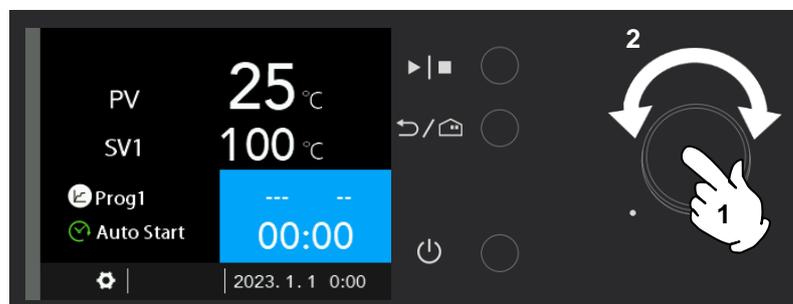
- (9) Press the control dial in the state described in (8). The operation mode is fixed in the Hourly auto start operation mode of the selected Program, and the home screen is displayed.

The operation mode display on the home screen changes to 



2. Time setting for Hourly program auto start

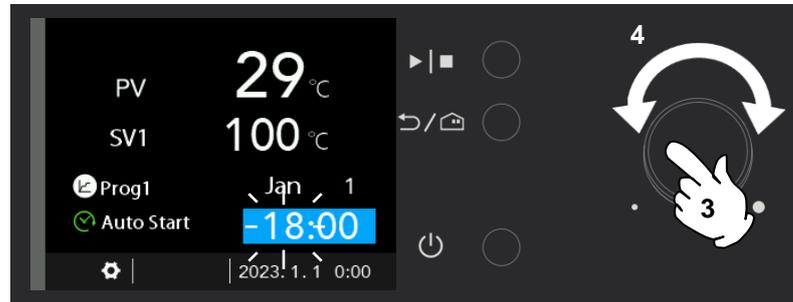
- (1) Press the control dial on the home screen. A cursor appears on the screen.
- (2) Turn the control dial to align the cursor with the setting timer display.



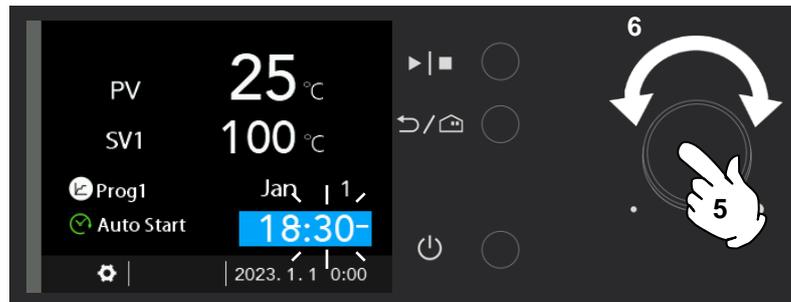
2. OPERATION PROCEDURES

Hourly program auto start operation

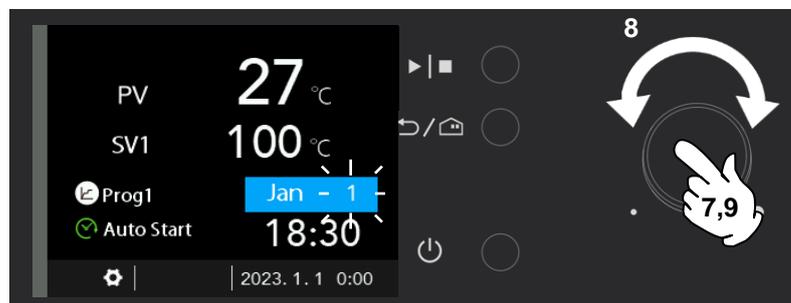
- (3) Press the control dial in the state described in (2). The setting timer (hour side) becomes a blinking display.
- (4) Turn the control dial to set the desired time (hour side).



- (5) Press the control dial. The setting timer (minute side) becomes a blinking display.
At this point, the setting has not yet been finalized.
- (6) Turn the control dial to set the desired time (minute side).



- (7) Press the control dial. The setting timer (date) becomes a blinking display.
The setting timer (month) is automatically switched when the setting timer (date) is changed.
At this point, the setting has not yet been finalized.
- (8) Turn the control dial to set the desired date.
The "-- --" setting is for automatic operation at the nearest set time from the point of setting.



- (9) Press the control dial to complete the setting.
The cursor will automatically disappear after 10 seconds of inactivity.

If you want to erase the cursor immediately, you can do so by pressing the  key.

2. OPERATION PROCEDURES

Hourly program auto start operation

3. Start operation

- (1) Press the  key. Operation is started.
The operation status bar changes to purple and the setting timer display starts counting.



- (2) At the set time, the status display automatically appears **In operation**, the buzzer sounds, the operation status bar changes to green, and the set program operation starts.
When Program operation starts, the setting timer display changes to the setting timer of the first step.
In addition, the temperature control status icon is displayed according to the control status at the time of start.



4. Stop or end operation

- (1) When Program operation is finished, it automatically stops.
When stopped, a buzzer sounds for approximately 5 seconds. At this time, the setting timer display shifts to the "End" display, and the operation status bar changes to blue.
- (2) Press the "Run/Stop key".
Hourly program auto start operation is terminated and the screen shifts to the pre-operation screen.



2. OPERATION PROCEDURES

Hourly program auto start operation

◆About the time set for auto start

The setting range of the time timer is as follows, depending on the time to be set.

If set later than current time: Can be set until 23:59, 30 days after the current date/time.

If the time is set earlier than the current time: The time can be set up to 23:59, 31 days after the current date and time.

Turning the control dial quickly increases the number of digits in the setting value, and turning it slowly decreases the number of digits, allowing fine adjustment of the setting value.

The time setting range is the same for all operation modes.

◆Editing set auto start time during run.

To change the auto start time during operation, follow the same procedure as in "2. Timer setting for Hourly program auto start operation (p. 84)".

Note, however, that changes can only be made while the auto start timer is counting and cannot be made once the timer counts up and Program operation begins.

2. OPERATION PROCEDURES

Program Creation Sheet

Do not write in this manual. Please make copies.

Input into:	Prog1	Prog2	Prog3	Prog4	No.	
Test name					Date	
					Programmer	

Program setting

	Set temperature (°C)	Setting time (timer: minutes)	Timer wait (ON/OFF)	Repeat function setting (return to: times)
Step1		:		—
Step2		:		:
Step3		:		:
Step4		:		:
Step5		:		:
Step6		:		:
Step7		:		:
Step8		:		:
Step9		:		:
Step10		:		:
Step11		:		:
Step12		:		:
Step13		:		:
Step14		:		:
Step15		:		:
Step16		:		:
Step17		:		:
Step18		:		:
Step19		:		:
Step20		:		:
Step21		:		:
Step22		:		:
Step23		:		:
Step24		:		:
Step25		:		:
Step26		:		:
Step27		:		:
Step28		:		:
Step29		:		:
Step30		:		:

3. CONTACT DETAILS

1) Japan

Customer service center
Free call: 0120-405-525
FAX: 055-284-5210
Reception hours: 9:00~12:00, 13:00~17:00
(Excluding weekends and holidays)



<https://www.yamato-net.co.jp>

2) USA, Canada, Latin America

Yamato Scientific America Inc.
925 Walsh Avenue, Santa Clara, CA 95050, U.S.A
Toll Free: 1-800-2-YAMATO (1-800-292-6286)
URL: <https://www.yamato-usa.com>

3) Other Country

For repair service, maintenance service and consumables purchase support,
please contact to our distributors from whom you purchased.
Or please visit our customer support website at
URL: <https://www.yamato-scientific.com/support/inquiry/>

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Always operate equipment in strict compliance to the handling and operation procedures set forth by this instruction manual.

Yamato Scientific Co., Ltd. assumes no responsibility for malfunction, damage, injury or death resulting from negligent equipment use.

Never attempt to disassemble, repair or perform any procedure which are not expressly mandated by this manual.

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Notice

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- **Yamato Scientific Co., Ltd. will replace flawed instruction manuals (pages missing, pages out of order, etc.) upon request.**

Instruction Manual, Operation
Forced Convection Constant Temperature Oven
DKV400/600/610/810/910 Series

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