

Setting Output Specifications

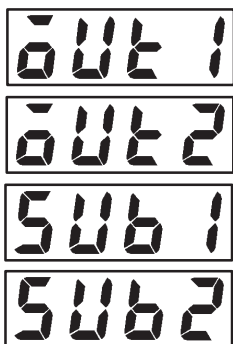
Some output specifications are different according to controller type, standard or position-proportional. The following table summarizes which output-related parameter settings are supported.

Parameter		Standard Type	Position-proportional Type
OUT 1	Control output 1 assignment	●	
OUT 2	Control output 2 assignment	●	
SUB 1	Auxiliary output 1 assignment	●	●
SUB 2	Auxiliary output 2 assignment	●	●
REV	Direct/reverse operation	●	●
CP	Control period (heat)	●	
CL-CP	Control period (cool)	●	

(● Indicates that an output specification is supported.)

Output assignments

Standard type



Output assignments are described according to controller type.

- Thirteen outputs are supported. These functions are assigned to control outputs 1 and 2, and auxiliary outputs 1 and 2.
- Restrictions on assignment destination are placed on some of the outputs.
- The following table shows where outputs may be assigned to.

Assignment Destination Output Function	Control Output		Auxiliary Output	
	1	2	1	2
Control output (heat)	●	●		
Control output (cool)	●	●		
Alarm 1	●	●	●	●
Alarm 2	●	●	●	●
Alarm 3	●	●	●	●
HBA	●	●	●	●
LBA	●	●	●	●
Time signal 1	●	●	●	●
Time signal 2	●	●	●	●
Program end	●	●	●	●
Stage output	●	●	●	●
Error 1 : Input error			●	●
Error 2 : A/D convertor error			●	●

With control output (cool), the conditions for switching from standard control to heating and cooling control are reached when the output function is assigned at the cooling side during heating and cooling control.

In other words, heating and cooling control is carried out when control output (cool) is assigned, and standard control is carried out when output is not assigned. For details on heating and cooling control, see Chapter 4 Applied Operation/4.1 Selecting the Control Method.

- Factory settings are as follows:
control output 1 = Control output (heat)
control output 2 = Alarm 1

auxiliary output 1 = Alarm 2
auxiliary output 2 = Alarm 3

- Output assignments are set in the “control output 1 assignment”, “control output 2 assignment”, “auxiliary output 1 assignment” and “auxiliary output 2 assignment” parameters (setup mode).

Position-proportional type

Sub 1

Sub 2

- Position-proportional type controllers support nine output functions. These are assigned to auxiliary outputs 1 and 2.
- Restrictions on assignment destinations are placed on some of the outputs. The following table shows where outputs may be assigned to.

Assignment Destination Output Function	Control Output		Auxiliary Output	
	1	2	1	2
Alarm 1			●	●
Alarm 2			●	●
Alarm 3			●	●
Time signal 1			●	●
Time signal 2			●	●
Stage output			●	●
Program end output			●	●
Error 1 : Input error			●	●
Error 2 : A/D converter error			●	●

Direct/reverse operation

Direct/Reverse

- “Direct operation” (or normal operation) refers to control where the manipulated variable is increased according to the increase in the process value. Alternatively, “reverse operation” refers to control where the manipulated variable is decreased according to the decrease in the process value.

For example, when the process value (PV) (temperature), is lower than the set point (SP) (temperature), in a heating control system, the manipulated variable increases by the difference between the PV and SP values.

Accordingly, this becomes “reverse operation” in a heating control system, or alternatively, “direct operation” in a cooling control system.

- Direct/reverse operation is set in the “direct/reverse operation” parameter (setup mode). Default is “Direct/Reverse : reverse operation”.

Control period

CP

CP-CP

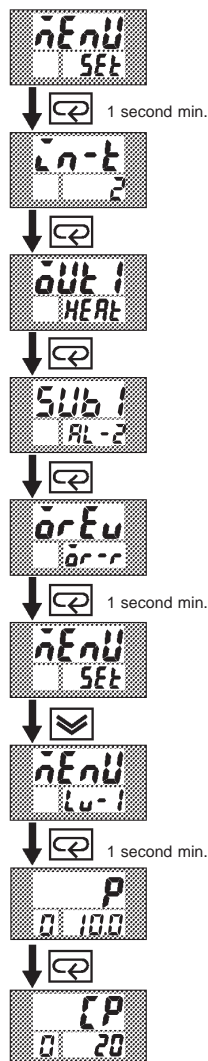
- On position-proportional type controllers, this item cannot be set.
- On a standard type controller, when the output unit is for pulse output such as relay output, set the pulse output cycle (control period). Though a shorter control period provides better control performance, the control period should be set to 20 seconds minimum taking the life expectancy of the output unit into consideration when the output unit is for relay output.
- The control period is set in the “control period (heat)” parameter (level 1 mode). Default of the “control period” parameter is factory-set to “20:20 seconds.” The “control period (cool)” output function is not assigned. So, the “control period (cool)” parameter cannot be set.

Setting Example

All of the above settings in this example are factory settings. In this example, let's check the parameter settings.

In this example, the parameters are set as follows:

"control output 1 assignment"	= "control output (heat)"
"auxiliary output 1 assignment"	= "alarm output 2"
"direct/reverse operation"	= "reverse operation"
"control period"	= "20 secs"



- (1) Select the menu display, and select "SET : setup mode" using the F2 or F1 keys. For details on selecting the menu display, see page 1-10.
- (2) Press the F2 key for one second minimum to enter the setup mode. The top parameter in the setup mode "In-t : input type" is displayed.
- (3) Press the F2 key until [OUT 1] ("control output 1 assignment" parameter) is displayed. Default is [HEAT].
- (4) As the setting in this example is to be left as it is, press the F2 key twice. The display changes to [SUB 1] ("auxiliary output 1 assignment" parameter). Default is [AL-2].
- (5) As the setting in this example is to be left as it is, press the F2 key until [DIR] ("direct/reverse operation" parameter) is displayed. Default is [DIR].
- (6) As the setting in this example is to be left as it is, press the F2 or F1 keys to select "Lv-1 : level 1 mode". For details on selecting the menu display, see page 1-7.
- (7) Press the F2 key for one second minimum to enter the level 1 mode. The top parameter in the level 1 mode "P : Proportional band" is displayed.
- (8) Press the F2 key until [CP] ("control period (heat)" parameter) is displayed. Default is "20". As the setting in this example is to be left as its is, quit key operation.