Digital Temperature Controller

RF100/RF400/RF900 Instruction Manual [Initial setting & Operation]

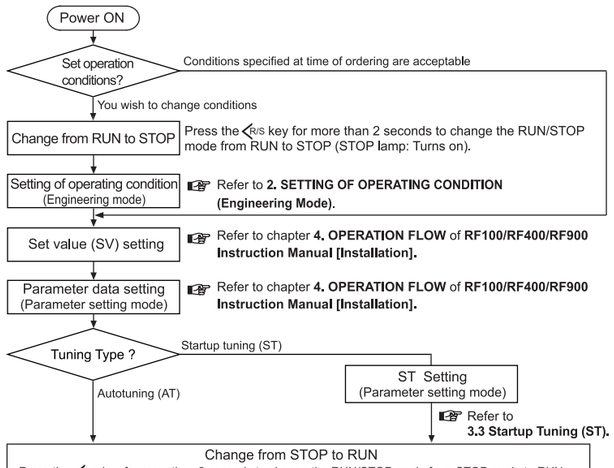
Z-1132 Specification

IMR02C35-E1

This manual describes the operation functions and operation condition settings that are configured in Engineering mode of the RF100/400/900. In order to achieve maximum performance and ensure proper operation of your new instrument, carefully read all the instructions in this manual. Please place the manual in a convenient location for easy reference. For installation, wiring, and basic key operations, refer to the separate RF100/RF400/RF900 Instruction Manual [Installation] (IMR02C34-E□).

1. HANDLING PROCEDURE TO OPERATION

After installation and wiring, follow the procedure below to configure settings required for operation.



* Adjust the PID constants manually when the optimum PID constants cannot be calculated by AT or ST for characteristic variations of the controlled system.

2. SETTING OF OPERATING CONDITION (Engineering Mode)

⚠ WARNING

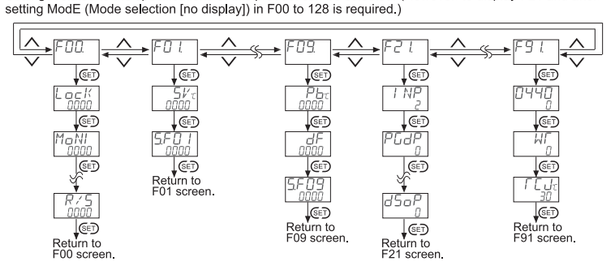
Parameters in the Engineering mode (F21 to F52) should be set according to the application before setting any parameter related to operation. Once the parameters in the Engineering mode are set correctly, no further changes need to be made to parameters for the same application under normal conditions. If they are changed unnecessarily, it may result in malfunction or failure of the instrument. RKC will not bear any responsibility for malfunction or failure as a result of improper changes in the Engineering mode.

Setting items are classified into groups (Function block: F□□) within the Engineering mode. Set to meet application requirements.

F00:
Non-display screen settings (Monitor display mode, Mode switching),Set lock level settings for the Setting data lock function, and RUN/STOP switching in Engineering mode can be selected.

F01 to F09:
The parameter setting screen that is displayed in Parameter setting mode can be hidden.

F21 to F91:
Settings related to the specifications of this product can be selected. (However, to display F21 and after, setting ModE (Mode selection [no display]) in F00 to 128 is required.)



2.1 Restricting Access to Engineering Mode

The relationships between Engineering mode, Set data unlock/lock, and RUN/STOP are shown below.

◎: Can be displayed and changed ○: Can be displayed ●: Cannot be displayed or changed

Set data unlock/ lock transfer	Engineering mode	RUN/STOP	
		RUN	STOP (STOP lamp lights)
Unlock	F00	◎	◎
	F01 to F09 *	◎	◎
	F21 to F91	○	◎ (Excluding F91)
Lock (🔑 lamp lights)	F00	◎	◎
	F01 to F09 *	◎	◎
	F21 to F91	●	●

* Some setting items in Parameter setting mode are the same as the items in F01 to F09. When the set value of one of these items is changed, the set value of the corresponding item in the other mode also changes. However, with respect to parameters that can be changed in the locked state, this applies only to F□□ parameters that are not locked in the Set lock level setting.

2.2 List of Engineering Mode Parameters

To change to the Engineering mode, press the R/S key for more than 4 seconds while pressing the SET key in the Monitor display mode.

Display	Name	Data range	Factory set value
F00.	Function block 00	This is first parameter symbol of Function block 00.	
Lock 0000	Set lock level	0 to 10	0
MoNI 0000	Monitor selection (no display)	0: Display all 4: Manipulated output value (MV) monitor [no display]	0
ModE 0000	Mode selection (no display)	0: Display all 2: Set data unlock/lock transfer [no display] 4: Interlock release [no display] 8: Disable RUN/STOP key operation 128: Displays F21 and after Set the value of the item that you wish to hide. If there are multiple items that you wish to hide, set the sum of the values of the items. Setting example: When "130" is set, "Set data unlock/lock transfer" can be hidden and "Displays F21 and after" is possible.	0
R/S 0000	RUN/STOP setting	0: RUN 1: STOP (STOP lamp lights)	0
F01	Function block 01	This is first parameter symbol of Function block 01.	
SV 0000	Set value (SV)	Setting limiter low to Setting limiter high	0
SFT01 0000	F01 block selection (no display)	0: Display 1: No display	0
F04.	Function block 04	This is first parameter symbol of Function block 04.	
AL1 0050	Alarm set value (ALM)	<Displayed when alarm code A to T, V or W is selected.> Deviation action: -Input span to +Input span Input value or set value action: Same as input range	50 (50.0)
AL2 0050	Alarm set value (ALM) [high]	<Displayed when alarm code U, X, Y or Z is selected.> -Input span to +Input span	50 (50.0)
AL1 -050	Alarm set value (ALM) [low]		-50 (-50.0)
SFT04 0000	F04 block selection (no display)	0: Display 1: No display	0
F05.	Function block 05	This is first parameter symbol of Function block 05.	
ATU 0000	Autotuning (AT)	0: PID control 1: AT	0
STU 0000	Startup tuning (ST)	0: ST unused 1: Execute once 2: Execute always	0
SFT05 0000	F05 block selection (no display)	0: Display 1: No display	0
F06.	Function block 06	This is first parameter symbol of Function block 06.	
Pb 0030	Proportional band	1 (0.1) to Input span (Unit: °C [°F]) [Resolution of 0.1 °C: Within 999.9 °C [°F]] 0 (0.0): ON/OFF action	30 (30.0)
I 0240	Integral time	1 to 3600 seconds (0: PD action)	240
d 0060	Derivative time	1 to 3600 seconds (0: PI action)	60
ARW 0100	Anti-reset windup (ARW)	1 to 100 % of Proportional band (0: Integral action is always OFF)	100
PTU 0000	Fine tuning setting	-3 to +3 (0: Unused)	0
SFT06 0000	F06 block selection (no display)	0: Display 1: No display	0
F07.	Function block 07	This is first parameter symbol of Function block 07.	
LBA 0480	Control loop break alarm (LBA) time	0 to 7200 seconds (0: Unused) [Displayed when alarm code "2" is selected.]	480
LBD 0000	LBA deadband (LBD)	0 to Input span [Displayed when alarm code "2" is selected.]	0
SFT07 0000	F07 block selection (no display)	0: Display 1: No display	0

Display	Name	Data range	Factory set value
F08.	Function block 08	This is first parameter symbol of Function block 08.	
P 0020	Proportional cycle time	0 to 100 seconds (0: Setting below 1 second is possible for Time setting of proportional cycle time in the Engineering mode F51)	Relay contact output: 20 Voltage pulse output: 2
MV 0000	Minimum ON/OFF time of proportioning cycle	0 to 1000 ms	0
oLH 1050	Output limiter high	Output limiter low to 105.0 %	105.0
oLL -050	Output limiter low	-5.0 % to Output limiter high* * Output limiter high > Output limiter low	-5.0
SFT08 0000	F08 block selection (no display)	0: Display 1: No display	0
F09.	Function block 09	This is first parameter symbol of Function block 09.	
Pb 0000	PV bias	-1999 (-199.9) to +9999 (+999.9) °C [°F]	0 (0.0)
dF 0001	PV digital filter	0 to 100 seconds (0: Unused)	1
SFT09 0000	F09 block selection (no display)	0: Display 1: No display	0

Conditions for displaying F21 and after: ☞ Refer to **2.1 Restricting Access to Engineering Mode**
- 128 must be set in "Mode selection (no display) [ModE]."
- Settings must be unlocked.

Display	Name	Data range	Factory set value
F21.	Function block 21	This is first parameter symbol of Function block 21.	
INP 2	Input type	0 to 16 [Refer to table 1.]	Depends on model code
PUdP 0	Decimal point position	0: No decimal place 1: One decimal place	Depends on model code
bOS 0	Burnout direction	0: Upscale 1: Downscale Valid only when the TC input is selected.	0
PUSH 1372	Input scale high	Input scale low to Maximum value of the selected input range	Maximum value of the selected input range
PUSL -200	Input scale low	Minimum value of the selected input range to Input scale high	Minimum value of the selected input range
SLH 1372	Setting limiter high	Setting limiter low to Input scale high	Input scale high
SLL -200	Setting limiter low	Input scale low to Setting limiter high	Input scale low
dSoP 0	PV flashing display at input error	0: Flashing 1: Non-flashing display	0
F30.	Function block 30	This is first parameter symbol of Function block 30.	
SS 0	Output status at STOP mode	0: Alarm action OFF 1: Alarm action continued	0
SPCH 1	STOP display selection	0: STOP on PV display + STOP lamp (green) lights 1: STOP on SV display + STOP lamp (green) lights 2: STOP lamp (green) lights	1
F41.	Function block 41	This is first parameter symbol of Function block 41.	
AS1 0	Alarm type	1 to 13 [Refer to table 2.]	Depends on model code
AHo1 0	Alarm hold action	0: OFF 1: Hold action ON (When power turned on; when transferred from STOP to RUN) 2: Re-hold action ON (When power turned on; when transferred from STOP to RUN; SV changed)	Depends on model code
AH2 2	Alarm differential gap	0 to Input span	2 (2.0)
Abo1 0	Alarm output state at input burnout	0: Alarm output is not forcibly turned ON when the Burnout function is activated. 1: ON at overscale; no action at underscale 2: ON at underscale; no action at overscale 3: ON at overscale or underscale 4: OFF at overscale or underscale	0
ExC1 0	Energized/De-energized of alarm output	0: Energized 1: De-energized	0
ALT1 0	Alarm delay timer	0 to 600 seconds	0
AIL1 0	Alarm interlock	0: Unused (Interlock function OFF) 1: Used	0
F51.	Function block 51	This is first parameter symbol of Function block 51.	
oS 1	Direct/Reverse action	0: Direct action 1: Reverse action	Depends on model code
oHH 1	ON/OFF action differential gap (upper)	0 (0.0) to 100 (100.0) °C [°F]	1 (1.0)
oHL 1	ON/OFF action differential gap (lower)	0 (0.0) to 100 (100.0) °C [°F]	1 (1.0)
oba 0	Control output at burnout	0: Result of control computation 1: Low output limiter value (Output OFF)	0
drP 0	Derivative action	0: Measured value derivative 1: Deviation derivative	0
rU 2	Time setting of proportional cycle time	0: 0.1 second (fixed) 1: 0.25 second (fixed) 2: 0.5 second (fixed) When Proportional cycle time is set to 0 second in the Parameter setting mode, this setting item becomes valid for the Proportional cycle time.	2
F52.	Function block 52	This is first parameter symbol of Function block 52.	
ArC 0	AT cycles	0: 1.5 cycles 1: 2.5 cycles	0
ArH 10	AT differential gap time	0 to 50 seconds	10
STS 0	ST start condition	0: Activate the ST function when the power is turned on; when transferred from STOP to RUN; or when the Set value (SV) is changed. 1: Activate the ST function when the power is turned on; or when transferred from STOP to RUN. 2: Activate the ST function when the Set value (SV) is changed.	0
F91.	Function block 91	This is first parameter symbol of Function block 91.	
0440 0	ROM version monitor	Display the version of loaded software.	——

Display	Name	Data range	Factory set value
WT 0	Integrated operating time monitor	0 to 9999 hours	——
rCJt 30	Holding peak value ambient temperature monitor	-10 to +100 °C	——

Table 1: Input type

Set value	Input type		Range code
0	K	-199.9 to +400.0 °C	K43
1	K	0.0 to 800.0 °C	K09, K10
2	K	-200 to +1372 °C	K01 to K06, K41
3	J	-199.9 to +300.0 °C	J07
4	J	-200 to +1200 °C	J01 to J06, J15
5	T	-199.9 to +300.0 °C	T02,T03,T05
6	T	0.0 to +400.0 °C	T06
8	S	0 to 1769 °C	S02
9	R	0 to 1769 °C	R02
10	E	0 to 1000 °C	E01, E02
11	B	0 to 1820 °C	B01, B02
12	N	0 to 1300 °C	N01, N02
13	PL Ⅱ	0 to 1390 °C	A01, A02
14	W5ReW26Re	0 to 2320 °C	W01, W02
15	Pt100	-199.9 to +649.0 °C	D01 to D10
16	JPt100	-199.9 to +649.0 °C	P01 to P10
17	K	-100.0 to +752.0 °F	KC8
18	K	-328 to +2501 °F	KA1, KA2, KC7
19	J	-199.9 to +550.0 °F	JC8
20	J	-328 to +2192 °F	JA1, JA2, JB9
21	T	-199.9 to +300.0 °F	TC8
22	T	0.0 to 600.0 °F	TC7
23	T	-328 to +752 °F	TC9
24	S	0 to 3216 °F	SA2
25	R	0 to 3216 °F	RA2
26	E	0 to 1832 °F	EA1, EA2
27	B	0 to 3308 °F	BA1, BA2
28	N	0 to 2372 °F	NA1, NA2
29	PL Ⅱ	0 to 2534 °F	AA1, AA2
30	W5ReW26Re	0 to 4208 °F	WA4
31	Pt100	-199.9 to +900.0 °F	DA2 to DA9, DB2

Do not set to any number which is not described in the input type table above. This may cause malfunctioning.

The Input type can be changed.

Table 2: Alarm type [▲: Set value (SV) △: Alarm set value ☆: Alarm differential gap]

Set value		Alarm type code	Action
1	A	Deviation high	(Alarm set value is greater than 0.) OFF ☆ ON PV (Low ▲ △ High)
1	E	Deviation high with hold action *	
1	Q	Deviation high with re-hold action *	(Alarm set value is less than 0.) OFF ☆ ON PV (Low ▲ △ High)
2	B	Deviation low	(Alarm set value is greater than 0.) ON ☆ OFF PV (Low ▲ △ High)
2	F	Deviation low with hold action *	
2	R	Deviation low with re-hold action *	(Alarm set value is less than 0.) ON ☆ OFF PV (Low ▲ △ High)
3	C	Deviation high/low ◆	◆: If the alarm setting is set to a negative value, it will be treated as an absolute value and operation will be the same as indicated above.
3	G	Deviation high/low with hold action * ◆	
3	T	Deviation high/low with re-hold action * ◆	ON ☆ OFF ☆ ON PV (Low ▲ △ ▲ High)
5	X	Deviation high/low (High/Low individual setting)	
5	Y	Deviation high/low with hold action (High/Low individual setting) *	
5	Z	Deviation high/low with re-hold action (High/Low individual setting) *	
4	D	Band ◆	◆: If the alarm setting is set to a negative value, it will be treated as an absolute value and operation will be the same as indicated above. ☆ ON ☆ OFF PV (Low ▲ △ High)
6	U	Band (High/Low individual setting)	
9	H	Process high	OFF ☆ ON PV (Low ▲ △ High)
9	K	Process high with hold action *	
10	J	Process low	ON ☆ OFF PV (Low ▲ △ High)
10	L	Process low with hold action *	
7	V	SV high	OFF ☆ ON SV (Low ▲ △ High)
8	W	SV low	ON ☆ OFF SV (Low ▲ △ High)
11	2	Control loop break alarm (LBA) **	LBD differential gap*, * 0.8 °C [°F] (fixed) Alarm area A Non-alarm area B Alarm area PV (Low ▲ △ ▲ High) LBD set value A: During temperature rise: Alarm area During temperature fall: Non-alarm area B: During temperature rise: Non-alarm area During temperature fall: Alarm area
13	3	FAIL	Operation stops if FAIL occurs (FAIL output [fixed at de-energized]: contact open when error occurs)
12	4	Monitor during RUN	Alarm ON at RUN (alarm OFF at STOP)

* Hold action and re-hold action must be set in Alarm hold action (AHo1).

** Precautions for LBA setting:
- The LBA function cannot be activated when AT function is turned on.
- Normally the LBA time of Parameter setting mode should be set to approximately twice the Integral time.
- If LBA setting time does not match the controlled object requirements, the LBA setting time should be lengthened. If setting time is not correct, the LBA will malfunction by turning on or off at inappropriate times or not turning on at all.

2.3 Precaution Against Parameter Change

When one of the following parameter items is changed, the set values of related parameters are initialized or is automatically converted according to the new setting. Reset the settings to the values that you wish to use.

◎: Items that are initialized (Default value) ○: Items that are limited

Changed parameter items / Initialized or automatically converted items	INP	PGdP	PGSH	PGSL	SLH	SLL	AS1	oLH	oLL
Decimal point position (PGdP)	◎								
Input scale high (PGSH)	◎	○		○					
Input scale low (PGSL)	◎	○	○						
Setting limiter high (SLH)	◎	○	○	○		○			
Setting limiter low (SLL)	◎	○	○	○	○				
Set value (SV)	◎	○	○	○	○	○			
ON/OFF action differential gap (upper) (oHH)	◎								
ON/OFF action differential gap (lower) (oHL)	◎								
Proportional band (P)	◎	○	○	○					
Integral time (I)	◎								
Derivative time (D)	◎								
Anti-reset windup (ARW)	◎								
Fine tuning setting (PTU)	◎								
PV bias (Pb)	◎	○							
PV digital filter (dF)	◎								
Control loop break alarm (LBA) time	◎								
LBA deadband (LBD)	◎	○	○	○					
Alarm set value (AL1, AL1')	◎	○	○	○			◎		
Alarm differential gap (AH1)	◎	○	○	○			◎		
Alarm hold action (AHo1)	◎						◎		
Alarm delay timer (ALT1)	◎						◎		
Output limiter high (oLH)									○
Output limiter low (oLL)								○	

3. FUNCTIONS RELATED TO OPERATION

For cautions and basic procedures prior to operation, refer to the **RF100/RF400/RF900 Instruction Manual [Installation] (IMR02C34-E□).** Functions related to operation are explained below.

3.1 RUN/STOP Transfer

It is possible to transfer between control start (RUN) and control stop (STOP). RUN/STOP transfer can be performed by key operation, or by using the "RUN/STOP setting" in Engineering mode. These two methods are linked together. For example, if the keys are used to transfer from RUN to STOP, the setting of "RUN/STOP setting" in Engineering mode will also change to "STOP."

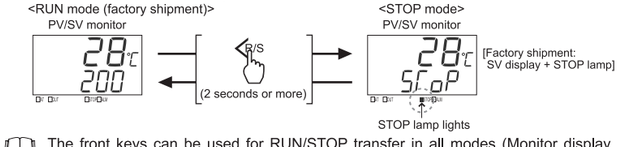
● State of this instrument when set to STOP mode

STOP display	STOP lamp lights (Green). Displays the STOP symbol "STOP" on the SV or PV displays. [Factory shipment: SV display + STOP lamp]
Control output	When the time-proportional control output: Output OFF When the continuous control output: Below the low output limiter value
Alarm output	Output depending on the "Output status at STOP mode" [Factory shipment: Output OFF (Contact open)]
Autotuning (AT)	AT canceled (The PID constants are not updated)
Parameters	The Set value (SV) and Parameter setting mode can be set, and Mode switching can be operated.

● State of this instrument when set to RUN mode

If the instrument is transferred to RUN mode from STOP mode, it performs the same operation (control RUN, Alarm determination start-up) as the power-on.

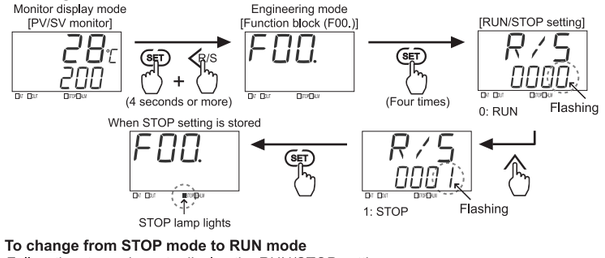
■ RUN/STOP transfer by front key operation



The front keys can be used for RUN/STOP transfer in all modes (Monitor display mode, Parameter setting mode, Mode switching) except Engineering mode. To perform RUN/STOP transfer in Engineering mode, use the RUN/STOP setting screen in Function block F00.

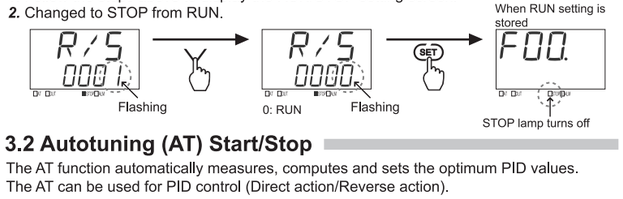
■ Performing RUN/STOP transfer in the "RUN/STOP setting"

● To change from RUN mode to STOP mode



● To change from STOP mode to RUN mode

1. Follow the steps above to display the RUN/STOP setting screen.
2. Changed to STOP from RUN.



3.2 Autotuning (AT) Start/Stop

The AT function automatically measures, computes and sets the optimum PID values.
The AT can be used for PID control (Direct action/Reverse action).

■ Caution for using the Autotuning (AT)

- When a temperature change (UP and/or Down) is 1 ºC or less per minute during AT, AT may not be finished normally. In that case, adjust the PID values manually. Manual setting of PID values may also be necessary if the set value is around the ambient temperature or is close to the maximum temperature achieved by the load.
- If the manipulated output value may be limited by the output limiter setting, the optimum PID values may not be calculated by AT.

■ Requirements for Autotuning (AT) start

Start the AT when all following conditions are satisfied:

Operation state	PID control
	RUN
Parameter setting	Output limiter high ≧ 0.1 %, Output limiter low ≦ 99.9 %
Input value state	The Measured value (PV) is not underscale or overscale.

■ Requirements for Autotuning (AT) cancellation

If the AT is canceled according to any of the following conditions, the controller immediately changes to PID control. The PID values will be the same as before AT was activated.

Operation state	When the PID/AT transfer is changed to the PID control.
	When the RUN/STOP mode is changed to the STOP mode.
Parameter changing	When the Set value (SV) is changed.
	When the PV bias or the PV digital filter is changed.
	When the Output limiter value is changed.
Input value state	When the Measured value (PV) goes to underscale or overscale.
AT execution time	When the AT does not end in 9 hours after AT started.
Power failure	When the power failure of more than 20 ms occurs.
Instrument error	When the instrument is in the FAIL state.

■ Autotuning (AT) Start/Stop operation

The Autotuning function can start from any state after power on, during a rise in temperature or in stable control. For the operation procedure, refer to **RF100/RF400/RF900 Instruction Manual [Installation] (IMR02C34-E□).**

If AT ends normally, the LBA time is automatically set twice as large as the Integral time.

3.3 Startup Tuning (ST)

Startup tuning (ST) is a function which automatically computes and sets the PID values from the response characteristics of the controlled system at power ON, transfer from STOP to RUN, and Set value (SV) change.
As simple autotuning, the PID values can be found in a short time without disturbing controllability for controlled systems with slow response at power ON.

■ Caution for using the Startup tuning (ST)

- For ST at power ON or transfer from STOP to RUN, always set the heater power to ON simultaneously with the start of tuning or before the start of tuning.
- Start ST in the state in which the temperature differential of the Measured value (PV) and Set value (SV) at the start of ST is twice the proportional band, or greater.
- When the manipulated output value may be limited by the output limiter setting, the optimum PID values may not be calculated by ST.

■ Requirements for Startup tuning (ST) start

Start the ST when all following conditions are satisfied:

Operation state	PID control
	RUN
Parameter setting	ST is set to ON. (Execute once, Execute always)
	Output limiter high ≧ 0.1 %, Output limiter low ≦ 99.9 %
Input value state	The Measured value (PV) is not underscale or overscale.
	At ST at setting change, the Measured value (PV) shall be stabilized.
Output value state	At startup, output is changed and saturated at the Output limiter value high or the Output limiter value low.

■ Requirements for Startup tuning (ST) cancellation

If the ST is canceled according to any of the following conditions, the controller immediately changes to PID control. The PID values will be the same as before ST was activated.

Operation state	When the AT is activated.
	When the RUN/STOP mode is changed to the STOP mode.
Parameter changing	When ST is set to "0 (ST unused)."
	When the PV bias or the PV digital filter is changed.
	When the Output limiter value is changed.
Input value state	When the Measured value (PV) goes to underscale or overscale.
ST execution time	When the ST does not end in hundred minutes after ST started
Power failure	When the power failure of more than 20 ms occurs.
Instrument error	When the instrument is in the FAIL state.

■ Startup tuning (ST) setting

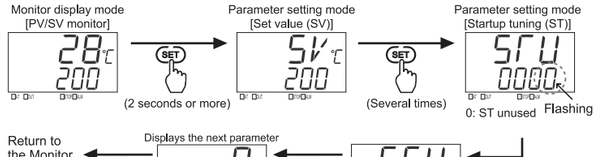
Setting example: When executing ST only 1 time at power ON

***1.* Check the start condition**

First, make sure that "when the power is turned on" is selected in the ST start condition in Function block F52 of Engineering mode.
Factory set value: 0 (Activate the ST function when the power is turned on; when transferred from STOP to RUN; or when the Set value (SV) is changed.)

Refer to **2. SETTING OF OPERATING CONDITION (Engineering Mode).**

***2.* Set the execution method**



***3.* Start the ST**

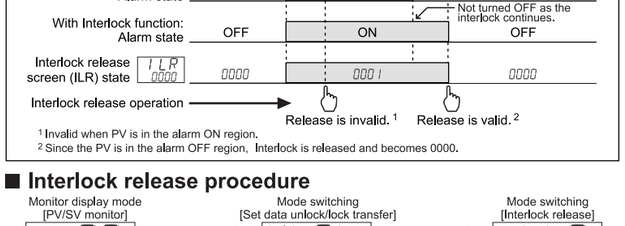
Turn off the power once and turn it on again. The ST will automatically start (During ST execution: AT lamp lights). When the calculation and setting of PID values is completed, setting of the ST screen will automatically change to "0." (ST is completed: AT lamp turns off)

When ST was interrupted, the setting does not change to "0: ST unused." ST starts when the restart conditions are satisfied.

If ST ends normally, the LBA time is automatically set twice as large as the Integral time.

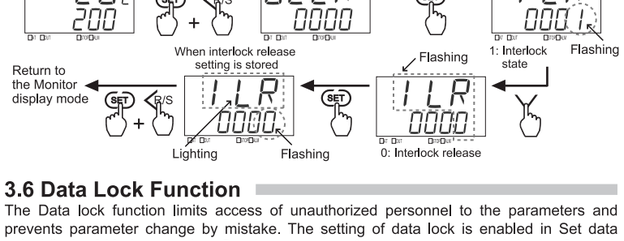
3.4 Fine Tuning

The Fine tuning function allows you to change the response of the set PID constant control. The control response can be made "faster" or "slower" by simply changing the Fine tuning setting (6 levels: -3 to +3) in Parameter setting mode; the PID constant can be kept unchanged.



■ Fine tuning setting

Setting example: To slow the response (when "-1" is set)



If the set value of Fine tuning is returned to "0: Unused," Fine tuning correction will no longer be applied to control.

3.5 Interlock Release

The Alarm interlock action holds the alarm state even if the Measured value (PV) is out of the alarm zone after it enters the alarm zone once. The Interlock release can be made by the key operation.

To validate the Interlock function, it is necessary to set Alarm interlock (AIL1) to "1: Used" in Engineering mode. (Factory shipment: Interlock function OFF)
Refer to **2. SETTING OF OPERATING CONDITION (Engineering Mode).**

Example of interlock release operation

[1] Invalid when PV is in the alarm ON region.
[2] Since the PV is in the alarm OFF region, Interlock is released and becomes 0000.

■ Interlock release procedure

3.6 Data Lock Function

The Data lock function limits access of unauthorized personnel to the parameters and prevents parameter change by mistake. The setting of data lock is enabled in Set data unlock/lock of Mode switching. Set the parameters* that you wish to lock in the Set lock level of Engineering mode.

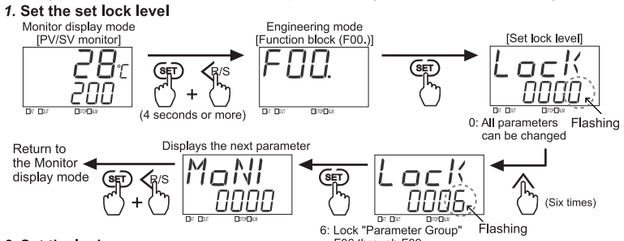
* Only parameter of Parameter setting mode

To validate the Data lock function, settings are required in Set lock level (Lock) of Engineering mode.
(Factory shipment: Data lock function OFF [All parameters can be changed])
Refer to **2. SETTING OF OPERATING CONDITION (Engineering Mode).**

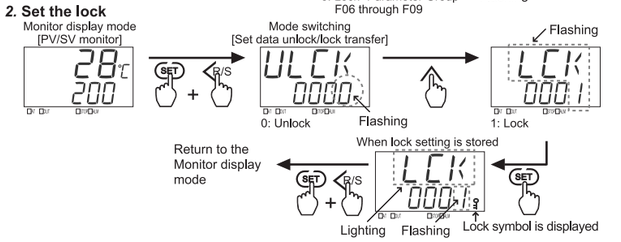
■ Data lock setting

Setting example:
Locking parameters from "Parameter Group" F06 through F09 in Parameter setting mode

***1.* Set the set lock level**



***2.* Set the lock**



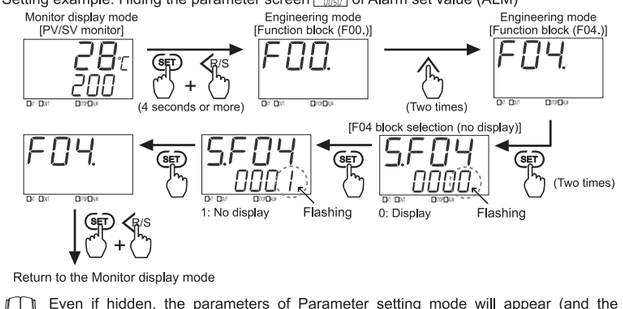
The Set lock level (Lock) settings can be changed after lock is executed.

3.7 Display/Non-display Settings of Mode Screens

Display or non-display can be selected for the screens of Parameter setting mode, Monitor display mode, and Mode switching (factory shipment: Display all). These settings are selected in Engineering mode.

■ Hiding a screen of Parameter setting mode

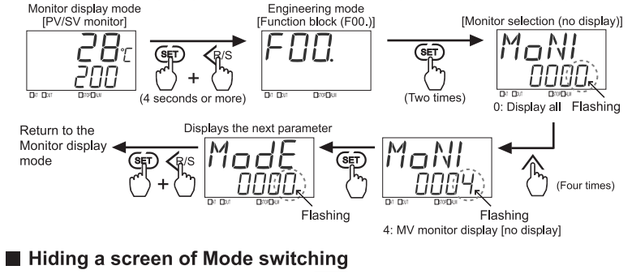
Setting example: Hiding the parameter screen RL 1 (0000) of Alarm set value (ALM)



Even if hidden, the parameters of Parameter setting mode will appear (and the settings can be changed) in Engineering mode.

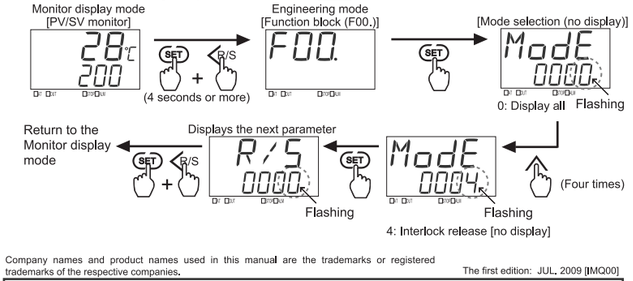
■ Hiding a screen of Monitor display mode

Setting example: Hiding the parameter screen MV - SO of Manipulated output value (MV) monitor



■ Hiding a screen of Mode switching

Setting example: Hiding the parameter screen ILR (0000) of Interlock release



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