14. Key Operation Flowchart

Power ON

Starts from previous status(last shutdown).

△+▽+⟳+◎(3 sec) → clr / no: Data clear Yes/No → ⟳

If Data clear no (No) is selected, and ⟳ is pressed, the unit will revert to PV/SV Display. If Data clear YES (Yes) is selected, the unit automatically reverts to PV/SV Display after data is cleared.

● **About Setting Item**

SEnS / K C	Input type

- Upper left: PV Display: Indicates setting characters.
- Lower left: SV Display: Indicates factory default.
- Right side: Indicates the setting item.

(grey box): This setting item is optional, and appears only when the option is ordered.

(*1) If 'Program control' is selected in [OUT/OFF key function], the unit enters Standby mode (Program control waiting).

(*2) Not available if 'Program control' is selected in [OUT/OFF key function].

(*3) If the option is ordered, and if 'Set value memory' is selected in [Event input DI1/DI2 allocation], setting items SV2 to SV4 are available. If 'Program control' is selected in [OUT/OFF key function], SV2 to SV9, Steps 1 to 9 time, Steps 1 to 9 wait value are available.

(*4) The unit cannot proceed to Monitor mode if it is in Standby of Program control.

(*5) Available only when 'Program control' is selected in [OUT/OFF key function].

● **Key Operation**

- △+▽+⟳+◎ (3 sec): Press and hold △, ▽, ⟳, ◎ (in that order) for approx. 3 sec.
- ▽+⟳ (3 sec): Press and hold the ▽, ⟳ keys (in that order) together for approx. 3 sec.
- △+⟳: Press and hold the △, ⟳ keys (in that order) together.
- △+▽ (3 sec): Press and hold the △, ▽ keys (in that order) together for approx. 3 sec.
- Set (or select) each item with the △ or ▽ key, and register the value with the ⟳ key.
- ↓⟳: If the ⟳ key is pressed, the unit proceeds to the next item, illustrated by an arrow. Pressing ◎ key moves back to the previous item.
- To revert to RUN mode, press and hold the ⟳ key for approx. 3 sec while in any mode.
- To revert to RUN mode, press and hold the ◎ key for approx. 3 sec while in any mode. If 'Control output OFF function' is selected in [OUT/OFF key function], the unit will enter Control output OFF status. If 'Auto/Manual control' is selected, the unit will enter Manual control status. If 'Program control' is selected, the unit will enter Program control RUN or Standby mode.

RUN Mode

25 / 0	PV/SV Display (*1)

◎(1 sec) ↔ By pressing the ◎ key for approx. 1 sec, one of the following items selected in [OUT/OFF key function] is indicated.

Program Control		Control Output OFF Function		Auto/Manual Control	
25 / 0	Program control RUN	oFF	Control output OFF	25 / 10.5	Manual control (MV flashes.)

▽+⟳(3 sec) → Initial Setting Mode; ⟳ → Main Setting Mode; △+⟳ → Sub Setting Mode; △+▽(3 sec) → Engineering Mode; ⟳ (3 sec) (*4) → Monitor Mode

Initial Setting Mode

Display	Item
SEnS / K C	Input type
SLLH / 1370	Scaling high limit
SLLL / -200	Scaling low limit
dP / 0	Decimal point place
EVo1 / 000	Event output EV1 allocation
EVo2 / 000	Event output EV2 allocation
H1 / 0.0	Heater burnout alarm 1 value
H2 / 0.0	Heater burnout alarm 2 value
LP_T / 0	Loop break alarm time
LP_H / 0	Loop break alarm span
EVI1 / 000	Event input DI1 allocation
EVI2 / 000	Event input DI2 allocation
rTLH / 1370	External setting input high limit
rTLL / -200	External setting input low limit
Tros / PV	Transmission output type
TrLH / 1370	Transmission output high limit
TrLL / -200	Transmission output low limit
S / 0	SV1 (*2)
S2 / 0	SV2 (*2)
S3 / 0	SV3 (*2)
S4 / 0	SV4 (*2)
	Reverts to RUN mode.

If Alarm output (001 to 012) or Time signal output (015) is selected in [Event output EV1/EV2 allocation], and the ⟳ key is pressed, the following items will be indicated.

If Alarm output is selected in [Event output EV1 allocation]

Display	Item
A1EA / no	EV1 alarm value 0 Enabled/Disabled
A1 / 0	EV1 alarm value
A1H / 0	EV1 high limit alarm value
A1HY / 1.0	EV1 alarm hysteresis
A1dY / 0	EV1 alarm delay time
A1LM / noML	EV1 alarm Energized/De-energized

If 'Time signal output' is selected in [Event output EV1 allocation]

Display	Item
TS1S / 1	TS1 output step number
TS1F / 00.00	TS1 OFF time
TS1o / 00.00	TS1 ON time

By pressing the ⟳ key, the unit moves to the item after [Event output EV1 allocation].

If Alarm output (001 to 012) or Time signal output (015) is selected in [Event output EV2 allocation], read EV2, TS2 for EV1, TS1.

Main Setting Mode

Display	Item
S / 0	SV1
T_1 / 00.00	Step 1 time
W_1 / 0	Step 1 wait value
S2 / 0	SV2
	Indicates setting items for Steps 2 to 9. (*3)
W_9 / 0	Step 9 wait value
	Reverts to RUN mode.

Monitor Mode

Display	Item
25 [MV]	MV indication (Decimal point flashes.)
25 [Remaining time]	Remaining time (*5)
25 [Step. number]	Current step number (BCS2) (*5)
25 [Memory number]	SV number (BCS2) (*2)
	Reverts to RUN mode.

Sub Setting Mode

Display	Item
AT / ----	AT/Auto-reset Perform/Cancel
P / 10	OUT1 proportional band
I / 200	Integral time
d / 50	Derivative time
ArW / 50	ARW
rSET / 0.0	Manual reset
c / 30	OUT1 proportional cycle
HYS / 1.0	OUT1 ON/OFF hysteresis
oLH / 100	OUT1 high limit
oLL / 0	OUT1 low limit
orAT / 0	OUT1 rate-of-change
cAcT / Air	OUT2 cooling method
P_b / 1.0	OUT2 proportional band
c_b / 30	OUT2 proportional cycle
HYSb / 1.0	OUT2 ON/OFF hysteresis
oLHb / 100	OUT2 high limit
oLLb / 0	OUT2 low limit
db / 0	Overlap/Dead-band
conT / HEAT	Direct/Reverse action
A1 / 0	EV1 alarm value
A1H / 0	EV1 high limit alarm value
A2 / 0	EV2 alarm value
A2H / 0	EV2 high limit alarm value
H1 / 0.0	Heater burnout alarm 1 value
H2 / 0.0	Heater burnout alarm 2 value
LP_T / 0	Loop break alarm time
LP_H / 0	Loop break alarm span
	Reverts to RUN mode.

Engineering Mode

Display	Item
Lock / ----	Set value lock
EVI1 / 000	Event input DI1 allocation
EVI2 / 000	Event input DI2 allocation
EVo1 / 000	Event output EV1 allocation
EVo2 / 000	Event output EV2 allocation
SoT / 1.000	Sensor correction coefficient
So / 0.0	Sensor correction
FILT / 0.0	PV filter time constant
cMSL / noML	Communication protocol
cMno / 0	Instrument number
cMSP / 96	Communication speed
cMFT / 7EVn	Data bit/Parity
cMST / 1	Stop bit
cMdY / 10	Response delay time
SV_b / 0	SVTC bias
rEMT / Locl	Remote/Local
rTLH / 1370	External setting input high limit
rTLL / -200	External setting input low limit
rT_b / 0	Remote bias
Tros / PV	Transmission output type
TrLH / 1370	Transmission output high limit
TrLL / -200	Transmission output low limit
M_S / Min	Step time unit
PrET / SToP	Power restore action
S_SV / 0	Program start temperature
S_SL / PV	Program control start type
rEPT / 0	Number of repetitions
rASS / SVST	SV Rise/Fall rate start type
rATU / 0	SV rise rate
rATd / 0	SV fall rate
PSV / oFF	Indication when control output OFF
AT_b / 20	AT bias
AT_K / 1.0	AT gain
EoUT / oFF	Output status when input errors occur
MAnU / oFF	OUT/OFF key function
MArS / AUTo	Auto/Manual after power interruption
TIME / 00.00	Indication time
PST1 / 0.0	OUT1 MV preset value
PST2 / 0.0	OUT2 MV preset value
FUnc / cnTr	Controller/Converter
	Reverts to RUN mode.

Input type

Code	Input	Range		Code	Input	Range
K C	K	-200 to 1370 ℃		r F	R	32 to 3200 ℉
K .C	K	-200.0 to 400.0 ℃		S F	S	32 to 3200 ℉
J C	J	-200 to 1000 ℃		b F	B	32 to 3308 ℉
r C	R	0 to 1760 ℃		E F	E	-328 to 1472 ℉
S C	S	0 to 1760 ℃		T .F	T	-328.0 to 752.0 ℉
b C	B	0 to 1820 ℃		n F	N	-328 to 2372 ℉
E C	E	-200 to 800 ℃		PL2F	PL-Ⅱ	32 to 2534 ℉
T .C	T	-200.0 to 400.0 ℃		c F	C(W/Re5-26)	32 to 4199 ℉
n C	N	-200 to 1300 ℃		PT .F	Pt100	-328.0 to 1562.0 ℉
PL2C	PL-Ⅱ	0 to 1390 ℃		JPT.F	JPt100	-328.0 to 932.0 ℉
c C	C(W/Re5-26)	0 to 2315 ℃		PT F	Pt100	-328 to 1562 ℉
PT .C	Pt100	-200.0 to 850.0 ℃		JPTF	JPt100	-328 to 932 ℉
JPT.C	JPt100	-200.0 to 500.0 ℃		420A	4 to 20 mA	-2000 to 10000
PT C	Pt100	-200 to 850 ℃		020A	0 to 20 mA	-2000 to 10000
JPTC	JPt100	-200 to 500 ℃		0 1V	0 to 1 V	-2000 to 10000
K F	K	-328 to 2498 ℉		0 5V	0 to 5 V	-2000 to 10000
K .F	K	-328.0 to 752.0 ℉		1 5V	1 to 5 V	-2000 to 10000
J F	K	-328 to 1832 ℉		0 10V	0 to 10 V	-2000 to 10000

Decimal point place

Code	Setting
0	No decimal point
0.0	1 digit after decimal point
0.00	2 digits after decimal point
0.000	3 digits after decimal point

Event output EV1/EV2 allocation

Code	Setting
000	No event
001	High limit alarm
002	Low limit alarm
003	H/L limits alarm
004	H/L limits independent
005	H/L limit range alarm
006	H/L limit range independent
007	Process high alarm
008	Process low alarm
009	High limit with standby
010	Low limit with standby
011	H/L limits with standby
012	H/L limits standby independent
013	Heater burnout alarm output
014	Loop break alarm output
015	Time signal output
016	Output during AT
017	Pattern end output
018	Output by communication command
019	Heating/Cooling control relay contact output (for EV2 only)

EV1/EV2 alarm value 0 Disabled/Enabled

Code	Setting
no	Disabled
YES	Enabled

EV1/EV2 alarm Energized/De-energized

Code	Setting
noML	Energized
rEVS	De-energized

Event input DI1/DI2 allocation

Code	Setting
000	No event
001	Set value memory
002	Control ON/OFF
003	Direct/Reverse action
004	Preset output 1 ON/OFF
005	Preset output 2 ON/OFF
006	Auto/Manual control
007	Remote/Local
008	Program control Run/Stop
009	Program control Holding/Not holding
010	Program control Advance function
011	Integral action Holding

Transmission output

Code	Setting
PV	PV transmission
SV	SV transmission
MV	MV transmission
dV	DV transmission

AT/Auto-reset Perform/Cancel

Code	Setting
----	AT/Auto-reset Cancel
AT	AT Perform
AT_S	AT on startup Perform
rSET	Auto-reset Perform

OUT2 cooling method

Code	Setting
Air	Air cooling
oIL	Oil cooling
WAT	Water cooling

Direct/Reverse action

Code	Setting
HEAT	Reverse action
cooL	Direct action

Set value lock

Code	Setting
----	Unlock
Loc1	Lock 1
Loc2	Lock 2
Loc3	Lock 3
Loc4	Lock 4
Loc5	Lock 5

Communication protocol

Code	Setting
noML	Shinko protocol
ModA	Modbus ASCII
Modr	Modbus RTU

Communication speed

Code	Setting
96	9600 bps
192	19200 bps
384	38400 bps

Data bit/Parity

Code	Setting
8non	8 bits/No parity
7non	7 bits/No parity
8EVn	8 bits/Even
7EVn	7 bits/Even
8odd	8 bits/Odd
7odd	7 bits/Odd

Stop bit

Code	Setting
1	1 bit
2	2 bits

Remote/Local

Code	Setting
LocL	Local
rEMT	Remote

Step time unit

Code	Setting
Min	Hours:Minutes
SEc	Minutes:Seconds

Power restore action

Code	Setting
SToP	Stop
conT	Continue (resume)
HoLd	Suspend (on hold)

Program control start type

Code	Setting
PV	PV start
PVr	PVR start
SV	SV start

SV Rise/Fall rate start type

Code	Setting
SVST	SV start
PVST	PV start

Indication when control output OFF

Code	Setting
oFF	OFF indication
AoFF	No indication
PV	PV indication
PVAL	PV + Any Alarm active

Output status when input errors occur

Code	Setting
oFF	Output OFF
on	Output ON

OUT/OFF key function

Code	Setting
oFF	Control output OFF
MAnU	Auto/Manual control
ProG	Program control

Auto/Manual after power interruption

Code	Setting
AUTo	Automatic control
MAnU	Manual control

Controller/Converter function

Code	Setting
cnTr	Controller
cnVT	Converter