

SETTING LIST

Mode	Parameter Name	Setting Range	Unit	Default	Remarks	Solenoid Valve	Modulating Valve
						Setting	Setting
Protect	SECr Security	0 to 6	None	1		5	5
	PEYp [A/M] key protect	ON/OFF	None	OFF		ON	ON
Manual	Manual MV	-5.0 to 105.0 *1	%	0.0			
Level 0	Set point	Set point lower limit to Set point upper limit	EU	0			
	r-S Run/Stop	Run/Stop	None	RUN			
Level 1	At AT Execute/Cancel	OFF/AT-1/AT-2	None	OFF	During running		
	SP-0 Set point 0	Set point lower limit to Set point upper limit	EU	0	Multi-SP		
	SP-1 Set point 1	Set point lower limit to Set point upper limit	EU	0	Multi-SP		
	SP-2 Set point 2	Set point lower limit to Set point upper limit	EU	0	Multi-SP		
	SP-3 Set point 3	Set point lower limit to Set point upper limit	EU	0	Multi-SP		
	AL-1 Alarm value 1	-1999 to 9999	EU	0			
	AL-2 Alarm value 2	-1999 to 9999	EU	0		10	10
	AL-3 Alarm value 3	-1999 to 9999	EU	0		0	0
	P Proportional band	0.1 to 999.9	%FS	10.0		0.5	0.5
	I Integral time	0 to 3999	sec	233		55	55
	d Derivative time	0 to 3999	sec	40		9	9
	[-SC] Cooling coefficient	0.01 to 99.99	None	1.00	At heating and cooling control		
	[-db] Dead band	-19.99 to 99.99	%FS	0.00	At heating and cooling control		
	db Position-proportional dead band	0.1 to 10.0	%	2.0	At position-proportional control		
	oF-r Manual reset value	0.0 to 100.0	%	50.0			
	HYS Hysteresis (heat)	0.01 to 99.99	%FS	0.10			
	[HYS] Hysteresis (cool)	0.01 to 99.99	%FS	0.10	At heating and cooling control		
	[CP] Control period (heat)	1 to 99	sec	20			
	[-CP] Control period (cool)	1 to 99	sec	20	At heating and cooling control		
	Hb Heater burnout	0.0 to 50.0	A	0.0	Heater burnout detection		
Level 2	r-L Remote/Local	RMT/LCL	None	LCL	Communications unit setting		
	SPnd SP mode	RSP/LSP	None	LSP			
	SPrU SP ramp time unit	M(Minutes) / H(Hours)	None	M			
	SPrt SP ramp set value	0 to 9999	EU	0			
	LbR LBA detection time	0 to 9999 *1	Sec	0			
	nu-S MV at stop	-5.0 to 105.0 *1	%	0.0			
	nu-E MV at PV error	-5.0 to 105.0 *2	%	0.0			
	oL-H MV upper limit	MV lower limit + 0.1 to 105.0 *3	%	105.0			100
	oL-L MV lower limit	-5.0 to MV upper limit -0.1	%	-5.0			0
	oRL MV change rate limit	0.0 to 100.0	%/sec	0.0			
	INF Input digital filter	0 to 9999	sec	0			
	oC-H Open/close hysteresis	0.1 to 20.0	%	0.8			
	ALH1 Alarm 1 hysteresis	0.01 to 99.99	%	0.02			
	ALH2 Alarm 2 hysteresis	0.01 to 99.99	%	0.02			
	ALH3 Alarm 3 hysteresis	0.01 to 99.99	%	0.02			
	INSH Input shift upper limit	-199.9 to 999.9	°C/°F	0.0	Temperature input		
INSL Input shift lower limit	-199.9 to 999.9	°C/°F	0.0	Temperature input			

*1 During heat and cooling control, the lower limit becomes -105.0%.
 During position-proportional control, the setting becomes HOLD, OPEN or CLOS.

Solenoid Valve Modulating Valve

Mode	Parameter Name	Setting Range	Unit	Default	Remarks	Setting	Setting	
Setup	Ln-t	Input type	0 to 21	None	2	2=K, 5=J	2	2
	Ln-H	Scaling upper limit	Scaling lower limit +1 to 9999 *4	EU	-100	Analog input		
	Ln-L	Scaling lower limit	-1999 to SP setting upper limit -0.1*4	EU	0	Analog input		
	dP	Decimal point	0 to 3	None	0	Analog input		
	d-U	°C/°F selection	°C/°F	None	°C	Temperature input	F	F
	LnL	Parameter initialize	Yes/No	None	NO			
	Out 1	Control output 1 assignment	Heat/Cool/Alarm 1/Alarm 2/Alarm 3 /HBA/LBA	None	HEAT			
	Out 2	Control output 2 assignment	Heat/Cool/Alarm 1/Alarm 2/Alarm 3 /HBA/LBA	None	AL-1		Cool	Cool
	Sub 1	Auxiliary output 1 assignment	Alarm 1/Alarm 2/Alarm 3/HBA/LBA/ S.ERR/E333/RSER	None	AL-2			
	Sub 2	Auxiliary output 2 assignment	Alarm 1/Alarm 2/Alarm 3/HBA/ LBA/S.ERR/E333/RSER	None	AL-3			
	AL 1	Alarm 1 type	1 to 11	None	2	Output assignment needed		
	AL 1n	Alarm 1 open in alarm	N-O/N-C	None	N-O	Output assignment needed		
	AL 2	Alarm 2 type	1 to 11	None	2	Output assignment needed	3	3
	AL 2n	Alarm 2 open in alarm	N-O/N-C	None	N-O	Output assignment needed		
	AL 3	Alarm 3 type	1 to 11	None	2	Output assignment needed		
	AL 3n	Alarm 3 open in alarm	N-O/N-C	None	N-O	Output assignment needed		
OR-EU	Direct/Reverse operation	OR-R/OR-D	None	OR-R				
Expansion	SL-H	Set point upper limit	Set point lower limit +1 to scaling upper limit *2	None	1300 *4		250*	250*
	SL-L	Set point lower limit	Scaling lower limit to Set point upper limit -1 *2	None	-200 *4		0	0
	LnL	PID/ON/OFF	PID / ON/OFF	None	PID			
	St	ST	OFF/ON	None	OFF			
	St-b	ST stable range	0.1 to 999.9	°C/°F	15.0	ST=ON		
	ALFA	α	0.00 to 1.00	None	0.65			
	AT-G	AT calculated gain	0.1 to 10.0	None	1.0			
	RES	Standby sequence reset setting method	0/1	None	0			
	RET	Automatic return of display mode	0 to 99	Sec	0			
	AT-H	AT hysteresis	0.1 to 9.9	%FS	0.2			
LbAb	LBA detection width	0.0 to 999.9	%FS	0.2				

*4 When temperature input is selected, the sensor range selected in the “input type” parameter (setup mode) corresponds to the scaling upper and lower limit value.

* Upper limit temperatures are based on upper limit described on sales order.

Mode	Parameter Name	Setting Range	Unit	Default	Remarks	Setting	Setting
Option	Eu-n Multi-SP function	0 to 2	None	0			
	Eu-1 Event input assignment 1	NON/STOP/RMT/MAN/RSP	None	NON			
	Eu-2 Event input assignment 2	NON/STOP/RMT/MAN/RSP	None	NON			
	Eu-3 Event input assignment 3	NON/STOP/RMT/MAN/RSP	None	STOP			
	Eu-4 Event input assignment 4	NON/STOP/RMT/MAN/RSP	None	MAN			
	Sbct Communication stop bit	1/2	bits	2			
	Len Communication data length	7/8	bits	7			
	Prty Communication parity	None/Even/Odd	None	EVEN			
	bPS Communication baud rate	1.2/2.4/4.8/9.6/19.2	kbps	9.6			
	U-no Communication unit No.	0 to 99	None	0			
	tr-t Transfer output type	SP/SP-M/PV/O/C-O/V-M	None	SP	Settings for 4-20 mA retransmission	PV	PV
	tr-H Transfer output upper limit	*5	*5	*5		250*	250*
	tr-L Transfer output lower limit	*5	*5	*5		0	0
	Hbl HBA latch	ON/OFF	None	OFF			
	Calb Motor calibration	ON/OFF	None	OFF			
	nat Travel time	1 to 999	Sec	1			
	P-db PV dead band	0 to 9999	EU	0	Settings for 4-20 mA remote setpoint		
	rSPU Remote SP enable	ON/OFF	None	OFF		ON	ON
	rSPH Remote SP upper limit	SP setting lower limit to SP setting upper limit	EU	1300		250*	250*
	rSPL Remote SP lower limit	SP setting lower limit to SP setting upper limit	EU	-200		0	0
SPtr SP tracking	ON/OFF	None	OFF				

*5 Set the transfer output type parameter according to the following table.

Transfer Output Type	Transfer Output Lower Limit to Transfer Output Upper Limit
SP :Set point	Set point lower limit to Set point upper limit
SP-M :Set point during SP ramp	Set point lower limit to Set point upper limit
PV :Process value	Scaling lower limit to scaling upper limit
O :Manipulated variable (heat)	-5.0 to 105.0%
C-O :Manipulated variable (cool)	0.0 to 105.0%
V-M :Value opening	-10.0 to 110.0%

- Default : SP
- The output ranges of the SP setting, set point or process value when temperature input is selected are the ranges supported by the selected sensor.
- When the heating side manipulated variable or cooling side manipulated variable is selected, the transfer output lower limit in a heating and cooling control becomes "0.0".

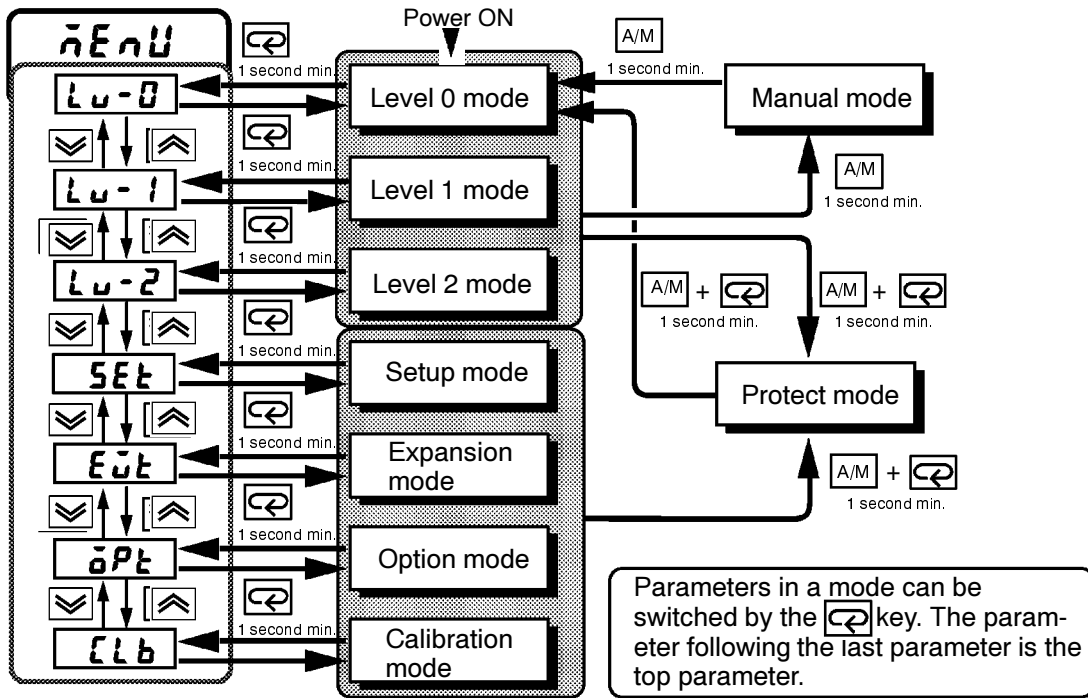
* Upper limit temperatures are based on upper limit described on sales order.

MODEL LIST

Description	Type Name	Specification
Base unit	E5AK-AA2	Standard type
	E5AK-AA2-500	Standard type with terminal cover
	E5AK-PRR2	Position proportional type
	E5AK-PRR2-500	Position proportional type with terminal cover
Option unit	E53-AKB	Event input
	E53-AK01	Communication (RS-232C)
	E53-AK02	Communication (RS-422)
	E53-AK03	Communication (RS-485)
	E53-AKF	Transfer output
Output unit	E53-R	Relay
	E53-S	SSR
	E53-Q	Pulse (NPN) DC12V
	E53-Q3	Pulse (NPN) DC24V
	E53-Q4	Pulse (PNP) DC24V
	E53-C3	Linear (4 to 20mA)
	E53-C3D	Linear (0 to 20mA)
	E53-V34	Linear (0 to 10V)
	E53-V35	Linear (0 to 5V)
Terminal cover	E53-COV0809	for E5AK

PARAMETER OPERATIONS LIST

- Switching to modes other than manual or protect mode is carried out by mode selection in the menu display.
- The figure below shows all parameters in the order that they are displayed. Some parameters are not displayed depending on the protect mode setting and conditions of use.



Level 0

- PV/SP
- rSP* Remote SP monitor
- SP-ñ* Set point during SP ramp
- ò* MV monitor (heat)
- [-ò* MV monitor (cool)
- u-ñ* Valve opening monitor
- r-S* Run/Stop

Manual mode

- Manual MV

Protect mode

- SECr* Security
- PEYP* [A/M] key protect

Level 1

- AL* AT Execute/Cancel
- SP-0* Set point 0
- SP-1* Set point 1
- SP-2* Set point 2
- SP-3* Set point 3
- AL-1* Alarm value 1
- AL-2* Alarm value 2
- AL-3* Alarm value 3
- P* Proportional band
- I* Integral time
- d* Derivative time
- C-SL* Cooling coefficient
- C-db* Dead band
- db* Position-proportional dead band
- òF-r* Manual reset value
- HYS* Hysteresis (heat)
- CHYS* Hysteresis (cool)
- CP* Control period (heat)
- C-CP* Control period (cool)
- Ct* Heater current monitor
- Hb* Heater burnout

Level 2

- r-L* Remote/Local
- SP-ñ* SP mode
- SPrU* SP ramp time unit
- SPrò* SP ramp set value
- LbA* LBA detection time
- ñu-S* MV at stop
- ñu-E* MV at PV error
- òL-H* MV upper limit
- òL-L* MV lower limit
- òrL* MV change rate limit
- CnF* Input digital filter
- òC-H* Open/close hysteresis
- ALH1* Alarm 1 hysteresis
- ALH2* Alarm 2 hysteresis
- ALH3* Alarm 3 hysteresis
- CnSH* Input shift upper limit
- CnSL* Input shift lower limit

Setup mode

In-t Input type
In-H Scaling upper limit
In-L Scaling lower limit
db Decimal point
d-U °C/°F selection
inIt Parameter initialize
out 1 Control output 1 assignment
out 2 Control output 2 assignment
sub 1 Auxiliary output 1 assignment
sub 2 Auxiliary output 2 assignment
ALt 1 Alarm 1 type
AL in Alarm 1 open in alarm
ALt 2 Alarm 2 type
AL 2n Alarm 2 open in alarm
ALt 3 Alarm 3 type
AL 3n Alarm 3 open in alarm
orEv Direct/Reverse operation

Expansion mode

SL-H Set point upper limit
SL-L Set point lower limit
cntrl PID / ON/OFF
St ST
St-b ST stable range
ALFA α
AL-G AT calculated gain
rEst Standby sequence reset method
rEt Automatic return of display mode
AL-H AT hysteresis
LbAb LBA detection width

Option mode

Ev-n Multi-SP function
Ev-1 Event input assignment 1
Ev-2 Event input assignment 2
Ev-3 Event input assignment 3
Ev-4 Event input assignment 4
Sbct Communication stop bit
LEn Communication data length
Prty Communication parity
bPS Communication baud rate
U-nb Communication unit No.
tr-t Transfer output type
tr-H Transfer output upper limit
tr-L Transfer output lower limit
HbL HBA latch
CALb Motor calibration
nat Travel time
P-db PV dead band
rSPU Remote SP enable
rSPH Remote SP upper limit
rSPL Remote SP lower limit
SPtr SP tracking

