1-channel Type Temperature Controller with Built-in SSR

SB1 Parameter List

 IMR02M03-E1

Thank you for purchasing this RKC product. 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.

This manual describes SB1 parameters.

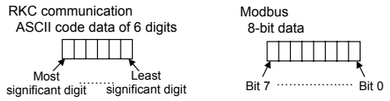
For the installation, the detail handling procedures and various function settings, please refer to the following separate manuals:
- SB1 Installation Manual (IMR02M01-E□): Enclosed with SB1
- SB1 Quick Instruction Manual (IMR02M02-E□): Enclosed with SB1
- SB1 Instruction Manual (IMR02M04-E□): Separate (Download or sold separately)

These manuals can be downloaded from the official RKC website:
http://www.rkcinst.com/english/manual_load.htm

Some parameters are not displayed depending on the model and the specifications.

■ Reference to Communication Data List

- Display example/Display: Display of SB1
- Name: Parameter name
- Identifier: Communication identifier of RKC communication
- Register address:
  Register address of Modbus data item specification
  HEX: Hexadecimal DEC: Decimal
- Display range/Data range
  Display range or Data range of parameter
  ★ When using communication, only a single digit can be displayed after the decimal point (the tenths place) as communication data. Set Decimal point position at Function block 21 in the Engineering mode.
  Example: Measured value (PV) Data range at communication: 0.0 to 800.0
  Display range of SB1: 0 to 800
  Communication data



- Factory set value:
  Factory set value of parameter

■ Monitor Display Mode

Display example	Name	Identifier	Register address HEX	Register address DEC	Display range	Factory set value
28	Measured value (PV)	M1	0000	0	0 to 800 °C or 0 to 999 °F ★	—
0	Set value (SV) monitor	MS	0032	50	Setting limiter low to Setting limiter high Also displays varying Set value (SV) of Setting change rate limiter. ★	—
0	Manipulated output value (MV) monitor	O1	001D	29	−5 to +105 % ★	—

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■ SV Setting Mode

Display	Name	Identifier	Register address HEX	Register address DEC	Data range	Factory set value
SV	Set value (SV)	S1	0006	6	Setting limiter low to Setting limiter high ★	0
nnW	Manual manipulated output value (MV)	ON	005F	95	Output limiter low to Output limiter high ★	0

★ When using communication, only a single digit can be displayed after the decimal point (the tenths place) as communication data.

■ Mode Switching

Display	Name	Identifier	Register address HEX	Register address DEC	Data range	Factory set value
A-M	Auto/Manual transfer	J1	0039	57	0: Auto (AUTO) mode 1: Manual (MAN) mode	0
U-L	Set data Unlock/Lock transfer	—	—	—	0: Unlock 1: Lock	0
ILr	Interlock release	IR	003A	58	0: Interlock release 1: Interlock state	0

■ Parameter Setting Mode

Display	Name	Identifier	Register address HEX	Register address DEC	Data range	Factory set value
SV1	Set value 1 (SV1)	S1	0006	6	Setting limiter low to Setting limiter high ★	0
SV2	Set value 2 (SV2)	S2	003D	61		0
SSV	SV selection	ZB	0040	64	1: Set value (SV1) 2: Set value (SV2) One of the 2 set values can be selected and used for control.	1
SrU	Setting change rate limiter (up)	HH	0049	73	0 to Input span ★	0
Srd	Setting change rate limiter (down)	HL	004A	74		0
EV1	Event 1 set value (EV1) [high]	A1	0007	7	Deviation action: −199 to +Input span Input value or set value action: Input range low to Input range high ★	50
EL1	Event 1 set value (EV1) [low]	BT	004C	76		−50
EV2	Event 2 set value (EV2) [high]	A2	0008	8	The data range is the same as Event 1 set value (EV1) [high]. ★	50
EL2	Event 2 set value (EV2) [low]	BU	004D	77	The data range is the same as Event 1 set value (EV1) [low]. ★	−50
ArU	Autotuning (AT)	G1	000D	13	0: PID control 1: AT	0
SrU	Startup tuning (ST)	ST	0053	83	0: ST unused 1: Execute once 2: Execute always	0
P	Proportional band	P1	000F	15	0 to Input span (0: ON/OFF action) ★	30
I	Integral time	I1	0010	16	0 to 999 seconds (0: PD action)	240
d	Derivative time	D1	0011	17	0 to 999 seconds (0: PI action)	60
Ar	Anti-reset windup (ARW)	W1	0012	18	0 to 100 % of proportional band (0: Integral action is always OFF)	100
PrU	Fine tuning setting	CB	0055	85	−3 to +3 (0: Unused)	0
LbA	Control loop break alarm (LBA) time	A5	000B	11	0 to 999 seconds (0: Unused) [Displayed when event code "2" is selected.]	480
Lbd	LBA deadband (LBD)	A6	000C	12	0 to Input span [Displayed when event code "2" is selected.] ★	0
r	Proportional cycle time	T0	0013	19	1 to 100 seconds	2
nr	Minimum ON/OFF time of proportioning cycle	VI	0058	88	0 to 999 ms	0
oLH	Output limiter high	OH	0059	89	Output limiter low to 105 % ★	105
oLL	Output limiter low	OL	005A	90	−5 % to Output limiter high ★	−5
Pb	PV bias	PB	0017	23	−199 to +999 °C (°F) ★	0
dF	PV digital filter	F1	005D	93	0 to 100 seconds (0: Unused)	1
nnW	Manual manipulated output value (MV)	ON	005F	95	Output limiter low to Output limiter high ★	0
ECo	Power saving mode setting	DI	00AB	171	0 to 60 minutes (0: Always ON)	0
nnt	Maintenance mode switching	ZZ	00AA	170	0: Normal operation mode 1: Maintenance mode	0

★ When using communication, only a single digit can be displayed after the decimal point (the tenths place) as communication data.

■ Engineering Mode

⚠ WARNING

Parameters in the Engineering mode (F21 to F81) 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.

● Function block (F□□) structure in the Engineering mode

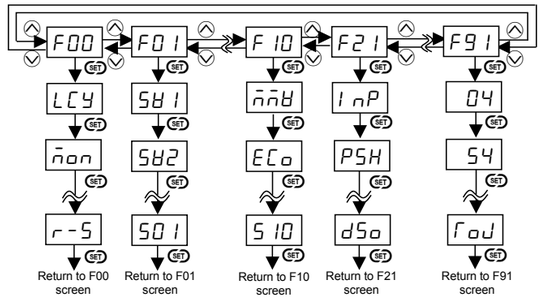
Setting items are classified into groups (Function block: F□□) within the Engineering mode. Set to meet application requirements.

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 F10: 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.

To display F21 and after, setting nod (Mode selection [no display]) in F00 to 128 is required.



● Restricting access to the 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	RUN/STOP STOP
Unlock	F00	◎	◎
	F01 to F10 *	◎	◎
	F21 to F91	○	◎
Lock	F00	◎	◎
	F01 to F10 *	◎	◎
	F21 to F91	●	●

* Some setting items in Parameter setting mode are the same as the items in F01 to F10. 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.

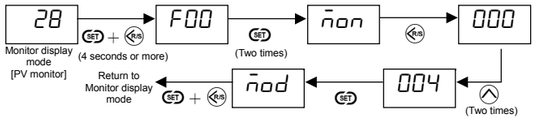
● Function Block 00 (F00)

Display	Name	Identifier	Register address HEX	Register address DEC	Data range	Factory set value
F00	Function block 00	This is first parameter symbol of Function block 00.				
LCY	Set lock level	LK	0018	24	0 to 10	0
non	Monitor selection [no display]	LP	003B	59	0: Display all 2: MV monitor and MV at SV Setting mode [no display] Bit data Bit 0: Unused Bit 1: MV monitor and MV at SV Setting mode [no display] Bit 2 to 7: Unused 0: Display 1: No display [Decimal number: 0 to 2]	0
nod	Mode selection [no display]	LM	003C	60	0: Display Mode switching screen (Auto/Manual transfer, Set data unlock/lock transfer, Interlock release) 1: Auto/Manual transfer [no display] 2: Set data unlock/lock transfer [no display] 4: Interlock release [no display] 8: Disable RUN/STOP key operation 128: Displays F21 and after To conduct two or more setting items, set the total value of all. * Bit data Bit 0: Auto/Manual transfer [no display] Bit 1: Set data unlock/lock transfer [no display] Bit 2: Interlock release [no display] Bit 3: Disable RUN/STOP key operation Bit 4 to 6: Unused Bit 7: Displays F21 and after 0: Display 1: No display [Decimal number: 0 to 143]	0
r-S	RUN/STOP setting	SR	0019	25	0: RUN 1: STOP	0

0	All parameters can be changed	6	Lock "Parameter Group" F06 through F10
1	Lock "Parameter Group" F01 through F10	7	Lock "Parameter Group" F07 through F10
2	Lock "Parameter Group" F02 through F10	8	Lock "Parameter Group" F08 through F10
3	Lock "Parameter Group" F03 through F10	9	Lock "Parameter Group" F09 and F10
4	Lock "Parameter Group" F04 through F10	10	Lock "Parameter Group" F10
5	Lock "Parameter Group" F05 through F10		

* [Setting example] Set "5" to hide the displays for both Auto/Manual transfer and Interlock release.

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



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.

● Function Block 01 (F01) to 10 (F10)

Display	Name	Identifier	Register address HEX	Register address DEC	Data range	Factory set value
F01	Function block 01	This is first parameter symbol of Function block 01.				
SV1	Set value 1 (SV1)	S1	0006	6	Setting limiter low to Setting limiter high ★	0
SV2	Set value 2 (SV2)	S2	003D	61		0
SSV	SV selection	ZB	0040	64	1: Set value (SV1) 2: Set value (SV2) One of the 2 set values can be selected and used for control.	1
S01	F01 block selection (no display)	DA	0041	65	0: Display 1: No display	1
F03	Function block 03	This is first parameter symbol of Function block 03.				
SrU	Setting change rate limiter (up)	HH	0049	73	0 to Input span ★	0
Srd	Setting change rate limiter (down)	HL	004A	74		0
S03	F03 block selection (no display)	DL	004B	75	0: Display 1: No display	1
F04	Function block 04	This is first parameter symbol of Function block 04.				
EV1	Event 1 set value (EV1) [high]	A1	0007	7	Deviation action: −199 to +Input span Input value or set value action: Input range low to Input range high ★	50
EL1	Event 1 set value (EV1) [low]	BT	004C	76		−50
EV2	Event 2 set value (EV2) [high]	A2	0008	8	The data range is the same as Event 1 set value (EV1) [high]. ★	50
EL2	Event 2 set value (EV2) [low]	BU	004D	77	The data range is the same as Event 1 set value (EV1) [low]. ★	−50
S04	F04 block selection (no display)	DM	0052	82	0: Display 1: No display	0
F05	Function block 05	This is first parameter symbol of Function block 05.				
ArU	Autotuning (AT)	G1	000D	13	0: PID control 1: AT	0
SrU	Startup tuning (ST)	ST	0053	83	0: ST unused 1: Execute once 2: Execute always	0
S05	F05 block selection (no display)	DN	0054	84	0: Display 1: No display	0
F06	Function block 06	This is first parameter symbol of Function block 06.				
P	Proportional band	P1	000F	15	0 to Input span (0: ON/OFF action) ★	30
I	Integral time	I1	0010	16	0 to 999 seconds (0: PD action)	240
d	Derivative time	D1	0011	17	0 to 999 seconds (0: PI action)	60
Ar	Anti-reset windup (ARW)	W1	0012	18	0 to 100 % of proportional band (0: Integral action is always OFF)	100
PrU	Fine tuning setting	CB	0055	85	−3 to +3 (0: Unused)	0
S06	F06 block selection (no display)	DO	0056	86	0: Display 1: No display	0
F07	Function block 07	This is first parameter symbol of Function block 07.				
LbA	Control loop break alarm (LBA) time	A5	000B	11	0 to 999 seconds (0: Unused) [Displayed when event code "2" is selected.]	480
Lbd	LBA deadband (LBD)	A6	000C	12	0 to Input span [Displayed when event code "2" is selected.] ★	0
S07	F07 block selection (no display)	DQ	0057	87	0: Display 1: No display	0
F08	Function block 08	This is first parameter symbol of Function block 08.				
r	Proportional cycle time	T0	0013	19	1 to 100 seconds	2
nr	Minimum ON/OFF time of proportioning cycle	VI	0058	88	0 to 999 ms	0
oLH	Output limiter high	OH	0059	89	Output limiter low to 105 % ★	105
oLL	Output limiter low	OL	005A	90	−5 % to Output limiter high ★	−5

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Display	Name	Identifier	Register address HEX	Register address DEC	Data range	Factory set value
508	F08 block selection (no display)	DR	005C	92	0: Display 1: No display	0
F09	Function block 09	This is first parameter symbol of Function block 09.				
Pb	PV bias	PB	0017	23	−199 to +999 °C (°F) ★	0
dF	PV digital filter	F1	005D	93	0 to 100 seconds (0: Unused)	1
509	F09 block selection (no display)	DS	005E	94	0: Display 1: No display	0
F10	Function block 10	This is first parameter symbol of Function block 10.				
ōōH	Manual manipulated output value (MV)	ON	005F	95	Output limiter low to Output limiter high ★	0
ECo	Power saving mode setting	DI	00AB	171	0 to 60 minutes (0: Always ON)	0
ōnt	Maintenance mode switching	ZZ	00AA	170	0: Normal operation mode 1: Maintenance mode	0
510	F10 block selection (no display)	DT	0060	96	0: Display 1: No display	1

● Function Block 21 (F21) to 91 (F91)

Conditions for displaying F21 and after: ☞ Refer to ● **Restricting access to the Engineering mode**

- 128 must be set in Mode selection (no display) [ōod].
- Settings must be unlocked.

Display	Name	Identifier	Register address HEX	Register address DEC	Data range	Factory set value
F21	Function block 21	This is first parameter symbol of Function block 21.				
InP	Input type	XI	0061	97	0: Thermocouple K (0 to 800 °C) 3: Thermocouple J (0 to 800 °C) 15: Pt100 (0 to 400 °C) 17: Thermocouple K (0 to 999 °F) 19: Thermocouple J (0 to 999 °F) 31: Pt100 (0 to 800 °F)	Based on model code
dP	Decimal point position	XU	00AF	175	0: Without decimal point for communication 1: With decimal point for communication (the tenths place)	1
PSH	Input scale high	XV	0064	100	Input scale low to Maximum value of the selected input range ★	Maximum value of the selected input range
PSL	Input scale low	XW	0065	101	Minimum value of the selected input range to Input scale high ★	Minimum value of the selected input range
SLH	Setting limiter high	SH	0066	102	Setting limiter low to Input scale high ★	Input scale high
SLL	Setting limiter low	SL	0067	103	Input scale low to Setting limiter high ★	Input scale low
dSo	PV flashing display	DU	0068	104	0: Flashing 1: Non-flashing display	0
F23	Function block 23	This is first parameter symbol of Function block 23.				
dI S	DI assignment	H2	0069	105	0: Unused (No DI assignment) 1: SV selection function (SV1/SV2) 2: RUN/STOP transfer 3: AUTO/MAN transfer 4: Interlock release	1
F30	Function block 30	This is first parameter symbol of Function block 30.				
SS	Output action at STOP mode	SS	006A	106	0: Event output is OFF 1: Event output remains unchanged	0
F41	Function block 41	This is first parameter symbol of Function block 41.				
ES1	Event 1 type	XA	0070	112	0 to 23 [Refer to Table 1.]	Based on model code
Ho1	Event 1 hold action	WA	0071	113	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)	Based on model code
EH1	Event 1 differential gap	HA	0072	114	0 to Input span ★	2
Eb1	Event 1 output action at input burnout	OA	0073	115	0: Event 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

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Display	Name	Identifier	Register address HEX	Register address DEC	Data range	Factory set value
Er1	Event 1 delay timer	TD	0075	117	0 to 600 seconds	0
IL1	Event 1 interlock	LF	0076	118	0: Unused 1: Used	0
F42	Function block 42	This is first parameter symbol of Function block 42.				
ES2	Event 2 type	XB	0077	119	Parameters are the same at those in Function block F41 (Event 1).	Based on model code
Ho2	Event 2 hold action	WB	0078	120		Based on model code
EH2	Event 2 differential gap	HB	0079	121		2
Eb2	Event 2 output action at input burnout	OB	007A	122		0
Er2	Event 2 delay timer	TG	007C	124		0
IL2	Event 2 interlock	LG	007D	125		0
F46	Function block 46	This is first parameter symbol of Function block 46.				
Ed	Control action at Event	LU	A2	162	0: Action based on control computation 1: Control output OFF (−5 %) at Event 1 2: Control output OFF (−5 %) at Event 2 3: Control output OFF (−5 %) at Event 1 or Event 2 4: Control output OFF (−5 %) at Event 1 and Event 2	0
FS	Load power shutoff function	HZ	A3	163	0: OFF at Fail (Restores when Fail is resolved.) 1: OFF at Fail or LBA (Fail state remains) 2: OFF at Fail or LBA (Restores when Fail or LBA is resolved.)	0
Eo5	Event output	E1	A4	164	0: Event output full-time OFF 1: Event output ON at Event 1 2: Event output ON at Event 2 3: Event output ON at Event 1 or Event 2 4: Event output ON at Event 1 and Event 2	3
Ey1	Energized/ De-energized of DO	Z1	0074	116	0: Energized/ 1: De-energized	0
F51	Function block 51	This is first parameter symbol of Function block 51.				
oHH	ON/OFF action differential gap (upper)	IV	0090	144	0 to 100 °C (°F)	1
oHL	ON/OFF action differential gap (lower)	IW	0091	145	★	1
oBo	Control output at burnout	WH	0092	146	0: Result of control computation 1: Output limiter low (Output OFF)	0
bnP	Bumpless mode setting	OT	0093	147	0: Without bumpless 1: With bumpless	1
drP	Derivative action	KA	0094	148	0: Measured value derivative 1: Deviation derivative	0
rU	Unused	—	—	—	—	—
F52	Function block 52	This is first parameter symbol of Function block 52.				
ArC	AT cycles	G3	0095	149	0: 1.5 cycles 1: 2.5 cycles	0
ArH	AT differential gap time	GH	0096	150	0 to 50 seconds	10
SrS	ST start condition	SU	0097	151	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
F60	Function block 60	This is first parameter symbol of Function block 60.				
CnP	Communication protocol	—	—	—	0: RKC communication 1: Modbus	Based on model code
Add	Device address	—	—	—	0 to 99 (Modbus:1 to 99)	0 (Modbus: 1)
bPS	Communication speed	—	—	—	0: 2400 bps 1: 4800 bps 2: 9600 bps 3: 19200 bps	3
bIT	Data bit configuration	—	—	—	0 to 11 (Modbus: 0 to 5) [Refer to Table 2.]	0
Int	Interval time	—	—	—	0 to 250 ms	10

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Display	Name	Identifier	Register address HEX	Register address DEC	Data range	Factory set value
Crn	Communication response monitor	—	—	—	0: Normal response 1: Overrun error 2: Parity error 4: Framing error 8: Receive buffer overflow If two or more errors happen, the sum of errors will be displayed.	0
F70	Function block 70	This is first parameter symbol of Function block 70.				
SrT	Setting change rate limiter unit time	HU	0098	152	0: Minute 1: Hours	0
F80	Function block 80	This is first parameter symbol of Function block 80.				
LbC	Burnout status monitoring delay	IB	00AC	172	0 to 10 times	0
F81	Function block 81	This is first parameter symbol of Function block 81.				
SbL	SB link selection	C0	00AD	173	0: Without SB link function 1: With SB link function	0
GAd	Intragroup address	G0	00AE	174	0: Intragroup address 1 1: Intragroup address 2 2: Intragroup address 3 3: Intragroup address 4	0
SbE	Control action at SB link error	QM	00B0	176	0: Continues output by control computation 1: Turns off output (−5 %) when an error is detected once. 2: Turns off output (−5 %) when an error is detected twice. 3: Turns off output (−5 %) when an error is detected three times. 4: Turns off output (−5 %) when an error is detected four times. 5: Turns off output (−5 %) when an error is detected five times.	2
F91	Function block 91	This is first parameter symbol of Function block 91.				
05	ROM version monitor (upper)	VR	—	—	Display the version of loaded software.	—
79	ROM version monitor (lower)					
trH	Integrated operating time monitor (upper)	UT	—	—	0 to 19999 hours	—
trL	Integrated operating time monitor (lower)					
rCJ	Holding peak value ambient temperature monitor	HP	—	—	−10 to +100 °C (14 to 212 °F)	—

Table 1: Event type (F41, F42) [▲: Set value (SV) △: Event set value ☆: Event differential gap]

Set value	Event type code		Action
0	N	None	
1	A	Deviation high (Using SV monitor value)	(Event set value is grater than 0) OFF ☆ ON Low ▲ High PV (Event set value is less than 0) OFF ☆ ON Low ▲ High PV
	E	Deviation high with hold action (Using SV monitor value) *	
	Q	Deviation high with re-hold action (Using SV monitor value) *	
14		Deviation high (Using local SV)	
		Deviation high with hold action (Using local SV) *	
		Deviation high with re-hold action (Using local SV) *	
2	B	Deviation low (Using SV monitor value)	(Event set value is grater than 0) ON ☆ OFF Low ▲ High PV (Event set value is less than 0) ON ☆ OFF Low ▲ High PV
	F	Deviation low with hold action (Using SV monitor value) *	
	R	Deviation low with re-hold action (Using SV monitor value) *	
15		Deviation low (Using local SV)	
		Deviation low with hold action (Using local SV) *	
		Deviation low with re-hold action (Using local SV) *	
3	C	Deviation high/low (Using SV monitor value) ◆	ON ☆ OFF ☆ ON Low ▲ // ▲ High PV ◆: If the event setting is set to a negative value, it will be treated as an absolute value and operation will be the same as indicated above.
	G	Deviation high/low with hold action (Using SV monitor value) * ◆	
	T	Deviation high/low with re-hold action (Using SV monitor value) * ◆	
16		Deviation high/low (Using local SV) ◆	
		Deviation high/low with hold action (Using local SV) * ◆	
		Deviation high/low with re-hold action (Using local SV) * ◆	
5	X	Deviation high/low (Using SV monitor value) [High/low individual setting]	
	Y	Deviation high/low with hold action (Using SV monitor value) * [Using SV monitor value]	
	Z	Deviation high/low with re-hold action (Using SV monitor value) * [Using SV monitor value]	

Set value	Event type code		Action
18		Deviation high/low (Using local SV) [High/low individual setting]	ON ☆ OFF ☆ ON Low △ // △ High PV ◆: If the event setting is set to a negative value, it will be treated as an absolute value and operation will be the same as indicated above.
		Deviation high/low with hold action (Using local SV) * [High/low individual setting]	
		Deviation high/low with re-hold action (Using local SV) * [High/low individual setting]	
4	D	Band (Using SV monitor value) ◆	
6	U	Band (Using SV monitor value) [High/low individual setting]	ON ☆ OFF Low △ // △ High PV ◆: If the event setting is set to a negative value, it will be treated as an absolute value and operation will be the same as indicated above.
17		Band (Using local SV) ◆	
19		Band (Using local SV) [High/low individual setting]	
9	H	Process high	OFF ☆ ON Low △ High PV
	K	Process high with hold action *	
10	J	Process low	ON ☆ OFF Low △ High PV
	L	Process low with hold action *	
7	V	SV high (Using SV monitor value)	OFF ☆ ON Low △ High PV
20		SV high (Using local SV)	
8	W	SV low (Using SV monitor value)	ON ☆ OFF Low △ High PV
21		SV low (Using local SV)	
11	2	Control loop break alarm (LBA) **	LBD differential gap Alarm area A Non-alarm area B Alarm area Low LBD set value High PV 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	Event ON at RUN (Event OFF at STOP)
23	5	Output of communication monitoring result	Event signal is turned on when communication is not properly made for 10 seconds.

* Hold action and re-hold action must be set in Event hold action (Ho1 and Ho2).

** 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.

Table 2: Data bit configuration (F60)

Set value	Data bit	Parity bit	Stop bit
0	8	Without	1
1	8	Without	2
2	8	Even	1
3	8	Even	2
4	8	Odd	1
5	8	Odd	2
6	7	Without	1
7	7	Without	2
8	7	Even	1
9	7	Even	2
10	7	Odd	1
11	7	Odd	2

Setting range of RKC communication: 0 to 11
Setting range of Modbus: 0 to 5

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MAR. 2011