SOUTHEAST THERMAL SYSTEMS

FB100 - ___ ___ - ___ * ___ / ___ ___ - ___ __ __ __ / Y

Specifications		Model and Suffix Code	Hardware coding only	Quick start code 1
Model	FB100 (48 x 48mm 1/16 DIN size)	-□□-□*□/□□-□ □□□/Y		
Output 1 (OUT1)	Relay contact output	M		
	Voltage pulse output : 0/12V DC	V		
	DC mA, V (See Output Signal Code Table, Code : 4 to 8)	□		
	Triac (SSR) output	T		
	Open collector output	D		
Output 2 (OUT2)	No supplied	N		
	Relay contact output	M		
	Voltage pulse output : 0/12V DC	V		
	DC mA, V (See Output Signal Code Table, Code : 3 to 8)	□		
	Triac (SSR) output	T		
	Open collector output	D		
Power supply	24V AC/DC	3		
	100 to 240V AC	4		
Optional function *	Not supplied	N		
	Digital input 5 points	A		
	Digital input 2 points + Remote setpoint input	B		
	Digital input 2 points + Feedback resistance input	C		
	Digital input 2 points + CT input 2 points	D		
	Digital input 3 points + Communication 1 point	E		
	Digital input 1 point + Communication 1 point + CT input 1 point	F		
	Communication 2 points	G		
	Communication 1 point + CT input 2 points	H		
Optional function **	Digital input 1 point + Remote setpoint input + Analog retransmission output 0 to 1V DC	3		
	Digital input 1 point + Remote setpoint input + Analog retransmission output 0 to 5V DC	4		
	Digital input 1 point + Remote setpoint input + Analog retransmission output 0 to 10V DC	5		
	Digital input 1 point + Remote setpoint input + Analog retransmission output 1 to 5V DC	6		
	Digital input 1 point + Remote setpoint input + Analog retransmission output 0 to 20mA	7		
	Digital input 1 point + Remote setpoint input + Analog retransmission output 4 to 20mA	8		
Case color	White case	N		
	Black case	A		
Initial setting	No quick start code (Default setting)	N		
	Specify quick start code 1	1		
	Specify quick start code 1 and 2 (See page 11)	2		

Quick start code 1	Control Method	No quick start code	No code	
		PID control with AT (Reverse action) Heating	F	
		PID control with AT (Direct action) Cooling	D	
		Heat/Cool PID control with AT	G	
		Heat/Cool PID control with AT for extruder (Air cooling type)	A	
		Heat/Cool PID control with AT for extruder (Water cooling type)	W	
		Position proportional PID control without FBR	Z	
	Input and range	No quick start code No preprogrammed input	No code	
		See Input range Code Table	□□□	
Instrument version		Version symbol		Y

- Universal input, no model code required on hardware code.
- ♦ Default setting
- Digital output (DO1, DO2) : Standard function

*1 : When Heat Control or Cool Control is selected, output 2 is available for Event Output, HBA Output and FAIL Output. See Output Allocation Table (page 7).

*2 :See Digital Input (DI) Allocation Table (page 7).

*3 :When HBA (heater break alarm) is used , select the "CT input" from the model code.

Input range code table

Thermocouple

Input	Code	Range
K	K 35	-200.0 to +400.0℃
	K 40	-200.0 to +800.0℃
	K 09	0.0 to 400.0℃
	K 10	0.0 to 800.0℃
	K 41	-200 to +1372℃
	K 14	0 to 300℃
	K 02	0 to 400℃
	K 04	0 to 800℃
	K C6	-250.0 to +800.0℉
	K C4	-328.0 to +400.0℉
	K A4	0.0 to 800.0℉
	K C5	-328 to +2502℉
	K A1	0 to 800℉
	K A2	0 to 1600℉
J	J 27	-200.0 to +400.0℃
	J 32	-200.0 to +800.0℃
	J 08	0.0 to 400.0℃
	J 09	0.0 to 800.0℃
	J 15	-200 to +1200℃
	J 02	0 to 400℃
	J 04	0 to 800℃

Input	Code	Range
J	J C7	-200.0 to +700.0℉
	J C6	-328.0 to +1200.0℉
	J B6	0.0 to 800.0℉
	J B9	-328 to +2192℉
	J A1	0 to 800℉
	J A2	0 to 1600℉
T	T 19	-200.0 to +400.0℃
	T C2	-328.0 to +752.0℉
S	S 06	-50 to +1768℃
	S A7	-58 to +3214℉
R	R 07	-50 to +1768℃
	R A7	-58 to +3214℉
E	E 21	-200.0 to +700.0℃
	E 06	-200 to +1000℃
	E A9	-328.0 to +1292.0℉
	E B1	-328 to +1832℉
B	B 03	0 to 1800℃
	B B2	0 to 3272℉
N	N 02	0 to 1300℃
	N A7	0 to 2372℉

Input	Code	Range
PLII (NBS)	A 02	0 to 1390℃
	A A2	0 to 2534℉
W5Re/W26Re (ASTM)	W 03	0 to 2300℃
	W A2	0 to 4200℉
U (DIN)	U 04	0.0 to 600.0℃
	U B2	0.0 to 1112.0℉
L (DIN)	L 04	0.0 to 900.0℃
	L A3	0.0 to 1652.0℉

RTD

Input	Code	Range
Pt100	D 34	-100.00 to+100.00℃
	D 35	-200.0 to +850.0℃
	D 21	-200.0 to +200.0℃
	D C8	-199.99 to +199.99℉
	D C9	-328.0 to +1562.0℉
JPt100	P 29	-100.00 to+100.00℃
	P 30	-200.0 to +640.0℃
	P C8	-199.99 to +199.99℉
	P C9	-328.0 to +1184.0℉
	P D1	-200.0 to +200.0℉

DC Current • Voltage

Input	Code	Range
0 to 10mV	1 01	0.0 to 100.0%
0 to 100mV	2 01	
0 to 1V	3 01	
0 to 5V	4 01	
0 to 10V	5 01	
1 to 5V	6 01	

Input	Code	Range
0 to 20mA	7 01	0.0 to 100.0%
4 to 20mA	8 01	
-100 to +100mV	9 01	
-1 to +1V	9 02	
-10 to 10mV	9 03	

Output signal code table

3	0 - 1V DC *	4	0 - 5V DC	5	0 - 10V DC	6	1 - 5V DC	7	0 - 20mA DC	8	4 - 20mA DC

* 0 to 1 VDC output can be specified only for analog retransmission output.

Factory Pre-Programmed

SOUTHEAST THERMAL SYSTEMS

Quick Start: ___ ___ ___ - ___ ___ ___ ___ - ___ ___ ___

- Quick start code 2 tells the factory to ship with each parameter preset to the values detailed as specified by the customer. Quick start code is not necessarily specified when ordering, unless the preset is requested. These parameters are software selectable items and can be re-programmed in the field via the manual.

Specifications		Quick start code
		□□ □□ □−□ □ □ □−□ □
Output allocation	See output allocation table	□□
Digital input allocation	See Digital input allocation table	□□
Remote setpoint input signal	No Remote setpoint input signal	N
	0 to 10mV DC	1
	0 to 100mV DC	2
	0 to 1V DC	3
	0 to 5V DC	4
	0 to 10V DC	5
	1 to 5V DC	6
	0 to 20mA DC	7
	4 to 20mA DC	8
Event 1 type	No event 1	N
	See event type code table	□
Event 2 type	No event 2	N
	See event type code table	□
Event 3 type	No event 3	N
	See event type code table	□
Event 4 type	No event 4	N
	See event type code table	□
	Control loop break alarm (LBA)	5
CT type	No CT1 and CT2	N
	CT1 : CTL-6-P-N, CT2 : No use	P
	CT1 : CTL-12-S56-10L-N, CT2 : No use	S
	CT1 : CTL-6-P-N, CT2 : CTL-6-P-N	T
	CT1 : CTL-12-S56-10L-N, CT2 : CTL-12-S56-10L-N	U
Communication 1	No communication 1 (COM1)	N
	ANSI/RKC standard protocol	1
	MODBUS protocol	2
	Inter-controller protocol	A

- Default setting when no quick start code is specified.
  CT type : CTL-6-P-N
  Communication 2 :ANSI/RKC standard protocol
- Communication 2 is for inter-controller communication.

Event Code Table (Programmable)

Code	Event type
A	Deviation High
B	Deviation Low
C	Deviation High/Low
D	Band
E	Deviation High with Alarm Hold
F	Deviation Low with Alarm Hold
G	Deviation High/Low with Alarm Hold
H	Process High
J	Process Low
K	Process High with Alarm Hold
L	Process Low with Alarm Hold
Q	Deviation High with Alarm Re-Hold
R	Deviation Low with Alarm Re-Hold
T	Deviation High/Low with Alarm Re-Hold
V	Set value High
W	Set value Low
1	MV value High
2	MV value Low
3	Cool side MV value High
4	Cool side MV value Low

Output Allocation Table (Programmable) ♦ Default setting

Code	Output 1 (OUT 1)	Output 2 (OUT 2)	Digital Output 1 (DO 1)	Digital Output 2 (DO 2)
01 ♦	Control output 1	Control output 2	Event 1	Event 2
02	Control output 1	Control output 2	Event 1	Event 4
03	Control output 1	Control output 2	Event 1	HBA
04	Control output 1	Control output 2	Event 1	FAIL (De-energized)
05	Control output 1	Control output 2	Event 4	HBA
06	Control output 1	Control output 2	Event 4	FAIL (De-energized)
07	Control output 1	Control output 2	HBA	FAIL (De-energized)
08	Control output 1	HBA	Event 1	Event 2
09	Control output 1	HBA	Event 1	Event 4
10	Control output 1	HBA	Event 1	FAIL (De-energized)
11	Control output 1	HBA	Event 4	FAIL (De-energized)
12	Control output 1	FAIL (De-energized)	Event 1	Event 2
13	Control output 1	FAIL (De-energized)	Event 1	Event 4
14	Control output 1	Event 1	Event 2	Event 3
15	Control output 1	Event 4	Event 1	Event 2

- Energized/De-energized is configurable except for the FAIL output. (Factory default setting: Energized)

(Caution)
- Invalid for a non-existing output/input function.
- When used as heating/cooling control/position proportioning control, select any code of 01 to 07.
- Remote/Local transfer can be done during cascade control and ratio control by inter-controller communication.

Digital input (DI) Allocation Table (Programmable) ♦ Default setting

Code	DI 1	DI 2	DI 3	DI4	DI 5	Selectable optional Code
01♦	Unused					———
02	Memory area selection (1 to 8)			Area set	RUN/STOP	A
03	Memory area selection (1 to 8)			Area set	———	
04	Memory area selection (1 to 8)			Area set	AUTO/MANUAL	
05	Memory area selection (1 to 8)			Area set	Alarm interlock reset	
06	Memory area selection (1 to 8)			RUN/STOP	———	
07	Memory area selection (1 to 8)			RUN/STOP	AUTO/MANUAL	
08	Memory area selection (1 to 8)			RUN/STOP	Alarm interlock reset	
09	Memory area selection (1 to 8)			———	AUTO/MANUAL	
10	Memory area selection (1 to 8)			———	Alarm interlock reset	
11	Memory area selection (1 to 8)			AUTO/MANUAL	Alarm interlock reset	
12	Memory area selection (1 to 8)			———	———	A, E
13	RUN/STOP	REMOTE/LOCAL	AUTO/MANUAL	———	———	
14	RUN/STOP	REMOTE/LOCAL	Alarm interlock reset	———	———	
15	RUN/STOP	AUTO/MANUAL	Alarm interlock reset	———	———	
16	REMOTE/LOCAL	AUTO/MANUAL	Alarm interlock reset	———	———	
17	RUN/STOP	REMOTE/LOCAL	———	———	———	A, B, C, D, E
18	RUN/STOP	AUTO/MANUAL	———	———	———	
19	RUN/STOP	Alarm interlock reset	———	———	———	
20	REMOTE/LOCAL	AUTO/MANUAL	———	———	———	
21	REMOTE/LOCAL	Alarm interlock reset	———	———	———	
22	AUTO/MANUAL	Alarm interlock reset	———	———	———	
23	RUN/STOP	———	———	———	———	A, B, C, D, E, F 3, 4, 5, 6, 7, 8
24	REMOTE/LOCAL	———	———	———	———	
25	AUTO/MANUAL	———	———	———	———	
26	Alarm interlock reset	———	———	———	———	

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