SOUTHEAST THERMAL SYSTEMS

_____-_ _ _-_*_ _ _ _/_ _-_ _ _ _/Y

Specifications	Model and Suffix Code	Hardware coding only	Quick start code 1
Model	FB400 (48 x 96mm 1/8 DIN size) FB900 (96 x 96mm 1/4 DIN size)	-□□-□*□□□□/□□-□	□□□/Y
Output 1 (OUT1)	Relay contact output Voltage pulse output : 0/12V DC DC mA, mV, V (See Output Signal Code Table, Code : 4 to 8) Triac (SSR) output Open collector output	M V □ T D	
Output 2 (OUT2)	No supplied Relay contact output Voltage pulse output : 0/12V DC DC mA, mV, V (See Output Signal Code Table, Code : 3 to 8) Triac (SSR) output Open collector output	N M V □ T D	
Power supply	24V AC/DC 100 to 240V AC	3 4	
Digital output	No supplied DO 4 points (DO1 to DO4)	N 4	
CT input, * Power feed forward (PFF) input, Feedback resistance	Not supplied CT input : 2 points PFF input (Within transformer 100 to 120V AC type) PFF input (Within transformer 200 to 240V AC type) CT input : 1 point + PFF input (Within transformer 100 to 120V AC type) CT input : 1 point + PFF input (Within transformer 200 to 240V AC type) Feedback resistance input	N T 1 2 3 4 F	
Retransmission output	No retransmission output DC mA, mV, V (See Output Signal Code Table, Code : 3 to 8) • With digital input (DI1 to 4) Area selection	N □	
** Communication Digital input (DI1 to 4) <Area selection>	Not supplied Communication 1 : RS-232C, Communication 2 : Not supplied • With digital input (DI1 to 4) Area selection Communication 1 : RS-422A, Communication 2 : Not supplied • With digital input (DI1 to 4) Area selection Communication 1 : RS-485, Communication 2 : Not supplied • With digital input (DI1 to 4) Area selection Communication 1 : RS-232C, Communication 2 : RS-485 • With digital input (DI1 to 4) Area selection Communication 1 : RS-485, Communication 2 : RS-485 • With digital input (DI1 to 4) Area selection Communication 1 : Not supplied, Communication 2 : RS-485 • With digital input (DI1 to 4) Area selection Digital input : 4 points (DI1 to DI4) <Area selection>	N 1 4 5 W X Y D	
Case color	White case Black case	N A	
Initial setting	No quick start code (Default setting) Specify quick start code 1 Specify quick start code 1 and 2 (See page 11)	N 1 2	

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

• Universal input, no model code required on hardware code.
* When HBA (heater break alarm) is used, select the "CT input" from the model code.
** When inter-controller communication is used, please specify code "W, X or Y (COM2 : RS-485).

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	Initial Setting Code	
		□ □–□ □ □ □–□ □
Output logic selection	See output logic code table.	□
Remote setpoint input signal	0 to 10mV DC 0 to 100mV DC 0 to 1V DC 0 to 5V DC 0 to 10V DC 1 to 5V DC 0 to 20mA DC 4 to 20mA DC	1 2 3 4 5 6 7 8
Event 1 type	Not supplied See event type code table	N □
Event 2 type	Not supplied See event type code table	N □
Event 3 type	Not supplied See event type code table	N □
Event 4 type	Not supplied See event type code table LBA (Control loop break alarm)	N □ 5
CT type	No CT1 and CT2 CT1 : CTL-6-P-N, CT2 : No use CT1 : CTL-12-S56-10L-N, CT2 : No use CT1 : CTL-6-P-N, CT2 : CTL-6-P-N CT1 : CTL-12-S56-10L-N, CT2 : CTL-12-S56-10L-N	N P S T U
Communication 1 protocol	Not supplied ANSI/RKC standard MODBUS	N 1 2

* Please specify "8" when the remote setpoint input signal is not used.

Output Logic Code Table.

Output 1 (OUT 1)	Output 2 (OUT 2)	Digital Output 1 (DO 1)	Digital Output 2 (DO 2)	Digital Output 3 (DO 3)	Digital Output 4 (DO 4)	Code
Control output 1	Control output 2	Event 1	Event 2	Event 3	Event 4	1
Control output 1	Control output 2	Event 1	Event 2	Event 3	HBA	2
Control output 1	Control output 2	Event 1	Event 2	HBA	FAIL (De-energized)	3
Control output 1	Control output 2	Event 1	HBA	Event 3	Event 4	4
Control output 1	HBA	Event 1	Event 2	Event 3	Event 4	5
Control output 1	HBA	Event 1	Event 2	Event 3	FAIL (De-energized)	6
Control output 1	FAIL (De-energized)	Event 1	Event 2	Event 3	Event 4	7

- Energized/De-energized is configurable except for the FAIL output. (Factory default setting: Energized)
- Invalid for a non-existing output/event function.

(Caution)

- When used as heating/cooling control/position proportioning control, select any code of 1 to 4.

Event Type Code Table.

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

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