8. SPECIFICATIONS AND MODEL SELECTION GUIDE

SPECS.	SA90 SERIES DIGITAL TEMPERATURE INDICATING CONTROLLER	
Indication Method	Digital 4 digit 7 segment LED	
Setting Method	Digital (with set lock, sound key)	
	Standard setting method	
	SP ▼ → TEMP	
Alarm	No alarm	
Alarm Setting Range	—	
Alarm Output	—	
Mask Color	Blue (Muncell 2.5 PB 6/9)	
Control Mode	Time proportional (ON/OFF at P = 0)	Time proportional (ON/OFF at P = 0)
Output	SPDT relay contact	Voltage
Output Rating	5A, 240Vac	ON voltage: 23 — 43Vdc
	Resistance load	Internal resistance 1.5KΩ with short circuit-proof
Proportional Band (P)	0 — 39% FS	0 — 39% FS
Cycle Time	20/40 sec. selectable	2 sec. fixed
Setpoint Manual Calibration (Offset Removed)	ON/OFF mode (P = 0): —1/10 to +1/10 span Time proportional mode (P ≠ 0): —1/2 to +1/2 proportional band	
Integral Time (I)	—	—
Derivative Time (D)	—	—
Differential	1 — 100 U adjustable	1 — 100 U adjustable
Normal/Reverse Action	Selectable	Selectable
Setting Range for OK Lamp ON		
Input Type and Range	Thermocouples, RTD, 1 — 5Vdc.	
Options	One-touch shift or set limit	Setting range:
	Programmable range	Setting range: (DC1 — 5V)

Indication range	0 — 100% FS	Indicating accuracy	±0.8% FS ±1 digit
Setting range	0 — 100% FS	Setting accuracy	Error-free
One-touch shift method (Option)		External shift method (Option)	
SP_C SP_B SP_A → TEMP		SP_C SP_B SP_A → TEMP	
Using one-touch key, changing of 3 set points is possible.		Possible to change 3 set points with external shift signal If "ON" signal, then $SP_A \rightarrow SP_C$ or $SP_B \rightarrow SP_C$ If "OFF" signal, then $SP_A \leftarrow SP_C$ or $SP_B \leftarrow SP_C$	

With 10 mode alarm: 1 out of 10 modes can be selected (Modes 0 — 9)

Alarm mode 0—7: 0—1/2 span, mode 8—9: 0—100% FS

SPDT relay contact (Contact rating 240Vac, 5A resistive load),
Differential 2U fixed (U: Industrial unit including decimal point)

Black (Equivalent to muncell N2)		Metalic gold
Time proportional PID	Time proportional PID	Continuous proportional PID
SPDT relay contact	Voltage	Current
5A, 240Vac	On voltage: 23—43Vdc	4 — 20mA dc, output load resistance less than 500Ω
Resistance load	Internal resistance 1.5KΩ with short circuit-proof	Output sampling rate 1 sec. output resolution within 1%
0 — 39% FS	0 — 39% FS	1 — 39% FS
20/40 sec. selectable	2 sec. fixed	—
		—
0 — 300 sec.	0 — 300 sec.	0 — 300 sec.
0 — 300 sec.	0 — 300 sec.	0 — 300 sec.
1 — 100 U adjustable	1 — 100 U adjustable	—
Selectable	Selectable	Selectable

SET POINT
OK BAND ←1—100U→←1—100U→ TEMPERATURE

Input type and range can be selected using the DIP switch and set up key
(See model selection guide, No. V)

Upper limit 0 — 100% FS Lower limit 0 — 100% FS	Setting limit, one-touch shift, remote shift set possible.
Lower limit: —1999 to 1998 Upper limit: Lower limit +1 — 1999 Decimal point: Possible to designate one or two digits.	-1999 LOWER LIMIT UPPER LIMIT 1999

Alarm Indication:
At sensor burnout, or EEROM check sum abnormal.
Input Sampling Rate: 1 sec.
Allowable Wiring Resistance:
Thermocouple: less than 160Ω in return
RTD; less than 4Ω
Input Bias Current:
Thermocouple/Voltage Signal: Within ± 0.8μA
RTD: 0.5mA
Burnout:
Upscale (thermocouple only)
Rated Power Supply Voltage:
100/110V, 120V, 200/220V, 240Vac, 50 - 60Hz

Allowable Power Supply Voltage:
90 - 121V at 100/110V rating,
180 - 242V at 200/220V rating.
102 - 132V at 120V rating
204 - 264V at 240V rating
Power Consumption: Less than 6W
Case Material: Heat resistant resin
Weight: Approx. 500g
Installation: Panel Mounting
Accessory: Mounting Brackets (1 set) Part No. N-3174
Auxiliary Parts (option):
Dustcover Part No. N-81401330A
Terminal Cover Part No. N-3170

COSMOPAK MODEL SELECTION GUIDE

Example:

I	II	III	IV	V	VI	VII
SA 9	3	A	G	K04	00	Q

☆ SA9/SE9: Honeywell version available

No.	Code	Availability									Model - Temperature Controller			
											Version	Setting	Indication	Mask Size
I	SA9	↓									YH	Digital (Key)	Digital	96x96 mm
	☆SA9		↓								Honeywell	Digital (Key)	Digital	96x96
	SE9			↓							YH	Digital (Key)	Digital	48x96
	☆SE9				↓						Honeywell	Digital (Key)	Digital	48x96
	SA6					↓					YH	Digital (Thumwheel)	—	96x96
	SA8						↓				YH	Digital (Thumwheel)	Analog	96x96
	SE6							↓			YH	Digital (Thumwheel)	—	48x96
	SE7								↓		YH	Digital (Thumwheel)	Analog	48x96
	SA1									↓	YH	Analog (Dial)	—	96x96
	SA3									↓	YH	Analog (Dial)	Analog	96x96
II											Alarm			
	0	○	●	○	●	○	○	○	○	○	None			
	1					○	○	○	○	○	Upper or lower limit alarm			
	2					○	○			○	8 mode alarm			
	3	○	●	○	●						10 mode alarm			
III											Mask color			
	A	○		○		○	○	○	○	○	Blue			
	B	○		○		○	○	○	○	○	Black			
	C	○		○		○	○	○	○	○	Metalic gold			
	D		●		●						Honeywell blue			
IV											Control mode - output			
	A					○	○	○	○	○	ON/OFF relay contact (SPDT)			
	C	○	●	○	●	○	○	○	○	○	Time prop. relay contact (SPDT)		ON/OFF at P=0 for	
	D	○	●	○	●	○	○	○	○	○	Time prop. voltage (23 to 43 Vdc)		SA9/SE9	
	E	○	●	○	●						Time prop. relay contact (SPDT)		PID	
	F	○	●	○	●						Time prop. voltage (23 to 43 Vdc)		PID	
	G	○	●	○	●						Current prop. (4-20 mAdc)		PID	
V											Input Type and Range (°C) - Field selectable for SA9/SE9			
	J02								○	○	T/C J	0 to 200C		
	J04	○	●	○	●	○	○	○	○	○	T/C J	0 to 400C (399C for SA6/8 SE6/7)		
	K03								○	○	T/C K	0 to 300C		
	K04	○	●	○	●	○	○	○	○	○	T/C K	0 to 400C (399C for SA6/8 SE6/7)		
	K06								○	○	T/C K	0 to 600C		
	K15			○	●	○	○	○	○	○	T/C K	0 to 1000C (999C for SA6/8 SE6/7/9)		
	K09	○	●						○	○	T/C K	0 to 1200C		
	R16	○	●						○	○	T/C R	0 to 1600C		
	P10								○	○	Pt100-ohm (JIS)	0 to 50C		
	P01	○		○		○	○	○	○	○	Pt100-ohm (JIS)	0 to 100C (99.9C for SA6/8 SE6/7)		
	P12								○	○	Pt100-ohm (JIS)	0 to 150C		
	P35								○	○	Pt100-ohm (JIS)	-50 to 150C		
	P02					○	○	○	○	○	Pt100-ohm (JIS)	0 to 200C (199C for SA6/8 SE6/7)		
	P36	○		○							Pt100-ohm (JIS)	-50 to 200C		
	P03								○	○	Pt100-ohm (JIS)	0 to 300C		
	P04	○		○		○	○	○			Pt100-ohm (JIS)	0 to 400C (399C for SA6/8 SE6/7)		
	H05		●		●						Pt100-ohm (IEC DIN)	0 to 100C		
	H06		●		●						Pt100-ohm (IEC ")	0 to 400C		
	H04		●		●						Pt100-ohm (IEC ")	-50 to 200C		
	C01								○	○	4-20 mAdc	0 to 100%		
	C02								○	○	4-20 mAdc	0 to 50%		
	V01	○	●	○	●						1-5Vdc	0 to 100%		
		○	●								1-5Vdc	Programmable range		
VI											☆☆ One touch shift or setting limit		Programable range	
	00	○	●	○	●	○	○	○	○	○	—		—	
	01	○	●								—		○	
	02	○	●	○	●						○		—	
	03	○	●								○		○	
	01								○	○	With set point position stopper			
VII											Power			
	—	○		○		○	○	○	○	○	100/110V or 200/220V	50/60Hz		
	Q	○		○		○	○	○	○	○	120/240V	50/60Hz		
	R		●		●						115/230V (120/240V)	50/60Hz (European region)		
	U		●		●						115/230V (120/240V)	50/60Hz (Other Regions)		

☆☆ Select one function (one touch shift and setting limit cannot be used at the same time.)