

1.3 Model Lineup

TK	4	S	-	1	4	R	R
①	②	③		④	⑤	⑥	⑦

Category		Description	
① Item	TK	Temperature/Process controller	
② Digit	4	9999(4Digit type)	
③ Size	SP	48 mm(W) X 48 mm(H) (Plug Type)	
	S	48 mm(W) X 48 mm(H) (Terminal Block Type)	
	M	72 mm(W) X 72 mm(H)	
	W	96 mm(W) X 48 mm(H)	
	H	48 mm(W) X 96 mm(H)	
	L	96 mm(W) X 96 mm(H)	
④ Output Option*1	SP	1	ALARM1 output
		1	ALARM1 output
	S M W H L	2	ALARM1 + ALARM2 output
		R	ALARM1 + Transmission output
		T	ALARM1 + RS485 Comm. output
		A	ALARM1 + ALARM2 + Transmission output
		B	ALARM1+ALARM2+RS485 Comm. output
⑤ Power Supply	4	100 to 240VAC, 50/60Hz	
⑥ OUT1 Control Output*2	R	Relay output	
	S	SSRP Output	
	C	Current output + SSR drive output	
⑦ OUT2 Control Output*3	Standard	N	None ※Select in case of standard control (heating or cooling)
		R	Relay output
	Heating, Cooling	C	Current output + SSR drive output

*1. In case of SP series, option control output selection and digital input will be limited due to number of terminals.

*2. "S" represents SSRP drive voltage output support model which SSR standard/cycle/phase control are available. "C" represents both current and SSR(standard) output support model.

*3. Select "R" or "C" type in case of using heating & cooling control. "N" type in case of using standard control.

2 Specifications

2.1 Ratings

Series		TK4					
		TK4S	TK4SP	TK4M	TK4W	TK4H	TK4L
Power Supply		100-240 VAC, 50/60 Hz					
Allowable voltage range		±10% of rated voltage					
Power Consumption		Max. 8 VA					
Display		7-Segment (red), all other displays (green, amber, red LED)					
Character Size	PV(W x H)	7.0X14.0mm	7.0X14.0mm	9.5X20.0mm	8.5X17.0mm	7.0X14.6mm	11.0X22.0mm
	SV(W x H)	5.0X10.0mm	5.0X10.0mm	7.5X15.0mm	6.0X12.0mm	6.0X12.0mm	7.0X14.0mm
Input Types	RTD	JPT 100 Ω, DPT 100 Ω, DPT 50 Ω, CU 100 Ω, CU 50 Ω, and Nikel 120 Ω (6 types)					
	Thermocouples	K, J, E, T, L, N, U, R, S, B, C, G, and PLII (13 types)					
	Analog	Voltage: 0 to 100mV, 0 to 5V, 1 to 5V, and 0 to 10 V (4 types) Current: 0 to 20mA and 4 to 20mA (2 types)					
Display Accuracy	RTD	At room temperature (23°C ±5°C): PV ±0.3% or ±1°C (whichever is greater) ±1 digit. *1 At all other temperature ranges: PV ±0.3% or ±2°C (whichever is greater) ±1 digit.					
	Thermocouples	In case of TK4SP series, ±1°C will be added.					
	Analog	At room temperature (23°C ±5°C): ±0.3% FS ±1 digit. At all other temperature ranges: ±0.5% FS ±1 digit.					
	CT Input	±5% FS ±1 digit					
Control Output	Relay	250 VAC 3A 1a					
	SSR	11 VDC ±2 V 20 mA Max.					
	Current	Choose between DC0 to 20 mA and DC4 to 20 mA (Load 500 Ω Max.)					
Alarm Output		250 VAC 3A 1a 2Contacts(TK4SP-1contact)					
Output Option	Transmission Output	DC4 to 20mA (Load 500 Ω Max. Output Accuracy: ±0.3% F.S)					
	Communication	RS485 Communication Output (Modbus RTU)					
Input Option	CT	0.0 to 50.0A (primary heater current reading range) ※1000:1 CT Ratio					
	Digital Input	Contact - On: < 2kΩ, Off: > 90kΩ Non-Contact - On: < 1.0 V Residual Voltage, Off: < 0.1mA Leakage Current ※TK4S/M-1ea(due to limited terminal), TK4H/W/L-2ea(except TK4SP)					
Control Type	Heating and Cooling	On/Off, P, PI, PD, and PID Control					
	Heating or Cooling						

Series		TK4					
Hysteresis		RTD/ Thermocouples Resistor: 1 - 100°C/°F (0.1 - 100.0°C/°F) Variable Analog: 1 to 100 digits					
Proportional Band (P)		0.1 - 999.9°C (0.1 - 999.9%)					
Integral Time (I)		0 to 9999 sec.					
Derivative Time (D)		0 to 9999 sec.					
Control Period (T)		0.1 to 120.0 sec. (Relay output and SSR output only)					
Manual Reset Value		0.0 - 100.0%					
Sampling Period		50 ms					
Dielectric Strength		2000 VAC 50/60 Hz for 1 min. (between power terminal and input terminal)					
Vibration Resistance		0.75mm amplitude at 5 to 55 Hz (1 min. cycle) in X, Y, and Z directions (2 hours).					
Relay Life Cycle	Mechanical	OUT1/OUT2 : Over 5,000,000 cycles AL1/AL2 : Over 20,000,000 cycles (*TK4H/TK4W/TK4L: over 5,000,000 cycles)					
	Electrical	OUT1/OUT2 : Over 200,000 cycles AL1/AL2 : Over 100,000 cycles (*TK4H/TK4W/TK4L: over 200,000 cycles)					
Insulation Resistance		> 100MΩ (at 500VDC mega)					
Noise Resistance		Square shaped noise by noise simulator (pulse width 1 μs) ± 2 KV R-phase, S-phase.					
Memory Retention		Approx. 10 years (non-volatile semiconductor memory type)					
Ambient Temperature		-10 to 50°C (not frozen)					
Storage Temperature		-20 to 60°C (not frozen)					
Ambient Humidity		35 to 85% RH					
Protection		IP65 (front) *TK4SP: IP50 (front)					
Insulation type*2		<input type="checkbox"/>					
Unit Weight		Approx. 105 g	Approx. 85 g	Approx. 140 g	Approx. 141 g	Approx. 141 g	Approx. 198 g

*1. At room temperature ranges and at all other temperature ranges

- At room Temperature range(23°C ± 5°C)
 - TC K, J, T, N, E type , below -100°C / TC L, U, PL II type: (PV ±0.3% or ±2°C, select the bigger one) ± 1Digit
 - TC C, G type / TC R, S type bellow 200°C: (PV ±0.3% or ±3°C, select the bigger one) ± 1 digit
 - TC B type, below 400°C: There is no accuracy standards.

