

SPECIFICATIONS

Ratings

Supply voltage	100 to 240V AC, 50/60 Hz	24 VAC/DC, 50/60 Hz
Operating Voltage Range	85% to 110% of rated supply voltage	
Power Consumption	15VA	6 VA, 3.5 W
Sensor Input	Thermocouple: K, J, T, E, L, U, N, R, S ^{*1} , B ^{*2} , W, PLII *1, *2 Platinum resistance thermometer: JPt100, Pt100 Voltage input: 4 to 20 mA, 0 to 20 mA (input impedance 150Ω) Current input: 1 to 5 V, 0 to 5 V, 0 to 10 V (input impedance 1MΩ)	
Control Output	According to output unit (see “Output Unit Ratings and Characteristics” (page A-4))	
Auxiliary Output	SPST-NO, 3 A at 250 VAC (resistive load)	
Control Method	Advanced PID or ON/OFF control	
Setting Method	Digital setting using front panel keys.	
Indication Method	7-segment digital display and LEDs	
Other Functions	According to option unit (see “Option Unit Ratings and Characteristics” (page A-4))	
Ambient Temperature	-10°C to 55°C (without condensation and icing)/3-year warranty period: -10 to 50°C	
Ambient Humidity	35% to 85% (relative humidity)	
Storage Temperature	-25°C to 65°C (without condensation and icing)	

*1 Thermocouple W is W/Re5-26.

*2 For the setting ranges and indication ranges for each of inputs, see below.

Characteristics

Indication Accuracy		Thermometer: ($\pm 0.3\%$ of indication value or $\pm 1^{\circ}\text{C}$, whichever greater) ± 1 digit max. (*1) Platinum resistance thermometer: ($\pm 0.2\%$ of indication value or $\pm 0.8^{\circ}\text{C}$ whichever greater) ± 1 digit max. Analog input: $\pm 0.2\%F \pm S1$ digit max.
Hysteresis		0.01 to 99.99%FS (in units of 0.1%FS)
Proportional Band (P)		0.1 to 999.9%FS (in units of 0.1%FS)
Integral Time (I)		0 to 3999s (in units of 1 second)
Derivative Time (D)		0 to 3999s (in units of 1 second)
Control Period		1 to 99s (in units of 1 second)
Manual Reset Value		0.0 to 100.0% (in units of 0.1%)
Alarm Setting Range		-1999 to 9999 (decimal point position dependent on input type)
Sampling Period		Temperature input: 250 ms, Analog input: 100 ms.
Program Method		Set time or rate of rise programming
Program Size		Max. 4 patterns, Max. 16 steps/pattern
Program Time Accuracy		$\pm 0.2\% \pm 500$ ms of set value (even-numbered steps in the "rate of rise programming" setting are set to the time unit of ramp rate)
Insulation Resistance		20 M Ω min. (at 500 VDC)
Dielectric Strength		2000 VAC, 50/60 Hz for 1 min. (between electrically live terminals of different polarities)
Vibration Resistance	Malfunction	10 to 55 Hz, 10m/s ² {approx. 1G} for 10 min. each in X, Y, and Z directions
	Destruction	10 to 55 Hz, 10m/s ² {approx. 2G} for 2 hrs. each in X, Y, and Z directions
Shock Resistance	Malfunction	200 m/s ² min. {approx. 20G}, 3 times each in 6 directions (100 m/s ² {approx. 10G} applied to the relay)
	Destruction	300 m/s ² min. {approx. 30G}, 3 times each in 6 directions
Weight		Approx. 170 g, adapter: approx. 10 g
Enclosure Ratings		Front panel: NEMA4 for indoor use (equivalent to IP66) Fear case: IP20 Terminals: IP00
Memory Protection		Non-volatile memory (number of writes: 100,000)

*1 The indication accuracy of the K1, T and N thermocouples at a temperature of -100°C or less is $\pm 2^{\circ}\text{C} \pm 1$ digit maximum. The indication accuracy of the U, L1 and L2 thermocouples at any temperature is $\pm 2^{\circ}\text{C} \pm 1$ digit maximum.
The indication accuracy of the B thermocouple at a temperature of 400°C or less is unrestricted.
The indication accuracy of the R and S thermocouples at a temperature of 200°C or less is $\pm 3^{\circ}\text{C} \pm 1$ digit maximum.
The indication accuracy of the W thermocouple ± 1 digit max. of whichever is the greater of $\pm 0.3\%$ or $\pm 3^{\circ}\text{C}$ of the indicated value.

The indication accuracy of the PLII thermocouple is ± 1 digit max. of whichever is the greater of $\pm 0.3\%$ or $\pm 2^\circ\text{C}$ of the indicated value.

Sensor Input Setting Ranges and Indication Ranges

Input	Setting Range	Indication Range
JPt100	-199.9 to 650.0 (C°) / -199.9 to 999.9 (F°)	-199.9 to 735.0 (C°) / -199.9 to 999.9 (F°)
Pt100	-199.9 to 650.0 (C°) / -199.9 to 999.9 (F°)	-199.9 to 735.0 (C°) / -199.9 to 999.9 (F°)
K1	-200 to 1300 (C°) / -300 to 2300 (F°)	-350 to 1450 (C°) / -560 to 2560 (F°)
K2	-0.0 to 500.0 (C°) / -0.0 to 900.0 (F°)	-50.0 to 550.0 (C°) / -90.0 to 990.0 (F°)
J1	-100 to 850 (C°) / -100 to 1500 (F°)	-195 to 945 (C°) / -260 to 1660 (F°)
J2	-0.0 to 400.0 (C°) / -0.0 to 750.0 (F°)	-40.0 to 440.0 (C°) / -75.0 to 825.0 (F°)
T	-199.9 to 400.0 (C°) / -199.9 to 700.0 (F°)	-199.9 to 460.0 (C°) / -199.9 to 790.0 (F°)
E	0 to 600 (C°) / -0 to 1100 (F°)	-60 to 660.0 (C°) / -110 to 1210 (F°)
L1	-100 to 850 (C°) / -100 to 1500 (F°)	-195 to 945 (C°) / -260 to 1660 (F°)
L2	0.0 to 400.0 (C°) / 0.0 to 750.0 (F°)	-40.0 to 440.0 (C°) / -75.0 to 825.0 (F°)
U	-199.9 to 400.0 (C°) / -199.9 to 700.0 (F°)	-199.9 to 650.0 (C°) / -199.9 to 999.9 (F°)
N	-200.0 to 1300 (C°) / -300 to 2300 (F°)	-199.9 to 460.0 (C°) / -199.9 to 790.0 (F°)
R	0 to 1700 (C°) / 0 to 3000 (F°)	-350 to 1450 (C°) / -560 to 2560 (F°)
S	0 to 1700 (C°) / 0 to 3000 (F°)	-170 to 1870 (C°) / -300 to 3300 (F°)
B	100 to 1800 (C°) / 300 to 3200 (F°)	-170 to 1870 (C°) / -300 to 3300 (F°)
W	0 to 2300 (C°) / 0 to 4100 (F°)	-70 to 1970 (C°) / 10 to 3490 (F°)
PLII	0 to 1300 (C°) / 0 to 2300 (F°)	-230 to 2530 (C°) / -410 to 4510 (F°)
4 to 20mA 0 to 20mA 1 to 5V 0 to 5V 0 to 10V	One of following ranges depending on results of scaling -1999 to 9999 -199.9 to 999.9 -19.99 to 99.99 -1.999 to 9.999	-10 to 110% of setting range. Note, however, that max. value is -1999 to 9999.

Output Unit Ratings and Characteristics

Ratings and characteristics conform to the output unit mounted on the controller. For details on the ratings of the output unit, see Section 2–3 Wiring and Terminals.

Option Unit Ratings and Characteristics

Event inputs	Contact input	ON: 1k Ω max., OFF: 100k Ω min.
	No-contact input	ON: residual voltage 1.5 V max., OFF: leakage current 0.1 mA max.
Communications	Interface	:RS-232C, RS-422 or RS-485
	Transmission method	:Half-duplex
	Synchronization method (asynchronous method)	:Start-stop synchronization
	Baud rate	:1.2/2.4/4.8/9.6/19.2 kbps
Transfer output	DC 4 to 20 mA, Permissible load impedance: 600 Ω max., Resolution: Approx. 2600	