


Temperature Controllers

■ NX4 Multi Input/Output Digital Temperature Controllers

■ Specifications

Model		NX4
Appearance		
W×H×D (mm)		48.0×48.0×100.0
Input	Thermocouple input	K, J, E, T, R, B, S, L, N, U, W, PL2
	RTD input	KPt 100 Ω, Pt 100 Ω
	DC voltage input	1 - 5 V d.c., -10 - 20 mV, 0 - 100 mV, 4 - 20 mA (attach 250 Ω external resistor)
	Input sampling cycle	250 ms
	Input display resolution	Basically, below the measuring range decimal point
	Input impedance	Thermocouple and DC voltage input (mV): min. 1 MΩ, DC voltage input (V): approx. 1 MΩ
	Allowable signal source resistance	Thermocouple (max. 250 Ω), DC voltage (max. 2 kΩ)
	Lead wire allowable resistance	RTD (max. 10 Ω, but the resistance among 3 lines should be same)
	Allowable input voltage	Within ±10 V (thermocouple, RTD, DC voltage (mV)), within ±20 V (DC voltage (V))
	Scaling	-1999 ~ 9999 (Within SL-L ~ SL-H range)
	Input correction	-100.0 % ~ 100.0 % of FS
	Reference contact compensation error	±1.5 °C (15 ~ 35 °C range), ±2.0 °C (0 ~ 50 °C range)
	Input disconnection detection	OFF, UP/DOWN scale selection (thermocouple), UP scale (RTD)
Performance	Display accuracy	±0.5 % of FS ±1 Digit, thermocouple (K, J, E, T, R, B, S, L, U, W, PL2)
		±1.0 % of FS ±1 Digit, thermocouple (N)
	External power supply	±0.5 % of FS ±1 Digit, RTD (KPt100 Ω, Pt100 Ω), DC voltage
	Insulation Resistance	Max. 12 V d.c., 20 mA (Cannot be used when using retransmission output)
	Dielectric strength	Min. 20 MΩ (500 V d.c.), among 1st terminal, 2nd terminal and earth terminal
2300 V a.c. 50/60 Hz for 1 min (among 1st terminal, 2nd terminal and earth terminal)		
Communication (optional)	Communication method	1500 V a.c. 50/60 Hz for 1 min (between 2nd terminal and FG)
	Protocol	RS485 (2-wire)
	Communication speed	PC Link with Checksum, MODBUS (RTU), MODBUS (ASCII)
	Max. number of connections	2400, 4800, 9600, 14400, 19200 bps
	Communication distance	31 (address setting 1 ~ 99)
Control functions and output	Control type	Max. 1.2 km (total length)
	Control operation	PID auto-tuning
	Setting range	a) reverse action (heating)/direct action (cooling) Random selection (by parameter setting) b) heating/cooling simultaneous control
	Digital input (DI)	Same as input range chart
	Auto-tuning 2 types	Selects 3 set temperatures that had been previously set as an external contact
	Proportional band	Target value / Low target value auto-tuning selection
	Integral time	0.1 ~ 999.9 % (heating/cooling type: 0.0 ~ 999.9 %)
	Derivative time	OFF, 1 ~ 6000 sec
	ARW (Anti Reset Wind-up)	OFF, 1 ~ 6000 sec
	ON/OFF control	Auto, 50.0 ~ 200.0 % (Proportional band)
	PID selection	Output type selection by parameter
	Manual reset	Zone PID / Group PID selection
	Output amount during input disconnection (OUT1)	The manual reset can be set when integral time is OFF
	Output amount during input disconnection (OUT2)	-5.0 ~ 105.0 (Normal type), 0.0 ~ 105.0 % (heating/cooling type)
Normal type Hysteresis	0.0 ~ 105.0 %	
	0.0 ~ 100.0 % of FS (but ON/OFF control)	

Temperature Controllers

Control functions and output	Heating/cooling type hysteresis	0.0 ~ 100.0 % of FS (but ON/OFF control)	Temperature Controllers
	Heating/cooling dead band	-100.0 ~ 50.0 % (Proportional band)	
	Fuzzy function	Function selection by parameter	Recorders
	Ramp function	Inclination selection of output amount to set temperature (set value (°C) / hour (min))	
	Retransmission output type selection	Present value / set value / output amount / external power supply (max. 12 V d.c., 20 mA) selection	Digital Counter/ Timers
	Retransmission output scaling	By setting range limitation or scaling setting	
	Alarm setting range	0 ~ 100 % of range (absolute alarm), ±100 % (deviation alarm)	Analog Timers
	Alarm hysteresis	0 ~ 100 % of range	
	Heater break alarm	ON/OFF control, can be used on time proportional control output (cannot detect when output ON / OFF time is less than 0.2 sec) Measuring current: 1 - 50 A a.c. (resolution: 0.5 A, ±5 % of FS ±1 Digit) (Note) When using cooling output as relay, alarm output 1 contact decrease CT type heater break detection: CT-50N (Ver 4.1 and over)	Multi Pulse Meters
Alarm type	21 types (selection by parameter, refer to "alarm type and code")		
Control output	Relay output	Contact capacity: 1 C, 240 V a.c., 3 A, 30 V d.c. 3 A (resistive load), but NX1 1a contact, 240 V a.c., 1 A, 30 V d.c. 1 A (resistive load). Time resolution: smaller between 0.1 % or 10 ms	Panel Meters
	Voltage output (SSR)	Approx. min. 12 V d.c. (load resistance min. 600 Ω) approx. 30 mA limit during short circuit Time resolution: smaller between 0.1 % or 10 ms	
	Current output (SCR)	4 - 20 mA d.c. (load resistance max. 600 Ω) Accuracy: ±0.5 % of FS (4 - 20 mA range), resolution: approx. 3000	Peripheral Devices
Alarm output	AL1, AL2, HBA (common) 1a 2 contacts, 240 V a.c., 1 A, 30 V d.c. 1 A (resistive load)		
Retransmission output	Current output	0 - 20 mA, 4 - 20 mA d.c. (load resistance max. 600 Ω) Accuracy: ± 0.5 % of FS (4 - 20 mA range), resolution: approx. 3000	Proximity Sensors
Power voltage		100 - 240 V a.c. 50/60 Hz, 24 V d.c. (±10% of power voltage)	
Power consumption		Max. 10 VA	Photo Sensors
Ambient temperature & humidity		0 ~ 50 °C, 35 ~ 85 % RH (without condensation)	
Storage temperature		-25 ~ 65 °C	Rotary Encoders
Weight		342 g	

Suffix code

Model	Code	Content	
NX4-	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Multi Input/Output Temperature Controller, 48(W) X 48(H) mm	Thyristor Power Regulators
Control type	0	Normal type (heating control)	Solid State Relays
	1	Heating / cooling control (simultaneous control)	
NX4 Option	0	None	Power Supplies
	1	HBA, AL2	
	2	SV2, SV3	Control Switches / Combination Display Lights
	3	RET, RS485	
	4	RS485, SSR/SCR (cooling control output). The Normal type only has communication function	
	5	AL1, AL2	Power / Main / Cam Switches
	6	AL1, AL2, SV2	
7	RS485, HBA	Limit Switches	
Power voltage			100 - 240 V a.c. 50/60 Hz
	D	24 V d.c.	

(note 1) Option 1 : OUT1 (terminal ①-②-③) is applied as AL1 But, only with control output SSR/SCR selection

Option 3 : OUT2 (terminal ④-⑫) is applied as RET

Option 4 : OUT2 (terminal ④-⑫) is applied as SSR / SCR

Option 5 : OUT1 (terminal ⑥-⑦) is impossible to apply as SV2

Option 6 : OUT1 (terminal ⑥-⑦) is applied as SV2 but only with relay control output