Digital Temperature Controller

NX series

INSTRUCTION MANUAL

Thank you for purchasing Hanyoung Nux products. Please read the instruction manual carefully before using this product, and use the product correctly.
Also, please keep this instruction manual where you can view it any time.

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Safety information

Please read the safety information carefully before the use, and use the product correctly.
The alerts declared in the manual are classified into **Danger, Warning** and **Caution** according to their importance

⚠ DANGER	Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury
⚠ WARNING	Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury
⚠ CAUTION	Indicates a potentially hazardous situation which, if not avoided, may result in minor injury or properties damage

⚠ DANGER

• The input/output terminals are subject to electric shock risk. Never let the input/output terminals come in contact with your body or conductive substances.

⚠ WARNING

• If there is a possibility of a serious accident due to malfunction or abnormality of this product, install an appropriate protection circuit on the outside.
• Since this product is not equipped with a power switch and fuse, install them separately on the outside (fuse rating: 250 V, 0.5 A).
• When changing the input sensor (default: K Type), first set the input group (G.In), then set the output group (G.Out), then set the other groups. If you change the data of the input group or the output group after setting other groups, the data of other groups that have already been set will be initialized.
• Please supply the rated power voltage, in order to prevent product breakdowns or malfunctions.
• To prevent electric shocks and malfunctions, do not supply power until the wiring is completed.
• The product does not have an explosion-proof structure, so avoid using it in places with flammable or explosive gases.
• Never disassemble, modify, process, improve or repair this product, as it may cause abnormal operations, electric shocks or fires.
• Please disassemble the product after turning OFF the power. Failure to do so may result in electric shocks, product abnormal operations or malfunctions.
• Any use of the product other than those specified by the manufacturer may result in personal injury or property damage.
• Please use this product after installing it to a panel, because there is a risk of electric shock.

⚠ CAUTION

• The contents of this manual may be changed without prior notification.
• Please make sure that the product specifications are the same as you ordered.
• Please make sure that there are no damages or product abnormalities occurred during shipment.
• Use the product in a temperature range from 0 to 50 °C (max. 40 ° C for close installation) / humidity range from 35 to 85% RH (without condensation)
• Please use the product in places where corrosive gases (especially harmful gases, ammonia, etc.) and flammable gases are not generated.
• Use the product in places where vibrations and impacts are not applied directly to product body.
• Please use the product in places without liquids, oils, chemicals, steam, dust, salt, iron, etc. (pollution degree 1 or 2).
• Please do not wipe the product with organic solvents such as alcohol, benzene, etc. (wipe it with neutral detergents).
• Please avoid places where large inductive interference, static electricity,magnetic noise are generated.
• Please avoid places with heat accumulation caused by direct sunlight, radiant heat, etc.
• Please use the product in places with elevation below 2000 m.
• When fixing the product to a panel, attach the two brackets on the fixing holes and tighten them with a screwdriver. The fixing torque is about 14.7 N · cm (1.5kg · cm).
• When water enters, short circuit or fire may occur, so please inspect the product carefully.
• For thermocouple input, use the predetermined compensating cable (temperature errors occur when using ordinary cable).
• For RTD input, use a cable with small lead wire resistance and without resistance difference among 3 wires (temperature errors occur if the resistance value among 3 wires is different).
• Use the input signal line away from power line and load line to avoid the influence of inductive noise.
• Input signal line and output signal line should be separated from each other. If separation is not possible, use shield wires for input signal line.
• Use a non-grounded sensor for thermocouple (using a grounded sensor may cause malfunctions to the device due to short circuits). When there is a lot of noise from the power, we recommend to use insulation transformer and noise filter. Please install the noise filter to a grounded panel or structure, etc. and make the wiring of noise filter output and product power supply terminal as short as possible.
• Tightly twisting the power cables is effective against noise.
• If the alarm function is not set correctly, it will not be output in case of abnormal operation, so please check it before operation.
• When replacing the sensor, be sure to turn off the power.
• Use an extra relay when the frequency of operation (such as proportional operation, etc.) is high, because connecting the load to the output relay rating without any room shortens the service life. In this case, SSR drive output type is recommended.
※ When using electromagnetic switch: set the proportional cycle to at least 20 sec.
※ When using SSR: set the proportional cycle to at least 1 sec.
※ Contact output life: Mechanical life min. 10 million times (no load), electrical life min. 100,000 times (250 V a.c. 3 A at rated load)
• Although the front part of this product has a IP65 degree of protection, the waterproofing between the product and the panel must be carried out using the attached packing so that the waterproofing is secured, and the packing between the panel and the product does not collapse. (Except for NX1)
• Do not wire anything to unused terminals.
• Please wire correctly, after checking the polarity of the terminals.
• When you install this product to a panel, please use switches or circuit breakers compliant with IEC60947-1 or IEC60947-3.
• Please install switches or circuit breakers at close distance for user convenience.
• Please specify on the panel that, since switches or circuit breakers are installed, if the switches or circuit breakers are activated, the power will be cut off.
• We recommend regular maintenance for the continuous safe use of this product.
• Some components of this product may have a lifespan or deteriorate over time.
• The warranty period of this product, is 1 year, including its accessories, under normal conditions of use.
• When using the heater break alarm, connect the heater power supply and the controller power supply to the same power line.
• The preparation period of the contact output is required during power supply. If used as a signal to external interlock circuit, etc. please use a delay relay together.
• If the user changes the product in case of malfunctions, the operation may be different due to set parameters differences even if the model name is the same. So, please check the compatibility.
• Before using the temperature controller, there may be a temperature deviation between the PV value of the temperature controller and the actual temperature, so please use the product after calibrating the temperature deviation.
• The write life of non-volatile memory (EEPROM) is one million times. When configuring the system, please make sure that that the number of times that data are written to non-volatile memory does not exceed one million times.

Suffix code

■ NX1 suffix code

Model	Code			Content
NX1 -	□	⋮	□	Multi Input/Output Temperature Controller. 48(W) X 24(H) ㎜
Control type	0	⋮		Normal type
	1	⋮		Heating/cooling control (simultaneous control)
Normal type option		Options		Heating output / Cooling output
	0	RET		Relay / -
	1	None		SSR/SCR / -
	2	RS485/RET		Relay / -
	3	RS485		SSR/SCR / -
	4	ALM		SSR/SCR / -
	5	ALM/RS485		SSR/SCR / -
Heating / cooling type option	0	None		Relay / SSR/SCR
	1	None		SSR/SCR / Relay
	2	RS485		Relay / SSR/SCR

(Note) In NX1-1 □ control output can be selected among 6, 9, 10, and 11.

■ NX2, 3, 7, 9 suffix code

Model	Code			Content
NX	□-	□	□	Multi Input/Output Temperature Controller
Size	2			48(W) X 96(H) ㎜
	3			96(W) X 48(H) ㎜
	7			72(W) X 72(H) ㎜
	9			96(W) X 96(H) ㎜
Control method		0		Normal type (heating control)
		1		Heating/cooling (simultaneous) control
NX9 option			0	None
			1	RS485, HBA
NX7 option			0	None
			1	RS485, HBA
			2	SV2, SV3, HBA
NX2, NX3 option			0	SV2, SV3
			1	HBA
			2	RS485

⚠ CAUTION

● Control output wiring

When wiring or removing the control output, shut off the controller and external power supply, because there is a risk of electric shock. Use shielded wires for voltage pulse output (SSR) and current output (SCR) wiring.

■ NX4 suffix code

Model	Code		Content
NX4	□-	□	Multi Input/Output Temperature Controller 48(W) X 48(H) ㎜
Size	0		Normal type (heating control)
	1		Heating/cooling control (simultaneous control)
	2		Heating/cooling control (NX4-20 only)
NX4 option	0		None
	1		HBA, AL2
	2		SV2, SV3
	3		RET, RS485
	4		RS485, SSR/SCR
	5		AL1, AL2
	6		AL1, AL2, SV2
	7		RS485, HBA

(Note)
option 1 : OUT1 (terminals ①-②-③) applied as AL1. (when selecting SSR / SCR control output).
option 3 : OUT2 (terminals ⑪-⑫) applied as RET.
option 4 : OUT2 (terminals ⑪-⑫) applied as SSR/SCR.
option 5 : OUT1 (terminals ⑥-⑦) cannot be applied as SV2.
option 6 : OUT1 (terminals ⑥-⑦) applied as SV2 (with relay control output).

● NX4 control output configuration (if the control output is SCR, the HBA can not be used)

Normal type (heating)	Output	Heating side (OUT1) Relay ①-②-③	Heating side (OUT1) SSR / SCR ⑥-⑦	•NX4-00 - ⑬-⑭	•NX4-00 - ⑪-⑫	NX4-01 Alarms and transformers Relay ⑬-⑭	NX4-01 Alarms and transformers Transformer ⑪-⑫	NX4-02 External input (DI) ⑬-⑭	NX4-02 External input (DI) ⑪-⑫	NX4-03 Communication and retransmission ⑬-⑭	NX4-03 Communication and retransmission ⑪-⑫	NX4-04 Communication ⑬-⑭	NX4-04 Communication ⑪-⑫	Default
	0	Relay (ON/OFF)	-	-	-	AL2	-	SV2	SV3	Communication function (RS485)	Retransmission output (RET)	Communication (RS485)	-	1
	1	AL1	SSR			AL2	CT							
	2	AL1	SCR (4 - 20 ㎃ d.c.)			AL2	-							
	3	Relay (PID)	-			AL2	CT							

※ NX4-01: HBA output is designated as 1-2-3 or 13-14 when selecting 21 for alarm type

• NX4–05

Normal type (heating)	Output	Heating side (OUT1) Relay ①-②-③	Heating side (OUT1) SSR / SCR ⑥-⑦	Alarm output Relay ⑬-⑭	Alarm output Relay ⑪-⑫	Default
NX4-05 (AL1) (AL2)	0	Relay (ON/OFF)	-	AL1	AL2	1
	1	-	SSR			
	2	-	SCR (4 - 20 ㎃ d.c.)			
	3	Relay (PID)	-			

• NX4–07

Normal type (heating)	Output	OUT1 (Heating side) Relay ①-②-③	OUT1 (Heating side) SSR / SCR ⑥-⑦	Communication and transformers ⑬-⑭	Communication and transformers ⑪-⑫	Default
NX4-07 (RS485) (HBA)	0	Relay (ON/OFF)	-	Communication function (RS485)	-	1
	1	AL1	SSR		CT	
	2	AL1	SCR (4 - 20 ㎃ d.c.)		-	
	3	Relay	-		CT	

• NX4–06

Normal type (heating)	Output	OUT1(Heating side) Relay ①-②-③	OUT1(Heating side) ⑥-⑦	Alarm output Relay ⑬-⑭	Alarm output Relay ⑪-⑫	Default
NX4-06 (AL1) (AL2) (SV2)	0	Relay (ON/OFF)	SV2	AL1	AL2	1
	1	-	-			
	2	-	-			
	3	Relay (PID)	SV2			

• NX4–10

Heating /cooling	Output	Heating side (OUT1) Relay ①-②-③	Heating side (OUT1) SSR / SCR ⑥-⑦	Cooling(OUT2) ⑬-⑭	Cooling(OUT2) SSR / SCR ⑪-⑫	Default
NX4-10	4	AL1	SSR	-	SSR	4
	5	AL1	SCR (4 - 20 ㎃ d.c.)			
	6	Relay	-			
	7	AL1	SSR	-	SCR (4 - 20 ㎃ d.c.)	
	8	AL1	SCR (4 - 20 ㎃ d.c.)			
	9	Relay	-			

※ Heating / cooling control only

• NX4–14

Heating /cooling	Output	Heating side (OUT1) Relay ①-②-③	Heating side (OUT1) SSR / SCR ⑥-⑦	Communication and cooling output ⑬-⑭	Communication and cooling output SSR / SCR ⑪-⑫	Default
NX4-14	4	AL1	SSR	Communication function (RS485)	SSR	4
	5	AL1	SCR (4 - 20 ㎃ d.c.)			
	6	Relay	-		SCR (4 - 20 ㎃ d.c.)	
	7	AL1	SSR			
	8	AL1	SCR (4 - 20 ㎃ d.c.)			
	9	Relay	-			

※ Heating / cooling control only

• NX4–20

Heating /cooling	Output	Heating side (OUT1) Relay ①-②-③	Heating side (OUT1) SSR / SCR ⑥-⑦	Cooling (OUT2) ⑬-⑭	Cooling (OUT2) ⑪-⑫	Default
NX4-20	10	-	SSR	AL1	Relay	4
	11	-	SCR (4 - 20 ㎃ d.c.)			
	12	Relay	-			

● NX1 control output configuration

Type	Output	Heating Relay ⑥-⑦	Heating SSR/SCR ④-⑤	Cooling Relay ⑥-⑦	Cooling SSR/SCR ④-⑤	Default
Normal type	0	Relay (ON/OFF)	RET	-		1
	1	Alarm	SSR			
	2		SCR (4 - 20 ㎃ d.c.)			
	3	Relay (PID)	RET			3
Heating / cooling type	6	Relay	-	-	SSR	6
	9		-	-	SCR	
	10	-	SSR	Relay	-	10
	11	-	SCR (4 - 20 ㎃ d.c.)	Relay	-	

(Note) Set the control output after checking the suffix code.

● NX2,3,7,9 control output configuration (if the control output is SCR, HBA cannot be used.)

① Normal type

Output	Control output (OUT1) Relay output	Control output (OUT1) SSR / SCR output	OUT2 Relay output	OUT2 Retransmission output	Default
0	Relay (ON/OFF)	-	AL2	RET (Retransmission output)	1
1	-	SSR			
2	-	SCR (4 - 20 ㎃ d.c.)			
3	Relay(PID)	-			

② Heating / cooling type

Output	Control output(OUT1) Relay output	Control output(OUT1) SSR / SCR output	Cooling (OUT2) Relay output	Cooling (OUT2) SSR / SCR / RET	Default
4		SSR	AL2	SSR	4
5		SCR (4 - 20 ㎃ d.c.)			
6	Relay	RET			
7		SSR		SCR	
8		SCR (4 - 20 ㎃ d.c.)			
9	Relay	RET			
10		SSR	Relay (AL2)	RET	
11		SCR (4 - 20 ㎃ d.c.)			
12	Relay				

Specifications

■ Input specification

Input type	**Thermocouple:** K, J, E, T, R, B, S, L, N, U, W, PL2 (refer to input signal and measurement range) **RTD :** Pt 100Ω, KPt 100Ω **DC voltage input :** 1 - 5 V d.c., -10 - 20 ㎷, 0 - 100 ㎷, 4 - 20 ㎃ (250 Ω with external resistor)
Input sampling cycle	250 ㎳
Input display resolution	Basically, below the decimal point of the range
Input impedance	**Thermocouple and DC voltage input (㎷):** min. 1 ㏁, **DC voltage input (V):** approx. 1 ㏁
Allowable signal source resistance	**Thermocouple:** max. 250 Ω, **DC voltage:** max. 2 kΩ
Allowable wiring resistance	**RTD:** max. 10 Ω/wire (conductor resistance among 3 wires should be same)
Allowable input voltage	Within ±10 V (thermocouple, RTD, DC voltage: ㎷ d.c.) Within ±20 V (DC voltage: V d.c.)
Noise reduction rate	**NMRR (normal mode):** min. 40 dB (50/60 Hz ±1 %) **CMRR (common mode) :** min. 120 dB (50/60 Hz ±1 %)
Standard	Thermocouple / RTD (KS/IEC/DIN)
RJC error	±1.5 °C (15 ~ 35 °C), ±2.0 °C (0 ~ 50 °C)
Input break detection (BURN-OUT)	**Thermocouple:** OFF, UP/DOWN Scale selection **RTD :** UP Scale (detection current at thermocouple and RTD BURN-OUT: approx. 50 nA)
Measurement accuracy	±0.5 % (FULL SCALE)
Input range	See "Input Signal and Measurement Range".

Thermocouple, RTD: can be changed within the range of input signal and measurement range table. **DC voltage:** min. and max. voltages can be changed within each range. Scaling possible within the range of the measurement range

■ Operating environment

Installation environment	**Continuous vibration (5 - 14 Hz):** peak-to-peak max. 1.2 mm, **Continuous vibration (4 - 150 Hz):** max. 4.9 ㎨ **Short-time vibration:** 14.7 ㎨, max. 15 seconds (each 3 directions) **Shock:** 147 ㎨, max. 11 ㎳ (6 directions each 3 times) **Panel cutout:** refer to "panel cutout"
Normal operating conditions	**Ambient temperature:** 0 ~ 50 °C **Ambient humidity:** 35 ~ 85% RH (without condensation) **Magnetic field effect:** max. 400 AT / m **Warm-up time:** min. 30 minutes
Ambient temperature influence	**Thermocouple, voltage input:** ± 1 μV / °C or ± 0.01% / °C of max. range **RTD input:** max. ± 0.05 Ω / °C **Analog output:** max. ± 0.05% / °C of max. range (continuous output)

■ Power specifications

Power voltage	100 - 240 V a.c. (voltage fluctuation rate : ±10 %)	24 V a.c. / V d.c.
Power frequency	50 - 60 Hz	
Power consumption	Max. to 6.0 W, max. 10 VA, 8 VA (NX1)	
Insulation resistance	1st terminal - 2nd terminal : min. 500 V d.c. 20 ㏁ 1st terminal - ground : min. 500 V d.c. 20 ㏁ 2nd terminal - ground : min. 500 V d.c. 20 ㏁	
Dielectric strength	1st terminal - 2nd terminal : 2,300 V a.c. 50/60 Hz for 1 min. 1st terminal - ground : 2,300 V a.c. 50/60 Hz for 1 min. 2nd terminal - F•G : 1,500 V a.c. 50/60 Hz for 1 min.	
Sensor power supply	12 V d.c. (20 ㎃ d.c., cannot be used with retransmission output)	

■ Output specifications

① Alarm output (HBA common)

Relay contact output	**Contact capacity :** 240 V a.c. 1 A, 30 V d.c. 1 A (resistive load). Contact configuration : 1a **Output contacts:** different according to model specifications (refer to wiring diagram)
Heater break alarm	1 EA (NX2, NX3, NX4, NX7, NX9) **Current measurement range:** AC 1 - 50 A (resolution: 0.5 A, ± 5% of maximum scale ± 1 digit). **Alarm output:** set and use alarm output **Deadband:** 0 ~ 100% of max. range setting **Others:** available for ON / OFF control or time proportional output (but not for current output and cooling output). When output is ON, the break can not be detected in less than 0.2 sec.

② Retransmission output

Current output	**Current output range :** 0 - 20 ㎃ d.c., 4 - 20 ㎃ d.c. **Load resistance :** max. 600 Ω **Accuracy :** ±0.5% of max 0 ㎃ or 4-20 ㎃ range) **Resolution :** approx. 3,000 **Output ripple :** max. 0.3% (P-P) of the max. scale (150 Hz) Output update cycle : 250 ㎳

③ Control output (output type can be selected from relay, current, SSR, heating / cooling type can be set individually.

Relay contact output	**Contact capacity:** 240 V a.c. 3A, 30 V d.c. 3 A (resistive load) **Contact configuration:** 1C **Output operation:** time proportion, ON / OFF **Proportional period:** 1 to 1000 s **Output limit:** high limit (OH) and low limit (OL) can be set in the range from 0.0 to 100.0%. Valid also for auto-tuning (AT). **ON / OFF Hysteresis:** 0 to 100% (full scale) **Time resolution:** smaller between 0.1% or 10 ms
SSR output (voltage pulse output)	**ON voltage:** NX2, 3, 4, 7, 9 approx. min. 12 V d.c. (load resistance min. 600 Ω, limited to 30 ㎃ in short circuit) OFF **voltage:** max. 0.1 V d.c. **Proportional period:** 1 ~ 1000 s **Output operation:** time proportional **Output limit:** high limit (OH) and low limit (OL) can be set in the range from 0.0 to 100.0%. Valid also for auto-tuning (AT). Time resolution: smaller between 0.1% or 10 ms
Current output (4 - 20 ㎃)	**Current output range :** 4 - 20 ㎃ d.c. **Load resistance :** max. 600 Ω **Accuracy :** ±0.5% of max. scale (4 - 20 ㎃ range), **Resolution :** approx. 3,000 **Output ripple :** 0.3% (P-P) or less of the maximum scale (150 Hz) **Output update cycle :** 250 ㎳ **Output operation :** continuous PID **Output limit :** high limit (OH) and low limit (OL) can be set in the range from -5.0 to 105.0%. Valid also for auto-tuning (AT).

■ Transport and storage conditions

Storage temperature	-25 ~ 70 °C
Storage humidity	5 ~ 95 % RH (without condensation)
Shock	Max. 1 m in packaging

■ Input signal and measuring range

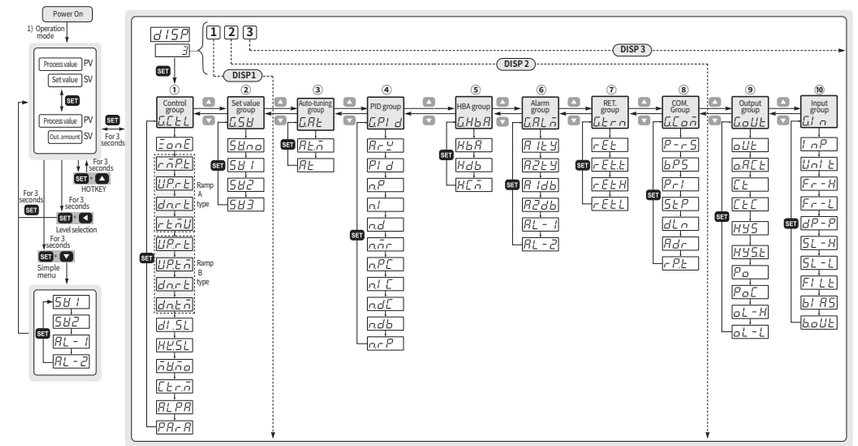
⚠ CAUTION

● Measuring input wiring

• When wiring the measuring input line, disconnect the controller body and external power supply, as there is a danger of electric shock.
• Pay attention to the polarity of the input before connecting. Wrong connection may result in malfunction.
• Use shielded wires for input wiring. The shield must be grounded at single-point.
• For measuring input signal, wire after leaving room between the power supply circuit and the ground circuit, if possible.

Input signal	Selection number	Input type		Range (°C)	Accuracy	Remarks
Thermocouple (TC)	1	K	*2	-200 ~ 1370	±0.5 % of FS ±1 digit	• FS is from the minimum to the maximum value of each measurable range. • Digit is the minimum display value ※1 0 ~ 400 ° C range: ± 10.0% of FS ± 1 digit ※2 Max. 0 °C: ± 1.0% of FS ± 1 digit ※ 3 20 → KPt100 Ω (C1603) ※ 3 21, 22 → Pt100 Ω (IEC751) ※4 When current input is used, attach a 250Ω 0.1% resistor to the input signal terminal. "
	2	K	*2	-199.9 ~ 999.9		
	3	J	*2	-199.9 ~ 999.9		
	4	E	*2	-199.9 ~ 999.9		
	5	T	*2	-199.9 ~ 400.0		
	6	R		0 ~ 1700		
	7	B	*1	0 ~ 1800		
	8	S		0 ~ 1700		
	9	L	*2	-199.9 ~ 900.0		
	10	N		-200 ~ 1300	±1.0 % of FS ±1 digit	
	11	U	*2	-199.9 ~ 400.0		
	12	W		0 ~ 2300	±0.5 % of FS ±1 digit	
	13	Platinel II		0 ~ 1390		
RTD (RTD)	20	KSPt100 Ω	*3	-199.9 ~ 500.0	±0.5 % of FS ±1 digit	
	21	Pt100 Ω	*3	-199.9 ~ 640.0		
	22	Pt100 Ω	*3	-200 ~ 640		
DC voltage (VDC/㎷DC)	30	1 - 5 V d.c.		-1999 ~ 9999 (Using the scaling function (SL-H / SL-L))	±0.5 % of FS ±1 digit	
	31	0 - 10 V d.c.				
	32	-10 - 20 ㎷ d.c.				
	33	0 - 100 ㎷ d.c.				
Direct current	30	4 - 20 ㎃ d.c.	*4			

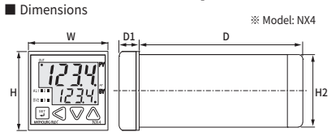
Parameter configuration



Dimensions and panel cutout

■ Dimensions

※ Model: NX4

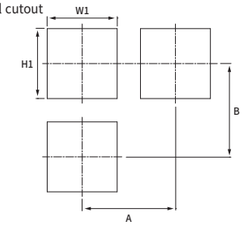


∗1) ∗+0.5 mm tolerance applied

[Unit : ㎜]

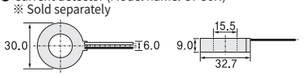
Classification	Type	NX1	NX2	NX3	NX4	NX7	NX9
Product dimensions	W	48.0	48.0	96.0	48.0	72.0	96.0
	H	25.5	96.0	48.0	48.0	72.0	96.0
	H2	22.0	91.0	44.8	44.8	66.0	91.0
	D	100.0	100.0	100.0	100.0	100.0	100.2
	D1	5.8	12.5	12.5	7.4	12.5	12.5
Panel cutout ∗1)	W1	45.0	45.0	92.0	45.0	68.0	92.0
	H1	22.4	92.0	45.0	45.0	68.0	92.0
	A	65.0	70.0	122.0	60.0	93.0	117.0
	B	42.4	122.0	70.0	60.0	93.0	117.0

■ Panel cutout

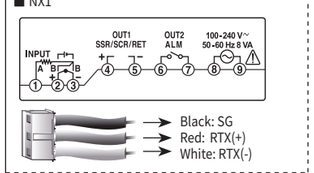


● Current detector (Model name: CT-50N)

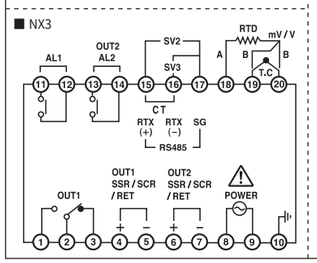
※ Sold separately



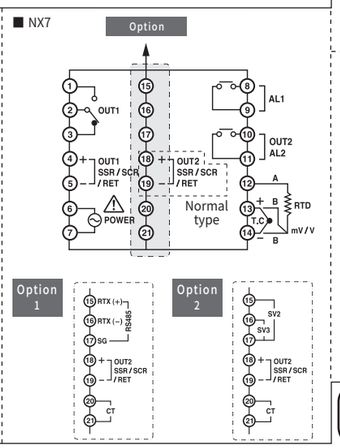
■ NX1



■ NX3

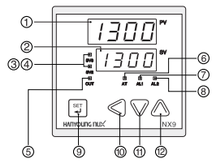


■ NX7



Part names and functions

■ Front part



■ Display part

Display part name	Function
① Present value (PV) display	Displays present value (PV)
② Set value (SV) / Parameter display	Displays set values, various setting parts, setting modes and codes
③ ④ Set value (SV) indicator	Turns on when set value 2 or 3 is displayed
⑤ Output (OUT) lamp	Turns on during output operation
⑥ Auto-tuning display lamp	Blinks during auto-tuning / lights up during manual output
⑦ Alarm 1 indicator	Turns on during alarm 1 operation
⑧ Alarm 2 indicator	Turns on during alarm 2 operation

■ Control part

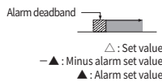
No.		Name	Content
⑨		Set Key	Move among parameters and data settings, select automatic output amount display. Press and hold for more than 3 sec. to enter simple menu
⑩		Shift Key	Change the digit position to be set
⑪		Down Key	Decrease set value, select data of each setting mode
⑫		Up Key	Increase set value, select data of each setting mode

■ Combination keys

Name		Content
+	Run / Stop Hot key	The hot keys can be selected by selecting one between auto-tuning (AT) or manual output (Manu. MV) functions in hot key (Hk.SL) of G.CtL (control group)
+	Enter setting mode	DISP and setting mode

Alarm types and codes

(Note): In case of reverse selection, the output will be OFF when the indicator lamp is ON.



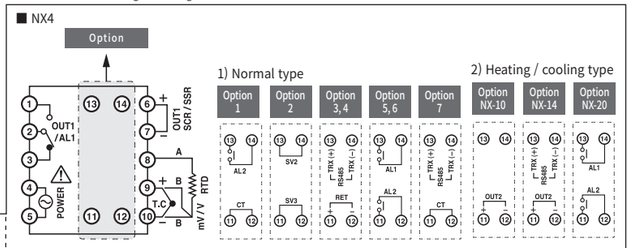
Code	Alarm type	Operation
1	High absolute (NO)	
2	Low absolute (NO)	
3	High deviation (NO)	
4	Low deviation (NO)	
5	High deviation (NC)	
6	Low deviation (NC)	
7	High-Low deviation	
8	High-Low deviation range	
9	High deviation (NC)	
10	Low absolute (NC)	
11	High absolute (NO, hold function)	
12	Low absolute (NO, hold function)	
13	High deviation (NO, hold function)	
14	Low deviation (NO, hold function)	
15	High deviation (NC, hold function)	
16	Low deviation (NC, hold function)	
17	High-Low deviation (hold function)	
18	High-Low deviat. range (hold function)	
19	High absolute (NC, hold function)	
20	Low absolute (NC, hold function)	
21	Heater break alarm 1 (HBA1)	

Connection diagrams

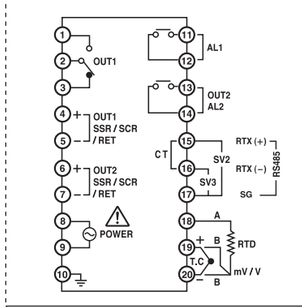
⚠ CAUTION ● Ground wiring

• For grounding, wire with a thick wire of 2 ㎟ or more and class III grounding or more (grounding resistance: max. 100 Ω).
• The length of the ground wire should be within 20 m
• Ground single-point from the ground terminal.
• Do not connect the wiring between ground terminals.

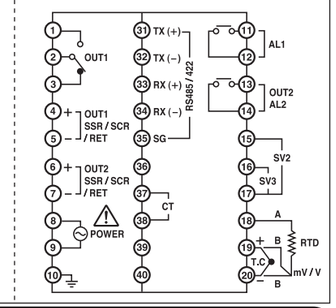
■ NX4



■ NX2



■ NX9



※ For further information, please visit our homepage(www.hynux.com) and refer to the user's manual in the archive.