A
Temperature Controller

HY Series

Economical digital temperature controller

- Proportional control or ON/OFF control
- Simple temperature setting
- Alarm setting(HY-8200S)
- Clear digital indication

Suffix code

Model		Code						Description
HY-	□	□	□	□	□	□	□	Digital temperature controller
Dimension	8000S							96 X 96 ㎜
	8200S							96 X 96 (alarm setting general specification)
	72D							72 X 72
	48D							48 X 48
Control type		F						ON/OFF control
		P						Proportional control
Input			K					K thermocouple
			J					J thermocouple
			R					R thermocouple
			D					RTD KPt 100 Ω
			P					RTD Pt 100 Ω (IEC)
			V					1 – 5 V DC
			C					4 – 20 ㎃ DC
Control output				M				Relay
				C				Current output (4 – 20 ㎃ DC)
				S				SSR (voltage pulse output, 12 V DC)
Alarm output					N			None
					O			High alarm (HY-8200S)
Control action (internal selection)						R		Reverse action (heating control)
						D		Direct action (cooling control)
Range code								Refer to the range and input code

Specification

Input

Thermocouple	K, J, R
RTD input	Pt 100 Ω, KPt 100 Ω(139.16 Ω when temperature is 100 ℃)
DC rated voltage	1 – 5 V DC, 4 – 20 ㎃ DC
Input sampling time	500 ㎳
Input display resolution	Usually less than 1C
Input impedance	Thermocouple min 1 ㏁, DC rated voltage approx. 1 ㏁
Allowable signal source resistance	Thermocouple max 250 Ω. DC voltage max 2 ㏀
Allowable wiring resistance	RTD (max 10 Ω, however resistance among 3 wires should be same)
Allowable input voltage	Within ±10 V (thermocouple, RTD), within ±20 V (DC voltage)
Input compensation	Due to the internal volume
Cold junction compensation error	±2.0 ℃ (0 ~ 50 ℃)

Performance

Display accuracy	±1 % of FS ±1 Digit
Insulation resistance	Min 20 ㏁ (500 V DC)
Dielectric strength	2,000 V AC 50 / 60 ㎐, for 1 min (between the different recharging terminal from each other)

Control function and output

Control type	Proportional control, ON/OFF control (selected by the suffix code)
Control action	Reverse action or direct action (selected by the suffix code)
Range setting	Same as the input range
Proportional band	0.1 ~ 10.0 % of FS
Manual reset (M.R)	±50 % of ㎷ (amount of output)
Proportional cycle	Approx. 25 ~ 30 sec (relay output), approx. 2 ~ 4 sec (SSR output)
Hysteresis	0.2 % fixed (when performing ON/OFF control)
Input signal break detection	Output become OFF when exceeding 10 ℃ of range limit
Alarm type	High absolute alarm, only with Model HY-8200S
Alarm setting range	Within range limit
Alarm hysteresis	Fix 1 ℃

● Output

Control output	Relay	Contact capacity : 1 C, 250 V AC, 3 A (resistive load)
	SSR	Approx. more than 12 V DC (resistive load min 800 Ω)
	Current	4 – 20 ㎃ DC (resistive load max 600 Ω)
Alarm output	Relay	Contact capacity : 1 c, 250 V AC, 5 A (resistive load) ※only with Model HY-8200S

General specification

Power supply	110 – 220 V AC, 50 – 60 Hz dual usage but Model HY-48D selects 110/220V by using internal switch
Voltage fluctuation	± 10 % of the power voltage
Power consumption	3 VA max
Ambient temperature	0 ~ 50 ℃
Ambient humidity	35 ~ 85 % RH (without dew condensation)
Storage temperature	-25 ~ 65 ℃
Vibration	10 – 55 ㎐, peak amplitude 0.76 ㎜ for 2 hrs each in 3 axis direction
Shock	300 ㎨, to the direction 6 each 3 times
Weight	700 g (HY-8000S), 750 g (HY-8200S), 500 g (HY-72D), 450 g (HY-48D)

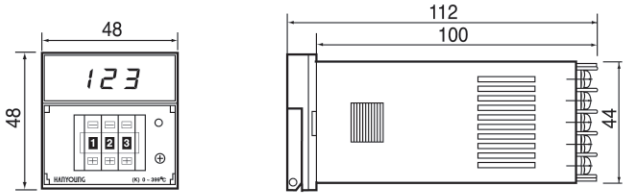
Range and input code

Classification	Code	HY-8000S, 8200S		HY-72D		HY-48D	
		Input type	Range (℃)	Input type	Range (℃)	Input type	Range (℃)
Thermocouple	4	–	–	–	–	K	0 ~ 299
	5	–	–	–	–		0 ~ 399
	6	K, J	0 ~ 199	K, J	0 ~ 199	–	–
	7		0 ~ 299		0 ~ 299		
	8		0 ~ 399		0 ~ 399		
	9		–		0 ~ 599		
	10		0 ~ 599		0 ~ 799		
	11	K	0 ~ 799	K	–		
	12		–		0 ~ 1199		
	13		0 ~ 1199	R	600 ~ 1699		
	14	R	600 ~ 1699	–	–		
RTD	1	–	–	–	–	Pt100 Ω	-49 ~ 49
	2	Pt100 Ω	-99 ~ 99	Pt100 Ω	-99 ~ 99		-99 ~ 99
	3		-99 ~ 199		-99 ~ 199		0 ~ 199
	4		0 ~ 99		0 ~ 99		0 ~ 299
	5		–		–		0 ~ 399
	6		0 ~ 199		0 ~ 199	–	–
	7		0 ~ 299		0 ~ 299		
	8		0 ~ 399		0 ~ 399		
Voltage/current (DC)	–	1 – 5 V	0 ~ 99	1 – 5 V	0 ~ 99	1 – 5 V	0 ~ 99
	–	4 – 20 ㎃	0 ~ 99	4 – 20 ㎃	0 ~ 99	4 – 20 ㎃	0 ~ 99

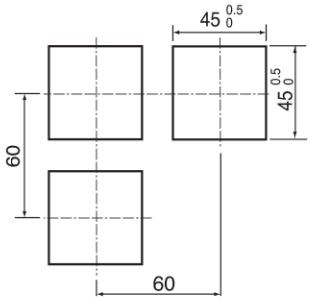
Dimension and panel cutout (Unit : ㎜)

HY-48D

● Dimension

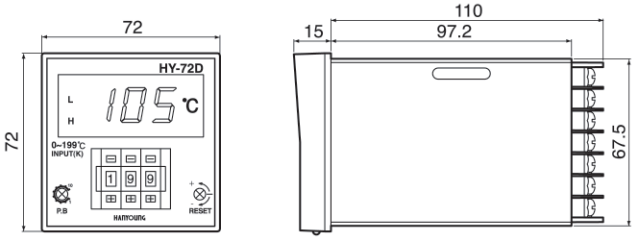


● Panel cutout

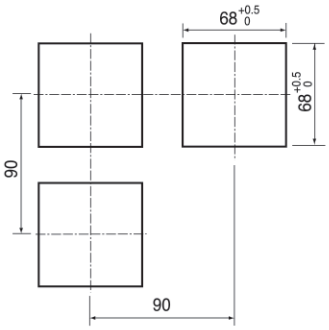


HY-72D

● Dimension

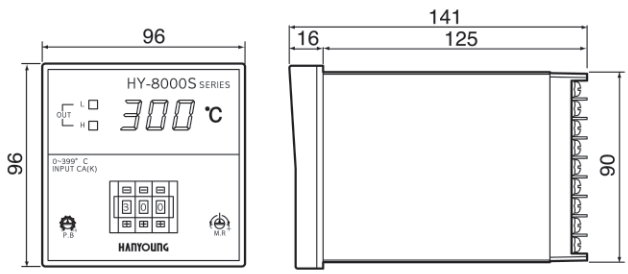


● Panel cutout

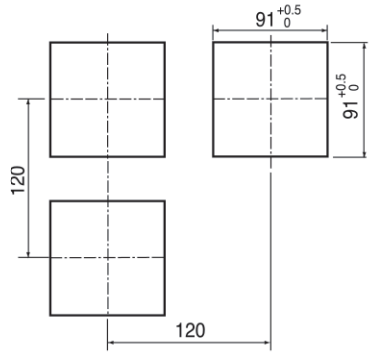


HY-8000S, 8200S

● Dimension

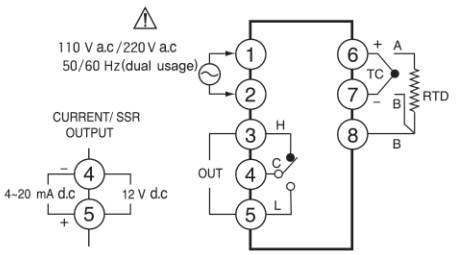


● Panel cutout

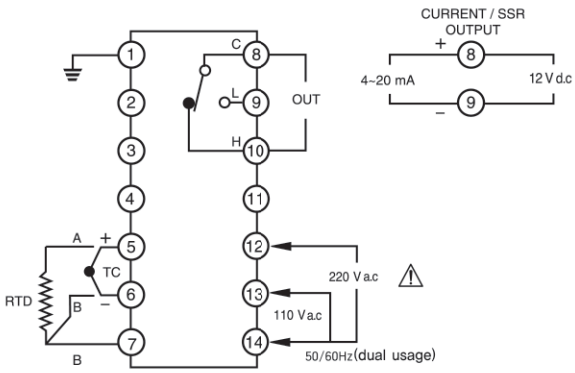


Connection diagram

HY-48D

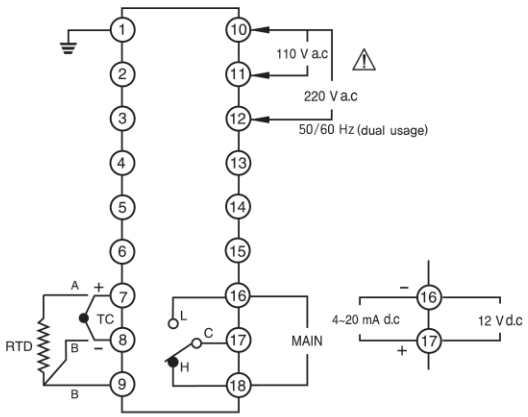


HY-72D



(Cautious) Model HY-48D can select 110 V AC or 220 V AC by using the internal deep switch (default : 220 V AC)

HY-8000S



HY-8200S