

- Please keep these instructions and review before using this controller.
- This instruction manual uses WARNING and CAUTION as signal words for safety.

WARNING WARNING indicates a potentially hazardous situation which, if not avoided, will result in death or serious injury.

- In case of using this unit with machineries (warehouse, medical equipments, vehicle, train, airplane, nuclear power of safety devices etc.), it requires installing fail-safe device.
 - It may result in serious damage, fire or human injury.
- Use a rated voltage to prevent damage or trouble.
 - It may result in fire.
- Check the number of terminal when connect each line and signal input.
 - It may cause fire or trouble.
- Do not turn on the power until the wiring completed.
 - It may cause electric shock.
- Do not repair, wiring or checkup when electric power on.
 - It may cause electric shock.
- Installation the controller where there is no dust, corrosive or explosive gas, direct ray of the sun, mechanical vibration or shock present.
 - It may cause electric shock.
- This controller must be mounted panel.
 - It may cause electric shock.
- Do not repair beyond of authorized technician.
 - It may cause trouble.

CAUTION CAUTION indicates a potentially hazardous situation which, if not avoided, will result in minor or moderate injury and all other times or serious injury. It may also be used to alert against unsafe practice.

- Ensure the surrounding ambient operating temperature is 0~50°C.
 - It may cause fire or wrong operation.
- Ensure the power supply for the controller does not fluctuate. Main supply voltage fluctuation not exceed $\pm 10\%$ of the normal voltage.
 - It may cause fire.
- This controller shall not be used outdoors.
 - It might shorten the life cycle or given an electric shock.
- When wiring connection, #20AWG (0.5mm²) should be used and screw bolt on terminal block with 0.74N.m strength.
 - It may result in malfunction or error.
- Keep the controller away from high current and voltage circuits. The controller and connection wires (esp. compensation conductors and RTD lead wires) should be kept approximately 30cm away from high electric circuit to limit the possible effect of noise.
 - It may cause display fluctuation or error.
- Do not use a place where temperature fluctuate or icing occurs.
 - It may cause fire, explosive or error.
- In cleaning the controller, do not use water or an oil-based detergent.
 - It may cause fire or trouble.
- Do not inflow dust or dregs into inside of this controller.
 - It may cause fire or trouble.
- Installation Category II. Pollution Degree 2. Altitude over 0~2000m use.

DIGITAL TEMPERATURE CONTROLLER



SD Series

Thank you very much for selecting Sanup temperature controller. For your safety, please read the following before using.



SANUP ELECTRIC

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1 MODEL CODE

MODEL	SIZE	-	CODE	SPECIFICATION
SD	□	-	□ □ □ □ □ □ □ □	Digital Temperature Controller
	101N			48(W)X48(H)X90(D) (mm)
	505N			48(W)X96(H)X100(D) (mm)
	301N			72(W)X72(H)X100(D) (mm)
	501N			96(W)X96(H)X100(D) (mm)
Input		K		K: K(CA). R: R(PR). D: Pt100.Ω
Range		400		100. 400. 800. 1200. 1600
Output		M		M: Relay. V: SSR. C: 4~20mA
Power		F		100~240V ac. 50-60Hz
Control Mode			N	For heater control
			O	ON-OFF control.
			P	PID control with auto-tuning
			OD	For motor ON-OFF control

◆Ex: Set temperature is 350°C for heater SD 501N with K type sensor and relay output then model code is SD 501N-K400MFN.
Set temperature is 1400°C for heater SD 101N with R type sensor and SSR output then model code is SD 101N-R1600VFN.
Set temperature is 150°C for burner SD 301N with RTD type sensor and relay output then model code is SD 301N-D400MFN.

2 SPECIFICATION

Items	Specifications	
Power	Power	100~240Vac (90~264Vac)
	Frequency	50/60Hz
	Power Consumption	5VA less
Input	Input	T.C: K.R. RTD:Din Pt100/Pt100.Ω
	Scan Time	130ms
	Impedance	T.C: 1MΩ
	Accuracy	T.C: $\pm 0.5\% + 1\text{digit}$ or 3°C RTD: $\pm 0.5\% + 1\text{digit}$
Output	Control Output	Relay Contact 250V 2A, R Load 4~20mA dc max. 600Ω SSR 20V 21mA dc
Control	Control Mode	PID. PI. P. ON-OFF Control with Reverse & Direct
	Control Period	1~60sec.
Installation Condition	Continuous Vibration	5-14Hz: forward width 1.2m max. 4-150Hz: 4.9m/cm ²
	Vibration	14.7m/cm ² 15sec. max. each 3 direction
	Shock	147m/cm ² 11msec. max. 6 direction 3 times
Operating Environment	Thermocouples	$\pm 1\mu\text{V}/^\circ\text{C}$ or $\pm 0.01\%/^\circ\text{C}$ of F.S
	RTD	$\pm 0.05\%/^\circ\text{C}$
	Analog Output	$\pm 0.05\%/^\circ\text{C}$ of F.S
Storage	Temperature	-25~70°C
	Humidity	5~95%RH. No condensation

◆ This manual will be able to modification without notice.
If need more information, send email to sanup@sanup.com.

3 SET

SET



Press the setting dial and the number of digits blinks. Turn the dial to set the temperature and press the dial again to finish the setting.

Same with dial press.

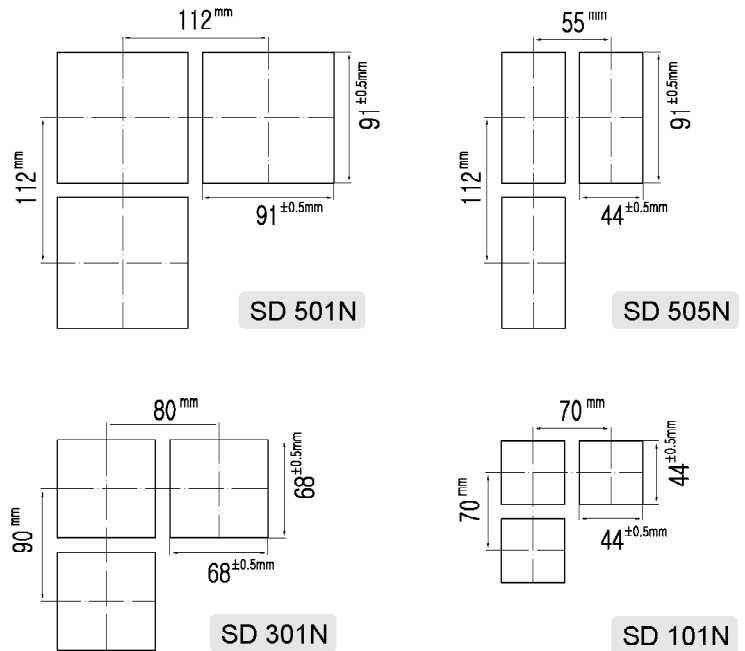
◆ SD series are enough to only set temperature.



Press the setting key and the number of digits blinks. Press the UP/DOWN key to set the temperature and press the set key again to finish the setting.

◆ SD 101N model uses up and down keys instead of dial.

4 PANNEL CUT



Installation Guidelines

- Ensure the operating temperature is 0~50°C and humidity is 35~85%RH.
- Ensure the supply electric power does not fluctuate greatly.
- Install the controller where there is no dust, corrosive or explosive gas present.
- Install the controller where there is no risk of mechanical vibration or shock.
- Keep the controller away from high current and voltage. The controller and connection wires should be kept about 30cm (12") away from high current or high voltage line to limit the possible affects of noise.

Installation Procedure

- Make a panel cutout of each size. When installing more than two controllers parallel to each other, keep enough distance between the panel cutouts.
- Insert the controller into the panel cutout.
- Insert a mounting bracket into both side of the controller and tighten the screws. (about 14.7Nm)

Wiring Comparison



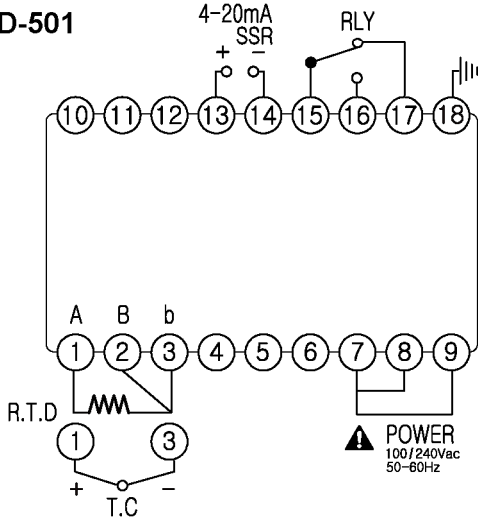
제품 설치 전 반드시 확인하여 주십시오. 잘못된 결선은 계기를 파손시키거나 화재의 위험이 있습니다.

Old Model

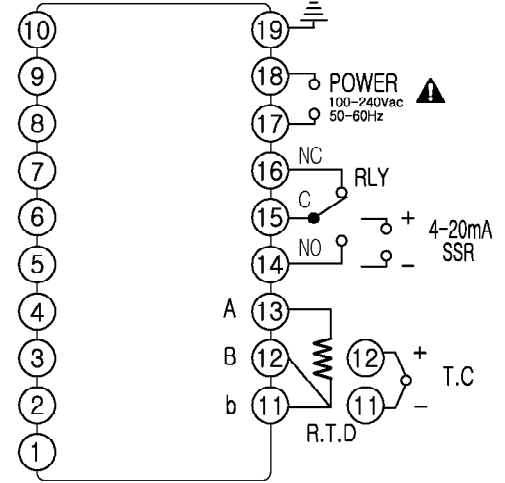
New Model

SD-501

SD-501N

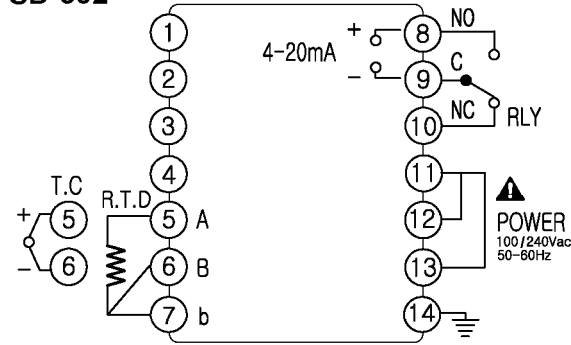


	OLD	NEW		NEW
TC IN	1	12	RTD OUT	13
	2			12
	3	11		11
PWR	7 or 8	18	SSR mA OUT	15
	9	17		14
RLY OUT	13		SSR mA OUT	15
	14			14
	15	15		
	16	14		
	17	16		

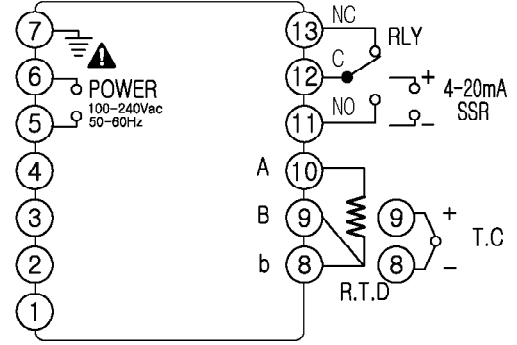


SD-301
SD-302

SD-301N

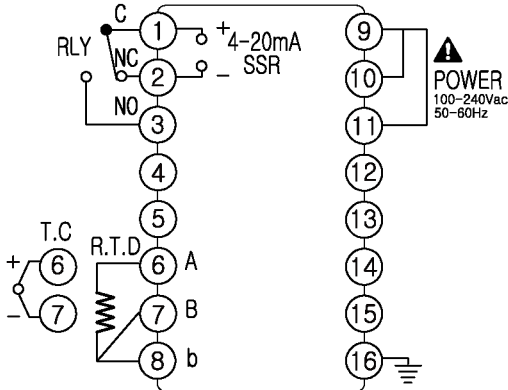


	OLD	NEW		NEW
TC IN	5	9	RTD OUT	10
	6	8		9
	7			8
PWR	11 or 12	6	SSR mA OUT	12
	13	5		11
RLY OUT	8	11	SSR mA OUT	12
	9	12		11
	10	13		-

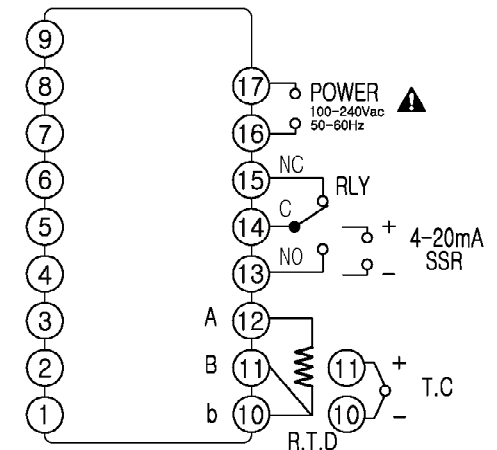


SD-505

SD-505N

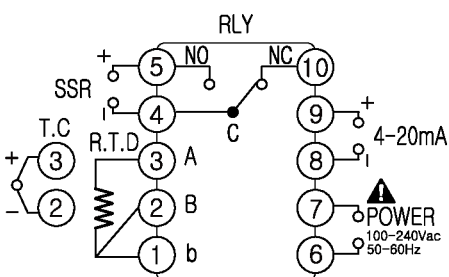


	OLD	NEW		NEW
TC IN	6	11	RTD OUT	12
	7	10		11
	8			10
PWR	9 or 10	17	SSR mA OUT	14
	11	16		13
RLY OUT	1	14	SSR mA OUT	14
	2	15		13
	3	13		-

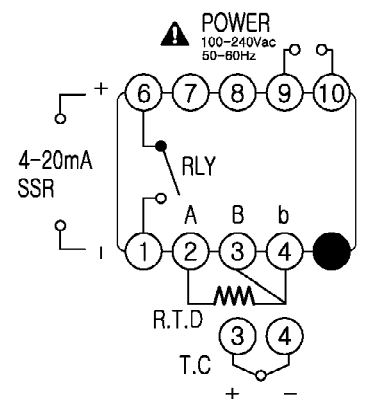


SD-104

SD-101N



	OLD	NEW		NEW
TC IN	1		RTD OUT	4
	2	4		3
	3	3		2
PWR	6	10	SSR mA OUT	1
	7	9		6
RLY OUT	4	1	SSR mA OUT	1
	5	6		6
	10	-		-



※ 예를들어 구형 SD 301 모델의 센서 입력 단자 5번(+) 6번(-)은 신형 SD 301N 모델의 입력 단자 9번(+) 8번(-)으로 결선 하시면 됩니다.