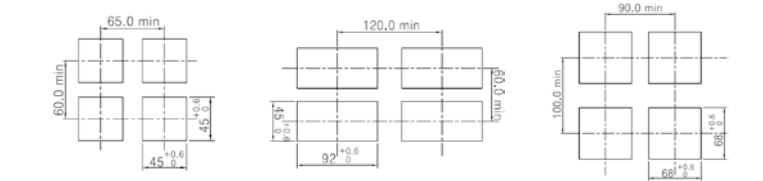
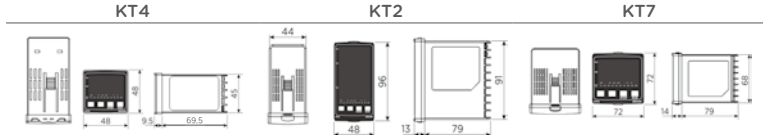


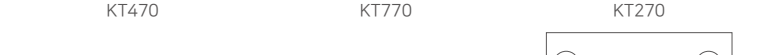
Part Description

- PV** parameter list and the current temperature display
- SV** Parameter setting value and control temperature setting display
- ON** Turn on when the main control output is generated
- AT** Turn on when run the Auto-tuning of PID control.
- AL1** Turn on when the alarm output is generated
- AL2** Turn on when the alarm output is generated
- °C/°F** Display the Temperature Unit (Celsius, Fahrenheit)
- OUT %** Display the Percentage of main output value
- SET** Move forward for parameter and save the set value.
- ←** Move digit of character and move backward for parameter.
- ▲** Increase a number and release the function of control stop.
- Decrease a number and set the function of control stop.

External Dimension and Panel Cutout



Terminal Definition



Ordering Information

- ① Front size 4: W48 × H48mm 2: W48 × H96mm 7: W72 × H72mm
- ② Output Selection 7: Relay + Voltage for driving SSR

Product Selection

Size	Part No.	Output
4896	KT270	Relay + SSR
4848	KT470	Relay + SSR
7272	KT770	Relay + SSR

Specification

Input Power	100~240VAC 50/60Hz
Operation Voltage Range	90%~110%, rated voltage
Power Consumption	5VA Maximum
Display Method	7-segment LED: PV in red, SV in green
Sensor Type	Thermocouple: K,E,J,N,S,T,R,B Platinum resistance: PT100 Voltage: 0~20mV, 0~50mV
Analog Input	Normal temperature (23°C ± 5°C): (PV ± 0.5% or ± 1°C, select the higher one) ± 1digit Out of normal temperature range: (PV ± 0.5% or ± 2°C, select the higher one) ± 1digit
Display Accuracy	
Control Mode	On/OFF Control, PID Control
Control Output	Relay output : 250VAC 3A Voltage Pulse output
Sampling Rate	250ms
Vibration Resistance	0.7mm amplitude at 10~55Hz in each 3 directions for 1.5 hours
Ambient Temperature	-10~50°C (with no icing)
Storage Temperature	-12~60°C (with no icing)
Relative Humidity	35~85%RH, Storage: 35~85%RH

Setting mode 1

- Press **SET** up to 3 sec for parameter group 1
- SET** for adjusted parameter save and pass to next parameter.
- ▲** key is for return to previous parameter by 3 sec pressing
- If you press **SET** more than 3 sec for initial display.

Symbol	Name	Range	T#	Description
RE	Auto Tuning	NO or YES	NO	YES: Auto Tuning on NO: Auto Tuning off
AL1	Alarm 1	-1999~9999	0	Set the alarm value for alarm 1. Alarm differential gap=AH1
AL2	Alarm 2	-1999~9999	0	Set the alarm value for alarm 2. Alarm differential gap=AH2
SC	PV bias	-199~199	0	Sensor correction is made by adding bias value to measured value(PV).
P	Proportional Range	0.0~200.0	20	Proportional band in PID with unit for OUT1 P=0.0, ON/OFF control Please set P1±2.0 when analog input.
HYS	Control Hysteresis	0~999	1.0	Control out differential gap=HYS Only for ON/OFF action when P=0.0
I	Integral time	0~3600s	210	Set the time of integral action to eliminate the offset occurring in proportional control.
D	Derivative time	0~3600s	30	Set the time of derivative action to improve control stability by preparing for output changes.
CYt	Proportioning Cycle	0~999s	20	Proportioning cycle time for PID control
rSEt	Proportional reset	-999~200	-5	Proportional reset for overshoot protection when first power on. (Auto setting after autotuning) LCK 0: Allow to modify any parameter and SV LCK 1: SV Only allow to modify SV and AT. LCK 2: Not allow to modify any parameter and SV
LCK	Set data lock	0~2	0	

Setting mode 2

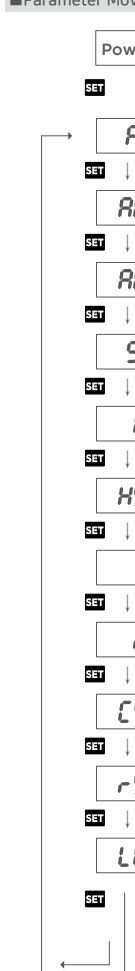
- Press the key while pressing the SET key for 3 s to PASS, set PASS=0101.
- Then press **SET** key to parameter group 2



The following parameter symbols are displayed one by one every time the SET key is pressed. After the value be registered, when no parameter setting is required, Press the SET key for 3 s to return the instrument to the normal display.

Symbol	Name	Range	T#	Description
INP I	Main input type select		K	Temperature sensor table reference
dP	Decimal point	0~3	0	Decimal point creation 0,1 : for TC or RTD or analog type 2,3 : Only for Linear analog type input
LSPL	Low setting	-1999~9999	0	Set low setting limiter Set high setting limiter
USPL	High setting	-1999~9999	400	Lower point of transmission Higher point of transmission
UNt	Display scale	C,F,A	C	Temperature unit set C: Centigrade F: Fahrenheit A: without scale
PvFt	PV follow-up PV input filter	0~60	55	PV variable-value control. 0~30: for general, 31~60: for enhanced
AL1	Lowest value of PV display	-199~9999	0	Lowest value display when linear analog inputs. Such as 4~20mA input.
AL2	Highest value of PV display	-1999~9999	2000	Highest value display when linear analog inputs. Such as 4~20mA input.
ALd1	Alarm1 mode	00~16	10	Select the type of alarm 1 See (**ALARM TYPE TABLE)
AL1	Alarm1 differential gap	0.0~100.0	0.4	Alarm1 differential gap setting
ALd2	Alarm2 mode	00~16	10	Select the type of alarm 2 See (**ALARM TYPE TABLE)
AL2	Alarm2 differential gap	0.0~100.0	0.4	Alarm2 differential gap setting
OUT	Control action	HEAT, COOL	HEAT	HEAT: Reverse action (Heating) COOL: Direct action (Cooling)
OUT	Control output type	rLy	rLy	rLy: Relay drive output SSr: SSR relay drive output
SSr	SSR drive output method	Stnd	Stnd	Stnd: Normal control CYC: Cycle control PHAS: Phase control
H-	Power frequency	50, 60	60	50Hz: 50Hz 60Hz: 60Hz
LbARt	LBA monitoring time	0~9999 sec	0	Set the alarm time of the Disconnection alarm.
LbAb	LBA monitoring range	0~9999	0	Set the temperature value of the Disconnection alarm.

Parameter Moving



Setting mode 3

- Set PASS = '0202' then press **SET** key to parameter group 3.



The following parameter symbols are displayed one by one every time the SET key is pressed. After the value be registered, when no parameter setting is required, Press the SET key for 3 s to return the instrument to the normal display.

Symbol	Name	Range	T#	Description
d1-2	RUN / STOP	0 or 1	0	D1-K=0 RUN / STOP Disable D1-K=1 RUN / STOP Enable
rSEt	Parameter reset	0 or 1	0	Parameter reset to factory value

Password Mode

Press the SET button along with the K button, to enter the password mode. Use the ▲/▼ buttons to change the numbers, and press the SET button to change the cipher numbers.



Main Control Temperature Setup

- Press one of the four buttons for 0.5 seconds, and then release the button. The image will flicker, and the status will change to allow the temperature setup. Use the up and down buttons to select the temperature to control, and then press the SET button to save it. If no buttons are pressed for approximately 15 seconds at the temperature setup mode, the temperature will be automatically saved, and the blinking will stop.

Temperature Correction

- Press the SET button for more than 3 seconds to enter the parameter group 1. If the letters 'AT' appear at the PV, press the SET button three times to enter the 'SC' parameter. The 'SC' value is initially set at '0'. Enter the temperature value to be corrected, and press the SET button to save it.

ON/OFF Control Setup

- The ON/OFF control is designed with a simple control output type. The control output is turned on when the setup value is yet to be reached; otherwise, the control output is turned off when the setup value is reached.

SSR Output Method

- Select the output method of the controller with SSR to activate the SSR output type parameter 'SSr' in the parameter group 2.
- The SSR output type has a total of three kinds, which can be selected by the user depending on the situation.

PID Control Set-up

- The PID control takes a longer time to reach the target value, as compared with the ON/OFF control. Nevertheless, it can achieve the exact and precise control at various setup values.

Filtering the Current Temperature Input Value

- Rapid changes in the temperature value may trigger frequent changes to the PV display value. Such will affect the control operation volume, and make it difficult to achieve a stable control.

Proportional Value Reset

- If the proportional values are applied to the temperature control (PID/P), a certain deviation may occur even when control has been stabilized depending on the heater capacity and/or the space area.

Alarm (Warning) Set-up

- The output, which can be used as a supplement output other than the main output that controls the temperature, is called an alarm output or warning output.

Installation Method

- Fabricate a panel appropriate for the attachment holes of the product, and then use brackets to fix them properly.

Alarm for Heater Disconnection

- This function determines the heater disconnections depending on the temperature changes during setup.

While the main control output runs 100%, an alarm signal will sound when it considers that the heater is abnormally connected, as there are no changes made with the setup temperature (LbAb) during the setup time (LbAt). For example, if the LbAt is set at 100 seconds, while the LbAb is set at 10°C, an alarm signal will go off due to slight changes made to the temperature that are not exceeding 10°C.

Factory reset

- This function initializes the controller. It is useful for cases when unable to pinpoint which parameters were changed.

Manual control (Run/stop)

- Enter '0202' using the buttons at the password mode. Press the SET button to go to the parameter group 3. The letters 'd1-2' will be shown at the 'PV' window and 't' at the 'SV' window, respectively.

Auto Tuning

- This function automatically sets the proportional (P), integral (I), and differential (D) values at the PID control mode.

Relay and SSR Outputs

- The CARCON Temperature Controller KT Series is built in with the relay output and the SSR output contacts.

SSR Output Method

- Select the output method of the controller with SSR to activate the SSR output type parameter 'SSr' in the parameter group 2.

PID Control Set-up

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Manual control (Run/stop)

- Enter '0202' using the buttons at the password mode. Press the SET button to go to the parameter group 3. The letters 'd1-2' will be shown at the 'PV' window and 't' at the 'SV' window, respectively.

Error display

- 04H0: This function indicates that the temperature sensors are not properly connected.
- 04L0: This function indicates that the temperature sensors are connected; however, its temperature sensor setup is inaccurate.

Applied Terminals

- Terminal 1: 250VAC 20mA
- Terminal 2: 250VAC 1A
- Terminal 3: 250VAC 3A
- Terminal 4: 250VAC 1A
- Terminal 5: 250VAC 1A
- Terminal 6: 250VAC 1A
- Terminal 7: 250VAC 1A
- Terminal 8: 250VAC 1A
- Terminal 9: 250VAC 1A
- Terminal 10: 250VAC 1A
- Terminal 11: 250VAC 1A
- Terminal 12: 250VAC 1A
- Terminal 13: 250VAC 1A
- Terminal 14: 250VAC 1A
- Terminal 15: 250VAC 1A
- Terminal 16: 250VAC 1A
- Terminal 17: 250VAC 1A
- Terminal 18: 250VAC 1A
- Terminal 19: 250VAC 1A
- Terminal 20: 250VAC 1A
- Terminal 21: 250VAC 1A
- Terminal 22: 250VAC 1A
- Terminal 23: 250VAC 1A
- Terminal 24: 250VAC 1A