Products

DTK

New generation of intelligent temperature controller

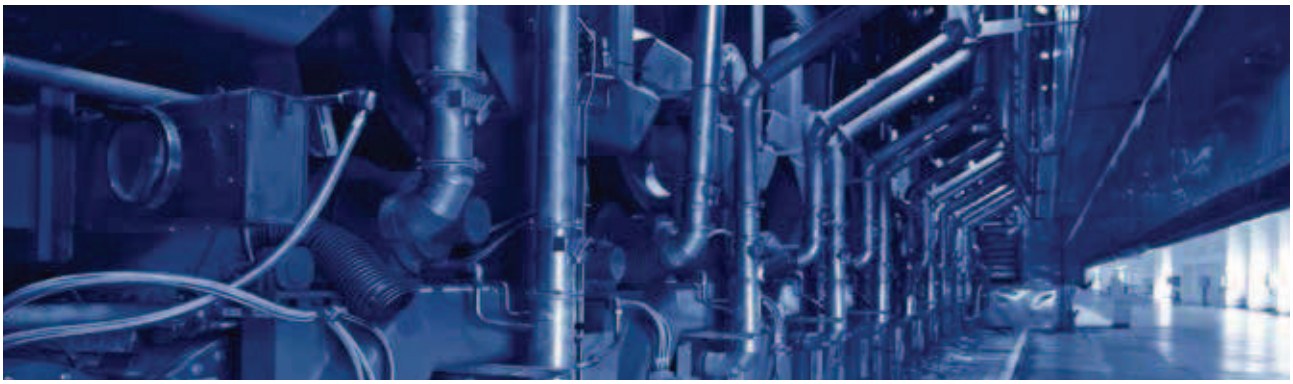
DTK Series is a new temperature controller with a high cost-performance ratio. It greatly decreases development costs and time, and improves the functions of temperature control systems. With a length of only 60 mm and high resolution LCD display, it is easy for operators to monitor the temperatures of any environment or occasion.

Features

- **High resolution LCD display**
- **Length shortened to 60 mm**
- **High speed sampling time 100 ms**
- **CE certified**

Description

- A PV : Present Value
- B SV : Set Value
- C ℃ 、℉ : Celsius , Fahrenheit temperature indicator
- D 1 、2 : ALM1 , ALM2 alarm output indicator
- E A/M : Auto-tuning and manual modes indicator
- F OUT1 、OUT2 : Output indicator
- G Select / Set key
- H Value adjustment key

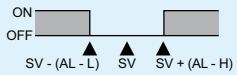
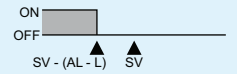
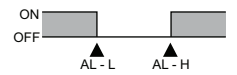
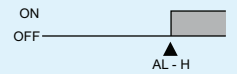
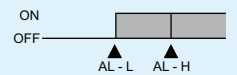


Electrical Specifications

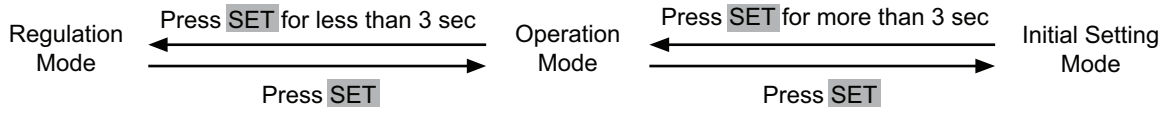
Power supply	100 ~ 240 V_{AC} , 50 / 60 Hz
Display	LCD display. PV : red, SV : green
Input temperature sensors	Thermocouple : K, J, T, E, N, R, S, B, L, U, TXK
	Platinum RTD : Pt100, JPt100
	RTD : Cu50, Ni120
Control methods	ON / OFF, PID, Manual
Display scale	1 digit after decimal point, or no decimal point
Sampling rate	Thermocouple or platinum RTD : 0.15 second
Ambient temperature	0 ~ +50 °C
Ambient humidity	35 ~ 80% RH (non-condensing)

Alarm Outputs

The DTK Series offers 2 alarm outputs, and each alarm output has 9 alarm modes to choose from in the initial setting mode. When the target temperature exceeds or falls below the set point, the alarm output is enabled.

SV	Alarm Mode	Alarm Output Operation
0	Alarm function disabled	
1	Deviation upper- and lower-limit : This alarm output operates when PV value is higher than the set value SV + (AL - H) or lower than the set value SV - (AL - L).	
2	Deviation upper-limit : This alarm output operates when PV value is higher than the set value SV + (AL - H).	
3	Deviation lower-limit : This alarm output operates when PV value is lower than the set value SV - (AL - L).	
4	Absolute value upper- and lower-limit : This alarm output operates when PV value is higher than the set value AL - H or lower than the set value AL - L.	
5	Absolute value upper-limit : This alarm output operates when PV value is higher than the set value AL - H.	
6	Absolute value lower-limit : This alarm output operates when PV value is lower than the set value AL - L.	
7	Hysteresis upper-limit alarm output : This alarm output operates if PV value is higher than the set value SV+ (AL - H). This alarm output is OFF when PV value is lower than the set value SV + (AL - L).	
8	Hysteresis lower-limit alarm output : This alarm output operates if PV value is lower than the set value SV - (AL - H). This alarm output is OFF when PV value is higher than the set value SV - (AL - L).	
9	Disconnection alarm : This alarm output operates if the sensor connection is incorrect or has been disconnected.	

Parameters Operation



Regulation Mode	Operation Mode	Initial Setting Mode
AtE Auto - tuning (when in PID control and RUN mode) Press ↻ ▽	1234 Use ▲ ▼ to set up target temperature Press ↻ ▽	InPt Set up input type Press ↻ ▽
P Set proportion band	r-S Control loop RUN or STOP	tPUn Set up temperature unit
I Set integration time	SP Set up the position of decimal point	tP-H Set up upper temperature limit
d Set derivative time	LoC Lock the keys	tP-L Set up lower temperature limit
PdoF Set up PID control offset	AL1H Set up upper limit of Alarm 1	Ctrl Select control modes
o1-S Adjust Output 1 hysteresis (when in ON / OFF control)	AL1L Set up lower limit of Alarm 1	S-HC Select heating, cooling or dual output heating and cooling
o2-S Adjust Output 2 hysteresis (when in ON / OFF control)	AL2H Set up upper limit of Alarm 2	AL1 Set up Alarm 1 mode
o1-H OUT1 HEAT: Heating control cycle for Output 1 (when Ctrl = PID/FUZZY/MANUAL)	AL2L Set up lower limit of Alarm 2	AL1o Set up Alarm 1 options *3
o1-C OUT1 COOL: Cooling control cycle for Output 1 (when Ctrl = PID/FUZZY/MANUAL)	oUt1 Display and adjust Output 1 volume	AL1d Set up Alarm 1 delay *4
o2-H OUT2 HEAT: Heating control cycle for Output 2 (when Ctrl = PID/FUZZY/MANUAL)	oUt2 Display and adjust Output 2 volume	AL2 Set up Alarm 2 mode
o2-C OUT2 COOL: Cooling control cycle for Output 2 (when Ctrl = PID/FUZZY/MANUAL)	o1tA Set up upper limit percentage for Output 1	AL2o Set up Alarm 2 options *3
CoEF Ratio of Output 1 against Output 2 when in dual output control (set when in PID control)	o1tL Set up lower limit percentage for Output 1	AL2d Set up Alarm 2 delay *4
dEAd Set up deadband	o2tA Set up upper limit percentage for Output 2	
Pv-F Set up input filter factor	o2tL Set up lower limit percentage for Output 2	
Pv-r Set up input filter range		
PvoF Adjust input compensation *1		
PvGA Adjust input gain *1		
A1tA Adjust upper limit compensation for analog Output 1 *2		
A1tL Adjust lower limit compensation for analog Output 1 *2 Press ↻ to return to auto-tuning	Press ↻ to return to set up target temperature	Press ↻ to return to set up input type

* Alarm 1 is automatically switched to output control 2 when selecting dual output mode
* Set up upper / lower limit percentage for output 1 / 2 volume : set output permission ranges. E.g. upper and lower limit percentage are respectively set as 90 and 20, output volume will be limited to 20% ~ 90%.
*1. Offset Present value : Use PuoF and PuGR .
Present value = measured value x (1 + PuGR /1.000) + PuoF .
*2. 1 scale = 1μA
*3. Set up alarm standby : set corresponding Y value as xxxY (Y = 0 : normal / Y = 1 : standby)
Set up reverse alarm output : set corresponding Y value as xxYx (Y = 0 : forward / Y = 1 : backward)
Set up Hold output : set corresponding Y value as xYxx (Y = 0 : normal / Y = 1 : Hold)
*4. Set up alarm delay : The alarm operates after reaching alarm delay time (recalculating time if discontinuity occurs in the process)

Temperature Sensors and Temperature Range

Input sensors	Display	Temperature Range
Platinum RTD: Pt100	Pt	-200 ~ 850 °C
Platinum RTD: JPt100	JPt	-100 ~ 400 °C
Copper resistance: Cu50	CU	-50 ~ 150 °C
RTD Ni120	nI	-80~300 °C
Thermocouple B	b	100 ~ 1,800 °C
Thermocouple S	S	0 ~ 1,700 °C
Thermocouple R	r	0 ~ 1,700 °C
Thermocouple N	n	-200 ~ 1,300 °C

Input sensors	Display	Temperature Range
Thermocouple E	E	0 ~ 600 °C
Thermocouple T	t	-200 ~ 400 °C
Thermocouple J	J	-100 ~ 850 °C
Thermocouple K	K	-200 ~ 1,300 °C
Thermocouple L	L	-200 ~ 850 °C
Thermocouple U	U	-200 ~ 500 °C
Thermocouple Txk	txU	-200 ~ 800 °C

Panel Sizes

Models	Sizes (W × H)
4848	45 mm × 45 mm
4896	44.5 mm × 91.5 mm
7272	68 mm × 68 mm

Terminal Wiring Diagram