

Ordering Information

Basic DTA Series

DTA **1** **2** **3** **4** **5** **6**

1 2 3 4 Panel Size	♦4848 : W48*H48mm 1/16DIN ♦4896 : W48*H96mm 1/8DIN ♦7272 : W72*H72mm ♦9696 : W96*H96mm 1/4DIN
5 Output Selection	R: Relay output, SPDT (SPST: 1/16 DIN size), 250VAC, 5A V: Voltage pulse output, 14V+10% ~ -20%(Max. 40mA) C: Current output, 4~20mA
6 Communication (Optional)	0: No Interface 1: RS-485

Advanced DTB Series

DTB **1** **2** **3** **4** **5** **6** **7**

1 2 3 4 Panel Size	♦4824 : W48*H24mm 1/32DIN ♦4848 : W48*H48mm 1/16DIN ♦4896 : W48*H96mm 1/8DIN ♦9696 : W96*H96mm 1/4DIN
5 1st Output Group Selection	R: Relay output, SPDT (SPST: 1/16 DIN and 1/32 DIN size), 250VAC, 5A V: Voltage pulse output, 14V +10%~ -20%(Max. 40mA) C: DC current output, 4 ~ 20mA L: Linear voltage output, 0~5V, 0~10Vdc
6 2nd Output Group Selection	R: Relay output, SPDT (SPST: 1/16 DIN and 1/32 DIN size), 250VAC, 5A V: Voltage pulse output, 14V +10%~ -20% (Max. 40mA)
7 EVENT Inputs / CT function (Optional)	None: No EVENT input, No CT (Current transformer) E: EVENT input is provided, No CT (Current transformer) T: CT (Current transformer) is provided, No EVENT input

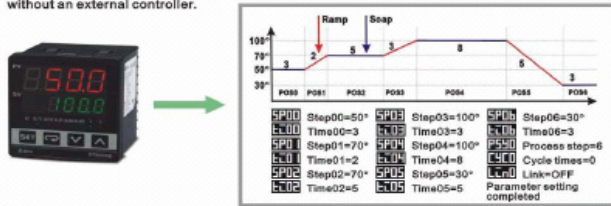
Delta Temperature Controllers



Features

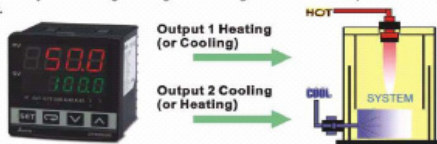
Eight built in patterns for PID Program Control (Ramp/Soak Program Control)

PID control is supported in eight patterns (Pattern 0~7). Each pattern contains 8-step (Step 0~7) and 8-time (Time 0~7) settings. User can perform 64-level temperature and time control actions without an external controller.

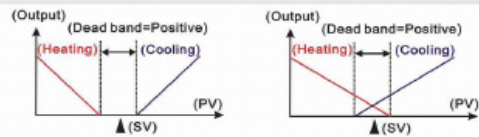


Dual Loop Output Control (Heating/Cooling Control)

Two built-in control outputs are provided: heating and cooling. Temperature control is achieved rapidly and accurately when using heating and cooling. Both control outputs can be operated simultaneously.

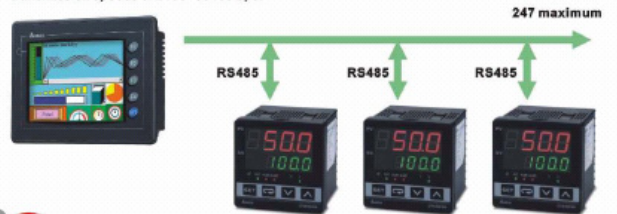


In the Delta temperature controller, P (Proportional Band), I (Integral Time) and D (Derivative Time) parameters are automatically set by using the Auto-tuning(AT) function. The P value of the 2nd-output group is stored in the Coefficient **0.55** parameter. The user can adjust the Dead band **0.50** parameter to set an area in which the heating and cooling control outputs are not activated around the set point value as shown in the graphs below:



RS-485(Modbus ASCII/RTU)Communication

The Delta DTB series temperature controller (optional in the DTA series) has a built-in RS-485 interface. The controller easily communicates with other external devices (i.e. - HMI touch screens, PCs and PLC) for data search and system integration. Synchronous connection and monitoring can be effectively completed. Up to 247 communication addresses are available with transmission speeds of 2400~38400 bps.



Universal Sensor Inputs



Input Method Input Type and Range
 Thermocouple (T, J, K, E, N, R, S, B, L, U, TXK)
 Platinum RTD (PT100, JPT100)
 Analog Input (0~5V, 0~10V, 0~20mA, 4~20mA, 0~50mV)

Selectable Control Outputs



1st Output Group Selection
 R: Relay output
 V: Voltage pulse output
 C: DC current output (4 ~ 20mA)
 L: Linear voltage output (0~5V, 0~10V)

2nd Output Group Selection
 R: Relay output
 V: Voltage pulse output



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Flexible Control Modes

Four types of flexible control modes can be selected: Built-in PID, ON/OFF, Manual and PID programmable control (Ramp / Soak control) modes.

Auto-tuning Function

Optimal PID values are automatically determined with the Auto-tuning function. No additional input is needed.

Current Transformer Function

The Current Transformer (CT) function is used with the alarm output. The external current transformer allows the operator to read the current value being measured by the CT via the temperature controls display or the serial communication link (RS-485). The user can generate an alarm when the limits are exceeded by defining the lower and upper limits for the current measurement.

EVENT Inputs Option

Two optional EVENT inputs (EVENT1 and EVENT2) are supported. EVENT input option allows RUN/STOP operation and two changeable independent temperature settings.

Quick Sampling Rate

Analog input: 150 ms / per scan
Thermocouple or Platinum RTD: 400 ms / per scan

Three Alarm Outputs

Up to three groups of alarm outputs, each group allows thirteen alarm types in the initial setting mode.

Modular Configuration

All materials and components in this modular controller comply with global safety standards and provide high stability and high reliability.

Key Lock Function

To avoid incorrect operation, two key lock functions are provided:
Lock 1: Lock all settings. All parameters and temperature settings can be locked to disable changes.
Lock 2: Lock settings except the SV (Set point) value. All parameters and temperature settings can be locked with the exception of the SV value.

°C and °F Selectable

For convenience and simplicity of use, two user selectable temperature unit, °C and °F are supported.

Various Panel Size

DTA series: 1/4 DIN, 1/8 DIN, 72mm and 1/16 DIN sizes available
DTB series: 1/4 DIN, 1/8 DIN, 1/16 DIN and 1/32 DIN sizes available

Easy-to-use Monitor Software

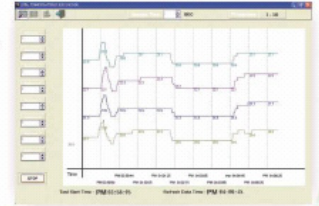
Parameter Setting Software

Delta Products powerful monitoring software makes it easy to program and communicate with up to four controllers. Parameters, process values, set points and temperature changes, etc. can all be monitored and read via the monitoring software, and then recorded and written into the user's PC via RS-485 communication. The User can view the temperature changes of the controllers from the "Temperature Curve Display"



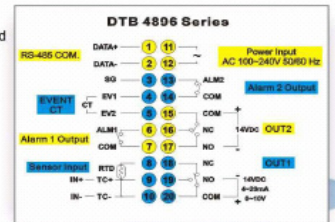
Temperature Recording Software

A time-vs-temperature curve can also be easily observed via Delta Products smart monitoring software. Up to eight temperature controllers can be monitored simultaneously. Results can be saved as *.TXT files. The user can read or display them when necessary.



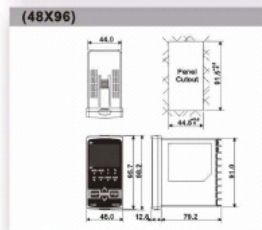
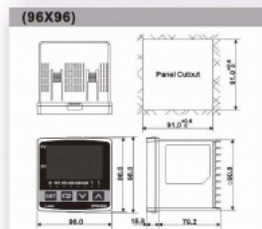
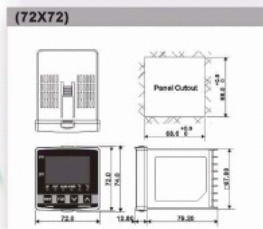
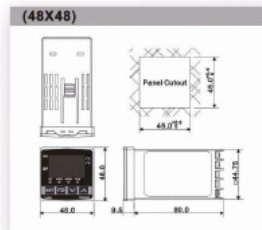
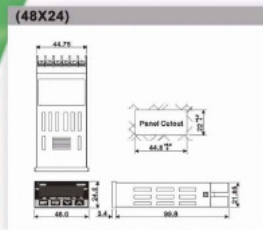
Terminals Identification

The 2nd-group output can be used as an alarm output or as a control output.



External Dimensions

(Units:mm)



Specifications

Series	Basic DTA Series	Advanced DTB Series
Input Voltage	100 to 240VAC, 50/60Hz	
Operation Voltage Range	85% to 110% of rated voltage	
Power Consumption	5VA max.	
Memory Protection	EEPROM 4K bit (non-volatile memory) (number of writes: 100,000)	
Display Method	2 line x 4 character 7-segment LED display Process value (PV): Red color, Set point (SV): Green color	
Display Accuracy	0 or 1 digit to the right of the decimal point (selectable)	
RS-485 Communication	MODBUS ASCII / RTU communication protocol (It is optional in DTA series)	
Communication Baud Rate	2400, 4800, 9600, 19200, 38400 bps	
Vibration Resistance	10 to 55Hz, 10m/s² for 10min., each in X, Y and Z directions	
Shock Resistance	Max. 300m/s², 3 times in each 3 axes, 6 directions	
Ambient Temperature	0°C ~ +50°C	
Storage Temperature	-20°C ~ +60°C	
Altitude	2000m or less	
Ambient Humidity	35% to 85% RH (non-condensing)	
Sampling Rate	500 ms/per scan	Analog input: 150 ms/per scan Thermocouple or Platinum RTD: 400 ms/ per scan
Sensor Type	Thermocouple: K · J · T · E · N · R · S · B · L · U · T · xk 3-wire Platinum RTD: Pt100, Jpt100	
Relay output	SPDT (SPST: 1/16 DIN and 1/32 DIN size), Max. Load 250VAC, 5A resistive load	
Control Output	Voltage pulse output: DC 14V, Max. Output current 40mA Current output: DC 4 ~ 20mA output (Load resistance: Max. 600) Linear voltage output: Not provided	
Panel Size	1/4DIN - 1/8DIN - 72mm - 1/16DIN	1/4DIN - 1/8DIN - 1/16DIN - 1/32DIN
Control Mode	PID, Manual tuning or ON/OFF control	PID, ON/OFF, Manual or PID program control (Ramp/Soak Control)
Alarm Outputs	2 groups	Max. 3 groups
Dual Loop Output Control	Not provided	Built-in
EVENT inputs (Optional)	Not provided	Built-in
CT (Current Transformer) (Optional)	Only provided in DTA7272 series	Built-in



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