TDC-1000A Series Peltier Controller Driver

OVER VIEW

TDC-1000A is a successor apparatus to well-reputed one-channel digital Peltier Control Drivers TDC-1100 and 1200.They are mounted with new functions and newly added to our product lineup.

<New functions>

- Use of thermistor and Pt100 becomes possible for a control sensor.
- Maximum driving current is increased to 9A from 6A.
- Temperature correction function is mounted.
- A function for monitoring open/short of the peltier device is mounted.
- Various types of external interface input and output are offered (option).

In the TDC-1000A, a temperature converter unit, PID control unit, bipolar constant current operating unit and power supply are integrated and an interface with a personal computer is mounted as standard so as to be applicable for various systems.

FEATURE

1. Pt100 resistance thermometer bulb and thermistor are available for a control sensor (selectable from a panel).
2. Maximum driving current is increased to 12A. This allows operation of the peltier device of 150W or less power. Maximum driving voltage is 24V/15V/10V. (24V:TDC-1030 15V:TDC-1020 10V:TD-1010)
3. Temperature correction function is mounted. Temperature can be corrected to fit the measured value measured using your temperature gauge (come with a dedicated application software).
4. A temperature converting unit, PID control unit, bipolar constant current operating unit and power supply are integrated. By supplying AC voltage, control of temperature of the peltier device becomes possible. (Please prepare a control sensor and the peltier device).
5. Temperature can be stably controlled with a high degree of accuracy of ± 0.03°C. It is suitable for uses accompanied with small change in temperatures.
6. Auto-tuning function is mounted. Complicated works of setting PID parameters can be performed automatically.
7. The peltier device is operated by current control. Peltier is not overloaded because of constant current.
8. Various protective functions are mounted. The following protective functions protect the peltier device(current limiter; temperature limiter; monitoring for temperature of heat sink; monitoring for open of sensor; and monitoring for open/short of the peltier device).
9. Heater temperature can be controlled as well as the peltier device.
10. Serial interface of RS232C is mounted. Control can be performed from PC using various types of commands.
11. Power for operating a DC fan cooling a heat radiated side of the peltier device can be outputted (Maximum Current: 500mA, Voltage is the same value as voltage for operating the peltier device).
12. Various options are offered.

- Parallel interface (alarm output, output for reach to a target temperature and input for start of temperature control) can be mounted.

SPECIFICATIONS

1 Temperature Measurement Unit

Applicable Temperature Sensor	Three-wire type Pt100 resistance thermometer bulb or thermistor
Temperature Measurement Range	-50°C~+150°C (Pt100) -25°C~+125°C (Thermistor in case of 10kΩ at 25°C and B standard figure of 3435)
Measuring Accuracy	±0.03°C (except sensor accuracy)
Measuring Method	14bit sampling AD

2 Control Unit

Control channel	1ch
Control Method	Digital PID control
Control Cycle	0.1sec~99.9sec/1cn (determined automatically at auto-tuning)
Control Stability	±0.03°C
Setting Ability	±0.01℃
Auto-tuning Function	

3 Driving Unit

Driving Method	MOS FET bipolar constant current driving		
Maximum Driving Voltage	TDC-1030：24V	TDC-1020：15V	TDC-1010：10V
Maximum Driving Current	TDC-1030：±6A	TDC-1020：±9A	TDC-1010：±12A
Internal Resistance of the peltier device	TDC-1030：2.5Ωmin	TDC-1020：1Ωmin	TDC-1010：0.6Ωmin

*Internal resistance of the peltier device = Rated voltage / Rated current

Please use the peltier device having higher internal resistance than the prescribed value.

4 Other Measuring Items

The peltier device Current	1ch

5 Interface

Serial	RS-232C	1port
Parallel (option)	Output for Alarm	1bit (photo MOS output AC,DC30V50mA,open at alarm)
	Output for Reach to Target Temperature	1bit (photo MOS output AC,DC30V,50mA, close at the reach)
	Input for Start of Temperature Control	1bit (TTL input, Lo: start the control, Hi: end of the control)

6 Display

Display system	5 digit green segment LED and LED indicator
Setting Method	Menu selection system using tactile switch

7 Protect functions

Protect for Over-current of the peltier device	Current limiter (current is kept at set current)
Monitoring Temperature of Heat Sink	Temperature control is stopped when a temperature of the heat radiated side of the peltier device exceeds around 70°C. ※in case of use of thermistor (10kΩ at 25°C, B:3435) as a sensor for heat sink
Monitoring for Non-connection of Temperature Sensor	Temperature control is stopped when the sensor is not connected.
Monitoring Upper and Lower Limit Temperatures	Temperature control is stopped when temperatures exceed the set temperatures.
Monitoring Reference Voltage	Temperature control is stopped in case of abnormal reference voltage.
Monitoring Voltage of Power Source of the peltier device	Temperature control is stopped in case of abnormal voltage of the power source.
Monitoring open/short of the peltier device	Temperature control is stopped when the peltier device is not connected or shorted.

8 Connection

RS232C connector	D-sub 9pin male connector×1
Connector for the peltier device	D-sub 15 pin female connector×1
I/O connector	R03-R6F female connector×1 (option)

9 General Specifications

Operating Temperature Range	0°C~40°c (non-condensing)
Storage Temperature Range	-10°C~60°c (non-condensing)
Voltage Range of Power Source	AC85～264V 47～63Hz 3A ※Power plug is available at AC125V or less.
Dimensions	128(W)×132(H)×260(D)mm

10 Accessories

Connector for the peltier device	D-sub 15 pin male connector×1
I/O connector	R03-PB6M male connector×1 (option)
Software	CD-ROM×1 (for temperature correction)

11 Others

Power output for DC fan (option)	Current：Max.DC500mA Voltage is the same value of the maximum driving voltage.

* Specifications and design are subject to change without notice.

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