



TECube – Temperature controller***Operating manual for models:******TCON10002K13A******TCON10002K13B***

Specification:

Supplied power:

110/220V

Temperature control range:

15~60°C, 0.1°C increment

Temperature control error:

±0.05°C typical

*depends on system design and temperature differential to environment

Temperature signal input:

DC 0~5V, diff.

PWM output:

Duty cycle: 100ms

Voltage: 3.5V max.

Current: 5A max.

External communication surface:

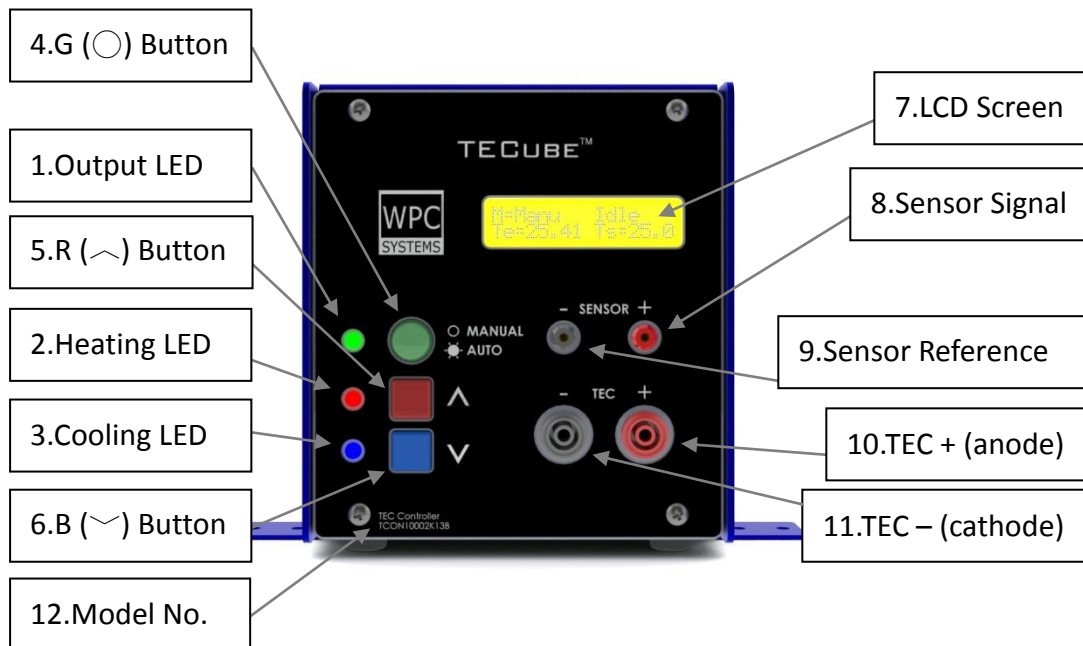
UART, RS-232

Introduction

TECube series are designed for precision bi-directional temperature control with thermoelectric cooler. Featured with easy control interface with only 3 buttons, pre-defined PID configuration, and back-lite LCD module for easier monitoring. Also, optional PC client software solves data logging demands.

Operating elements

A. Front panel

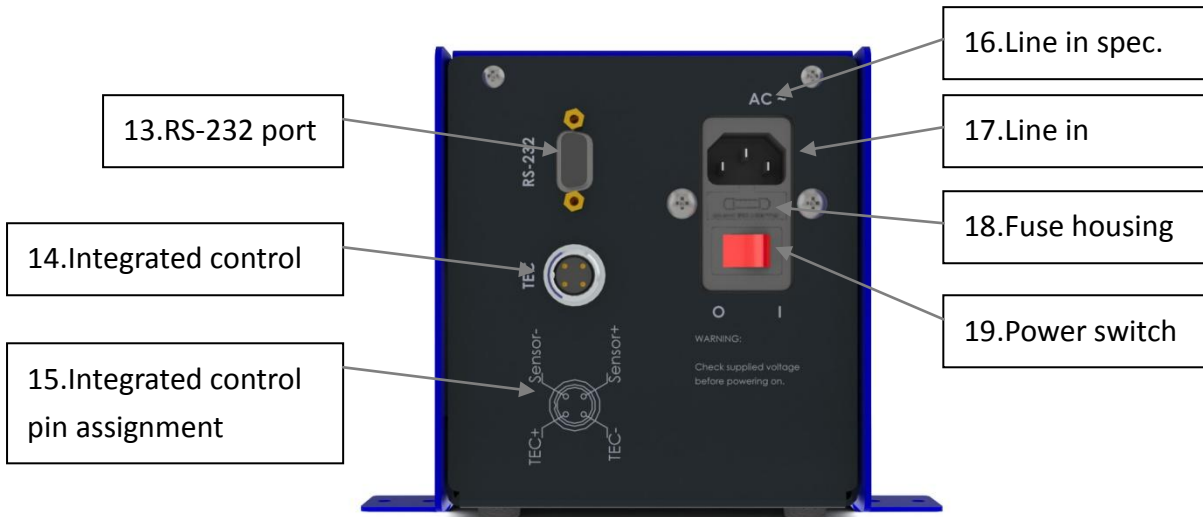


1.	Output LED	Indicator of TEC controlling
2.	Heating LED	TEC output status is heating
3.	Cooling LED	TEC output status is cooling
4.	G button	*Start/stop auto control, enter menu selecting, ..etc.
5.	R button	**Set point increment, menu item selecting, ..etc.
6.	B button	**Set point decrement, menu item selecting, ..etc.
7.	LCD screen	Information display
8.	Sensor signal	Temperature signal in (LM35 only)
9.	Sensor reference	Temperature reference in (LM35 only)
10.	TEC anode	TEC output for heating
11.	TEC cathode	TEC output for cooling
12.	Model number	Model name and production number

*Long holding for starting auto temperature control.

**Single click for fine adjustment, long holding for coarse hopping.

B. Rear panel



13.	RS-232 port	RS-232 communication port
14.	Integrated control	Temperature sensor input (LM35 only) and TEC control output (socket spec. : PLT-164-RF)
15.	Integrated control pin assignment	Pin assignment description for integrated control
16.	Line in spec.	Specification marking for AC mains (110AC/220AC)
17.	Line in	AC mains power inlet
18.	Fuse housing	Fuse holder
19.	Power switch	AC mains power switch

C. LCD Screen: normal



20.	Current mode	Current operating mode(Auto/Manu)
21.	TEC status	Current TEC output status(Idle/Heating/Cooling)
22.	Amb. Temp.	Environment temperature
23.	Set point	Current set point



Basic Operating

We recommend controlling TECube via PC client software we provide, since it is much easier to control, comparing to front panel buttons. As factory default, panel buttons are disabled for 1sec after last RS-232 command received. It means TECube's panel buttons should be disabled once PC client is connected and re-enabled 1 sec after normal close/disconnect.

You could over-ride this by holding R/B buttons simultaneous, choose "Y", and hold G button until normal screen shows again. This will enter engineering mode. However, IT WILL VOID WARRANTY AND LOST ANY FREE TECHNICAL SUPPORT FROM WPC SYSTEMS, AND IT IS UNRECOVERABLE. Please DO AVOID OPERATING TECube FRONT PANEL WHILE PC CLIENT CONNECTED while in engineering mode. Doing so will cause unexpected errors.

Contact WPC Systems for further information.

A. Power on

1. Switch off.
2. Check if supplied voltage is corresponding to the specification of model.
3. Connect power cord.
4. Switch on.

B. Start/stop temperature control without PC client control

1. Adjust set point to target value by clicking or holding R/B button.
2. Long holding G button until mode changed.

```
M=Manu Idle
Te=25.41 Ts=25.0
```

< Manual mode.

```
M=Auto Cooling
Te=25.41 Ts=25.0
```

< Auto temperature mode.

C. Writing configuration to EEPROM without PC client control

1. Hold G/R/B buttons simultaneous until LCD screen changed.

```
EEPROM WRITING..
DONE!
```

< Successfully writing config. to EEPROM.

2. If problem persists every writing, contact WPC Systems for technical support.



```
EEPROM_WRITING..  
ERROR!
```

< Failed to save parameters to EEPROM

Contact information



WPC Systems

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