



Constant Temperature Chamber ATITRS1



Figure 1. Top View



Figure 2. Front View



Figure 3. Side View



Figure 4. Back View



Figure 5. Inside View of the Top Cover



Figure 6. Inside View



Figure 7. Inside View of the Bottom

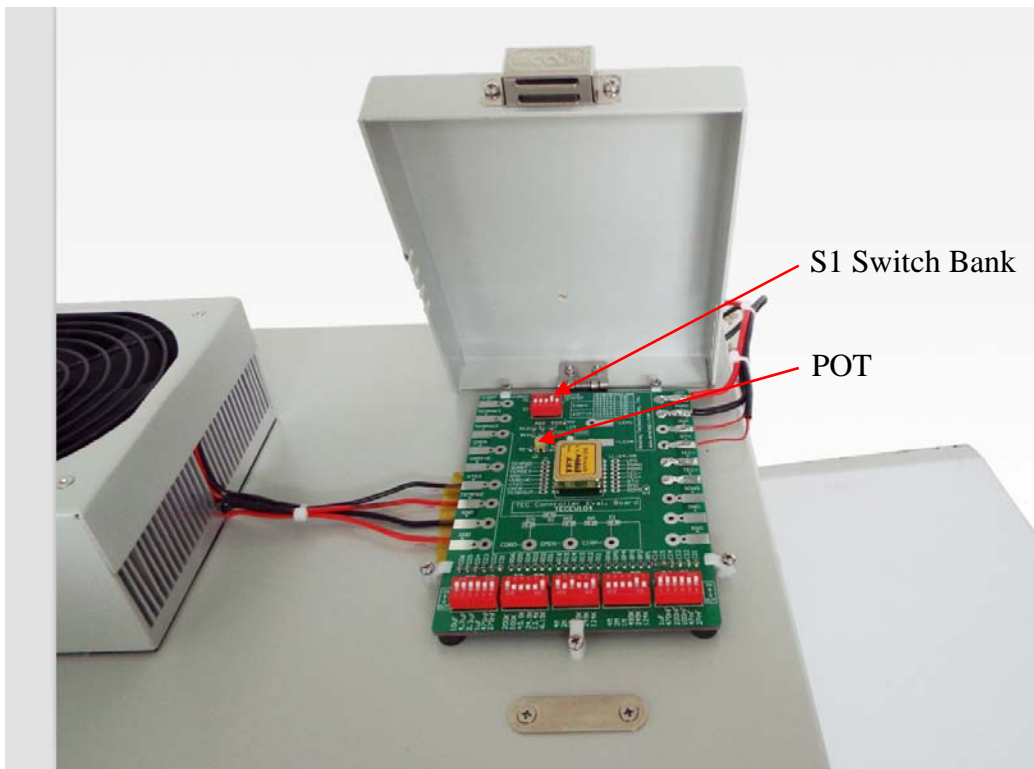


Figure 8. Control Part

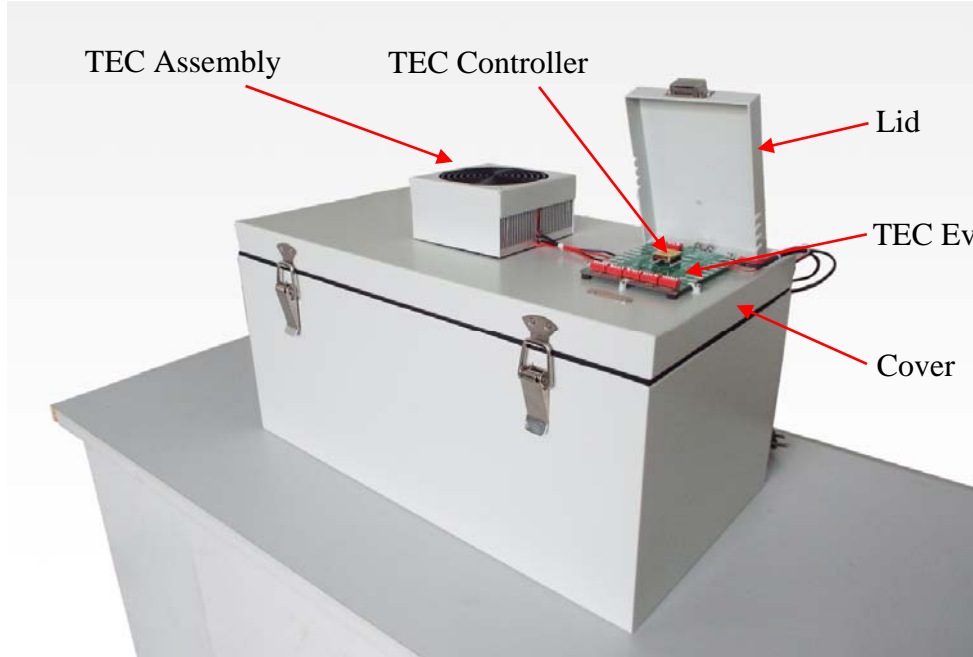


Figure 9. Illustration

**FEATURES**

- Provide a chamber with constant temperature
- Set-point temperature range: 20°C ~ 25°C
- Ambient temperature: 17°C ~ 27°C
- High temperature stability
- Time to reach the preset temperature: <10 minutes
- Internal space dimension: 510mm×230mm×180mm
- External dimension: 584mm×370mm×358mm

**APPLICATIONS**

It can be widely used to detect or test components in a constant temperature environment. It can also be used to stabilize the temperature of the target object in scientific experiments.

**DESCRIPTION**

The ATITRS1 utilizes a TEC (ThermoElectric Cooler) to regulate chamber air temperature to a preset temperature

**SPECIFICATIONS**

Table 1. TEC module

Part #	I <sub>MAX</sub>	V <sub>MAX</sub>	P <sub>MAX</sub>	Size (L×W×H)
ATE1-127-18ASH	18A	15.4V	170W	50mm×50mm×3.8mm

For more technical data of ATE1-127-18ASH, please check the link below:

<http://www.analogtechnologies.com/document/ATE1-127.pdf>

value. It is a turn-key system, which comes with all the components needed for such a system: a TEC, a cold plate, a heat sink with a fan, a TEC controller, a power supply, and the chamber.

**OPERATIONS**

Put the objects into the chamber, and then turn on the power supply after the cover is closed. Open the lid in the control part. Use a voltmeter to measure the voltage between GND and TEMPSET testing pads on the controller board. Turn off the 4th switch of the S1 switch bank (Figure 8). Adjust the POT (Figure 8) to set the voltage corresponding to the set-point temperature, e.g. when we check the table 4, we can know 20°C corresponds to 0.83V, so adjust the voltage to 0.83V. Turn on the 4th switch. The TEC assembly starts working. After a while, the voltage difference between TEMPSET and TEMPOUT of the evaluation board is less than 0.03V. At this time, the temperature inside the chamber reaches the preset temperature.



Table 2. TEC controller

Part #	I <sub>MAX</sub>	V <sub>MAX</sub>	P <sub>MAX</sub>	Size (L×W×H)
TEC5V6A-D	6A	5V	30W	25.6mm×20mm×4.5mm
	Temp. range		0°C ~ 50°C	
	Response time		<5s	
	High stability		0.01°C	

For more technical data of TEC5V6A-D, please check the link below:  
<http://www.analogtechnologies.com/document/TEC5V6A-D.pdf>

Table 3. TEC controller evaluation board

Part #	V <sub>IN</sub>	V <sub>OUT</sub>	Size (L×W×H)
TECEV104	5V	0V~5V	135mm×102mm×14.5mm

For more technical data of TECEV104, please check the link below:  
<http://www.analogtechnologies.com/document/TECEV104.pdf>

Table 4. The target temperature vs. the setting voltage

Target temperature (°C)	Setting voltage (V)	Target temperature (°C)	Setting voltage (V)
15	0.1	26	1.70
16	0.25	27	1.84
17	0.39	28	1.99
18	0.54	29	2.13
19	0.68	30	2.28
20	0.83	31	2.42
21	0.97	32	2.57
22	1.12	33	2.71
23	1.26	34	2.86
24	1.41	35	3.00
25	1.55		





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