

The SuperCool Series Direct-to-Air thermoelectric assembly is a high performance thermoelectric based heat pump. It is designed to temperature control small chambers used in medical diagnostics or sample storage compartments in analytical instrumentation. This unique design offers a high performance hot side heat dissipation mechanism that convects heat more efficiently than conventional heat exchanger technologies. The design utilizes custom thermoelectric modules to maximize cooling capacity and premium grade fans to reduce noise. Moisture resistant insulation is used to keep condensation from penetrating into the TEM cavity. This unit operates on 24 VDC and is designed for indoor lab use environment. Custom configurations available upon request.

Laird Manufacturer Part Number: 387000624

Patent Pending

FEATURES

- High Performance
- Compact Form Factor
- Reliable Solid-State Operation
- RoHS Compliant

APPLICATIONS

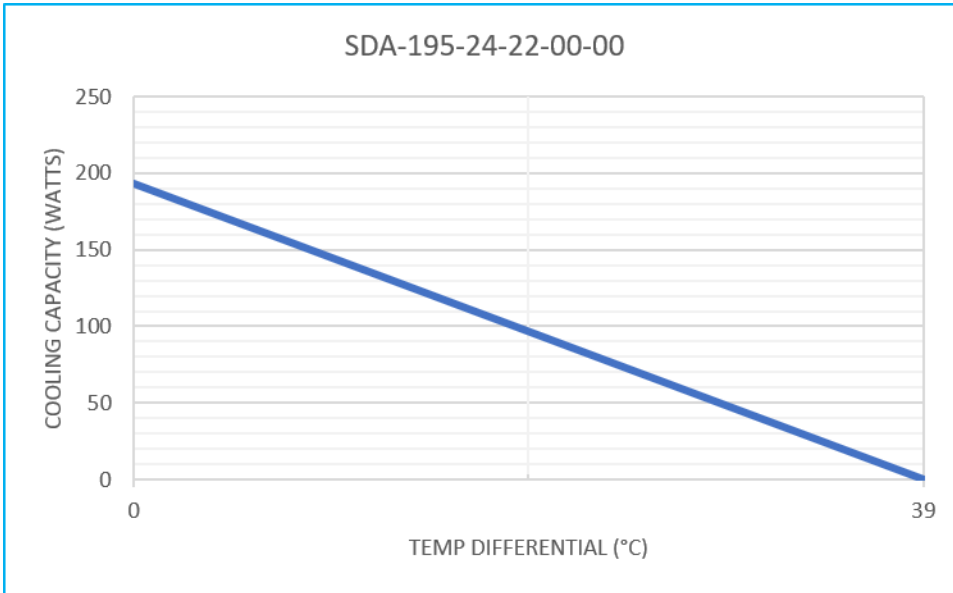
- Analytical storage compartment temperature control
- Medical diagnostic chamber refrigeration



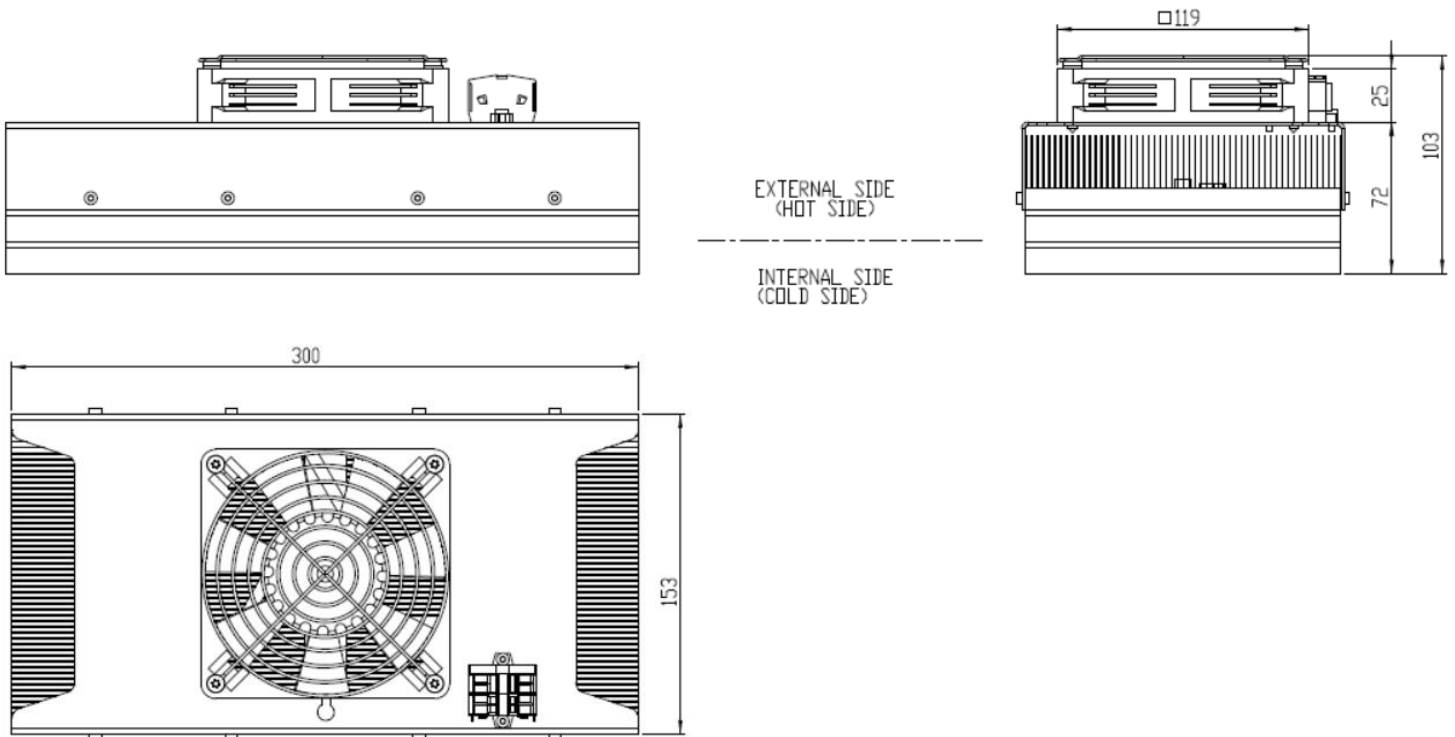
TECHNICAL SPECIFICATIONS	
TEA Model	SDA-195-24-22-00-00
Heat Transfer, Cold Side	Direct
Heat Transfer, Hot Side	Air
Cooling Power	193 W @ $\Delta T=0^{\circ}\text{C}$ and $T_a=35^{\circ}\text{C}$, Tolerance $\pm 10\%$
TEM Input Power	
Voltage, Nominal	24 VDC
Current, Nominal/Initial	6.9/8.1 Amps @ $\Delta T=0^{\circ}\text{C}$
Fan Input Power	
Voltage, Nominal	24 VDC
Current, Nominal	0.5 Amps
Fan Noise	62.6dBA
Dimension (L x W x H)	300 x 153 x 103 mm
Weight	4.1 kgs
Operating Temperature	-20°C to 70°C
Packaging	Individual cardboard box

PERFORMANCE CURVES

TEA performance at $T_a=35^\circ\text{C}$

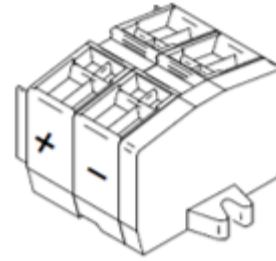


ISOMETRIC DRAWINGS



ELECTRICAL CONNECTIONS

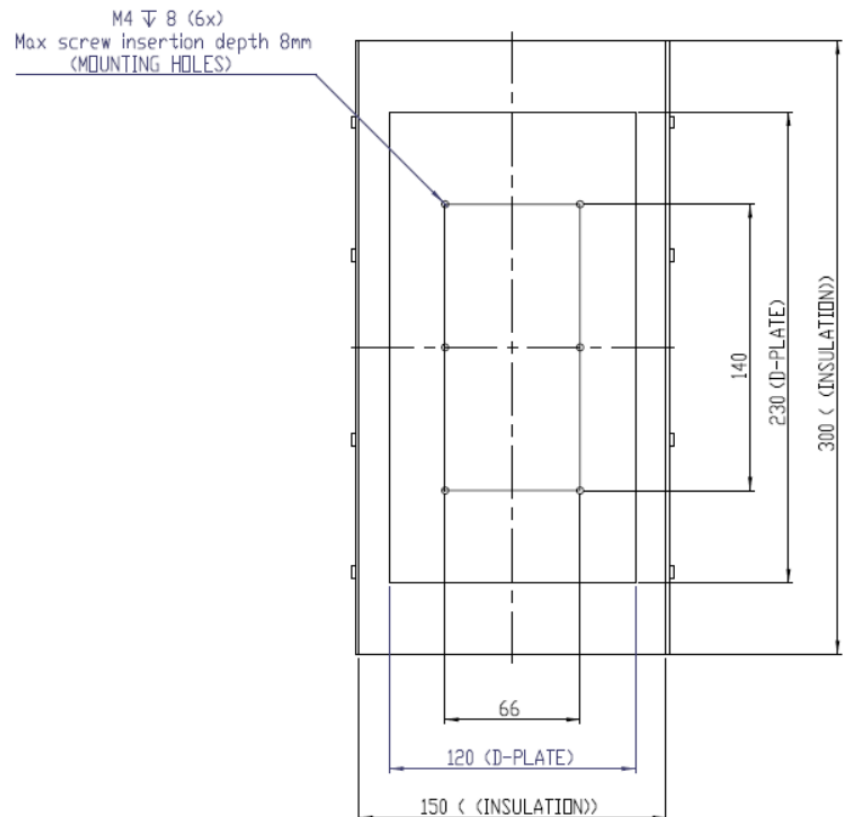
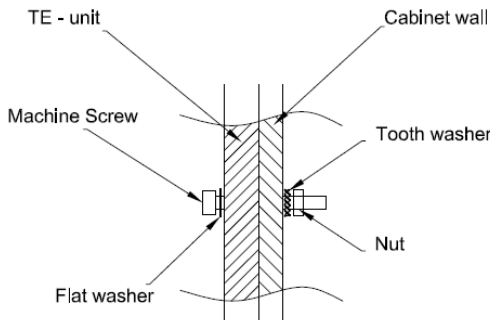
OBJECT	COLOR	POLE
TEM +	Red	1
TEM -	Black	2
FAN +	Red	3
FAN -	Black	4



Warning: Do not reverse current or use PWM-regulation on fan supply.

INSTALLATION INSTRUCTIONS

1. The TE assembly must be protected from external force or violence.
2. The power line to the assembly needs to be protected by a fuse. The fuse rating should be of at least the nominal current of the assembly. It must withstand 150% of rated current for at least 60 seconds. This is valid at $T_a=35^\circ\text{C}$. Fuse ratings for other ambient temperatures ($X^\circ\text{C}$) can be calculated with the formula $I[X^\circ\text{C}]=I[35^\circ\text{C}]/(1+0.005*(X-35))$. This is valid when regulating with an ON/OFF regulation. At rapid temperature cycling where this is applicable, there can be need for even higher fuse ratings.
3. Cooled parts need to be isolated from air humidity to minimize risk for condensation and thermally insulated for best performance.
4. Max ripple on supplied power =5%.
5. Switching power to TEMs at frequencies between 0.01 Hz to 5 kHz will render premature failure of modules and must be avoided.



SERVICE

- Units are generally maintenance free, however occasionally it is recommended to clean the heat sinks and fans of debris. This is best done with compressed air.



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