

## Direct-to-Liquid Thermoelectric Assembly



### Thermoelectric cooling unit for medical and industrial applications

The Direct-to-Liquid Series thermoelectric assembly (TEA) offers dependable, compact performance by cooling objects via liquid to transfer heat. Heat is absorbed through a cold block and dissipated thru a second liquid heat exchanger. The thermoelectric modules are custom designed to achieve a high coefficient of performance (COP) to minimize power consumption. This product series is available in a wide range of cooling capacities and voltages. Custom configurations are available, however, MOQ applies.

The liquid heat exchanger is designed to accommodate distilled water with glycol. Corrosion resistant turbulators are enclosed inside channels to increase heat transfer. Mating port adaptors are sold separately.

### FEATURES

- Compact form factor
- Reliable solid-state operation
- Precise temperature control
- Bi-metal thermostat for overheat protection
- RoHS compliant

### APPLICATIONS

- Medical Diagnostics
- Industrial Lasers
- Medical Lasers
- Analytical Instrumentation

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Europe: +46.31.420530

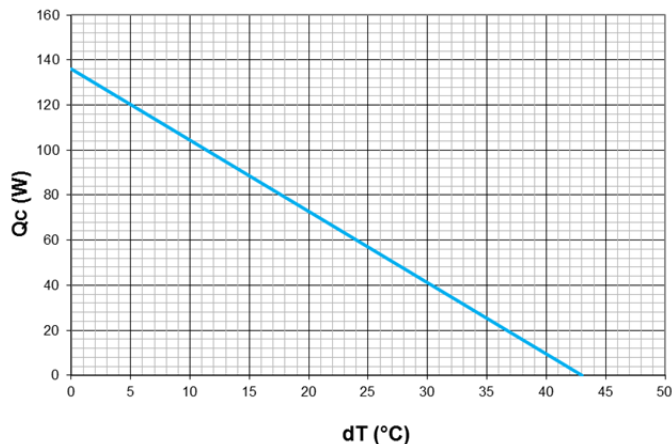
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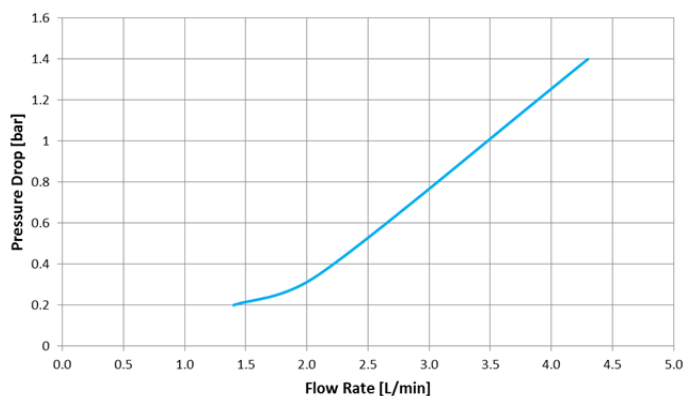
[www.lairdtech.com](http://www.lairdtech.com)

## Direct-to-Liquid Thermoelectric Assembly

**Qc vs dT**



**Flow Rate vs Pressure Drop**



### SPECIFICATIONS

#### TECHNICAL

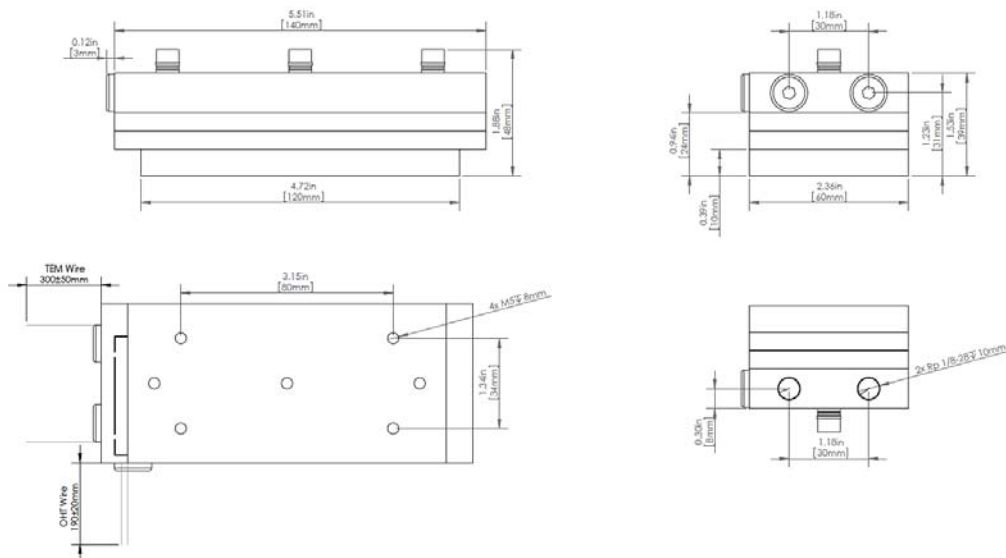
|                                              |                                                                                               |
|----------------------------------------------|-----------------------------------------------------------------------------------------------|
| Technology                                   | Thermoelectric modules, liquid cooling, closed loop (non-mixing), filterless, non-refrigerant |
| Cooling at $\Delta T = 0^{\circ}\text{C}$    | 135W (461 Btu/h)                                                                              |
| Voltage (nominal / maximum) <sup>1</sup>     | 24/28 VDC                                                                                     |
| COP (Coefficient of Performance)             | 73%                                                                                           |
| Grounding (all voltages)                     | Positive or negative                                                                          |
| Current draw, $\pm 10\%$ (nominal / startup) | 4.1/4.7 A                                                                                     |
| Weight                                       | 0.7 kg (1.5 lbs)                                                                              |
| Connector type (on unit / mating side)       | TEM: Leads, 18 AWG, Red/Black<br>OHT: Leads                                                   |

#### ENVIRONMENTAL

|                      |                                                         |
|----------------------|---------------------------------------------------------|
| Temperature range    | -40°C to +62°C (-40°F to +143°F)                        |
| Hi-Pot Test          | 750 VDC                                                 |
| Over temp Thermostat | 75°C $\pm$ 5°C (167°F $\pm$ 41°F) on hot side heat sink |

1) Max ripple 5%

**MECHANICAL DRAWING**



For overheating protection, the cooler is equipped with a bimetal thermostat. The maximum rating for the thermostat is 8 A dc. For systems with 8 A or less, the thermostat can be connected directly in series with the thermoelectric modules (TEMs). Otherwise, connect the TEMs to the power source through a relay of suitable rating which state is controlled with the bimetal thermostat.

Note: Cold block requires insulation to minimize moisture build-up under dew point conditions.

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