

## TECA Series

### Air to Air Thermoelectric Cooler Assemblies

Wakefield- Vette's TECA series of Air to Air Thermoelectric Cooler Assemblies are usually used to cool (or heat) objects in enclosures. Heat is absorbed and dissipated by heat exchangers equipped with fans. To install, simply cut a hole, plug in the assembly and connect it to a power source. Our coolers are compact and dependable. All models are optimized for  $\Delta T$  and efficiency. A variety of voltage options from 12 to 48 volts and cooling capacity from 15 watts to 200 watts are available, Typical applications include cooling electronics cabinets, analytical instruments, commercial refrigeration, food transportation boxes and small electronics enclosures.



| WV P/N        | Description                               | Heat Transfer Type | Power Cooling | Current | Voltage | Operation Temperature | Outline (L/W/H)         |
|---------------|---|--------------------|---------------|---------|---------|-----------------------|-------------------------|
| TECA-AA-50-12 | THERMOELECTRIC ASSY DIRECT-AIR to Air 12V | Air to Air         | 50W           | 8.0A    | 12V     | -20 to 60°C           | 160mm x 122.4mm x 147mm |
| TECA-AA-50-24 | THERMOELECTRIC ASSY DIRECT-AIR to Air 24V | Air to Air         | 50W           | 4.0A    | 24V     | -20 to 60°C           | 160mm x 122.4mm x 147mm |

### Air to Plate Thermoelectric Cooler Assemblies

Wakefield Vette's Air to Plate Cooler Assemblies are typically used in three key applications for cooling/heating:

- Objects directly on the cold plate, or objects on an additional cold plate of your own design
- Enclosures by attaching a thermal conductive container to the cold plate
- Liquids by attaching a thermal conductive tank or liquid heat sink to the cold plate

The heat is absorbed by the cold plate, pumped through the TE modules and then dissipated to the air by an air heat sink. Our coolers deliver compact and reliable cooling in a range from 42 to 80 watts. All models are optimized for a variety of voltages,  $\Delta T$  and efficiency. Typical applications include cooling electronics, analytical instruments, lasers and commercial refrigeration



| WV P/N        | Description                                 | Heat Transfer Type | Power Cooling | Current | Voltage | Operation Temperature | Outline (L/W/H)       |
|---------------|---|--------------------|---------------|---------|---------|-----------------------|-----------------------|
| TECA-AP-40-12 | THERMOELECTRIC ASSY DIRECT-AIR to Plate 12V | Air to Plate       | 40W           | 3.9A    | 12V     | -20 to 60°C           | 120mm x 102mm x 80mm  |
| TECA-AP-80-24 | THERMOELECTRIC ASSY DIRECT-AIR 2 Plate 24V  | Air to Plate       | 80W           | 4.2A    | 24V     | -20 to 60°C           | 203mm x 155mm x 152mm |

# Thermoelectric Assembly Performance Specifications

## Air to Air Thermoelectric Cooler Assembly



### TECA-AA-50-12

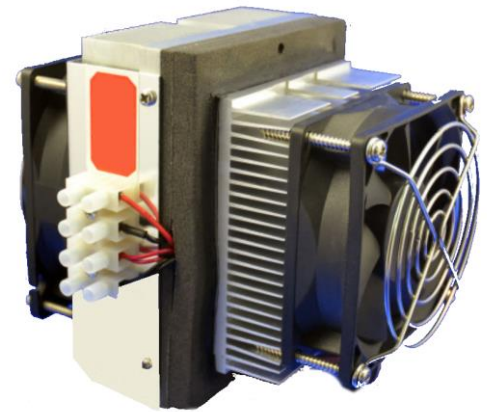
The TECA-AA-50-12 Thermoelectric air conditioner is designed for electronic cabinets and environmental chambers. It can maintain ambient temperatures while removing up to 50W. This model is powered by 12VDC. The TECA-AA-50-12 is essentially maintenance-free, with no filters to change, and it can be mounted in any orientation, offering design flexibility with solid-state reliability.

#### Features:

- 50W Capacity at  $DT = 0^{\circ}C$  & Ambient Temperature =  $30^{\circ}C$
- Refrigerant Free – environmentally friendly
- Wide operating temperature range of  $-20^{\circ}C$  to  $+60^{\circ}C$
- Shift between heating and cooling without using a separate heater
- Reduced noise and vibration from solid-state heat pump

#### Applications:

- Outdoor Enclosures
- Outdoor/Indoor Kiosks and Displays
- Food/Consumer Refrigerator
- Battery Cabinet



### General Specifications:

| P/N                             | TECA-AA-50-12                    |
|---------------------------------|----------------------------------|
| Cooling Method/Radiating Method | Forced Air/Forced Air            |
| Ambient Temperature             | $-20$ to $60^{\circ}C$           |
| Cooling Capacity/Input Power    | 50W / 95W                        |
| Heating Capacity                | 135W                             |
| Fan Current                     | 0.4A (Radiator) / 0.3A (Cooling) |
| TEC Nominal/Startup Current     | 8.0A / 9.1A                      |
| Nominal/Maximum Voltage         | 12/15 VDC                        |
| Overall Dimension               | 160mm x 122.4mm x 147mm          |
| Weight                          | 1.8kg (4 lbs)                    |
| Lifetime                        | >70,000 Hours                    |
| Cooling Performance Tolerance   | 10%                              |

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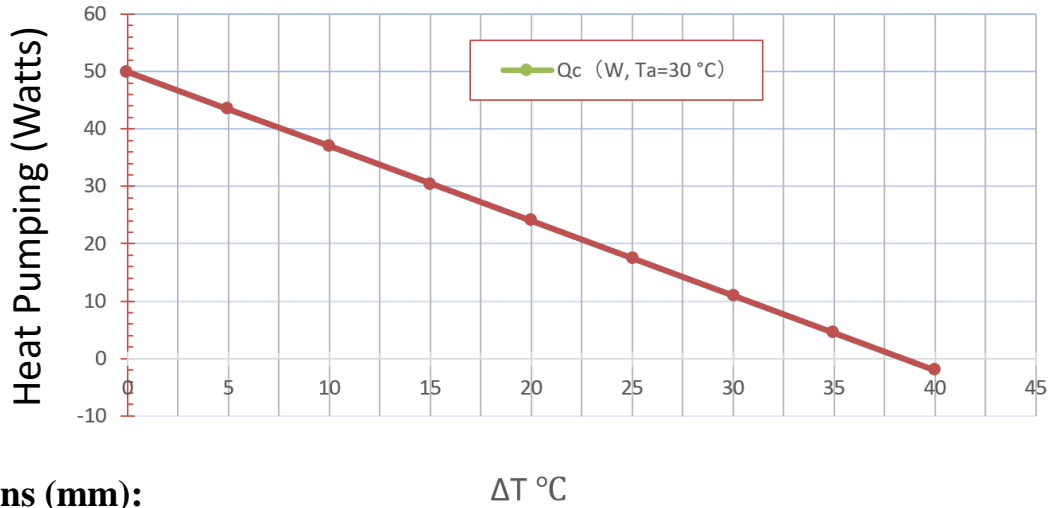
# Thermoelectric Assembly Performance Specifications

## Air to Air Thermoelectric Cooler Assembly



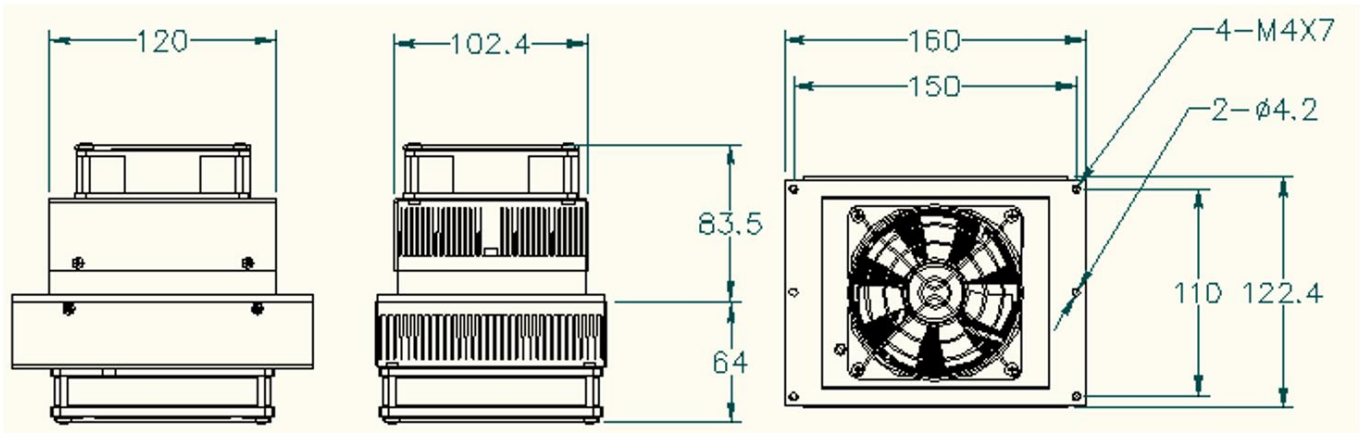
TECA-AA-50-12

### Performance Curve:

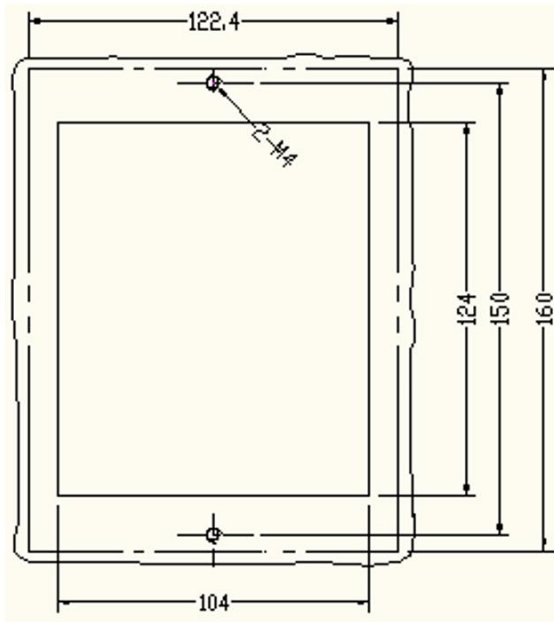


### Dimensions (mm):

$\Delta T$  °C



### Installation and Connector (mm):



| Connector | Wire  |
|-----------|-------|
| 1         | TEC + |
| 2         | TEC - |
| 3         | Fan + |
| 4         | Fan - |



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# Thermoelectric Assembly Performance Specifications

## Air to Air Thermoelectric Cooler Assembly



### TECA-AA-50-24

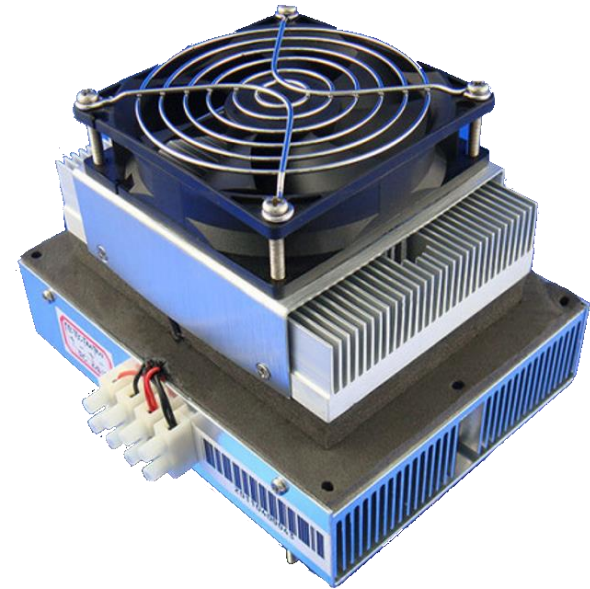
The TECA-AA-50-24 Thermoelectric air conditioner is designed for electronic cabinets and environmental chambers. It can maintain ambient temperatures while removing up to 50W. This model is powered by 24VDC. The TECA-AA-50-24 is essentially maintenance-free, with no filters to change, and it can be mounted in any orientation, offering design flexibility with solid-state reliability.

#### Features:

- 50W Capacity at  $DT = 0^{\circ}C$  & Ambient Temperature =  $30^{\circ}C$
- Refrigerant Free – environmentally friendly
- Wide operating temperature range of  $-20^{\circ}C$  to  $+60^{\circ}C$
- Shift between heating and cooling without using a separate heater
- Reduced noise and vibration from solid-state heat pump

#### Applications:

- Outdoor Enclosures
- Outdoor/Indoor Kiosks and Displays
- Food/Consumer Refrigerator
- Battery Cabinet



### General Specifications:

| P/N                             | TECA-AA-50-12                      |
|---------------------------------|------------------------------------|
| Cooling Method/Radiating Method | Forced Air/Forced Air              |
| Ambient Temperature             | -20 to $60^{\circ}C$               |
| Cooling Capacity/Input Power    | 50W / 95W                          |
| Heating Capacity                | 135W                               |
| Fan Current                     | 0.25A (Radiator) / 0.18A (Cooling) |
| TEC Nominal/Startup Current     | 4.0A / 4.6A                        |
| Nominal/Maximum Voltage         | 24/30 VDC                          |
| Overall Dimension               | 160mm x 122.4mm x 147mm            |
| Weight                          | 1.8kg (4 lbs)                      |
| Lifetime                        | >70,000 Hours                      |
| Cooling Performance Tolerance   | 10%                                |

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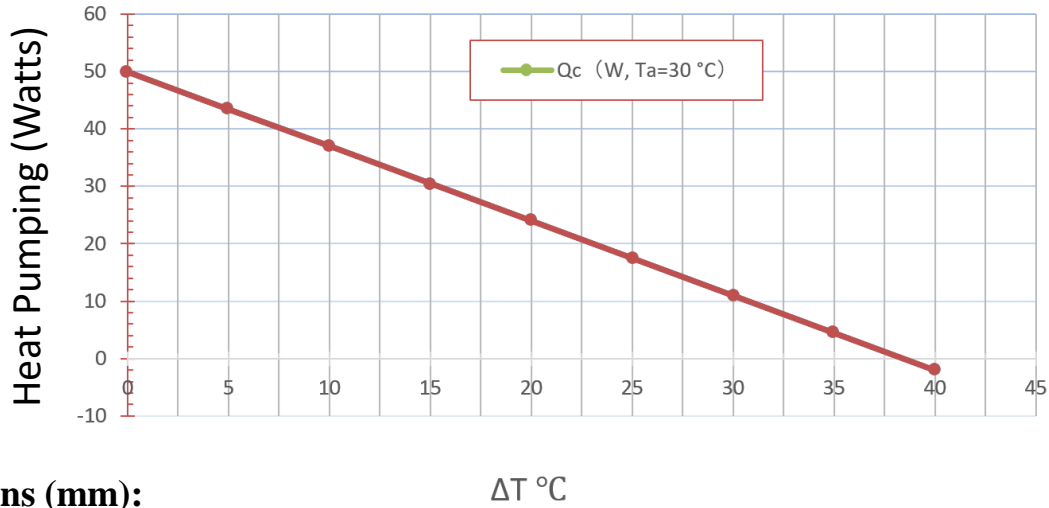
# Thermoelectric Assembly Performance Specifications

## Air to Air Thermoelectric Cooler Assembly



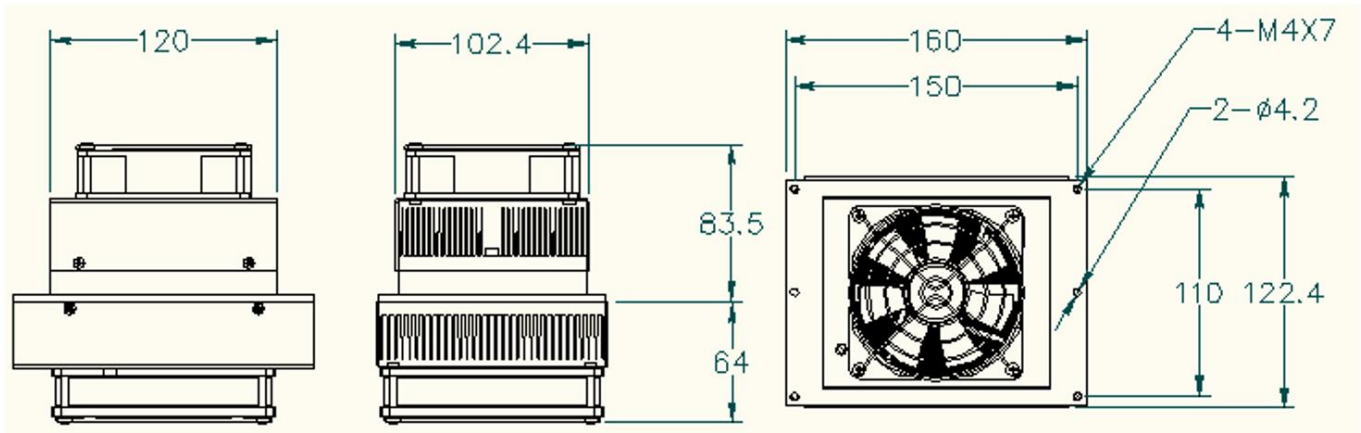
TECA-AA-50-24

### Performance Curve:

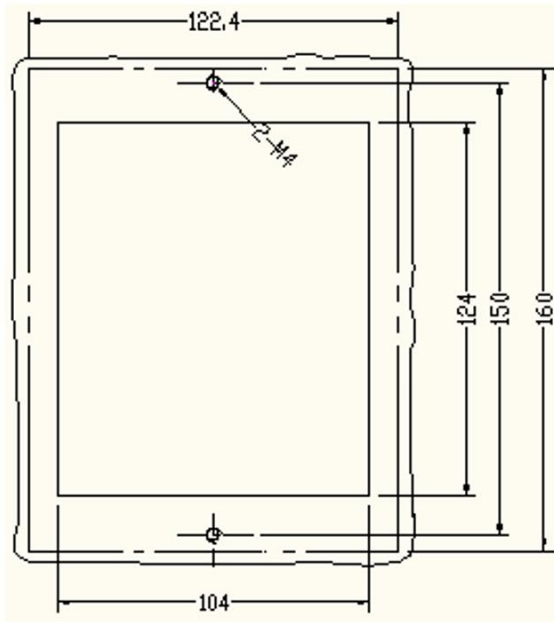


### Dimensions (mm):

$\Delta T$  °C



### Installation and Connector (mm):



| Connector | Wire  |
|-----------|-------|
| 1         | TEC + |
| 2         | TEC - |
| 3         | Fan + |
| 4         | Fan - |



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# Thermoelectric Assembly Performance Specifications

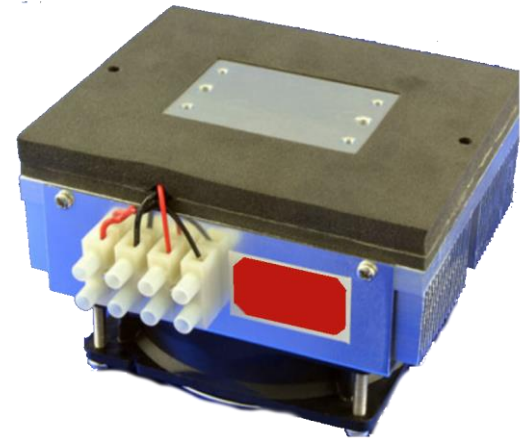
## Air to Plate Thermoelectric Cooler Assembly

### TECA-AP-40-12

The TECA-AP-40-12 Thermoelectric plate cooler is designed for electronic cabinets and environmental chambers. It can maintain ambient temperatures while removing up to 40W. This model is powered by 12VDC and is essentially maintenance-free, with no filters to change. It can be mounted in any orientation, offering design flexibility with solid-state reliability.

#### Features:

- 40W Capacity at  $DT = 0^{\circ}C$  & Ambient Temperature =  $30^{\circ}C$
- Refrigerant Free – environmentally friendly
- Wide operating temperature range of  $-20^{\circ}C$  to  $+60^{\circ}C$
- Shift between heating and cooling without using a separate heater
- Reduced noise and vibration from solid-state heat pump



#### Applications:

- Analytical Instruments
- Medical Diagnostic Equipment
- Industrial/Electronics Cooling
- Food and Beverage Cooling

### General Specifications:

| P/N                             | TECA-AP-40-12              |
|---------------------------------|----------------------------|
| Cooling Method/Radiating Method | Plate/Forced Air           |
| Ambient Temperature             | $-20$ to $60^{\circ}C$     |
| Cooling Capacity/Input Power    | 40W / 50W                  |
| Heating Capacity                | 90W                        |
| Fan Current / Noise             | 0.24A (Radiator) / 40 dB-A |
| TEC Nominal/Startup Current     | 3.9A / 5.0A                |
| Nominal/Maximum Voltage         | 12/15 VDC                  |
| Overall Dimension               | 120mm x 102mm x 80mm       |
| Weight                          | 0.8kg (1.8 lbs)            |
| Lifetime                        | >70,000 Hours              |
| Cooling Performance Tolerance   | 10%                        |

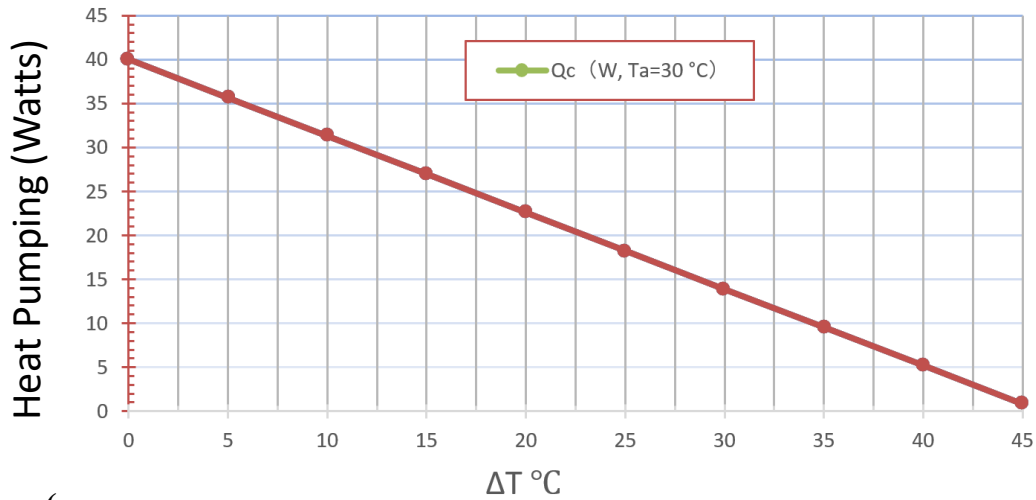
# Thermoelectric Assembly Performance Specifications

## Air to Plate Thermoelectric Cooler Assembly

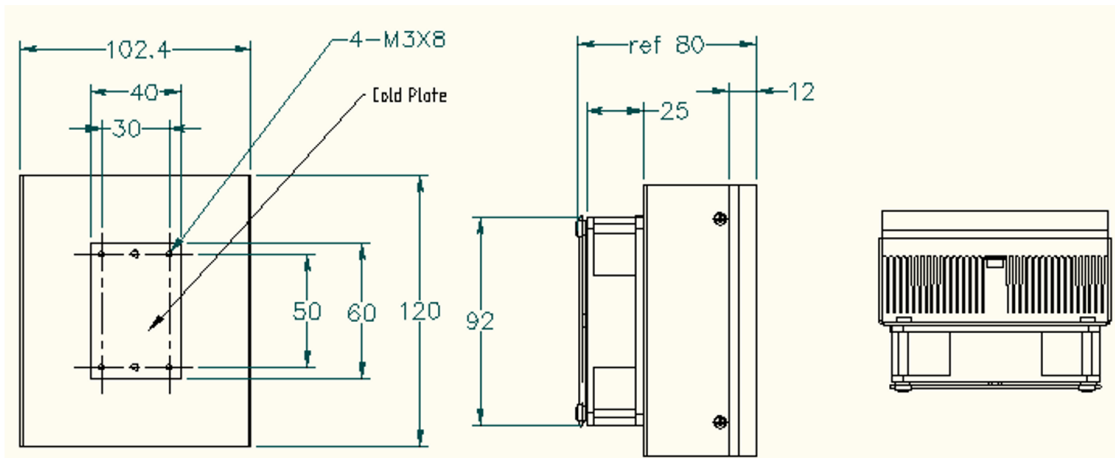


TECA-AP-40-12

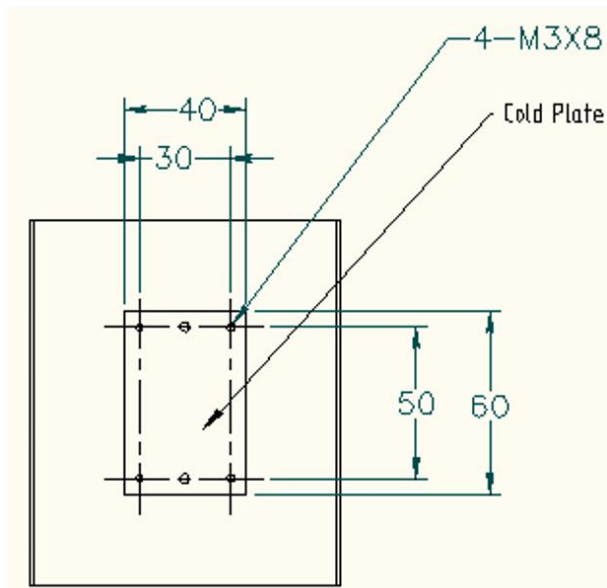
### Performance Curve:



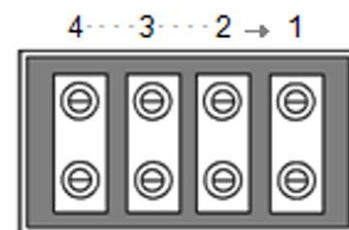
### Dimensions (mm):



### Installation and Connector (mm):



| Connector | Wire  |
|-----------|-------|
| 1         | TEC + |
| 2         | TEC - |
| 3         | Fan + |
| 4         | Fan - |



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# Thermoelectric Assembly Performance Specifications

## Air to Plate Thermoelectric Cooler Assembly



### TECA-AP-80-24

The TECA-AP-80-12 Thermoelectric plate cooler is designed for electronic cabinets and environmental chambers. It can maintain ambient temperatures while removing up to 80W. This model is powered by 24VDC and is essentially maintenance-free, with no filters to change. It can be mounted in any orientation, offering design flexibility with solid-state reliability.

#### Features:

- 80W Capacity at  $DT = 0^{\circ}C$  & Ambient Temperature =  $30^{\circ}C$
- Refrigerant Free – environmentally friendly
- Wide operating temperature range of  $-20^{\circ}C$  to  $+60^{\circ}C$
- Shift between heating and cooling without using a separate heater
- Reduced noise and vibration from solid-state heat pump

#### Applications:

- Analytical Instruments
- Medical Diagnostic Equipment
- Industrial/Electronics Cooling
- Food and Beverage Cooling



### General Specifications:

| P/N                             | TECA-AP-40-12              |
|---------------------------------|----------------------------|
| Cooling Method/Radiating Method | Plate/Forced Air           |
| Ambient Temperature             | $-20$ to $60^{\circ}C$     |
| Cooling Capacity/Input Power    | 80W / 115W                 |
| Heating Capacity                | 190W                       |
| Fan Current / Noise             | 0.35A (Radiator) / 45 dB-A |
| TEC Nominal/Startup Current     | 4.2A / 5.3A                |
| Nominal/Maximum Voltage         | 24/30 VDC                  |
| Overall Dimension               | 203mm x 155mm x 152mm      |
| Weight                          | 3.6kg (8 lbs)              |
| Lifetime                        | >70,000 Hours              |
| Cooling Performance Tolerance   | 10%                        |

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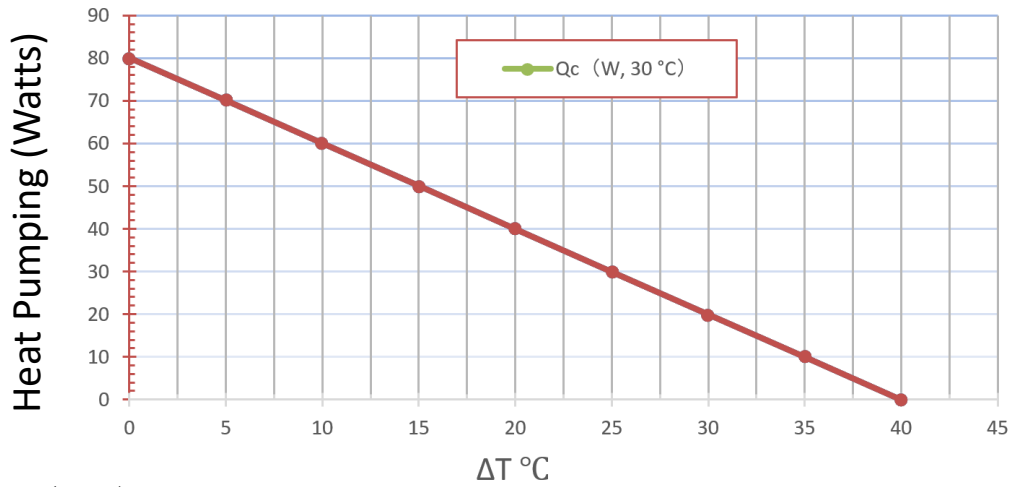
# Thermoelectric Assembly Performance Specifications

## Air to Plate Thermoelectric Cooler Assembly

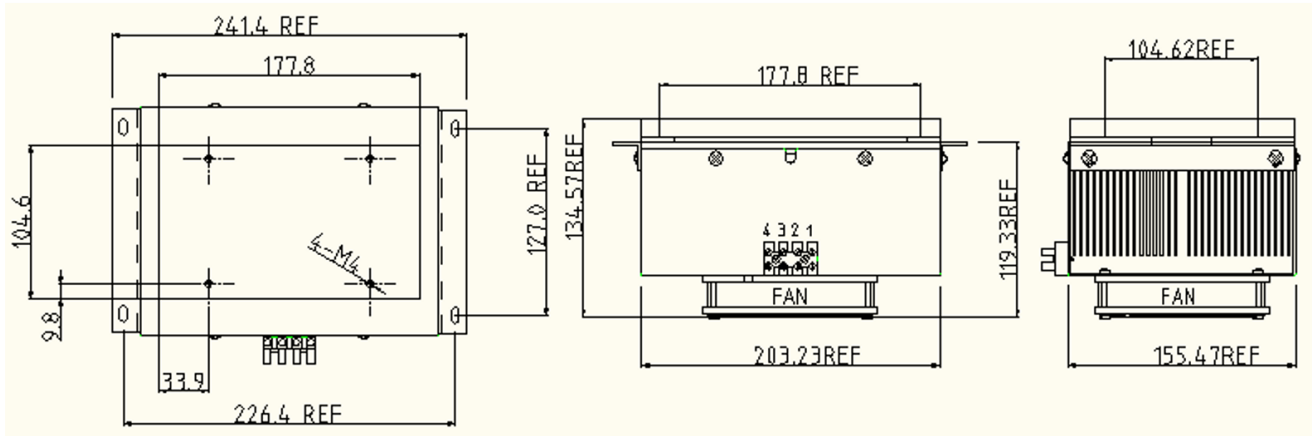


TECA-AP-80-24

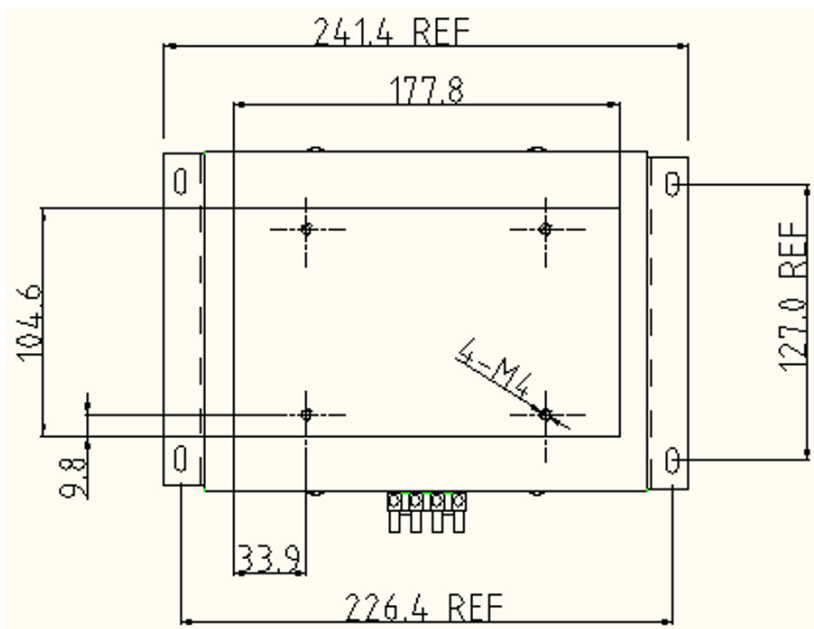
### Performance Curve:



### Dimensions (mm):



### Installation and Connector (mm):



| Connector | Wire  |
|-----------|-------|
| 1         | TEC + |
| 2         | TEC - |
| 3         | Fan + |
| 4         | Fan - |



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