Table of Contents

<table>
<thead>
<tr>
<th>Page</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Cover Page</td>
</tr>
<tr>
<td>2</td>
<td>Blank Page</td>
</tr>
<tr>
<td>3</td>
<td>Table of Contents</td>
</tr>
<tr>
<td>4</td>
<td>Installation Notes</td>
</tr>
<tr>
<td>5-6</td>
<td>Data sheet</td>
</tr>
<tr>
<td>7</td>
<td>Assembly Drawing</td>
</tr>
<tr>
<td>8</td>
<td>Typical Field Mounting (Style B)</td>
</tr>
<tr>
<td>9</td>
<td>Wiring Diagram and</td>
</tr>
<tr>
<td>10</td>
<td>Temperature Controller Information</td>
</tr>
<tr>
<td>11</td>
<td>Notes</td>
</tr>
<tr>
<td>12</td>
<td>Blank Page</td>
</tr>
</tbody>
</table>
**Important Installation Notes for Air Conditioners**

**Mounting Styles:** Both ‘thru mount’ and ‘flush mount’ units can be positioned in any orientation and on any enclosure surface. It is important to consider interior air flow patterns when determining the mounting location. Also of importance is an unrestricted flow of ambient air thru the hot side heat exchanger. Ease of access and inspection must be considered for those applications in particularly severe environments which may require occasional maintenance.

**Vertical (Side/Front/Back) Mounting:**
Vertical mounting refers to the vertical direction of the cold side or interior fins and is recommended for applications with high humidity, poor and incomplete cabinet seals or any condition which may cause the cold side fins to be maintained at temperatures below the dew point for long periods of time allowing for the formation of condensation. The vertical fin direction provides a drip path whereupon condensation can be collected via a moisture removal system (standard on FHP-units) or a drip pan positioned below the cold side fins. Drip pans are optional for thru mount units.

**Condensate Removal System:**
All FHP-Series and AHP-1400 air conditioners contain a built-in condensate removal system. The condensate kit consists of a antifungal sponge with a condensate wick. PVC tubing is also provided for drainage. Drip pans are optional for thru mount units which must be evaluated on an individual basis. Equations defining a relationship between the cold side fin and enclosure temperatures are provided to assist in the evaluation.

**Top Mounting:**
Though often the easiest location to mount it is often the most difficult to protect from condensation in this orientation due to the fin orientation, gravity and any susceptible components below. If a drip pan is employed by the end user use caution to place the pan far enough away from the internal fan to minimize the restriction of air flow. The pan should cover the fin ends as well as the fan area. When there is a choice, the vertical orientation is preferred by most users.

**Maintenance:**
Since the technology is solid-state, there are no filters, compressors, or fluorocarbons to maintain. The only moving parts are the fans. It is recommended for harsh or dirty environments that the heat sinks be cleaned from time to time. This can be accomplished by directing compressed air over the external fins or on NEMA 4 versions by hosing the unit down. This will increase the overall life and performance of the system.

**Cautions:**
Take care when mounting not to damage the seal between the hot and cold side sinks. Do not attempt to mount a unit to a warped surface or try to make the units mounting surface conform to an unflat surface. Do not pinch or damage any leads when mounting. Do not over tighten any installation screw, use reasonable force. Always mount with any condensate drain down. Do not compress the cold side between the hot side and any other surface. Do not obstruct the airflow on either side. When mounting consider the natural air flows of the enclosure. Connect power only after the installation is complete.

**Notes on condensation:**
Condensation occurs at the cold side fins when the surface temperature goes below the dew point. To reduce or remove condensate, consider the following:
- Regulate the Fin Temperature above the Dewpoint.
- Keep Enclosure Closed and Sealed from Outside Humidity.
- Use Desiccant (Moisture absorbing Granules.)
- Employ Condensate Removal System/Drip Pans.

If you have any questions regarding your installation, Please feel free to contact our technical department for assistance at 773-342-4900.
# IHP-2259 Air Conditioner/Heat Exchanger

**FEATURES**
- High efficiency thermoelectric design
- Power saving air to air heat exchanger mode (ECO-Mode)
- Heavy duty full perimeter mounting
- Easy installation from exterior of the enclosure
- Closed loop design
- Condenser control and evaporation system
- Increased efficiency at higher ambient by as much as 10%
- Temperature driven fan speed for quieter operations
- Virtually maintenance free
- No compressor
- Environmentally friendly and safe
- Stainless steel exterior housing
- Mounts flush with no protrusion outside of the enclosure
- Integral or remote temperature controller
- Weight 66 LBS.

**CONTROL TEMPERATURES**
- Active Cooling: 35 °C
- Heat Exchanger (ECO-Mode): 25 °C
- Active Heating: 10 °C
- Typical Maturity: 5 °C
- Operating Ambient: -40°C to 65°C
- Operating Endcool: -10°C to 60°C

**POWER INPUTS**
- Input Voltage: 100 - 240 VAC
- Current, Active: 4.5 - 1.8 AMPS
- Alternate Input Voltage: 127 - 374 VDC
- Current, ECO-Mode (120 VAC): 1 AMP
- Frequency: 47 - 63 / 440 Hz
- Nominal Power Consumption: 500 Watts

**PERFORMANCE RATINGS**
- Cooling (Traditional): 1048 BTU/hr
- Cooling (Dim 3169): 305 WATTS
- Cooling COP (at 35 °C LSS): 0.68
- Heating (Traditional): > 1530 BTU/hr
- Heating (Dim 3169): > 450 WATTS
- Heating COP: > 1.0
- Heat Exchanger (ECO-Mode): 12.5 WKC

**CONFIGURATIONS**

<table>
<thead>
<tr>
<th>MODEL</th>
<th>PART NUMBER</th>
<th>NOTES</th>
<th>TEMPERATURE CONTROL</th>
<th>ENVIRONMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>IHP-2259</td>
<td>B-H4UB-0-100</td>
<td>Cool only, industrial fans</td>
<td>TC-4F</td>
<td>NEMA-12, IP 52</td>
</tr>
<tr>
<td>IHP-2259</td>
<td>B-H4UB-0-100</td>
<td>Cool only, industrial fans</td>
<td>ECT*</td>
<td>NEMA-12, IP 52</td>
</tr>
<tr>
<td>IHP-2259EC</td>
<td>B-H4UB-1-100</td>
<td>Heat/Cool, industrial fans</td>
<td>TC-7F</td>
<td>NEMA-12, IP 52</td>
</tr>
<tr>
<td>IHP-2259EC</td>
<td>B-H4UB-1-100</td>
<td>Heat/Cool, industrial fans</td>
<td>ECT*</td>
<td>NEMA-12, IP 52</td>
</tr>
<tr>
<td>IHP-2259</td>
<td>B-H4UB-4-100</td>
<td>Cool only, sealed hot side fans</td>
<td>TC-4F</td>
<td>NEMA-4, IP 56</td>
</tr>
<tr>
<td>IHP-2259EC</td>
<td>B-H4UB-4-100</td>
<td>Cool only, sealed hot side fans</td>
<td>ECT*</td>
<td>NEMA-4, IP 56</td>
</tr>
<tr>
<td>IHP-2259</td>
<td>B-H4UB-5-100</td>
<td>Heat/Cool, sealed hot side fans</td>
<td>TC-7F</td>
<td>NEMA-4, IP 56</td>
</tr>
<tr>
<td>IHP-2259EC</td>
<td>B-H4UB-5-100</td>
<td>Heat/Cool, sealed hot side fans</td>
<td>ECT*</td>
<td>NEMA-4, IP 56</td>
</tr>
<tr>
<td>IHP-2259</td>
<td>B-H4LB-5-100</td>
<td>Heat/Cool, industrial fans</td>
<td>TC-5100D</td>
<td>NEMA-4, IP 56</td>
</tr>
<tr>
<td>IHP-2259EC</td>
<td>B-H4LB-5-100</td>
<td>Heat/Cool, industrial fans</td>
<td>TC-5100D</td>
<td>NEMA-4, IP 56</td>
</tr>
</tbody>
</table>

*Precise temperature control model
*Unit is set for 5-32 VDC external signal, relay(s) included

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**INCLUDES**
- Power supply
- Temperature controller
- Power saving heat exchanger mode (ECO-Mode)
- Mounting gasket
- Mounting hardware
- Power input cord

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**200 - 277 VAC (254 - 420 VDC) Versions available**

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**TECA**
1-888-TECA-USA (832-2872)  www.thermoelectric.com
**PERFORMANCE CURVE**

Cooling Capacity (BTU/HR)

<table>
<thead>
<tr>
<th>Ambient Temp</th>
<th>35°C</th>
<th>50°C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enclosure Air</td>
<td>y = 0.62x - 18.9</td>
<td>y = 0.62x - 20.2</td>
</tr>
<tr>
<td>Cold Sink</td>
<td>y = 0.04x - 10.9</td>
<td>y = 0.04x - 20.2</td>
</tr>
</tbody>
</table>

**DIMENSIONS**

[Diagram of dimensions]

Dimensions do not include hardware. Mounting hardware and gasket included but not shown.

Dimensions: Inches [Millimeters]

**MOUNTING STYLE**
Internal Mounted

**ENVIRONMENTS SERVED**
- NEMA-12: IP 52
- NEMA-4: IP 56

**RATING (TRADITIONAL)**
- 1040 BTU/hr @ 0°F ΔT

**RATING (DIN 3168)**
- 305 Watts L35 / L35
- 84 Watts L35 / L50

Air Flow Pattern
Power Temperature Controllers

TC-1F POWER TEMPERATURE SWITCHES

Models TC-1F power temperature controller, with small tolerance and reset differential, are the simplest and most cost effective way to control a cooling or heating device (VAC or VDC) without a need for a relay. For circuits that have higher current draw simply use them in conjunction with a solid state relay.

Part Numbers:

<table>
<thead>
<tr>
<th>Mode</th>
<th>Part Number</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cool</td>
<td>TC-1C-XX</td>
<td>switch closes on temperature rise</td>
</tr>
<tr>
<td>Heat</td>
<td>TC-1H-XX</td>
<td>switch closes on temperature drop</td>
</tr>
</tbody>
</table>


Example: TC-1C-20 and TC-1H-10

TC-4F COOL ONLY WITH ECO-MODE

Model TC-4F is similar to TC-1F plus it has a 2nd power switch for heat exchanger mode (ECO-Mode). The active cool set point for TC-4F is 35 °C and for heat exchanger mode (ECO-Mode) is 25 °C.

Model TC-6F (Cool Only) thermostat is designed using two temperature power switches in conjunction with a solid state relay. A three position switch is provided to adjust temperature settings.

TC-7F HEAT/COOL WITH ECO-MODE

Model TC-7F (Heat/Cool) thermostat incorporates the same technology as the TC-3F. It contains a single setting each for both heating and cooling and a heat exchanger mode (ECO-Mode).

For custom variations of any of the controls, contact TECA.

TECA 1-888-TECA-USA (832-2872) www.thermoelectric.com