48TC 18,21,25,29 WEATHERMAKER® SERIES
SINGLE PACKAGE ROOFTOP
GAS HEATING/ELECTRIC COOLING
HORIZONTAL AIR FLOW UNITS
TWO-STAGE COOLING CAPACITY CONTROL

— PERFORMANCE DATA

— CERTIFIED DIMENSION PRINTS

— CERTIFIED ROOF CURB DETAILS
DESCRIPTION

48TC (model sizes 18, 21, 25, 29) units are single-packaged dedicated horizontal air flow electric cooling, gas heating units that are pre-wired and pre-charged with Puron® (R-410A) HFC refrigerant. The units are factory tested in both heating and cooling modes. These units meet the ASHRAE (American Society of Heating, Refrigerating, and Air-Conditioning Engineers) 90.1-2016, DOE-2018 (Department of Energy), and IECC-2015 (International Energy Conservation Code) minimum efficiency requirements when equipped with the SAV™ (Staged Air Volume) option.

FEATURES

Standard Base Unit (United States Models)
- Puron (R-410A) HFC refrigerant
- Two-stage cooling capacity control on all models
- EERs up to 10.8
- IEERs up to 12.7 (includes SAV)
- Staged Air Volume (SAV™) fan speed system
- Designed in accordance with Underwriters Laboratories Standard 1995
- Listed by ETL and ETL-Canada
- DOE-2018, ASHRAE 90.1-2016 and IECC-2015 energy compliant
- Rated in accordance with AHRI Standard 340/360
- Non-corrosive composite sloping design; side or center drain condensate pan. Meets ASHRAE Standard 62
- Standard cooling operating range from 35°F up to 115°F (2°C up to 46°C)
- Dedicated horizontal airflow models. No special field kits required
- Two-inch disposable return air filters on slide out track
- Provisions for thru-the-bottom power entry capability as standard in an environmentally protected area
- Single point gas and electric connections
- 24-volt control circuit protected with resettable circuit breaker and 75-VA transformer
- Permanently lubricated evaporator-fan motor
- Blower bearing extend lubrication line on all sizes
- Totally enclosed condenser motors with permanently lubricated bearings
- Low-pressure and high-pressure switch protection
- Full perimeter base rail with built-in rigging adapters and fork truck slots
- Central terminal board facilitating simple safety circuit troubleshooting and simplified control box arrangement
- High performance belt drive motor with variable pitch pulleys, quick adjust belt system and fan belt protection

Standard Base Unit (Non-United States Models)
- All features listed above and:
  - EERs up to 10.8
  - IEERs up to 10.8 (without SAV)
  - IEERs up to 12.7 (with SAV)

Cabinet (All)
- Access panels with easy grip handles
- Innovative, easy starting, no-strip screw feature on unit access panels
- Pre-painted exterior panels and primer-coated interior panels tested to 500 hours salt spray protection
- Fully insulated cabinet

Refrigerant System (All)
- Acutrol™ refrigerant metering system
- Liquid line filter drier on each circuit
- Scroll compressors with internal line-break overload protection
- Copper tube, aluminum fin evaporator coil
- Round Tube/Plate Fin (RTPF) condenser coils on all model sizes or Novation® all aluminum condenser coils available on 17 to 28 sizes.

Gas Heat (All)
- Gas efficiencies up to 81%
- Induced draft combustion design
- Redundant gas valve, with up to 2 stages of heating
- Solid-state electronic direct spark ignition system
- Exclusive IGC anti-cycle protection for gas heat operation
- Flame roll-out safety protector

Standard Limited Parts Warranty (All)
- 15-year limited on all gas heat exchanger parts - Stainless Steel
- 10-year limited on all gas heat exchanger parts - Aluminized
- 5-year limited on all compressor parts
- 5-year on factory installed Ultra Low Leak Economizer parts
- 1-year limited on all parts
**PERFORMANCE DATA**

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit Operating Weight</td>
<td>lb</td>
</tr>
<tr>
<td>Curb Weight</td>
<td>lb</td>
</tr>
<tr>
<td><strong>COOLING (ELECTRIC)</strong></td>
<td></td>
</tr>
<tr>
<td>Gross Total Capacity</td>
<td>Btuh</td>
</tr>
<tr>
<td>at Condenser Air Temperature</td>
<td>°F</td>
</tr>
<tr>
<td>Gross Sensible Capacity</td>
<td>Btuh</td>
</tr>
<tr>
<td>Compressor Power Input</td>
<td>kW</td>
</tr>
<tr>
<td>Indoor Entering: db / wb</td>
<td>°F / °F</td>
</tr>
<tr>
<td>Airflow</td>
<td>CFM</td>
</tr>
<tr>
<td>External Static Pressure</td>
<td>in. wg</td>
</tr>
<tr>
<td>Indoor Fan Motor Size</td>
<td>HP</td>
</tr>
<tr>
<td>Exhaust Fan Motor Size</td>
<td>HP</td>
</tr>
<tr>
<td><strong>HEATING (GAS)</strong></td>
<td></td>
</tr>
<tr>
<td>Heating Capacity:</td>
<td></td>
</tr>
<tr>
<td>Stage 1</td>
<td>Btuh</td>
</tr>
<tr>
<td>Stage 2</td>
<td>Btuh</td>
</tr>
<tr>
<td>Heating Capacity Total</td>
<td>Btuh</td>
</tr>
<tr>
<td>Stage 1</td>
<td>kW</td>
</tr>
<tr>
<td>Stage 2</td>
<td>kW</td>
</tr>
<tr>
<td>Heating Capacity Total</td>
<td>Btuh</td>
</tr>
</tbody>
</table>

**ELECTRICAL DATA**

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Supply to Unit</td>
<td></td>
</tr>
<tr>
<td>Volts</td>
<td></td>
</tr>
<tr>
<td>Phase</td>
<td>Hz</td>
</tr>
<tr>
<td>Maximum Circuit Amps</td>
<td></td>
</tr>
<tr>
<td>Maximum Overcurrent Protection</td>
<td></td>
</tr>
</tbody>
</table>

**SUBMITTAL DATA**

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Job Name</td>
<td></td>
</tr>
<tr>
<td>Architect</td>
<td></td>
</tr>
<tr>
<td>Engineer</td>
<td></td>
</tr>
<tr>
<td>Contractor</td>
<td></td>
</tr>
<tr>
<td>Unit Designation</td>
<td></td>
</tr>
</tbody>
</table>
FACTOR-INSTALLED OPTIONS

☐ Economizer with DRY BULB Sensing and Barometric Relief

Low Leak Air Dampers —

- Models with W7212 controller provide standard non-diagnostic control (EconoMi$er® IV system).
- Models with W7220 controller meet California Title 24 (Section 120.2) Fault Detection and Diagnostic (FDD) requirements (EconoMi$er X system).
- Models with RTU Open controller meet California Title 24 (Section 120.2) Fault Detection and Diagnostic (FDD) requirements (EconoMi$er 2 system).
- Models with PremierLink™ controller. PremierLink controller does not meet California Title 24 (Section 120.2) Fault Detection and Diagnostic (FDD) requirement (EconoMi$er 2 system).

☐ Economizer with ENTHALPY Sensing and Barometric Relief

Low Leak Air Dampers —

- Models with W7212 controller provide standard non-diagnostic control (EconoMi$er® IV system).
- Models with W7220 controller meet California Title 24 (Section 120.2) Fault Detection and Diagnostic (FDD) requirements (EconoMi$er X system).
- Models with RTU Open controller meet California Title 24 (Section 120.2) Fault Detection and Diagnostic (FDD) requirements (EconoMi$er 2 system).
- Models with PremierLink™ controller. PremierLink controller does not meet California Title 24 (Section 120.2) Fault Detection and Diagnostic (FDD) requirement (EconoMi$er 2 system).

☐ Economizer with DRY BULB Sensing and Barometric Relief

ULTRA LOW LEAK Air Dampers —

- Models with W7220 controller meet California Energy Commission Title 24-2016 perspective section 140.4 (damper leakage, etc.) and mandatory section 120.2.i for Fault Detection and Diagnostic controls. Economizers meet ASHRAE 90.1-2016 damper leakage requirements as stated in section 6.5.1.1.4 and Table 6.4.3.4.3, and meet 2016 Fault Detection and Diagnosis requirements in section 6.4.3.12. For outside air, return, and relief air damper leakage requirements economizers meet IECC 2012 section C402.4.5.2 and, IECC 2015 sections C403.2.4.3 and C403.3.3.5 for outside air, return air, and relief air damper leakage requirements and IECC 2015 section C403.2.4.7 for Fault Detection and Diagnostic requirements.
- Models with RTU Open meet California Energy Commission Title 24-2016 perspective section 140.4 (damper leakage, etc.) and mandatory section 120.2.i for Fault Detection and Diagnostic requirements. Economizers meet ASHRAE 90.1-2016 damper leakage requirements as stated in section 6.5.1.1.4 and Table 6.4.3.4.3, and meet 2016 Fault Detection and Diagnosis requirements in section 6.4.3.12. For outside air, return, and relief air damper leakage requirements economizers meet IECC 2012 section C402.4.5.2 and, IECC 2015 sections C403.2.4.3 and C403.3.3.5 for outside air, return air, and relief air damper leakage requirements and IECC 2015 section C403.2.4.7 for Fault Detection and Diagnostic requirements.

NOTE: IECC 2015 section C403.2.4.7.1 requires differential return air sensor, which must be ordered separately. Outside air, return air, and relief air (volume) dampers are AMCA rated — plus 5 year limited parts warranty (EconoMi$er X system).

- Models with W7220 controller meet California Energy Commission Title 24-2016 perspective section 140.4 (damper leakage, etc.) and mandatory section 120.2.i for Fault Detection and Diagnostic requirements. Economizers meet ASHRAE 90.1-2016 damper leakage requirements as stated in section 6.5.1.1.4 and Table 6.4.3.4.3, and meet 2016 Fault Detection and Diagnosis requirements in section 6.4.3.12. For outside air, return, and relief air damper leakage requirements economizers meet IECC 2012 section C402.4.5.2 and, IECC 2015 sections C403.2.4.3 and C403.3.3.5 for outside air, return air, and relief air damper leakage requirements and IECC 2015 section C403.2.4.7 for Fault Detection and Diagnostic requirements.

NOTE: IECC 2015 section C403.2.4.7.1 requires differential return air sensor, which must be ordered separately. Outside air, return air, and relief air (volume) dampers are AMCA rated — plus 5 year limited parts warranty (EconoMi$er 2 system).
FACTORY-INSTALLED OPTIONS (CONT)

Standard Base Unit (United States Models)
- RTU Open multi-protocol controller communicates to BACnet®, Modbus††, LonWorks**, and Johnson N2 protocols.
- CCN Direct Digital Control (DDC) - Premier-Link™ controller††
- Stainless steel gas heat exchanger (includes tubes, vestibule plate and collector box)
- Humidi-MiZer® adaptive dehumidification system (RTPF condenser coil units only)
- Two-position motorized outdoor air damper††
- 25% manual outdoor air damper††
- Non-fused disconnect
- Powered 115-volt convenience outlet
- Non-powered 115-volt convenience outlet
- Medium and high static evaporator fan motor. Medium static indoor fan motor is standard on size 29 models.
- Return air smoke detector
- Supply air smoke detector
- CO₂ sensor
- Condenser hail guard-louvered style
- Special coating protection for evaporator and condenser coils
- Hinged access panels
- Condensate overflow switch

Standard Base Unit (Non-United States Models)
- Staged Air Volume (SAV™) system utilizes a Variable Frequency Drive (VFD) to automatically adjust the indoor fan motor for 2 speed indoor fan motor control. Conforms to ASHRAE 90.1-2016 Standard – section 6.4.3.10.b and IECC-2015.

Optional Warranties
- Complete unit parts only, up to 5 years
- Complete unit parts and labor, up to 5 years
Many other optional warranties are available. See the Commercial Start-Up and Optional Extended Warranty Price pages for further information.

* BACnet is a registered trademark of ASHRAE (American Society of Heating, Refrigerating and Air-Conditioning Engineers).
† Modbus is a registered trademark of Schneider Electric.
** LonWorks is a registered trademark of Echelon Corporation.
†† Not available with SAV 2-speed fan motor.
FIELD-INSTALLED ACCESSORIES

- **Economizer with DRY BULB Sensing and Barometric Relief**
  - Standard Air Leak Dampers —
    - Models with W7212 controller provide standard non-diagnostic control (EconoMiSer® IV system).
    - Models with W7220 controller meet California Title 24-2016 Section 120.2.i for Fault Detection and Diagnostic (FDD) requirements (EconoMiSer X system).
    - Models with RTU Open controller meet California Title 24-2016 Section 120.2.i Fault Detection and Diagnostic (FDD) requirements (EconoMiSer 2 system).
  - Models with PremierLink™ controller. PremierLink controller does not meet California Title 24-2016 Section 120.2.i Fault Detection and Diagnostic (FDD) requirement (EconoMiSer 2 system).

- **Economizer with ENTHALPY Sensing and Barometric Relief**
  - Standard Air Leak Dampers —
    - Models with W7212 controller provide standard non-diagnostic control (EconoMiSer® IV system).
    - Models with W7220 controller meet California Title 24-2016 Section 120.2.i Fault Detection and Diagnostic (FDD) requirements (EconoMiSer X system).
    - Models with RTU Open controller meet California Title 24-2016 Section 120.2.i Fault Detection and Diagnostic (FDD) requirements (EconoMiSer 2 system).
  - Models with PremierLink controller. PremierLink controller does not meet California Title 24-2016 Section 120.2.i Fault Detection and Diagnostic (FDD) requirements (EconoMiSer 2 system).

- **Economizer with DRY BULB Sensing and Barometric Relief**
  - ULTRA LOW LEAK Air Dampers —
    - Models with W7220 controller meet California Energy Commission Title 24-2016 perspective section 140.4 (damper leakage, etc.) and mandatory section 120.2.i for Fault Detection and Diagnostic requirements. Economizers meet ASHRAE 90.1-2016 damper leakage requirements as stated in section 6.5.1.1.4 and Table 6.4.3.4.3, and meet 2016 Fault Detection and Diagnosis requirements in section 6.4.3.12. Economizers meet IECC 2012 section C402.4.5.2 and, IECC 2015 sections C403.2.4.3 and C403.3.3.5 for outside air, return air, and relief air damper leakage requirements and IECC 2015 section C403.2.4.7 for Fault Detection and Diagnostic requirements.
      - NOTE: IECC 2015 section C403.2.4.7.1 requires differential return air sensor, which must be ordered separately.
      - Outside air, return air, and relief air (volume) dampers are AMCA rated.
  - Models with RTU Open meet California Energy Commission Title 24-2016 perspective section 140.4 (damper leakage, etc.) and mandatory section 120.2.i for Fault Detection and Diagnostic requirements. Economizers meet ASHRAE 90.1-2016 damper leakage requirements as stated in section 6.5.1.1.4 and Table 6.4.3.4.3, and meet 2016 Fault Detection and Diagnosis requirements in section 6.4.3.12. Economizers meet IECC 2012 section C402.4.5.2 and, IECC 2015 sections C403.2.4.3 and C403.3.3.5 for outside air, return air, and relief air damper leakage requirements and IECC 2015 section C403.2.4.7 for Fault Detection and Diagnostic requirements.
      - NOTE: IECC 2015 section C403.2.4.7.1 requires differential return air sensor, which must be ordered separately.
      - Outside air, return air, and relief air (volume) dampers are AMCA rated.
Display Kit for Variable Frequency Drive (VFD), Staged Air Volume System. Allows additional setup and diagnostics of the unit VFD controller. Can be unit mounted or used with any other compatible VFD model as a reusable device.

- Power exhaust — centrifugal fan design
- Two-position motorized outdoor air damper*
- Manual outside air damper 25%*
- Roof curb — 14 inch (356 mm) tall
- Roof curb — 24 inch (610 mm) tall
- Condenser hail guard — louvered style
- Flue discharge deflector
- Liquid propane (LP) conversion kit
- High altitude conversion kit
- Phase monitor (loss of phase/phase reversal)
- Winter start kit, down to 25°F (−4°C)

- Low ambient head pressure controller, down to −20°F (−29°C)
- Time Guard II compressor anti-cycle protection
- Thermostats and sensors
- Non-powered 115-volt (20 amp) convenience outlet
- Horn/Strobe annunciator
- Return air smoke detector
- Supply air smoke detector

Economizer Sensors
- Single Dry bulb control
- Differential Dry bulb control
- Single enthalpy control
- Differential enthalpy control
- CO₂ — wall mounted
- CO₂ — duct mounted
- CO₂ — unit mounted

* Not available with SAV 2-speed fan motor.
Fig. 1 — 48TC**18 Dimensional Drawing
Fig. 2 — 48TC**18 Corner Weights
Fig. 3 — 48TC**21 and 25 Dimensional Drawing
Fig. 4 — 48TC**21 and 25 Corner Weights
CERTIFIED DIMENSION PRINT

<table>
<thead>
<tr>
<th>UNIT</th>
<th>SIDE WEIGHT</th>
<th>CORNER WEIGHT</th>
<th>CORNER WEIGHT</th>
<th>CORNER WEIGHT</th>
<th>CORNER WEIGHT</th>
<th>C.G.</th>
</tr>
</thead>
<tbody>
<tr>
<td>48TC</td>
<td>132 lb</td>
<td>178 lb</td>
<td>119 lb</td>
<td>115 lb</td>
<td>132 lb</td>
<td></td>
</tr>
<tr>
<td>48TC29</td>
<td>132 lb</td>
<td>178 lb</td>
<td>119 lb</td>
<td>115 lb</td>
<td>132 lb</td>
<td></td>
</tr>
</tbody>
</table>

* STANDARD UNIT WEIGHT IS WITH LOW GAS HEAT AND WITHOUT PACKAGING.
  FOR OTHER OPTIONS AND ACCESSORIES, REFER TO THE PRODUCT DATA CATALOGS.

Fig. 6 — 48TC**29 Corner Weights
CERTIFIED ROOF CURB DETAILS

Fig. 7 — 48TC**18 Roof Curb Details
CERTIFIED ROOF CURB DETAILS

Fig. 8 — 48TC**21 and 25 Roof Curb Details
Fig. 9 — 48TC**29 Roof Curb Details