50TCQD 08-14 WEATHERMAKER® SERIES
SINGLE PACKAGE ROOFTOP
HEAT PUMP WITH FIELD-INSTALLED
ELECTRIC HEAT

— PERFORMANCE DATA

— CERTIFIED DIMENSION PRINTS

— CERTIFIED ROOF CURB DETAILS
DESCRIPTION

50TCQD units are one-piece, two-stage heat pump units, with a low profile, prewired, tested and charged at the factory. These units have field convertible supply and return openings and are intended for installation on a roof curb accessory (ordered separately), or for slab mounting (for horizontal duct connections). Units are designed to accept field-installed electric heaters. Units may be ordered with various factory-installed options. Field-installed accessories are also available. The units are factory tested in the cooling mode. These units meet the DOE-2018 (Department of Energy), ASHRAE (American Society of Heating, Refrigerating, and Air-Conditioning Engineers) 90.1-2016, and IECC-2015 (International Energy Conservation Code) minimum efficiency requirements when equipped with the SAV™ (Staged Air Volume) option. Two stage cooling capacity is available on all sizes.

FEATURES

Standard Base Unit (United States Models)
- Puron (R-410A) HFC refrigerant
- EERs up to 11.2
- IEERs up to 12.5 (includes SAV)
- COPs up to 3.4
- ASHRAE 90.1-2016 compliant
- Rated in accordance with AHRI Standard 340
- Designed in accordance with Underwriters Laboratories Std 1995
- Listed by ETL and ETL-Canada
- Two-stage cooling capacity control
- Non-corrosive composite sloping design; side or center drain condensate pan. Meets ASHRAE Standard 62
- Cooling operating range from 25°F up to 115°F (–4°C up to 46°C). Field installed accessory extends the minimum down to –20°F (–29°C)
- Convertible from vertical to horizontal airflow for slab mounting
- Two-inch disposable return air filters
- Thru-the-bottom power entry capability
- Single point electric connections on field-installed electric heat units
- 24-volt control circuit protected with resettable circuit breaker and 75-VA transformer
- Belt drive, constant torque, permanently lubricated evaporator-fan motor on all size units
- Totally enclosed condenser motors with permanently lubricated bearings
- State-of-the-art defrost control board, easily configured for defrost cycles of 30, 60, 90, or 120 minutes
- Centralized Terminal Board for component and unit wiring connections.
- Loss of Charge, High-Pressure, and Freeze Protection switches
- Full perimeter base rail with built-in rigging adapters and fork truck slots.

Standard Base Unit (Non-United States Models)
- All features listed for US models, except:
  — EERs up to 11.2
  — IEERs up to 12.2 (without SAV)
  — IEERs up to 12.5 (with SAV)

Cabinet (All)
- Access panels with easy grip handles and NO-STRIP screw collar
- Pre-painted exterior panels and primer-coated interior panels tested to 500 hours salt spray protection
- Fully insulated cabinet
- Tool-less filter access door

Refrigerant System (All)
- Acutrol™ refrigerant metering system
- Liquid line filter drier
- Scroll compressors with internal line-break overload protection
- Indoor and outdoor coils constructed of aluminum fins mechanically bonded to seamless copper tubes
- Top cover removable gauge line plug for reading refrigerant pressure with unit panels in place
- Four-way reversing valve operation
- Suction Line Accumulator standard — prevents excessive liquid flood back of refrigerant to the compressor even during the start of the defrost cycle

Standard Limited Parts Warranty
- 5-year electric heater parts (field-installed)
- 5-year limited on all compressor parts
- 5-year limited on Ultra Low Leak Economizer parts
- 1-year limited on all parts
PERFORMANCE DATA

Unit Operating Weight __________________________ lb

Curb Weight __________________________ lb

COOLING

Gross Total Capacity __________________________ Btuh

H EATING (ELECTRIC)

Gross Sensible Capacity __________________________ Btuh

Heating Capacity:

Compressor Power Input __________________________ kW

Stage 1 __________________________ Btuh

Indoor Entering: db __________ °F / wb __________ °F

Stage 2 __________________________ Btuh

Airflow _____ CFM External Static Pressure _____ in. wg

Indoor Fan Motor Size __________________________ HP

Heating Capacity Total __________________________ Btuh

Exhaust Fan Motor Size __________________________ HP

ELECTRICAL DATA

Power Supply to Unit __________________________

Stage 1 __________________________ kW

Volts __________________________

Stage 2 __________________________ kW

Phase __________________________ Hz

Maximum Circuit Amps __________________________

Maximum Overcurrent Protection __________________________

SUBMITTAL DATA

Job Name __________________________

Heating Capacity Total __________________________ Btuh

Architect __________________________

Stage 1 __________________________ kW

Engineer __________________________

Stage 2 __________________________ kW

Contractor __________________________

Heating Capacity Total __________________________ Btuh

Unit Designation __________________________

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**FACTORY-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 120.2.1 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 one should meet IECC 2012 section C402.4.5.2 and, IECC 2015 sections C403.2.4.3 and C403.3.3.5 and IECC 2015 section C403.2.4.7 for Fault Detection and Diagnostic requirements.
    - 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).

**NOTE:** Production of single phase voltage models has been discontinued per DOE regulations. Single phase 50TC models are only available until current inventories are exhausted.
### FACTORY-INSTALLED OPTIONS (CONT)

**Standard Base Unit (United States Models)**
- RTU Open multi-protocol controller communicates to BACnet*, Modbus†, LonWorks**, and Johnson N2 protocols.
- Through the base connectors for electric conduit/piping
- CCN Direct Digital Control (DDC) - Premier-Link™ controller††
- Two-position motorized outdoor air damper††
- Non-fused disconnect (80 Amp Max)
- Powered 115-volt convenience outlet
- Non-powered 115-volt convenience outlet
- High static evaporator fan motor
- Return air smoke detector
- Supply air smoke detector
- Pre-coated Al/Cu condenser coil
- E-coated Al/Cu condenser coil
- E-coated Al/Cu condenser and evaporator coil
- Cu/Cu condenser coil and evaporator coil
- 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.

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* 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 models).
FIELD-INSTALLED ACCESSORIES

☐ **Economizer with DRY BULB Sensing and Barometric Relief**

Low Leak Air Dampers —
- Models with W7212 controller provide standard non-diagnostic control (EconoMi$er® IV system).
- Models with W7220 controller meet California Title 24-2016 Section 120.2.i for Fault Detection and Diagnostic (FDD) requirement (EconoMi$er X system).
- Models with RTU Open controller meet California Title 24-2016 Section 120.2.i Fault Detection and Diagnostic (FDD) requirement (EconoMi$er 2 system).
- Models with PremierLink™ controller. PremierLink controller does not meet California Title 24-2016 Section 120.2.i Fault Detection and Diagnostic (FDD) requirement (EconoMi$er 2 system).

☐ **Economizer with ENTHALPY Sensing and Barometric Relief**

Low Leak Air Dampers —
- Models with W7212 controller provide standard non-diagnostic control (EconoMi$er IV system).
- Models with W7220 controller meet California Title 24-2016 Section 120.2.i Fault Detection and Diagnostic (FDD) requirement (EconoMi$er X system).
- Models with RTU Open controller meet California Title 24-2016 Section 120.2.i Fault Detection and Diagnostic (FDD) requirement (EconoMi$er 2 system).
- Models with PremierLink™ controller. PremierLink controller does not meet California Title 24-2016 Section 120.2.i Fault Detection and Diagnostic (FDD) requirement (EconoMi$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. 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 — plus 5 year limited parts warranty (EconoMi$er 2 system).
**FIELD-INSTALLED ACCESSORIES (CONT)**

- Display Kit for Variable Frequency Drive (VFD), Staged Air Volume (SAV™) System. Allows additional set up and diagnostics of the unit VFD controller. Can be unit mounted or used with any other compatible VFD model as a reusable device.
- Single point kit
- Electric heat
- Power exhaust — vertical or horizontal - prop fan design
- PremierLink™ CCN controller*
- Two-position motorized outdoor air damper*
- Manual outside air damper 25%*
- Manual outside air damper 50%*
- Roof curb — 14 inch (356 mm) tall
- Roof curb — 24 inch (610 mm) tall
- Thru-the-bottom utility connection kit
- Condenser hail guard (louvered style)
- Phase monitor (loss of phase/phase reversal)
- Outdoor coil hail guard — louvered style
- 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
- Programmable setback thermostat
- Electrical/Mechanical thermostat and sub-base
- Phase monitor
- Head pressure control
- Disconnect switch bracket (size 14 only)
- Supply duct cover (size 14 only)
- Condensate overflow switch
- Non-powered 115-volt (20 amp) convenience outlet
- Side access hinged filter door kit
- Horn/Strobe annunciator

**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 models).
Fig. 2 — 50TCQD08, 09 Corner Weights

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<th>CORNER C</th>
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<td>WEIGHT (KG)</td>
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**Note:** Standard unit weight is nominal electric heat and without packaging. For other options and accessories, refer to the product data catalog.
Fig. 3 — 50TCQD12 Dimensional Drawing
Fig. 5 — 50TCQD14 Dimensional Drawing
CERTIFIED DIMENSION PRINT

Fig. 6 — 50TCQD14 Corner Weights