50TCQA 07 WEATHERMAKER® SERIES
SINGLE PACKAGE ROOFTOP HEAT PUMP
WITH FIELD-INSTALLED ELECTRIC HEAT

— PERFORMANCE DATA
— CERTIFIED DIMENSION PRINTS
— CERTIFIED ROOF CURB DETAILS
### DESCRIPTION
50TCQA units are one-piece heat pump units, with a low profile, pre-wired, 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. This unit meets 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 Staged Air Volume (SAV™) system.

### FEATURES

#### Standard Base Unit (United States Models)
- Puron (R-410A) HFC refrigerant
- ASHRAE 90.1 energy compliant
- EERs of 11.1
- IEERs up to 12.9 (includes SAV)
- COPs up to 3.3
- Rated in accordance with AHRI Standards 340/360
- Single stage cooling capacity control
- Designed in accordance with Underwriters Laboratories Std 1995
- Listed by UL & UL-Canada
- 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
- 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
- Central 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
- Staged Air Volume (SAV™) fan speed system

#### 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 compressor 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 plugs for reading refrigerant pressure with unit panels in place

#### Standard Limited Parts Warranty (All)
- 5-year limited on all electric heater parts (field-installed)
- 5-year limited on all compressor parts
- 5-year parts on Factory Installed Ultra Low Leak Economizer
- 1-year limited on all parts

#### Standard Base Unit (Non-United States Models)
- All features listed above including:
  - EER of 11.2
  - IEER of 12.2 (without SAV)
  - IEER of 12.9 (with SAV)
## PERFORMANCE DATA

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<tr>
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## SUBMITTAL DATA

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FACTOR-INSTALLED OPTIONS

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

Low Leak Air Dampers —

○ Models with W7212 controller provides standard non-diagnostic control (EconoMi$er® IV system).

○ Models with W7220 controller meet California Title 24 (Section 120.2) Fault Detection and Diagnostic (FDD) requirement (EconoMi$er X system).

○ Models with RTU Open controller meet California Title 24 (Section 120.2) Fault Detection and Diagnostic (FDD) requirement (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 provides standard non-diagnostic control (EconoMi$er® IV system).

○ Models with W7220 controller meet California Title 24 (Section 120.2) Fault Detection and Diagnostic (FDD) requirement (EconoMi$er X system).

○ Models with RTU Open controller meet California Title 24 (Section 120.2) Fault Detection and Diagnostic (FDD) requirement (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 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 (EconoMi$er X system).

○ 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 (EconoMi$er X 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) — PremierLink™ controller††
- Through the base connectors electric conduit
- 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

Standard Base Unit (Non-United States Models)
- Staged Air Volume (SAV™) 2-speed indoor fan system

Optional Warranties (All)
- 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 compatible with 2-speed indoor fan (SAV™).
FIELD-INSTALLED ACCESSORIES

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

Low Leak Air Dampers —
- Models with W7212 controller provides standard non-diagnostic control (EconoMi$er® IV system).
- Models with W7220 controller meets California Title 24-2016 Section 120.2.i Fault Detection and Diagnostic (FDD) requirements (EconoMi$er X system).
- Models with RTU Open controller meets California Title 24-2016 Section 120.2.i Fault Detection and Diagnostic (FDD) requirements (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 provides standard non-diagnostic control (EconoMi$er IV system).
- Models with W7220 controller meets California Title 24-2016 Section 120.2.i Fault Detection and Diagnostic (FDD) requirements (EconoMi$er X system).
- Models with RTU Open controller meets California Title 24-2016 Section 120.2.i Fault Detection and Diagnostic (FDD) requirements (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 120.2.1 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 economizers 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 RTU Open 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 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 (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 120.2.1 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 economizers 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 RTU Open 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 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 (EconoMi$er 2 system).
FIELD-INSTALLED ACCESSORIES (CONT)

- Display Kit for Variable Frequency Drive (VFD), Staged Air Volume 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.
- Power exhaust — prop fan design
- PremierLink™ CCN controller*
- Electric heat
- Single point kit
- Two-position motorized outdoor air damper*
- Manual outdoor air damper 25%*
- Manual outdoor air damper 50%*
- Roof curb — 14 inch (356mm) tall
- Roof curb — 24 inch (610mm) tall
- Thru-the-bottom utility connection kit
- Time Guard II compressor anti-cycle control
- Outdoor coil hail guard — louvered style
- Low ambient head pressure controller, down to –20°F (–29°C)
- Programmable setback thermostat
- Electrical/Mechanical thermostat and subbase
- Indoor Fan/Filter status indicator
- Phase Monitor
- Head Pressure control

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

* Not available with SAV 2-speed fan motor.
### Corner Weights

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### Table

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**Fig. 2 — 50TCQ**07 Corner Weights**
Fig. 3 — 50TCQ**07 Roof Curb Accessory Details