48FC 04-07 WEATHERMAKER® SERIES WITH ECOBLUE™ TECHNOLOGY SINGLE PACKAGE ROOFTOP GAS HEAT/ELECTRIC COOLING UNITS

— PERFORMANCE DATA
— CERTIFIED DIMENSION PRINTS
— CERTIFIED ROOF CURB DETAILS
**DESCRIPTION**

48FC units are single-packaged electric cooling, gas heating unit that are pre-wired and pre-charged with Puron® (R-410A) HFC refrigerant. The units are factory tested in both heating and cooling modes. Sizes 04-06 models use single-stage cooling capacity control. Size 07 models use two-stage cooling capacity control.

**FEATURES**

**Standard Base Unit**
- Puron® (R-410A) HFC refrigerant
- SEER of 14.0 (3 to 5 Ton)
- IEER of 15.0
- Meets or exceeds ASHRAE 90.1 energy efficiency levels
- Rated in accordance with AHRI Standards 210/240 for sizes 04 to 06 and 340/360 for size 07
- Designed in accordance with Underwriters Laboratories Std 1995
- Listed by UL and UL-Canada
- Single-stage cooling capacity control on 04 to 06 models, two-stage on 07 models
- Corrosive resistant composite sloping design; side or center drain condensate pan. Meets ASHRAE Standard 62
- Standard cooling operating range from 40°F up to 115°F (4°C up to 46°C). Field installable accessory extends the minimum down to –20°F (–29°C)
- Field convertible from vertical to horizontal airflow for slab mounting — no special kits required
- Two-inch disposable return air filters
- Thru-the-bottom power and gas entry capability
- Single point gas and electric connections
- 24-volt control circuit protected with resettable circuit breaker
- Direct Drive - EcoBlue™ technology indoor fan system uses vane axial fan design and electronically commutated motor
  - Shall have inherent automatic-reset thermal overload protection
  - Shall require no fan/motor belts for operation, adjustments, and/or initial fan speed setup
  - Shall be internally protected from electrical phase reversal and loss
  - Shall have slow ramp up to speed control capabilities to help reduce sound and comfort issues
  - Shall be a slide-out design with two screw removal
  - On 07 size model with two stage cooling capacity control, the indoor fan speed is automatically controlled to meet the code compliant 66% low fan speed and 100% at full fan speed
- Totally enclosed condenser motors with permanently lubricated bearings
- Low-pressure and high-pressure switches
- Full perimeter base rail with built-in rigging adapters and fork truck slots
- Centralized terminal board facilitating simple safety circuit troubleshooting and simplified control box arrangement
- New unit control board with intuitive quick fan speed adjustment

**Cabinet**
- 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
- Tool-less filter access door

**Refrigerant System**
- Acutrol™ refrigerant metering system on 04 to 06 models, TXV on 07 models
- Liquid line filter drier
- Scroll compressors with internal line-break overload protection (one-stage on 04 to 06 models, two-stage on 07 models)
- Copper tube, aluminum fin coils with optional corrosion resistant coils
- Top cover removable gage line plugs for reading refrigerant pressure with unit panels in place

**Gas Heat**
- IGC solid-state gas heat exchanger control for on-board diagnostics, anti-cycle protection, LED error code designation, burner control logic and energy saving indoor fan motor delay
- Gas efficiencies up to 81%
- Inducted draft combustion
- Redundant gas valve, with 2 stages of heating
- Flame roll-out safety protector
- Solid-state electronic direct spark ignition system
- Dedicated 3 to 5 ton “low NOx” models available that meet California Air Quality Management NOx requirement of 40 nanograms/joule. Low NOx models include stainless steel heat exchangers.

**Standard Limited Parts Warranty**
- 15-year gas heat exchanger parts - Stainless Steel
- 10-year gas heat exchanger parts - Aluminized
- 5-year compressor parts
- 5-year factory installed Ultra Low Leak Economizer
- 3-year SystemVu™ controls
- 1-year parts
PERFORMANCE DATA

Unit Operating Weight __________________________ lb

COOLING

Gross Total Capacity __________________________ Btuh
   at Condenser Air Temperature _____________ °F

Gross Sensible Capacity _________________ Btuh

Compressor Power Input ______________________ kW

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

Airflow _____ CFM  External Static Pressure _____ in. wg

Indoor Fan Motor Size __________________________ HP

Indoor Fan Motor Setting __________________________ Vdc

Exhaust Fan Motor Size __________________________ HP

Curb Weight __________________________ lb

HEATING (GAS)

Heating Capacity:
   Stage 1 __________________________ Btuh
   Stage 2 __________________________ Btuh

Heating Capacity Total _______________________ Btuh
   Stage 1 __________________________ kW
   Stage 2 __________________________ kW

Heating Capacity Total _______________________ kW

ELECTRICAL DATA

Power Supply to Unit __________________________
   Volts _________________________________
   Phase _________________________________ Hz

Maximum Circuit Amps __________________________

Maximum Overcurrent Protection __________________

SUBMITTAL DATA

Job Name _______________________________________

Architect _______________________________________

Engineer _______________________________________

Contractor _______________________________________

Unit Designation ________________________________
FACTORY-INSTALLED OPTIONS

☐ Economizer with DRY BULB Sensing and Barometric Relief (04-06 sizes)
  Low Leak Air Dampers —
   ○ Models with W7212 controller provide standard non-diagnostic control (EconoMi$er® IV system).
   ○ Models with W7220 controller meet California Title 24 (Section 120.2), IECC, and ASHRAE 90.1 for Fault Detection and Diagnostic (FDD) requirements (EconoMi$er X system).
   ○ Models with RTU Open controller meet California Title 24 (Section 120.2), IECC, and ASHRAE 90.1 for Fault Detection and Diagnostic (FDD) requirements (EconoMi$er 2 system).

☐ Economizer with ENTHALPY Sensing and Barometric Relief (04-06 sizes)
  Low Leak Air Dampers —
   ○ Models with W7212 controller provide standard non-diagnostic control (EconoMi$er® IV system).
   ○ Models with W7220 controller meet California Title 24 (Section 120.2), IECC, and ASHRAE 90.1 for Fault Detection and Diagnostic (FDD) requirements (EconoMi$er X system).
   ○ Models with RTU Open controller meet California Title 24 (Section 120.2), IECC, and ASHRAE 90.1 for Fault Detection and Diagnostic (FDD) requirements (EconoMi$er 2 system).

☐ Economizer with DRY BULB Sensing and Barometric Relief (04-07 sizes)
  ULTRA LOW LEAK Air Dampers —
   ○ Models with W7220 controller meet California Energy Commission Title 24-2016 prescriptive 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.
   ○ Outside air, return air, and relief air (volume) dampers are AMCA rated — plus 5 year limited parts warranty (EconoMi$er X system).

☐ Economizer with ENTHALPY Sensing and Barometric Relief (04-07 sizes)
  ULTRA LOW LEAK Air Dampers —
   ○ Models with W7220 controller meet California Energy Commission Title 24-2016 prescriptive 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 and IECC 2015 section C403.2.4.7 for Fault Detection and Diagnostic requirements.
   ○ Outside air, return air, and relief air (volume) dampers are AMCA rated — plus 5 year limited parts warranty (EconoMi$er X system).

☐ Models with RTU Open and SystemVu meet California Energy Commission Title 24-2016 prescriptive 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.
   ○ 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

- SystemVu™ controls that include:
  - Large full text - multi-line display
  - USB flash port for data transfer
  - Built in i-Vu®, CCN, and BACnet
  - Refrigerant pressure from display
  - Quick LED status — Run, Alert, Fault
  - Conventional slat or sensor capabilities
  - Historical component runtime and starts
  - Supply air tempering
  - Equipment Touch™ / System Touch™ compatibility
  - Demand limiting and ZS sensor compatibility
- RTU Open multi-protocol controller communicates to BACnet®, Modbus†, LonWorks**, and Johnson N2 protocols.
- Through the base connectors for gas and electric conduit/piping
- Stainless steel gas heat exchanger (includes tubes, vestibule plate and collector box)
- Humidi-MiZer® adaptive dehumidification system (This option should also include low ambient controls)

- Two-position motorized outdoor air damper (04-06 sizes)
- Non-fused disconnect
- Powered 115-volt convenience outlet
- Non-powered 115-volt convenience outlet
- High static evaporator fan motor
- 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 doors
- Condensate overflow switch
- MERV-8 return air filters
- Phase Monitor Protection (3-Phase models only)

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.
FIELD-INSTALLED ACCESSORIES

NOTE: 48FC 07 models use two-speed indoor fan logic, the W7212 controller is designed for single-speed motor control. See Application Tip “ROOFTOP-18-01” for further guidance when using this unit.

☐ Econometer with DRY BULB Sensing and Barometric Relief
Low Leak Air Dampers —
- Models with W7212 controller provide standard non-diagnostic control (EconoMiSer® IV system).
- Models with W7220 controller meet California Title 24 (Section 120.2), IECC, and ASHRAE 90.1 for Fault Detection and Diagnostic (FDD) requirements (EconoMiSer X system).
- Models with RTU Open controller meet California Title 24 (Section 120.2), IECC, and ASHRAE 90.1 for Fault Detection and Diagnostic (FDD) requirements (EconoMiSer 2 system).

☐ Econometer with ENTHALPY Sensing and Barometric Relief
Low Leak Air Dampers —
- Models with W7212 controller provide standard non-diagnostic control (EconoMiSer IV system).
- Models with W7220 controller meet California Title 24 (Section 120.2), IECC, and ASHRAE 90.1 for Fault Detection and Diagnostic (FDD) requirements (EconoMiSer X system).
- Models with RTU Open controller meet California Title 24 (Section 120.2), IECC, and ASHRAE 90.1 for Fault Detection and Diagnostic (FDD) requirements (EconoMiSer 2 system).

☐ Econometer with DRY BULB Sensing and Barometric Relief
ULTRA LOW LEAK Air Dampers —
- Models with W7220 controller meet California Energy Commission Title 24-2016 prescriptive section 140.4 (damper leakage, etc.), 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 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 (EconoMiSer 2 system).
FIELD-INSTALLED ACCESSORIES (CONT)

NOTE: 48FC 07 models use two-speed indoor fan logic, the two-position damper and manual dampers are designed for single-speed motor control. See Application Tip “ROOFTOP-18-01” for further guidance when using this unit.

- Power exhaust — prop fan design
- Two-position motorized outdoor air damper
- Manual outside air damper 25%
- Manual outside air damper 50%
- Roof curb — 14 inch (356mm) tall
- Roof curb — 24 inch (610mm) tall
- Thru-the-bottom connections, electrical only
- Thru-the-bottom connections, electrical and gas
- Condenser hail guard, louvered style
- Flue shield
- 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)
- Fan/Filter status switch
- Low ambient head pressure controller, down to 0°F (−18°C)
- Low ambient head pressure controller, down to −20°F (−29°C)

- Time Guard II compressor anti-cycle protection
- Thermostats and sensors
  NOTE: Size 07 model has two-stage cooling thermostat; use appropriate thermostat.
- 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
Fig. 1 — 48FC**04-07 Dimensional Drawing
Fig. 1 — 48FC**04-07 Dimensional Drawing (cont)
CERTIFIED DIMENSION PRINT

Fig. 1 — 48FC**04-07 Dimensional Drawing (cont)
NOTES:
1. ROOF CURB ACCESSORY IS SHIPPED DISASSEMBLED.
2. INSULATED PANELS: 25.4 [1"] THK. POLYURETHANE FOAM, 44.5 [1-3/4"] # DENSITY.
3. DIMENSIONS IN [ ] ARE IN MILLIMETERS.
4. ROOF CURB: 16 GAUGE STEEL.
5. ATTACH DUCT WORK TO CURB. (FLANGES OF DUCT MUST REST ON CURB).
6. SERVICE CLEARANCE 4 FEET ON EACH SIDE.
7. DIRECTION OF AIR FLOW.
8. CONNECTOR PACKAGE CRBTMPWR001A01 IS FOR THRU-THE-CURB GAS TYPE.
   PACKAGE CRBTMPWR003A01 IS FOR THRU-THE-BOTTOM TYPE GAS CONNECTIONS.

CONNECTOR PKG. ACC.  GAS CONNECTION TYPE  GAS FITTING  POWER WIRING  CONTROL WIRING  OUTLET WIRING CONNECTOR
CRBTMPWR003A01    THRU THE BOTTOM    1/2" [12.7] NPT

ROOF CURB DETAILS

Fig. 2 — 48FC**04-07 Roof Curb Accessory Details