

48TC16**
Single Package Rooftop
Gas Heating/Electric Cooling unit
with Puron® (R-410A) Refrigerant
Size 16



Electrical Data Supplement

NOTE: Read the entire instruction manual before starting the installation

This supplement only applies to 48TC size 16 units when the 10th digit of the Model Number is a “3”, as shown in the Model Number Nomenclature diagram below. Check the Unit Nameplate (see Figs. 1 & 2). If the digit in the 10th position is not a “3” discard this document.

MODEL NUMBER NOMENCLATURE

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
4	8	T	C	D	D	1	6	A	3	A	5	-	0	A	0	A	0

Unit Heat Type

48 = Gas Heat Packaged Rooftop

Model Series - WeatherMaker

TC = Standard Efficiency

Heat Size

- D = Low Gas Heat
- E = Medium Gas Heat
- F = High Gas Heat
- L = Low Nox – Low Gas Heat
- M = Low Nox – Medium Gas Heat
- N = Low Nox – High Gas Heat
- S = Low Heat with Stainless Steel Exchanger
- R = Medium Heat with Stainless Steel Exchanger
- T = High Heat with Stainless Steel Exchanger (Low Nox models include – Stainless Steel HX)

Indoor Fan Options:

- 1 = Standard Static Option
- 2 = Medium Static Option
- 3 = High Static Option

Sensor Options

- A = None
- B = RA Smoke Detector
- C = SA Smoke Detector
- D = RA + SA Smoke Detector
- E = CO2
- F = RA Smoke Detector and CO2
- G = SA Smoke Detector and CO2
- H = RA + SA Smoke Detector and CO2

Cooling Tons

16 = 15 ton


Refrig. Systems Options

- A = Single stage cooling models
- B = Single stage cooling models with Humidi-MiZer
- D = Two stage cooling models
- E = Two stage cooling models with Humidi-MiZer

SAFETY CONSIDERATIONS

Improper installation, adjustment, alteration, service, maintenance, or use can cause explosion, fire, electrical shock or other conditions which may cause personal injury or property damage. Consult a qualified installer, service agency, or your distributor or branch for information or assistance. The qualified installer or agency must use factory-authorized kits or accessories when modifying this product. Refer to the individual instructions packaged with the kits or accessories when installing.

Follow all safety codes. Wear safety glasses and work gloves. Use quenching cloths for brazing operations and have a fire extinguisher available. Read these instructions thoroughly and follow all warnings or cautions attached to the unit. Consult local building codes and appropriate national electrical codes (in USA, ANSI/NFPA70, National Electrical Code (NEC); in Canada, CSA C22.1) for special requirements.

It is important to recognize safety information. This is the safety-alert symbol . When you see this symbol on the unit and in instructions or manuals, be alert to the potential for personal injury.

Understand the signal words DANGER, WARNING, CAUTION, and NOTE. These words are used with the safety-alert symbol. DANGER identifies the most serious hazards which **will** result in severe personal injury or death. WARNING signifies hazards which **could** result in personal injury or death. CAUTION is used to identify unsafe practices, which **may** result in minor personal injury or product and property damage. NOTE is used to highlight suggestions which **will** result in enhanced installation, reliability, or operation.

CAUTION

ELECTRICAL HAZARD

Failure to follow this caution may result in personal injury or product and property damage.

The electrical data contained in this document is only for use with 48TC size 16 units which display a “3” in the 10th position of the 18 digit model number as displayed on the unit’s nameplate.

See Fig. 1 for location of the unit’s nameplate.

See Fig. 2 for details of the 18 digit model number.

WARNING

ELECTRICAL SHOCK HAZARD

Failure to follow this warning could cause personal injury or death.

Before performing service or maintenance operations on unit, always turn off main power switch to unit and install lockout tag. Unit may have more than one power switch.

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Nameplate Location

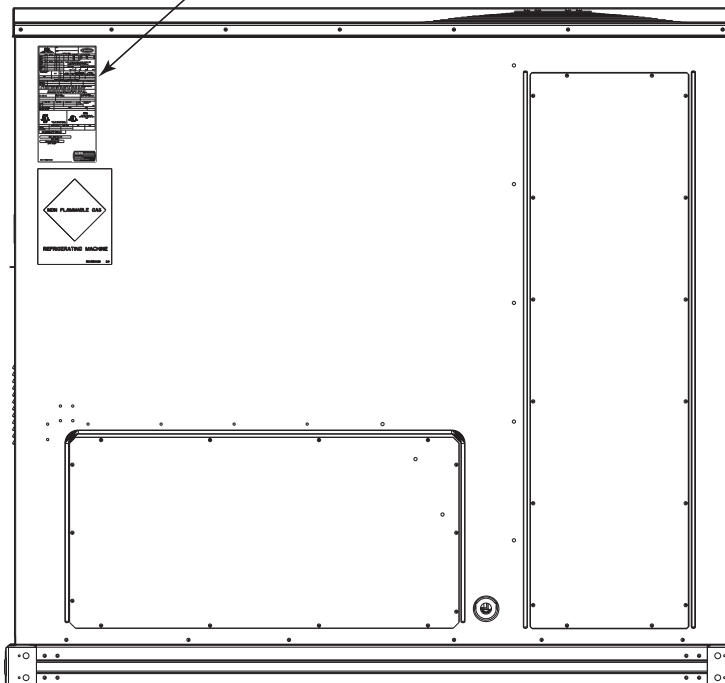






Fig. 1 - Location of Unit Nameplate

C101278

Carrier Corporation <small>731 WEST MORRIS STREET INDIANAPOLIS, IN 46231 U.S.A.</small>		MODEL 48TCDD16A3A5-0A0A0 SERIAL													
FACTORY CHARGED															
QTY		VOLTS AC		PH HZ		RLA		LRA		REF. SYSTEM R-410A		TEST PRESSURE GAGE			
COMPR A										LBS	kg	HI	PSI	kPa	
COMPR B										LBS	kg	LO	PSI	kPa	
COMPR C										LBS	kg				
FAN MTR	QTY	VOLTS AC		PH HZ		FLA		CHARGE SYSTEM PER INSTALLATION INSTRUCTIONS FOR OUTDOOR INSTALLATION ONLY COMBINATION COOLING AND HEATING UNIT							
INDOOR															
PWR EXHAUST						POWER SUPPLY				PERMISSIBLE VOLTAGE TO UNIT					
COMBUST															
OTHER															
ACCESSORY POWER EXHAUST MODEL		VOLTS		PH HZ		ACCESSORY POWER EXHAUST FLA		MINIMUM CIRCUIT AMPS		MAX FUSE OR HACR BREAKER PER NEC		MAXIMUM OVERCURRENT PROTECTION DEVICE		MINIMUM UNIT DISCONNECT	
NONE														FLA LRA	
MINIMUM CLEARANCE TO COMBUSTIBLE MATERIALS															
TOP				BOTTOM *				SIDES				FLUE SIDE **			
DOWN SUPPLY															
SIDE SUPPLY															
* FOR INSTALLATION ON COMBUSTIBLE FLOORING OR CLASS A,B, OR C ROOFING MATERIAL ** 18 INCHES (457mm) WITH ACCESSORY FLUE DISCHARGE DEFLECTOR															
DEVICE CERTIFIED AS A FORCED AIR FURNACE WITH COOLING UNIT CSA APPROVED FOR NON-RESIDENTIAL USE TO -40° F AMBIENT.															
AIR TEMP RISE				MAX EXTERNAL STATIC PRESSURE				DESIGNED MAXIMUM OUTLET AIR TEMPERATURE							
BTU/HR		INPUT MIN		INPUT MAX		OUTPUT CAP		THERMAL EFFICIENCY		EQUIPED FOR USE WITH					
KW										GAS					
GAS SUPPLY PRESSURE				MAX				MIN							
MANIFOLD PRESSURE															
 GAS-FIRED LISTED ANSI Z21.47-CAN/CGA-2.3- (2003) CENTRAL FURNACE						 LISTED COOLING PORTION OF HEATING AND COOLING UNIT 36N2									
CAPACITY Btu/Hr		CAPACITY KW		EER		COP									
COOLING															
HP HEATING															
THIS EQUIPMENT COMPLIES WITH THE 2004 REQUIREMENTS OF ASHRAE 90.1															
MODEL NUMBER BAR CODE MODEL NUMBER SERIAL NUMBER BAR CODE SERIAL NUMBER															
DATE OF MANUFACTURE:															
 Unitary Large AC AHRI Standard 340/360 <small>Certification applies only when the complete system is listed with AHRI.</small>															

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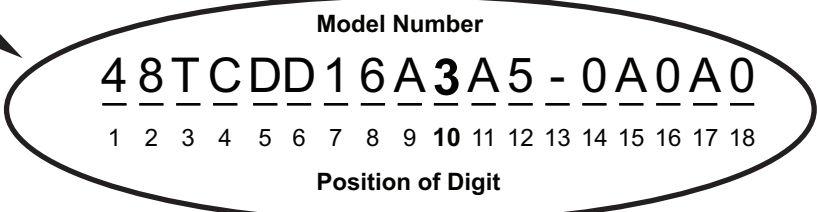


Fig. 2 - Example of Nameplate with Model Number

Table 1 – Unit Wire/Fuse or HACR Breaker Sizing Data

UNIT	NOM. V-Ph-Hz	IFM TYPE	COMBUSTION FAN MOTOR FLA	POWER EXHAUST FLA	NO C.O. or UNPWR C.O.							
					NO P.E.				w/ P.E. (pwrd fr/ unit)			
					MCA	FUSE or HACR BRKR	DISC. SIZE		MCA	FUSE or HACR BRKR	DISC. SIZE	
							FLA	LRA			FLA	LRA
48TC*D16	208/230-3-60	STD	0.48	3.8	68.3	80	71	396	72.1	80	76	400
		MED			70.8	80	74	413	74.6	90	79	417
		HIGH			77.8/75.8	100/100	82/80	424	81.6/79.6	100/100	87/84	428
	460-3-60	STD	0.25	1.8	34.0	45	35	234	35.8	45	37	236
		MED			35.0	45	37	243	36.8	45	39	245
		HIGH			38.2	50	40	248	40.0	50	42	250
	575-3-60	STD	0.24	3.8	26.5	30	28	184	30.3	40	32	188
		MED			26.5	30	28	184	30.3	40	32	188
		HIGH			29.8	35	31	187	33.6	40	36	191

Table 1 — Unit Wire/Fuse or HACR Breaker Sizing Data (cont)

UNIT	NOM. V-Ph-Hz	IFM TYPE	COMBUSTION FAN MOTOR FLA	POWER EXHAUST FLA	w/ PWRD C.O.							
					NO P.E.				w/ P.E. (pwrd fr/ unit)			
					MCA	FUSE or HACR BRKR	DISC. SIZE		MCA	FUSE or HACR BRKR	DISC. SIZE	
							FLA	LRA			FLA	LRA
48TC*D16	208/230-3-60	STD	0.48	3.8	73.1	80	77	401	76.9	100	81	405
		MED			75.6	100	80	418	79.4	100	84	422
		HIGH			82.6/80.6	100/100	88/85	429	86.4/84.4	100/100	92/90	433
	460-3-60	STD	0.25	1.8	36.2	45	38	236	38.0	50	40	238
		MED			37.2	50	39	245	39.0	50	41	247
		HIGH			40.4	50	43	250	42.2	50	45	252
	575-3-60	STD	0.24	3.8	28.2	35	30	186	32.0	40	34	190
		MED			28.2	35	30	186	32.0	40	34	190
		HIGH			31.5	40	33	189	35.3	45	38	193

Legend and Notes for Table 1

LEGEND:

- BRKR – Circuit breaker
- CO – Convenience outlet
- DISC – Disconnect
- FLA – Full load amps
- IFM – Indoor fan motor
- LRA – Locked rotor amps
- MCA – Minimum circuit amps
- PE – Power exhaust
- PWRD CO – Powered convenient outlet
- UNPWR CO – Unpowered convenient outlet



Example: Supply voltage is 230-3-60



AB = 224 v
BC = 231 v
AC = 226 v

$$\text{Average Voltage} = \frac{(224 + 231 + 226)}{3} = \frac{681}{3} = 227$$

Determine maximum deviation from average voltage.

(AB) 227 - 224 = 3 v

(BC) 231 - 227 = 4 v

(AC) 227 - 226 = 1 v

Maximum deviation is 4 v.

Determine percent of voltage imbalance.

$$\% \text{ Voltage Imbalance} = 100 \times \frac{4}{227} = 1.76\%$$

This amount of phase imbalance is satisfactory as it is below the maximum allowable 2%.

IMPORTANT: If the supply voltage phase imbalance is more than 2%, contact your local electric utility company immediately.

NOTES:

- In compliance with NEC requirements for multimotor and combination load equipment (refer to NEC Articles 430 and 440), the overcurrent protective device for the unit shall be fuse or HACR breaker. Canadian units may be fuse or circuit breaker.

2. Unbalanced 3-Phase Supply Voltage

Never operate a motor where a phase imbalance in supply voltage is greater than 2%. Use the following formula to determine the percentage of voltage imbalance.

$$\% \text{ Voltage Imbalance} = 100 \times \frac{\text{max voltage deviation from average voltage}}{\text{average voltage}}$$