

**48TC 15 to 27.5 Nominal Tons
Single Package Rooftop
Gas Heating/Electric Cooling Unit
with Puron® (R-410A) Refrigerant
Sizes: 17-30**



Electrical Data Supplement

FOR MODELS PRODUCED ON OR AFTER JULY 30, 2012 ONLY!

NOTE: Read the entire instruction manual before starting the installation

This supplement only applies to 48TC size 17 to 30 units manufactured on or after July 30, 2012. To confirm the date of manufacture of a 48TC unit, locate the unit nameplate and check the first four digits of the Serial Number. If the number listed in the first 4 digits of the Serial Number is 3112 or higher KEEP THIS DOCUMENT and use it along with the furnished Installation Instructions. See Fig. 1 for location of the nameplate; the Serial Number is located directly below the unit's Model Number.

SERIAL NUMBER NOMENCLATURE

Position:	1	2	3	4	5	6	7	8	9	10
Example:	3	1	1	2	U	1	2	3	4	5

Week of manufacture (fiscal calendar)			Sequence number
Year of manufacture ("12" = 2012)	Manufacturing location		

C12562

To select which tables apply to a given unit, check the 7th and 8th digits of the Model Number to determine the unit's size (Cooling Tons) and the 17th digit to determine the unit's electrical option(s).

MODEL NUMBER NOMENCLATURE

Position:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Example:	4	8	T	C	D	E	2	4	A	2	A	6	A	0	A	3	G	0


<p>Cooling Tons 17 - 15 ton 20 - 17.5 ton 24 - 20 ton 28 - 25 ton 30 - 27.5 ton</p>	<p>Electrical Options A = None C = Non-Fused Disconnect G = 2-Speed Indoor Fan (VFD) Controller J = 2-Speed Fan Controller (VFD) and Non-Fused Disconnect</p>
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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 17 to 30 units manufactured on or after July 30, 2012. Check the first 4 digits of the unit's Serial Number (located on the unit's nameplate) if the number listed is 3112 or higher keep this document.

See Fig. 1 for location of the unit's nameplate. The Serial Number is located directly below the unit's 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.

Nameplate Location

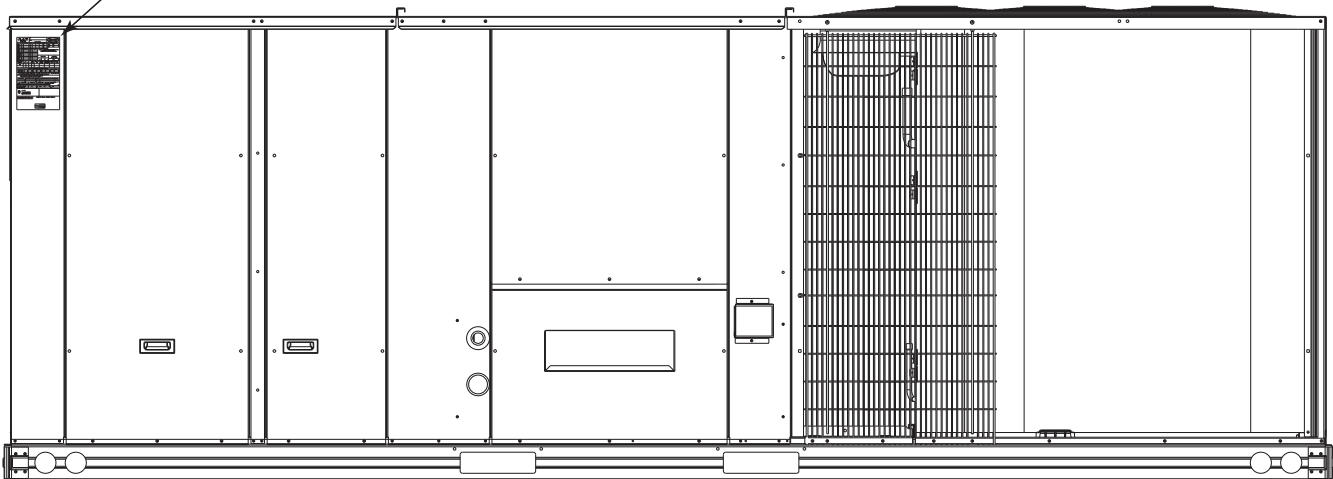


Fig. 1 - Location of Unit Nameplate

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

UNIT	NOM. V-Ph-Hz	IFM TYPE	NO C.O. or UNPWR C.O.						w/ PWRD C.O.							
			NO PE.			w/ P.E. (pwrd fr/ unit)			NO PE.			w/ P.E. (pwrd fr/ unit)				
			MCA	FUSE or HACR BRKR	DISC. SIZE FLA LRA	MCA	FUSE or HACR BRKR	DISC. SIZE FLA LRA	MCA	FUSE or HACR BRKR	DISC. SIZE FLA LRA	MCA	FUSE or HACR BRKR	DISC. SIZE FLA LRA		
48TC**17	208/230-3-60	STD	80.0/79.9	100/100	83/83	501	97/97	521	84.8/84.7	100/100	89/89	506	96.6/96.5	125/125	102/102	526
		MED	82.2	100	86	515	99	535	87.0	100	91	520	98.8	125	105	540
		HIGH	85.2/84.3	100/100	89/88	517	103/102	537	90.0/89.1	100/100	95/94	522	101.8/100.9	125/125	108/107	542
	460-3-60	STD	42.5	50	44	251	51	263	44.7	60	47	253	50.9	60	54	265
		MED	43.6	60	45	258	52	270	45.8	60	48	260	52.0	60	55	272
		HIGH	44.7	60	47	259	54	271	46.9	60	49	261	53.1	60	56	273
575-3-60	STD	32.1	40	33	188	39	196	33.8	45	35	190	38.6	50	41	198	
	MED	32.1	40	33	188	39	196	33.8	45	35	190	38.6	50	41	198	
	HIGH	34.9	45	37	202	42	210	36.6	45	39	204	41.4	50	44	212	
48TC**20	208/230-3-60	STD	82.2	100	86	515	99	535	87.0	100	91	520	98.8	125	105	540
		MED	85.2/84.3	100/100	89/88	517	103/102	537	90.0/89.1	100/100	95/94	522	101.8/100.9	125/125	108/107	542
		HIGH	88.7	100	93	513	107	533	93.5	110	99	518	105.3	125	112	538
	460-3-60	STD	43.6	60	45	258	52	270	45.8	60	48	260	52.0	60	55	272
		MED	44.7	60	47	259	54	271	46.9	60	49	261	53.1	60	56	273
		HIGH	46.9	60	49	257	56	269	49.1	60	52	259	55.3	60	59	271
575-3-60	STD	32.1	40	33	188	39	196	33.8	45	35	190	38.6	50	41	198	
	MED	34.9	45	37	202	42	210	36.6	45	39	204	41.4	50	44	212	
	HIGH	36.9	45	39	200	44	208	38.6	50	41	202	43.4	50	46	210	
48TC**24	208/230-3-60	STD	109.2/108.3	150/150	112/111	540	125/124	560	114.0/113.1	150/150	117/116	545	125.8/124.9	150/150	131/130	565
		MED	112.7	150	116	536	129	556	117.5	150	121	541	129.3	175	135	561
		HIGH	124.1	150	129	615	142	635	128.9	175	134	620	140.7	175	148	640
	460-3-60	STD	48.0	60	50	272	57	284	50.2	60	52	274	56.4	70	59	286
		MED	50.2	60	52	270	59	282	52.4	60	55	272	58.6	70	62	284
		HIGH	55.9	70	59	310	66	322	58.1	70	61	312	64.3	80	69	324
575-3-60	STD	38.6	50	40	224	46	232	40.3	50	42	226	45.1	50	48	234	
	MED	40.6	50	42	222	48	230	42.3	50	44	224	47.1	60	50	232	
	HIGH	42.5	50	45	249	50	257	44.2	60	47	251	49	60	52	259	

See: "Legend and Notes for Tables 1 and 2" on page 7.

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

UNIT	NOM. V-Ph-Hz	IFM TYPE	NO C.O. or UNPWR C.O.										w/ PWRD C.O.									
			NO PE.					w/ P.E. (pwrd fr/ unit)					NO PE.					w/ P.E. (pwrd fr/ unit)				
			MCA	FUSE or HACR BRKR	FLA	LRA	DISC. SIZE	MCA	FUSE or HACR BRKR	FLA	LRA	DISC. SIZE	MCA	FUSE or HACR BRKR	FLA	LRA	DISC. SIZE	MCA	FUSE or HACR BRKR	FLA	LRA	DISC. SIZE
48TC**28	208/230-3-60	STD	127.8/126.9	175/175	133/132	590	139.6/138.7	175/175	147/146	610	132.6/131.7	175/175	139/138	595	144.4/143.5	175/175	152/151	615				
		MED	131.3	175	137	586	143.1	175	151	606	136.1	175	143	591	147.9	175	156	611				
		HIGH	142.7	175	150	665	154.5	200	164	685	147.5	175	156	670	159.3	200	169	690				
	460-3-60	STD	51.9	60	54	302	58.1	70	61	314	54.1	60	57	304	60.3	70	64	316				
		MED	54.1	60	57	300	60.3	70	64	312	56.3	70	59	302	62.5	80	66	314				
		HIGH	59.8	70	63	340	66.0	80	70	352	62.0	80	66	342	68.2	80	73	354				
	575-3-60	STD	41.1	50	43	244	45.9	60	49	252	42.8	50	45	246	47.6	60	50	254				
		MED	43.1	50	45	242	47.9	60	51	250	44.8	50	47	244	49.6	60	53	252				
		HIGH	45.0	50	47	269	49.8	60	53	277	46.7	60	49	271	51.5	60	55	279				
48TC**30	208/230-3-60	STD	141.5	175	148	702	153.3	200	162	722	146.3	175	154	707	158.1	200	167	727				
		MED	152.9	200	161	781	164.7	200	175	801	157.7	200	167	786	169.5	200	180	806				
		HIGH	154.8	200	163	812	166.6	200	177	832	159.6	200	169	817	171.4	200	182	837				
	460-3-60	STD	66.0	80	69	354	72.2	90	76	366	68.2	90	72	356	74.4	90	79	368				
		MED	71.7	90	76	394	77.9	100	83	406	73.9	90	78	396	80.1	100	85	408				
		HIGH	72.6	90	77	409	78.8	100	84	421	74.8	90	79	411	81.0	100	86	423				
	575-3-60	STD	56.0	70	59	264	60.8	80	64	272	57.7	70	61	266	62.5	80	66	274				
		MED	57.9	70	61	291	62.7	80	66	299	59.6	70	63	293	64.4	80	68	301				
		HIGH	60.8	80	64	302	65.6	80	70	310	62.5	80	66	304	67.3	80	72	312				

See: "Legend and Notes for Tables 1 and 2" on page 7.

Table 2 – Unit Wire/Fuse or HACR Breaker Sizing Data with Factory Installed 2 Speed Indoor Fan Option

UNIT	NOM. V-Ph-Hz	IFM TYPE	NO C.O. or UNPWR C.O.						w/ PWRD C.O.									
			NO PE.			w/ P.E. (pwrd fr/ unit)			NO PE.			w/ P.E. (pwrd fr/ unit)						
			MCA	FUSE or HACR BRKR	DISC. SIZE FLA LRA	MCA	FUSE or HACR BRKR	DISC. SIZE FLA LRA	MCA	FUSE or HACR BRKR	DISC. SIZE FLA LRA	MCA	FUSE or HACR BRKR	DISC. SIZE FLA LRA				
48TC**17	208/230-3-60	STD	80.2/79.4	100/100	84/83	482	92.0/91.2	100/100	97/96	502	85.0/84.2	100/100	89/88	487	96.8/96.0	125/125	103/102	507
		MED	82.4/81.4	100/100	86/85	506	94.2/93.2	110/110	100/99	526	87.2/86.2	100/100	92/91	511	99.0/98.0	125/125	105/104	531
		HIGH	85.2/84.3	100/100	89/88	517	97.0/96.1	125/125	103/102	537	90.0/89.1	100/100	95/94	522	101.8/100.9	125/125	108/107	542
	460-3-60	STD	42.1	50	44	242	48.3	60	51	254	44.3	60	46	244	50.5	60	53	256
		MED	43.2	50	45	254	49.4	60	52	266	45.4	60	47	256	51.6	60	55	268
		HIGH	44.7	60	47	259	50.9	60	54	271	46.9	60	49	261	53.1	60	56	273
575-3-60	STD	33.8	45	35	188	38.6	50	41	196	35.5	45	37	190	40.3	50	43	198	
	MED	33.8	45	35	188	38.6	50	41	196	35.5	45	37	190	40.3	50	43	198	
	HIGH	35.5	45	37	202	40.3	50	43	210	37.2	45	39	204	42	50	45	212	
48TC**20	208/230-3-60	STD	82.4/81.4	100/100	86/85	506	94.2/93.2	110/110	100/99	526	87.2/86.2	100/100	92/91	511	99.0/98.0	125/125	105/104	531
		MED	85.2/84.3	100/100	89/88	517	97.0/96.1	125/125	103/102	537	90.0/89.1	100/100	95/94	522	101.8/100.9	125/125	108/107	542
		HIGH	88.7	100	93	513	100.5	125	107	533	93.5	110	99	518	105.3	125	112	538
	460-3-60	STD	43.2	50	45	254	49.4	60	52	266	45.4	60	47	256	51.6	60	55	268
		MED	44.7	60	47	259	50.9	60	54	271	46.9	60	49	261	53.1	60	56	273
		HIGH	46.9	60	49	257	53.1	60	56	269	49.1	60	52	259	55.3	60	59	271
575-3-60	STD	33.8	45	35	188	38.6	50	41	196	35.5	45	37	190	40.3	50	43	198	
	MED	35.5	45	37	202	40.3	50	43	210	37.2	45	39	204	42.0	50	45	212	
	HIGH	36.9	45	39	200	41.7	50	44	208	38.6	50	41	202	43.4	50	46	210	
48TC**24	208/230-3-60	STD	109.2/108.3	150/150	112/111	540	121.0/120.1	150/150	125/124	560	114.0/113.1	150/150	117/116	545	125.8/124.9	150/150	131/130	565
		MED	112.7	150	116	536	124.5	150	129	556	117.5	150	121	541	129.3	175	135	561
		HIGH	124.1	150	129	615	135.9	175	142	635	128.9	175	134	620	140.7	175	148	640
	460-3-60	STD	48.0	60	50	272	54.2	60	57	284	50.2	60	52	274	56.4	70	59	286
		MED	50.2	60	52	270	56.4	70	59	282	52.4	60	55	272	58.6	70	62	284
		HIGH	55.9	70	59	310	62.1	80	66	322	58.1	70	61	312	64.3	80	69	324
575-3-60	STD	39.2	50	41	224	44.0	50	46	232	40.9	50	43	226	45.7	60	48	234	
	MED	40.6	50	42	222	45.4	60	48	230	42.3	50	44	224	47.1	60	50	232	
	HIGH	42.5	50	45	249	47.3	60	50	257	44.2	50	47	251	49	60	52	259	

See: "Legend and Notes for Tables 1 and 2" on page 7.

Table 2 - Unit Wire/Fuse or HACR Breaker Sizing Data with Factory Installed 2 Speed Indoor Fan Option (cont)

UNIT	NOM. V-Ph-Hz	IFM TYPE	NO C.O. or UNPWR C.O.						w/ PWRD C.O.												
			NO PE.			w/ P.E. (pwrd fr/ unit)			NO PE.			w/ P.E. (pwrd fr/ unit)									
			MCA	FUSE or HACR BRKR	DISC. SIZE FLA LRA	MCA	FUSE or HACR BRKR	DISC. SIZE FLA LRA	MCA	FUSE or HACR BRKR	DISC. SIZE FLA LRA	MCA	FUSE or HACR BRKR	DISC. SIZE FLA LRA							
48TC**28	208/230-3-60	STD	127.8/126.9	175/175	133/132	590	586	139.6/138.7	175/175	147/146	610	606	132.6/131.7	175/175	139/138	595	591	144.4/143.5	175/175	152/151	615
		MED	131.3	175	137	586	143.1	175	151	151	606	136.1	175	143	143	591	591	147.9	175	156	611
		HIGH	142.7	175	150	665	154.5	200	164	164	685	147.5	175	156	156	670	670	159.3	200	169	690
	460-3-60	STD	51.9	60	54	302	58.1	70	61	61	314	54.1	60	57	57	304	304	60.3	70	64	316
		MED	54.1	60	57	300	60.3	70	64	64	312	56.3	70	59	59	302	302	62.5	80	66	314
		HIGH	59.8	70	63	340	66.0	80	70	70	352	62.0	80	66	66	342	342	68.2	80	73	354
	575-3-60	STD	41.7	50	44	244	46.5	60	49	49	252	43.4	50	46	46	246	246	48.2	60	51	254
		MED	43.1	50	45	242	47.9	60	51	51	250	44.8	50	47	47	244	244	49.6	60	53	252
		HIGH	45	50	47	269	49.8	60	53	53	277	46.7	60	49	49	271	271	51.5	60	55	279
48TC**30	208/230-3-60	STD	141.5	175	148	702	153.3	200	162	162	722	146.3	175	154	154	707	707	158.1	200	167	727
		MED	152.9	200	161	781	164.7	200	175	175	801	157.7	200	167	167	786	786	169.5	200	180	806
		HIGH	154.8	200	163	812	166.6	200	177	177	832	159.6	200	169	169	817	817	171.4	200	182	837
	460-3-60	STD	66.0	80	69	354	72.2	90	76	76	366	68.2	90	72	72	356	356	74.4	90	79	368
		MED	71.7	90	76	394	77.9	100	83	83	406	73.9	90	78	78	396	396	80.1	100	85	408
		HIGH	72.6	90	77	409	78.8	100	84	84	421	74.8	90	79	79	411	411	81.0	100	86	423
	575-3-60	STD	56.0	70	59	264	60.8	80	64	64	272	57.7	70	61	61	266	266	62.5	80	66	274
		MED	57.9	70	61	291	62.7	80	66	66	299	59.6	70	63	63	293	293	64.4	80	68	301
		HIGH	60.8	80	64	302	65.6	80	70	70	310	62.5	80	66	66	304	304	67.3	80	72	312

See: "Legend and Notes for Tables 1 and 2" on page 7.

Legend and Notes for Tables 1 and 2

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



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.

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

Example: Supply voltage is 230-3-60



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

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

Determine maximum deviation from average voltage.

$$(AB) 227 - 224 = 3 \text{ v}$$

$$(BC) 231 - 227 = 4 \text{ v}$$

$$(AC) 227 - 226 = 1 \text{ v}$$

Maximum deviation is 4 v.

Determine percent of voltage imbalance.

$$\begin{aligned} \% \text{ Voltage Imbalance} &= 100 \times \frac{4}{227} \\ &= 1.76\% \end{aligned}$$

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.

