

**48/50TC 15 Nominal Tons
Single Package Rooftop
Gas Heating/Electric Cooling Unit
& Cooling Only/Electric Heat Unit
with Puron® (R-410A) Refrigerant
Size: 16**



Electrical Data Supplement

FOR MODELS PRODUCED ON OR AFTER MAY 18, 2015 ONLY!

NOTE: Read the entire instruction manual before starting the installation

This supplement only applies to 48/50TC size 16 units manufactured on or after May 18, 2015. To confirm the date of manufacture of the unit, locate the unit nameplate and check the first four digits of the Serial Number which is located directly below the unit's Model Number at the top of the nameplate. If the number listed in the first 4 digits of the Serial Number is 2115 or higher KEEP THIS DOCUMENT and use it along with the furnished Installation Instructions.

SERIAL NUMBER NOMENCLATURE

Position:	1	2	3	4	5	6	7	8	9	10
Example:	2	1	1	5	X	1	2	3	4	5
Week of manufacture (fiscal calendar)					Sequence number					
Year of manufacture ("15" = 2015)					Manufacturing location					

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.

C150230

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 48/50TC size 16 units manufactured on or after May 18, 2015. Check the first 4 digits of the unit's Serial Number (located on the unit's nameplate) if the number listed is 2115 or higher keep this document.

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.

Table 1 – 48TC 16 Unit Wire/Fuse or HACR Breaker Sizing Data - Single Speed Indoor Fan Motor

UNIT	NOM. V-Ph-Hz	IFM TYPE	NO C.O. or UNPWR C.O.						w/ PWRD C.O.											
			NO PE.			w/ PE. (pwrdr fr/ unit)			NO PE.			w/ PE. (pwrdr fr/ unit)								
			MCA	MAX FUSE or HACR BRKR	DISC. SIZE FLA LRA	MCA	MAX FUSE or HACR BRKR	DISC. SIZE FLA LRA	MCA	MAX FUSE or HACR BRKR	DISC. SIZE FLA LRA	MCA	MAX FUSE or HACR BRKR	DISC. SIZE FLA LRA						
48TC*D16 (2-stage cool)	208/230-3-60	STD	70/70	80/80	72/72	412	412	73/73	80/80	77/77	416	416	74/74	90/90	78/78	417	78/78	100/100	82/82	421
		MED	72	80	75	426	426	76	100	79	430	430	77	100	80	431	80	100	85	435
		HIGH	82	100	86	432	432	85	100	91	436	436	86	100	92	437	90	100	96	441
	460-3-60	STD	35	45	36	242	242	37	45	38	244	244	37	45	39	244	39	50	41	246
		MED	36	45	38	249	249	38	50	40	251	251	39	50	40	251	40	50	42	253
		HIGH	41	50	43	252	252	43	50	45	254	254	43	50	46	254	45	50	48	256
	575-3-60	STD	27	30	28	184	184	31	40	32	188	188	29	35	30	186	32	40	34	190
		MED	27	30	28	184	184	31	40	32	188	188	29	35	30	186	32	40	34	190
		HIGH	33	40	35	196	196	37	45	39	200	200	35	40	37	198	39	45	41	202

See: "Legend and Notes for Tables 1 – 4 " on page 7.

Table 2 – 48TC 16 Unit Wire/Fuse or HACR Breaker Sizing Data - 2-Speed Indoor Fan Motor

UNIT	NOM. V-Ph-Hz	IFM TYPE	NO C.O. or UNPWR C.O.						w/ PWRD C.O.											
			NO PE.			w/ PE. (pwrdr fr/ unit)			NO PE.			w/ PE. (pwrdr fr/ unit)								
			MCA	MAX FUSE or HACR BRKR	FLA	LRA	DISC. SIZE	MCA	MAX FUSE or HACR BRKR	FLA	LRA	DISC. SIZE	MCA	MAX FUSE or HACR BRKR	FLA	LRA	DISC. SIZE			
48TC*D16 (2-stage cool)	208/230-3-60	STD	70/69	80/80	73/72	393	393	74/73	80/80	77/76	397	397	75/74	90/80	78/77	398	78/78	100/100	82/82	402
		MED	72/71	80/80	75/74	417	417	76/75	100/90	79/78	421	421	77/76	100/100	81/79	422	81/80	100/100	85/84	426
		HIGH	82	100	86	432	432	85	100	91	436	436	86	100	92	437	90	100	96	441
	460-3-60	STD	35	45	36	233	233	37	45	38	235	235	37	45	38	235	39	50	40	237
		MED	36	45	37	245	245	38	50	39	247	247	38	50	40	247	40	50	42	249
		HIGH	41	50	43	252	252	43	50	45	254	254	43	50	46	254	45	50	48	256
	575-3-60	STD	29	35	30	184	184	32	40	34	188	188	30	35	32	186	34	40	36	190
		MED	29	35	30	184	184	32	40	34	188	188	30	35	32	186	34	40	36	190
		HIGH	33	40	35	196	196	37	45	39	200	200	35	40	37	198	39	45	41	202

See: "Legend and Notes for Tables 1 – 4 " on page 7.

Table 3 – 50TC 16 Unit Wire/Fuse or HACR Breaker Sizing Data – Single Speed Indoor Fan Motor

UNIT	IFM-TYPE	ELEC. HTR		NO C.O. or UNPWR C.O.						w/ PWRD C.O.					
				NO P.E.			w/ P.E. (pwrd fr/unit)			NO P.E.			w/ P.E. (pwrd fr/unit)		
				MCA	MAX FUSE or HACR BRKR	DISC. SIZE FLA LRA	MCA	MAX FUSE or HACR BRKR	DISC. SIZE FLA LRA	MCA	MAX FUSE or HACR BRKR	DISC. SIZE FLA LRA	MCA	MAX FUSE or HACR BRKR	DISC. SIZE FLA LRA
50TC*D16 (2-stage cool)	NO M.V-PH-HZ	CRHEATER***A00	Nom (kW)	FLA	NONE	-	-	-	-	-	-	-	-	-	-
50TC*D16 (2-stage cool)	NO M.V-PH-HZ	CRHEATER***A00	Nom (kW)	FLA	NONE	-	-	-	-	-	-	-	-	-	-
460-3-60	NO M.V-PH-HZ	CRHEATER***A00	Nom (kW)	FLA	NONE	-	-	-	-	-	-	-	-	-	-
460-3-60	NO M.V-PH-HZ	CRHEATER***A00	Nom (kW)	FLA	NONE	-	-	-	-	-	-	-	-	-	-
460-3-60	NO M.V-PH-HZ	CRHEATER***A00	Nom (kW)	FLA	NONE	-	-	-	-	-	-	-	-	-	-
460-3-60	NO M.V-PH-HZ	CRHEATER***A00	Nom (kW)	FLA	NONE	-	-	-	-	-	-	-	-	-	-
460-3-60	NO M.V-PH-HZ	CRHEATER***A00	Nom (kW)	FLA	NONE	-	-	-	-	-	-	-	-	-	-

See: "Legend and Notes for Tables 1 – 4 " on page 7.

Table 3 - 50TC 16 Unit Wire/Fuse or HACR Breaker Sizing Data - Single Speed Indoor Fan Motor (cont)

UNIT	NO M.V-Ph-HZ	IFM-TYPE	ELEC. HTR		NO C.O. or UNPWR C.O.								w/ PWRD C.O.								
			CRHEATER***A00	Nom (kW)	FLA	NO P.E.				w/ P.E. (pwrdr fr/unit)				NO P.E.				w/ P.E. (pwrdr fr/unit)			
						MCA	MAX FUSE or HACR BRKR	FLA	DISC. SIZE	LRA	MCA	MAX FUSE or HACR BRKR	FLA	DISC. SIZE	LRA	MCA	MAX FUSE or HACR BRKR	FLA	DISC. SIZE	LRA	MCA
50TC+D16 (2-stage cool)		STD	NONE	—	—	27	30	28	184	31	40	32	188	29	35	30	186	32	40	34	190
			293A	16.5	15.9	27	30	28	184	31	40	32	188	29	35	30	186	32	40	34	190
			296A	33.5	32.2	44	45	40	184	49	50	45	188	46	50	42	186	51	60	47	190
			290A+296A	43.5	41.8	56	60	51	184	61	70	56	188	58	60	53	186	63	70	58	190
			293A+296A	50.0	48.1	52	60	59	184	57	60	63	188	54	60	60	186	59	60	65	190
575-3-60		MED	296A+296A	67.0	64.4	68	80	77	184	73	80	82	188	70	80	79	186	75	80	84	190
			NONE	—	—	27	30	28	184	31	40	32	188	29	35	30	186	32	40	34	190
			293A	16.5	15.9	27	30	28	184	31	40	32	188	29	35	30	186	32	40	34	190
			296A	33.5	32.2	44	45	40	184	49	50	45	188	46	50	42	186	51	60	47	190
			290A+296A	43.5	41.8	56	60	51	184	61	70	56	188	58	60	53	186	63	70	58	190
50TC+D16 (2-stage cool)		HIGH	293A+296A	50.0	48.1	52	60	59	184	57	60	63	188	54	60	60	186	59	60	65	190
			296A+296A	67.0	64.4	68	80	77	184	73	80	82	188	70	80	79	186	75	80	84	190
			NONE	—	—	33	40	35	196	37	45	39	200	35	40	37	198	39	45	41	202
			293A	16.5	15.9	33	40	35	196	37	45	39	200	35	40	37	198	39	45	41	202
			296A	33.5	32.2	52	60	47	196	57	60	52	200	54	60	49	198	59	60	54	202
50TC+D16 (2-stage cool)			290A+296A	43.5	41.8	64	70	58	196	69	70	63	200	66	70	60	198	71	80	65	202
			293A+296A	50.0	48.1	70	80	70	200	62	70	68	198	67	70	72	202	202	202	202	
			296A+296A	67.0	64.4	76	80	84	196	81	90	89	200	78	80	86	198	83	90	91	202

See: "Legend and Notes for Tables 1 – 4 " on page 7.

Table 4 – 50TC 16 Unit Wire/Fuse or HACR Breaker Sizing Data – 2-Speed Indoor Fan Motor

UNIT	NO M. V.-Ph-HZ	ELEC. HTR		NO C.O. or UNPWR C.O.										w/ PWRD C.O.									
				I NO PE.					w/ P/E. (pwrd fr/unit)					NO PE.					w/ P/E. (pwrd fr/unit)				
		CRHEATER***A00	Nom (kW)	FLA	MCA	MAX FUSE or HACR BRKR	DISC. SIZE		MCA	MAX FUSE or HACR BRKR	DISC. SIZE		MCA	MAX FUSE or HACR BRKR	DISC. SIZE		MCA	MAX FUSE or HACR BRKR	DISC. SIZE				
							FLA	LRA			FLA	LRA			FLA	LRA			FLA	LRA	FLA	LRA	
STD		NONE	—	—	70/69	80/80	73/72	393	74/73	80/80	77/76	397	75/74	90/80	78/77	398	78/78	100/100	82/82	402			
		291A	12.4/16.5	34.4/39.7	70/69	80/80	73/72	393/393	74/73	80/80	77/76	397/397	75/74	90/80	78/77	398/398	78/78	100/100	82/82	402/402			
		294A	25.2/33.5	69.9/80.6	99/111	100/125	90/102	393/393	103/116	110/125	95/106	97/397	105/117	110/125	96/107	398/398	109/122	110/125	102/402				
		288A+294A	32.7/43.5	90.7/104.7	125/141	125/150	114/129	393/393	129/146	150/150	119/134	397/397	131/147	150/150	120/135	398/398	135/151	150/175	124/139	402/402			
		291A+294A	37.6/50.0	104.3/120.3	142/131	150/150	130/147	393/393	146/135	150/150	134/152	397/397	148/137	150/150	135/153	398/398	152/141	175/150	140/157	402/402			
		294A+294A	50.3/67.0	139.7/161.2	151/171	175/200	171/194	393/393	156/176	175/200	175/199	397/397	157/177	175/200	176/200	398/398	162/182	175/200	180/204	402/402			
MED	208/230-3-60	NONE	—	—	72/71	80/80	75/74	417	76/75	100/90	79/78	421	77/76	100/100	81/79	422	81/80	100/100	85/84	426			
		291A	12.4/16.5	34.4/39.7	72/71	80/80	75/74	417/417	76/75	100/90	79/78	421/421	77/76	100/100	81/79	422/422	81/80	100/100	85/84	426/426			
		294A	25.2/33.5	69.9/80.6	101/113	110/125	93/104	417/417	106/118	110/125	97/108	421/421	107/119	110/125	98/109	422/422	112/124	125/125	103/114	426/426			
		288A+294A	32.7/43.5	90.7/104.7	127/144	150/150	117/132	417/417	132/148	150/150	121/136	421/421	133/150	150/150	122/137	422/422	138/154	150/175	127/142	426/426			
		291A+294A	37.6/50.0	104.3/120.3	144/133	150/150	132/150	417/417	149/138	150/150	137/154	421/421	150/139	150/150	138/155	422/422	155/144	175/175	142/160	426/426			
		294A+294A	50.3/67.0	139.7/161.2	154/174	175/200	173/197	417/417	158/179	175/200	177/201	421/421	160/180	175/200	179/202	422/422	164/185	175/200	183/207	426/426			
HIGH		NONE	—	—	82	100	86	432	85	100	91	436	86	100	92	437	90	100	96	441			
		291A	12.4/16.5	34.4/39.7	82/82	100/100	86/86	432/432	85/85	100/100	91/91	436/436	86/86	100/100	92/92	437/437	90/90	100/100	96/96	441/441			
		294A	25.2/33.5	69.9/80.6	113/127	125/150	104/116	432/432	118/131	125/150	108/121	436/436	119/133	125/150	109/122	437/437	124/137	125/150	114/126	441/441			
		288A+294A	32.7/43.5	90.7/104.7	139/157	150/175	126/144	432/432	144/162	150/175	132/148	436/436	145/163	150/175	133/149	437/437	150/168	150/175	138/154	441/441			
		291A+294A	37.6/50.0	104.3/120.3	156/146	175/175	143/162	432/432	161/151	175/175	148/166	436/436	162/152	175/175	149/167	437/437	167/157	175/175	153/172	441/441			
		294A+294A	50.3/67.0	139.7/161.2	166/187	175/225	184/209	432/432	170/192	175/225	188/213	436/436	172/193	200/225	190/214	437/437	176/198	200/225	194/219	441/441			
STD		NONE	—	—	35	45	36	233	37	45	38	235	37	45	38	235	39	50	40	237			
		292A	16.5	19.9	35	45	36	233	37	45	38	235	37	45	38	235	39	50	40	237			
		295A	33.5	40.3	56	60	51	233	58	60	53	235	58	60	53	235	61	70	55	237			
		288A+295A	43.5	52.3	71	80	65	233	73	80	67	235	73	80	67	235	76	80	69	237			
		292A+295A	50.0	60.2	65	70	74	233	68	80	76	235	68	80	76	235	70	80	78	237			
		295A+295A	67.0	80.6	86	90	97	233	88	100	99	235	89	100	100	235	91	100	102	237			
MED	460-3-60	NONE	—	—	36	45	37	245	38	50	39	247	38	50	40	247	40	50	42	249			
		292A	16.5	19.9	36	45	37	245	38	50	39	247	38	50	40	247	40	50	42	249			
		295A	33.5	40.3	57	60	52	245	59	60	54	247	60	60	55	247	62	70	57	249			
		288A+295A	43.5	52.3	72	80	66	245	74	80	68	247	75	80	68	247	77	80	70	249			
		292A+295A	50.0	60.2	67	80	75	245	69	80	77	247	70	80	77	247	72	80	79	249			
		295A+295A	67.0	80.6	87	100	98	245	89	100	100	247	90	100	101	247	92	100	103	249			
HIGH		NONE	—	—	41	50	43	252	43	50	45	254	43	50	46	254	45	50	48	256			
		292A	16.5	19.9	41	50	43	252	43	50	45	254	43	50	46	254	45	50	48	256			
		295A	33.5	40.3	64	70	58	252	66	70	60	254	66	70	61	254	69	70	63	256			
		288A+295A	43.5	52.3	79	80	72	252	81	90	74	254	81	90	74	254	84	90	76	256			
		292A+295A	50.0	60.2	73	80	81	252	76	80	83	254	76	80	83	254	78	80	86	256			
		295A+295A	67.0	80.6	94	100	104	252	96	100	106	254	97	100	107	254	99	100	109	256			

See: "Legend and Notes for Tables 1 – 4 " on page 7.

Table 4 - 50TC 16 Unit Wire/Fuse or HACR Breaker Sizing Data - 2-Speed Indoor Fan Motor (cont)

UNIT	NO M. V-PH-HZ	ELEC. HTR		NO C.O. or UNPWR C.O.										w/ PWRD C.O.				
				I NO PE.					w/ PE. (pwrd fr/unit)					NO PE.				
				MCA	MAX FUSE or HACR BRKR	FLA	DISC. SIZE	MCA	MAX FUSE or HACR BRKR	FLA	DISC. SIZE	LRA	MCA	MAX FUSE or HACR BRKR	MCA	MAX FUSE or HACR BRKR	FLA	DISC. SIZE
50TC+D16 (2-stage cool)	STD	CRHEATER***A00	Nom (kW)	FLA	NONE	-	293A	29	35	30	184	34	32	40	30	35	32	186
575-3-60	MED	CRHEATER***A00	Nom (kW)	FLA	NONE	-	293A	29	35	30	184	34	32	40	30	35	32	186
50TC+D16 (2-stage cool)	HIGH	CRHEATER***A00	Nom (kW)	FLA	NONE	-	293A	33	40	35	196	39	37	45	35	40	37	198

See: "Legend and Notes for Tables 1 – 4 " on page 7.

Legend and Notes for Tables 1 - 4

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
MOCP	-	MAX FUSE or HACR Breaker
PE	-	Power exhaust
PWRD CO	-	Powered convenient outlet
UNPWR CO	-	Unpowered convenient outlet

NOTES:

1. 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.

