

**50TCQ 10 Nominal Tons  
Single Package Rooftop  
Heat Pump  
with Puron® (R-410A) Refrigerant  
Size: 12**



## 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 50TCQ size 12 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 50TCQ size 12 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 – 50TCQ 12 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.													
		CRHEATER***400	Nom (kW)	FLA	NO RE.					w/ RE. (pwrd fr/unit)					NO PE.					w/ PE. (pwrd fr/unit)								
					MCA	MAX FUSE or HACR BRKR	FLA	DISC. SIZE	MCA	MAX FUSE or HACR BRKR	FLA	DISC. SIZE	MCA	MAX FUSE or HACR BRKR	FLA	DISC. SIZE	MCA	MAX FUSE or HACR BRKR	FLA	DISC. SIZE	MCA	MAX FUSE or HACR BRKR	FLA	DISC. SIZE				
50TCQD12	STD	NONE	-	-	47	60	49	282	51	60	54	286	52	60	55	287	56	60	56	60	59	291	59	287	56	60	59	291
		117A	7.8/10.4	21.7/25.0	74/79	80/80	74/78	304/307	78/82	80/90	79/82	308/311	79/83	80/90	80/84	309/312	83/87	90/90	83/87	90/90	84/88	313/316	84/88	309/312	83/87	90/90	84/88	313/316
		110A	12.0/16.0	33.4/38.5	89/95	90/100	88/94	315/321	93/99	100/100	92/98	319/325	94/100	100/100	93/99	320/326	98/104	100/110	98/104	100/110	98/104	324/330	98/104	320/326	98/104	100/110	98/104	324/330
		112A	24.0/32.0	66.7/77.0	131/144	150/150	128/138	349/359	135/147	150/150	130/142	353/363	136/148	150/150	132/143	354/364	139/152	150/175	139/152	150/175	136/148	358/368	136/148	354/364	139/152	150/175	136/148	358/368
		112A+117A	31.8/42.4	88.4/102.0	158/175	175/175	151/167	459/486	162/179	175/200	155/171	463/490	163/180	175/200	157/172	464/491	166/183	175/200	166/183	175/200	161/177	468/495	161/177	464/491	166/183	175/200	161/177	468/495
		112A+110A	37.6/50.0	104.2/120.3	178/168	200/175	168/188	490/523	181/171	200/175	174/192	494/527	182/172	200/200	175/193	495/528	186/176	200/200	186/176	200/200	179/198	499/532	179/198	495/528	186/176	200/200	179/198	499/532
	MED	NONE	-	-	53	60	56	338	57	70	60	342	58	70	61	343	61	70	61	70	65	347	65	343	61	70	65	347
		117A	7.8/10.4	21.7/25.0	80/84	80/90	81/84	360/363	84/88	90/90	85/89	364/367	85/89	90/90	86/90	365/368	88/93	90/90	88/93	90/90	89/94	369/372	89/94	365/368	88/93	90/100	89/94	369/372
		110A	12.0/16.0	33.4/38.5	94/101	100/110	94/100	371/377	98/105	100/110	98/104	375/381	99/106	100/110	99/105	376/382	103/109	100/110	103/109	100/110	104/110	380/386	104/110	376/382	103/109	110/110	104/110	380/386
		112A	24.0/32.0	66.7/77.0	136/149	150/150	132/144	405/415	140/153	150/175	137/148	409/419	141/154	150/175	138/150	410/420	145/158	150/175	145/158	150/175	142/154	414/424	142/154	410/420	145/158	150/175	142/154	414/424
		112A+117A	31.8/42.4	88.4/102.0	163/180	175/200	157/173	515/542	167/184	175/200	162/177	519/546	168/185	175/200	163/178	520/547	172/189	175/200	172/189	175/200	167/183	524/551	167/183	520/547	172/189	175/200	167/183	524/551
		112A+110A	37.6/50.0	104.2/120.3	183/173	200/200	175/194	546/579	187/177	200/200	180/198	550/583	188/178	200/200	181/199	551/584	192/182	200/200	192/182	200/200	185/204	555/588	185/204	551/584	192/182	200/200	185/204	555/588
HIGH	NONE	-	-	56/55	60/60	59/58	340	60/59	70/70	63/62	344	61/60	70/70	65/63	345	64/63	70/70	64/63	70/70	69/68	349	69/68	345	64/63	70/70	69/68	349	
	117A	7.8/10.4	21.7/25.0	83/86	90/90	84/87	362/365	87/90	90/90	88/91	366/369	88/91	90/100	89/92	367/370	91/95	100/100	91/95	100/100	94/97	371/374	94/97	367/370	91/95	100/100	94/97	371/374	
	110A	12.0/16.0	33.4/38.5	97/103	100/110	97/102	373/379	101/107	110/110	102/107	377/383	102/108	110/110	103/108	378/384	106/112	110/125	106/112	110/125	107/112	382/388	107/112	378/384	106/112	110/125	107/112	382/388	
	112A	24.0/32.0	66.7/77.0	139/151	150/175	136/147	407/417	143/155	150/175	140/151	411/421	144/156	150/175	141/152	412/422	148/160	150/175	148/160	150/175	146/156	416/426	146/156	412/422	148/160	150/175	146/156	416/426	
	112A+117A	31.8/42.4	88.4/102.0	166/182	175/200	161/175	517/544	170/186	175/200	165/180	521/548	171/187	175/200	166/181	522/549	175/191	175/200	175/191	175/200	171/185	526/553	171/185	522/549	175/191	175/200	171/185	526/553	
	112A+110A	37.6/50.0	104.2/120.3	186/175	200/200	179/196	548/581	190/179	200/200	183/201	552/585	191/180	200/200	184/202	553/586	195/184	200/200	195/184	200/200	189/206	557/590	189/206	553/586	195/184	200/200	189/206	557/590	
460 I-3-60	STD	NONE	-	-	23	30	24	135	25	26	137	26	30	27	137	27	30	27	30	29	139	29	137	27	30	29	139	
		116A	13.9	16.7	44	45	43	152	46	50	46	154	47	50	46	154	48	50	46	48	156	48	154	48	50	48	156	
		113A	16.5	19.8	48	50	47	155	50	50	49	157	50	50	49	157	52	50	50	50	159	52	157	52	50	50	159	
		115A	33.0	39.7	73	80	72	175	75	80	72	175	75	80	72	175	77	80	75	80	77	177	77	175	77	80	77	177
		114A+116A	41.7	50.2	86	90	82	235	88	90	84	237	88	90	85	237	90	80	85	90	87	239	87	237	90	80	87	239
		115A+113A	50.0	60.1	84	90	93	255	85	90	95	257	86	90	96	257	88	90	96	90	98	259	98	257	88	90	98	259
	MED	NONE	-	-	26	30	27	163	28	30	29	165	28	30	30	165	30	30	30	30	32	167	32	165	30	35	32	167
		116A	13.9	16.7	47	50	47	180	49	50	49	182	49	50	49	182	51	50	49	51	184	51	182	51	50	51	184	
		113A	16.5	19.8	51	60	50	183	53	60	52	185	53	60	53	185	55	60	53	55	187	55	185	55	60	55	187	
		115A	33.0	39.7	77	80	73	203	78	80	75	204	78	80	76	206	81	80	76	80	78	207	78	206	81	80	78	207
		114A+116A	41.7	50.2	89	90	85	263	91	100	87	265	91	100	88	266	94	100	88	94	268	94	266	94	100	90	91	268
		115A+113A	50.0	60.1	86	90	96	283	88	90	99	285	88	90	99	285	90	100	99	90	101	287	90	285	90	100	101	287
HIGH	NONE	-	-	27	30	29	164	29	35	31	166	29	35	31	166	31	35	31	33	168	33	166	31	35	33	168		
	116A	13.9	16.7	48	50	48	181	50	50	48	183	50	50	48	183	52	50	50	52	185	52	183	52	50	52	185		
	113A	16.5	19.8	52	60	51	186	54	60	53	186	54	60	54	186	56	60	54	56	188	56	186	56	60	56	188		
	115A	33.0	39.7	77	80	74	204	79	80	76	206	79	80	77	208	81	90	77	80	79	208	81	206	81	90	79	208	
	114A+116A	41.7	50.2	90	90	86	264	92	100	88	266	92	100	89	268	94	100	89	94	268	94	266	94	100	91	268		
	115A+113A	50.0	60.1	87	90	98	284	89	100	99	286	89	100	100	286	91	100	100	91	102	288	91	286	91	100	102	288	
STD	NONE	-	-	18	20	18	105	22	25	23	109	20	25	23	109	23	25	23	25	111	25	107	23	25	25	111		
	118A	17.0	20.4	43	45	42	125	47	50	46	129	45	45	44	127	49	50	44	48	131	48	127	49	50	48	131		
	119A	34.0	40.9	69	70	65	146	73	80	70	150	71	80	67	148	75	80	67	78	152	75	148	75	80	78	152		
	118A+119A	51.0	61.3	79	90	89	228	83	90	93	232	83	90	91	230	85	90	91	85	95	234	85	230	85	90	95	234	
	NONE	-	-	19	20	19	116	23	25	24	120	20	25	21	118	24	30	21	26	122	26	118	24	30	26	122		
	118A	17.0	20.4	44	45	43	136	48	50	47	140	46	50	45	138	50	50	45	49	142	49	138	50	50	49	142		
575 I-3-60	MED	119A	34.0	40.9	66	70	161	72	80	71	161	72	80	68	159	75	80	68	73	163	75	159	75	80	7			

**Table 2 – 50TCQ 12 Unit Wire/Fuse or HACR Breaker Sizing Data - 2-Speed Indoor Fan Motor**

UNIT	IFM TYPE	ELEC. HTR			NO C.O. or UNPWR C.O.										w/ PWRD C.O.																		
		CRHEATER***400	Nom (kW)	FLA	NO RE.					w/ RE. (pwrd fr/unit)					NO PE.					w/ PE. (pwrd fr/unit)													
					MCA	MAX FUSE of HACR BRKR	FLA	DISC. SIZE	MCA	MAX FUSE of HACR BRKR	FLA	DISC. SIZE	MCA	MAX FUSE of HACR BRKR	FLA	DISC. SIZE	MCA	MAX FUSE of HACR BRKR	FLA	DISC. SIZE	MCA	MAX FUSE of HACR BRKR	FLA	DISC. SIZE									
50TCQD12	STD	NONE	-	-	49/49	60/60	52/51	279	53/53	60/60	56/56	283	54/54	60/60	57/57	284	58/58	70/70	58/58	70/70	57/57	284	58/58	70/70	57/57	284	58/58	70/70	57/57	284	61/61	288	
		117A	7.8/10.4	21.7/25.0	76/80	80/80	76/80	301/304	80/84	80/80	80/80	81/84	305/308	81/85	80/80	82/85	306/309	85/89	90/90	85/89	90/90	82/85	306/309	85/89	90/90	82/85	306/309	85/89	90/90	82/85	306/309	86/90	310/313
		110A	12.0/16.0	33.4/38.5	91/97	100/100	90/95	312/318	95/101	100/110	100/110	91/100	316/322	96/102	100/110	100/110	317/323	100/106	100/110	100/110	100/110	95/101	317/323	100/106	100/110	100/110	317/323	100/106	100/110	100/110	100/105	321/327	
		112A	24.0/32.0	66.7/77.0	133/145	150/150	128/140	346/356	136/149	150/150	150/150	133/144	350/360	137/150	150/150	150/150	351/361	141/154	150/175	150/175	150/175	134/145	351/361	141/154	150/175	150/175	351/361	141/154	150/175	150/175	133/150	355/365	
		112A+117A	31.8/42.4	88.4/102.4	160/176	175/200	153/168	456/483	164/180	175/200	175/200	158/173	460/487	165/181	175/200	175/200	461/488	168/185	175/200	175/200	175/200	159/174	461/488	168/185	175/200	175/200	461/488	168/185	175/200	175/200	163/178	465/482	
	112A+110A	37.6/50.0	104.2/120.3	179/169	200/175	171/190	487/520	183/173	200/200	200/200	176/194	491/524	184/174	200/200	200/200	492/525	188/178	200/200	200/200	177/195	492/525	188/178	200/200	200/200	492/525	188/178	200/200	200/200	181/199	496/529			
	117A	7.8/10.4	21.7/25.0	53/52	60/60	56/55	329	57/56	70/60	60/59	60/59	333	58/57	70/70	61/60	334	62/61	70/70	62/61	70/70	61/60	334	62/61	70/70	61/60	334	62/61	70/70	61/60	338			
	110A	12.0/16.0	33.4/38.5	80/83	80/80	81/83	351/354	84/87	90/90	90/90	85/88	355/358	85/88	90/90	86/89	356/359	89/92	90/100	89/92	90/100	86/89	356/359	89/92	90/100	86/89	356/359	89/92	90/100	86/89	360/363			
	112A	24.0/32.0	66.7/77.0	136/148	150/150	132/143	396/406	140/152	150/150	150/150	132/143	396/406	141/153	150/175	150/175	398/408	141/153	150/175	150/175	150/175	138/149	401/411	145/157	150/175	150/175	401/411	145/157	150/175	150/175	142/153	405/415		
	112A+117A	31.8/42.4	88.4/102.4	163/179	175/200	157/172	506/533	167/183	175/200	175/200	162/176	510/537	168/184	175/200	175/200	511/538	172/188	175/200	175/200	175/200	163/177	511/538	172/188	175/200	175/200	511/538	172/188	175/200	175/200	167/182	515/542		
112A+110A	37.6/50.0	104.2/120.3	189/172	200/200	176/193	537/570	187/176	200/200	200/200	180/197	541/574	188/177	200/200	200/200	542/575	192/181	200/200	200/200	181/198	542/575	192/181	200/200	200/200	542/575	192/181	200/200	200/200	185/203	546/579				
HIGH	NONE	-	-	56/55	60/60	56/58	340	60/59	70/70	63/62	344	61/60	70/70	65/63	345	64/63	70/70	64/63	70/70	65/63	345	64/63	70/70	65/63	345	64/63	70/70	65/63	349				
	117A	7.8/10.4	21.7/25.0	83/86	90/90	84/87	362/365	87/90	90/90	88/91	366/369	88/91	90/100	89/92	367/370	91/95	100/100	89/92	90/100	88/91	367/370	91/95	100/100	89/92	367/370	91/95	100/100	89/92	91/93	371/374			
	110A	12.0/16.0	33.4/38.5	97/103	100/110	97/102	373/379	101/107	110/110	102/107	377/383	102/108	110/110	110/110	378/384	106/112	110/125	110/125	110/125	103/108	378/384	106/112	110/125	110/125	378/384	106/112	110/125	110/125	107/112	382/388			
	112A	24.0/32.0	66.7/77.0	139/151	150/175	136/147	407/417	143/155	150/175	140/151	411/421	144/152	150/175	150/175	412/422	148/160	150/175	150/175	150/175	141/152	412/422	148/160	150/175	150/175	412/422	148/160	150/175	150/175	146/156	416/426			
	112A+117A	31.8/42.4	88.4/102.4	166/182	175/200	161/175	517/544	170/186	175/200	165/180	521/548	171/187	175/200	175/200	522/549	175/191	175/200	175/200	166/181	522/549	175/191	175/200	175/200	522/549	175/191	175/200	175/200	171/185	526/553				
112A+110A	37.6/50.0	104.2/120.3	186/175	200/200	179/196	548/581	190/179	200/200	183/201	552/585	191/180	200/200	200/200	553/586	195/184	200/200	200/200	184/202	553/586	195/184	200/200	200/200	553/586	195/184	200/200	200/200	189/206	557/590					
STD	NONE	-	-	24	30	25	134	26	30	27	136	26	30	28	136	28	30	28	30	28	136	28	30	28	136	28	30	28	138				
	116A	13.9	16.7	45	45	44	151	47	50	46	153	47	50	47	153	49	50	47	50	47	153	49	50	47	153	49	50	49	155				
	113A	16.5	19.8	45	50	44	154	51	60	50	156	51	60	50	156	53	60	50	60	50	156	53	60	50	156	53	60	53	158				
	115A	33.0	39.7	74	80	71	174	76	80	73	174	76	80	78	176	78	80	78	80	78	176	78	80	78	176	78	80	78	178				
	114A+116A	41.7	50.2	87	90	83	234	89	90	85	236	89	90	85	236	91	100	85	90	85	236	91	100	85	236	91	100	88	238				
115A+113A	50.0	60.1	84	90	94	254	86	90	96	256	87	90	96	256	88	90	96	90	96	256	88	90	96	256	88	90	99	258					
MED	NONE	-	-	26	30	27	159	28	30	29	161	28	30	29	161	28	30	29	30	29	161	28	30	29	161	28	30	35	163				
	116A	13.9	16.7	47	50	46	176	48	50	48	178	48	50	49	178	51	60	50	50	49	178	51	60	50	49	178	51	60	51	180			
	113A	16.5	19.8	51	60	50	179	52	60	52	181	53	60	52	181	55	60	52	60	52	181	55	60	52	181	55	60	54	183				
	115A	33.0	39.7	75	80	73	199	77	80	75	199	77	80	78	201	79	80	78	80	78	201	79	80	78	201	79	80	77	203				
	114A+116A	41.7	50.2	89	90	85	259	90	90	87	261	91	100	89	261	93	100	89	90	89	261	93	100	89	261	93	100	89	203				
115A+113A	50.0	60.1	86	90	96	279	88	90	98	281	88	90	98	281	88	90	98	90	98	281	88	90	98	281	88	90	101	283					
HIGH	NONE	-	-	27	30	29	164	29	35	31	166	29	35	31	166	31	35	31	35	31	166	31	35	31	166	31	35	33	168				
	116A	13.9	16.7	48	50	48	181	50	50	48	183	50	50	49	183	52	60	50	50	49	183	52	60	50	49	183	52	60	52	185			
	113A	16.5	19.8	52	60	51	184	54	60	53	186	54	60	54	186	56	60	54	60	54	186	56	60	54	186	56	60	56	188				
	115A	33.0	39.7	77	80	74	204	79	80	76	204	79	80	79	206	81	90	80	80	79	206	81	90	80	79	206	81	90	79	208			
	114A+116A	41.7	50.2	90	90	86	264	92	100	88	266	92	100	89	266	94	100	89	90	89	266	94	100	89	266	94	100	91	268				
115A+113A	50.0	60.1	87	90	98	284	89	100	100	286	89	100	100	286	91	100	100	100	100	286	91	100	100	100	286	91	100	102	288				
STD	NONE	-	-	19	25	20	107	23	25	24	111	22	25	22	109	25	30	25	30	22	109	25	30	25	109	25	30	26	113				
	118A	17.0	20.4	45	45	44	127	49	50	48	131	47	50	46	129	50	50	50	46	129	50	50	46	129	50	50	50	133					
	119A	34.0	40.9	71	80	67	148	74	80	72	152	72	80	69	150	76	80	70	80	69	150	76	80	70	80	70	80	73	154				

## 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
MOCP	-	MAX FUSE or HACR Breaker
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.