

**50TCQD14
Single Package Rooftop
Heat Pump
with Puron® (R-410A) Refrigerant
Size 14**



Electrical Data Supplement

NOTE: Read the entire instruction manual before starting the installation

This supplement only applies to 50TCQ size 14 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
5	0	T	C	Q	D	1	4	A	3	A	5	-	0	A	0	A	0

Unit Heat Type

50TC = Packaged Rooftop
Standard Efficiency

Heat Size

Q = Heat Pump

Refrig. Systems Options

A = Single stage cooling models
D = Two stage cooling models

Indoor Fan Options

1 = Standard Static Option – Belt Drive
2 = Medium Static Option – Belt Drive
3 = High Static Option – Belt Drive

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

14 = 12.5 ton

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.

Nameplate Location

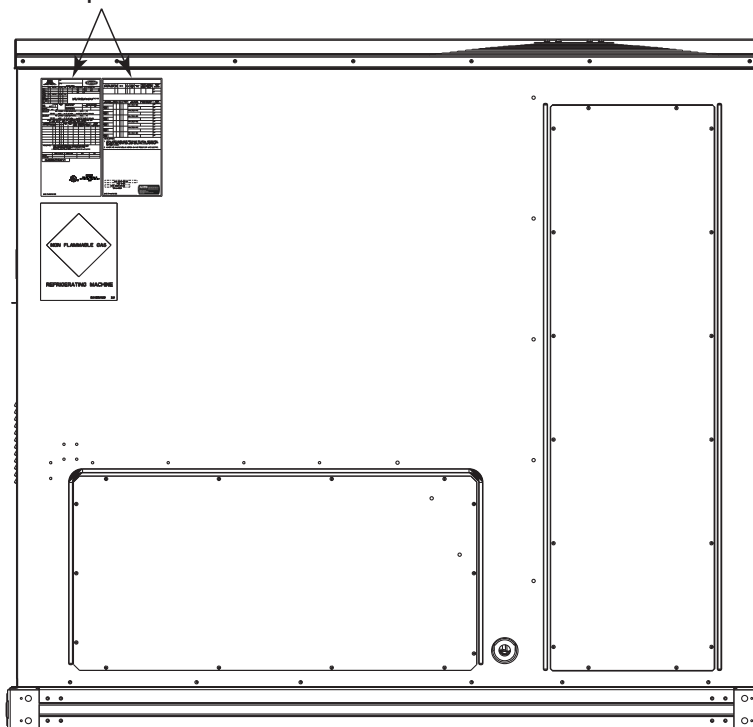


Fig. 1 - Location of Unit Nameplate

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 14 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.

Carrier
 7310 WEST MORRIS STREET
 INDIANAPOLIS, IN 46231 U.S.A.

MODEL
50TCQD14A3A5-0A0A0

SERIAL

Carrier

FACTORY CHARGED

COMPR	A	QTY	VOLTS	AC	PH	HZ	RLA	LRA	REF. SYSTEM R-410A	TEST PRESSURE GAGE
									LBS	kg HI PSI kPa
									LBS	kg LO PSI kPa
									LBS	kg

FAN MTR QTY VOLTS AC PH HZ FLA

OUTDOOR

INDOOR

PWR EXHAUST

ELEC. HEAT

OTHER

CHARGE SYSTEM PER INSTALLATION INSTRUCTIONS SUITABLE FOR OUTDOOR INSTALLATION

POWER SUPPLY	VOLTS	PH	HZ	MIN. CKT AMPS	MAX FUSE OR HACR BREAKER PER NEC	MIN UNIT DISCONNECT
						FLA LRA

PERMISSIBLE VOLTAGE AT UNIT MAX MIN

MAX OVERCURRENT PROTECTION DEVICE

DOWN SUPPLY MIN. CLEARANCE TO COMBUSTIBLE MATERIALSINCHES.....mm.

FOR FIRSTINCHES.....mm. OF DUCT WHENKw. ELECTRIC HEATER IS INSTALLED.

SIDE SUPPLY MIN. CLEARANCE TO COMBUSTIBLE MATERIALSINCHES.....mm.

FOR FIRSTINCHES.....mm. OF DUCT WHENKw. ELECTRIC HEATER IS INSTALLED.

*FOR INSTALLATION ON COMBUSTIBLE FLOORING OR CLASS A, B, OR C ROOFING MATERIAL

ACCESSORY POWER EXHAUST OR HEATER MODEL NUMBER	CHECK HERE	VOLTS	PH	HZ	HEATER FLA	MIN. CKT. AMPS	FUSE OR HACR BREAKER PER NEC	MAXIMUM OVERCURRENT PROTECTION DEVICE	SINGLE PT. BOX MODEL NUMBER	MINIMUM UNIT DISCONNECT
										FLA LRA

INSTALLER NOTE: 1. INSTALL ACCESS HEATER PER INSTALL INSTR ENCLOSED WITH HEATER. MARK SPACE "CHECK HERE" FOR MODEL USED. USE MIN CKT AMPS AND MAX OVER-CURRENT DEVICE AMPS LISTED FOR HEATER. IF NO HEATER IS USED MARK SPACE "CHECK HERE" FOR NONE.
 2. HEATERS ARE MANUFACTURED BY EMERSON HEATING PRODUCTS OR TUTCO ELECTRIC.

COOLING	CAPACITY Btu/Hr	CAPACITY KW	EER	COP
HP HEATING				

THIS EQUIPMENT COMPLIES WITH THE 2004 REQUIREMENTS OF ASHRAE 90.1

ACCESSORY POWER EXHAUST NUMBER	CHECK HERE	VOLTS	PH	HZ	POWER EXHAUST FLA	MIN. CKT AMPS	FUSE OR HACR BREAKER PER NEC	MAXIMUM OVERCURRENT PROTECTION DEVICE	MINIMUM UNIT DISCONNECT
									FLA LRA

ACCESSORY HEATER NUMBER	CHECK HERE	VOLTS	PH	HZ	HEATER FLA	FUSE OR HACR BREAKER PER NEC	MAXIMUM OVERCURRENT PROTECTION DEVICE	MINIMUM UNIT DISCONNECT
								FLA LRA

SINGLE PT BOX MODEL NUMBER

MIN. CIRCUIT AMPS

FLA LRA

INSTALLER NOTE:

- INSTALL ACCESS HEATER AND/OR POWER EXHAUST PER INSTALL INSTR ENCLOSED WITH HEATER AND POWER EXHAUST. MARK SPACE "CHECK HERE" FOR MODEL USED. USE MIN CKT AMPS AND MAX OVER CURRENT DEVICE AMPS LISTED FOR HEATER AND POWER EXHAUST.
- HEATERS ARE MANUFACTURED BY EMERSON HEATING PRODUCTS OR TUTCO ELECTRIC.

MODEL NUMBER BAR CODE

MODEL NUMBER

SERIAL NUMBER BAR CODE

SERIAL NUMBER

DATE OF MANUFACTURE:

AHRI CERTIFIED
 Utility Large AC
 AHRI Standard 540/590
 Certification applies only when the complete system is used with AHRI.

50TCQD14

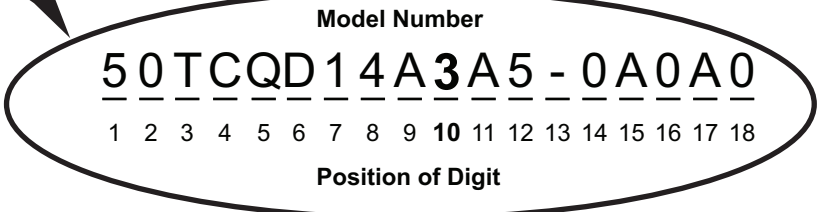


Fig. 2 - Unit Nameplate with Model Number Detail

C101308

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

UNIT	NOM. V – Ph – Hz	IFM TYPE	ELEC. HTR			PE	NO C.O. or UNPWR C.O.								
			CRHEATER ***A00	Nom (kW)	FLA		FLA	NO PE.				w/ PE. (pwrd fr/unit)			
								MCA	FUSE or HACR BRKR	DISC. SIZE		MCA	FUSE or HACR BRKR	DISC. SIZE	
										FLA	LRA			FLA	LRA
50TCQD14	208/230 – 3 – 60	STD	NONE	–	–	3.8	62.4	80	65	366	66.2	80	70	370	
			291A00	12.4/16.5	34.4/39.7		105.4/112.0	110/125	105/111	400/406	109.2/115.8	110/125	109/115	404/410	
			288A00,291A00	19.9/26.5	55.3/63.8		131.5/142.2	150/150	129/139	477/494	135.3/146.0	150/150	133/143	481/498	
			294A00	25.2/33.5	69.9/80.6		149.8/163.2	150/175	146/158	436/447	153.6/167.0	175/175	150/162	440/451	
			288A00,294A00	32.7/43.5	90.7/104.7		175.8/193.3	200/200	170/186	547/575	179.6/197.1	200/200	174/190	551/579	
			291A00,294A00	37.6/50.0	104.3/120.3		192.8/182.7	200/200	185/204	575/607	196.6/186.5	200/200	190/208	579/611	
		MED	NONE	–	–	3.8	62.4	80	65	366	66.2	80	70	370	
			291A00	12.4/16.5	34.4/39.7		105.4/112.0	110/125	105/111	400/406	109.2/115.8	110/125	109/115	404/410	
			288A00,291A00	19.9/26.5	55.3/63.8		131.5/142.2	150/150	129/139	477/494	135.3/146.0	150/150	133/143	481/498	
			294A00	25.2/33.5	69.9/80.6		149.8/163.2	150/175	146/158	436/447	153.6/167.0	175/175	150/162	440/451	
			288A00,294A00	32.7/43.5	90.7/104.7		175.8/193.3	200/200	170/186	547/575	179.6/197.1	200/200	174/190	551/579	
			291A00,294A00	37.6/50.0	104.3/120.3		192.8/182.7	200/200	185/204	575/607	196.6/186.5	200/200	190/208	579/611	
		HIGH	NONE	–	–	3.8	71.6/70.1	80/80	76/74	394	75.4/73.9	90/80	80/79	398	
			291A00	12.4/16.5	34.4/39.7		114.6/119.7	125/125	115/120	428/434	118.4/123.5	125/125	120/124	432/438	
			288A00,291A00	19.9/26.5	55.3/63.8		140.7/149.9	150/150	139/148	505/522	144.5/153.7	150/175	144/152	509/526	
			294A00	25.2/33.5	69.9/80.6		159.0/170.9	175/175	156/167	464/475	162.8/174.7	175/175	161/171	468/479	
			288A00,294A00	32.7/43.5	90.7/104.7		185.0/201.0	200/225	180/195	575/603	188.8/204.8	200/225	185/199	579/607	
			291A00,294A00	37.6/50.0	104.3/120.3		202.0/190.4	225/200	196/213	603/635	205.8/194.2	225/200	200/217	607/639	
50TCQD14	460 – 3 – 60	STD	NONE	–	–	1.8	29.7	40	31	184	31.5	40	33	186	
			292A00	16.5	19.9		54.5	60	54	204	56.3	60	56	206	
			289A00,292A00	26.5	31.9		69.5	70	68	248	71.3	80	70	250	
			295A00	33.5	40.3		80.0	90	77	224	81.8	90	79	226	
			289A00,295A00	43.5	52.3		95.0	100	91	289	96.8	100	93	291	
			292A00,295A00	50.0	60.2		89.9	100	100	304	91.7	100	102	306	
		MED	NONE	–	–	1.8	29.7	40	31	184	31.5	40	33	186	
			292A00	16.5	19.9		54.5	60	54	204	56.3	60	56	206	
			289A00,292A00	26.5	31.9		69.5	70	68	248	71.3	80	70	250	
			295A00	33.5	40.3		80.0	90	77	224	81.8	90	79	226	
			289A00,295A00	43.5	52.3		95.0	100	91	289	96.8	100	93	291	
			292A00,295A00	50.0	60.2		89.9	100	100	304	91.7	100	102	306	
		HIGH	NONE	–	–	1.8	33.9	40	36	198	35.7	45	38	200	
			292A00	16.5	19.9		58.7	60	59	218	60.5	70	61	220	
			289A00,292A00	26.5	31.9		73.7	80	73	262	75.5	80	75	264	
			295A00	33.5	40.3		84.2	90	82	238	86.0	90	84	240	
			289A00,295A00	43.5	52.3		99.2	100	96	303	101.0	110	98	305	
			292A00,295A00	50.0	60.2		94.1	100	105	318	95.9	100	107	320	
50TCQD14	575 – 3 – 60	STD	NONE	–	–	3.8	24.0	30	25	136	27.8	30	30	140	
			293A00	16.5	15.9		43.9	45	43	152	47.7	50	48	156	
			290A00,293A00	26.5	25.5		55.9	60	55	187	59.7	60	59	191	
			296A00	33.5	32.2		64.3	70	62	168	68.1	70	67	172	
			290A00,296A00	43.5	41.8		76.3	80	73	220	80.1	90	78	224	
			293A00,296A00	50.0	48.1		72.1	80	81	232	75.9	80	85	236	
		MED	NONE	–	–	3.8	24	30	25	136	27.8	30	30	140	
			293A00	16.5	15.9		43.9	45	43	152	47.7	50	48	156	
			290A00,293A00	26.5	25.5		55.9	60	55	187	59.7	60	59	191	
			296A00	33.5	32.2		64.3	70	62	168	68.1	70	67	172	
			290A00,296A00	43.5	41.8		76.3	80	73	220	80.1	90	78	224	
			293A00,296A00	50.0	48.1		72.1	80	81	232	75.9	80	85	236	
		HIGH	NONE	–	–	3.8	27.3	30	29	139	31.1	35	33	143	
			293A00	16.5	15.9		47.2	50	47	155	51.0	60	52	159	
			290A00,293A00	26.5	25.5		59.2	60	58	190	63.0	70	63	194	
			296A00	33.5	32.2		67.6	70	66	171	71.4	80	70	175	
			290A00,296A00	43.5	41.8		79.6	80	77	223	83.4	90	81	227	
			293A00,296A00	50.0	48.1		75.4	80	84	235	79.2	90	89	239	

NOTE: See page 6 for table legend and notes.

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

UNIT	NOM. V – Ph – Hz	IFM TYPE	ELEC. HTR			PE	w/ PWRD C.O.								
			CRHEATER ***A00	Nom (kW)	FLA		FLA	NO PE.				w/ PE. (pwrd fr/unit)			
								MCA	FUSE or HACR BRKR	DISC. SIZE		MCA	FUSE or HACR BRKR	DISC. SIZE	
										FLA	LRA			FLA	LRA
50TCQD14	208/230 – 3 – 60	STD	NONE	–	–	3.8	67.2	80	71	371	71.0	80	75	375	
			291A00	12.4/16.5	34.4/39.7		110.2/116.8	125/125	110/116	405/411	114.0/120.6	125/125	115/121	409/415	
			288A00,291A00	19.9/26.5	55.3/63.8		136.3/147.0	150/150	134/144	482/499	140.1/150.8	150/175	139/149	486/503	
			294A00	25.2/33.5	69.9/80.6		154.6/168.0	175/175	151/164	441/452	158.4/171.8	175/175	156/168	445/456	
			288A00,294A00	32.7/43.5	90.7/104.7		180.6/198.1	200/200	175/191	552/580	184.4/201.9	200/225	180/196	556/584	
			291A00,294A00	37.6/50.0	104.3/120.3		197.6/187.5	200/200	191/209	580/612	201.4/191.3	225/200	195/214	584/616	
		MED	NONE	–	–	3.8	67.2	80	71	371	71	80	75	375	
			291A00	12.4/16.5	34.4/39.7		110.2/116.8	125/125	110/116	405/411	114.0/120.6	125/125	115/121	409/415	
			288A00,291A00	19.9/26.5	55.3/63.8		136.3/147.0	150/150	134/144	482/499	140.1/150.8	150/175	139/149	486/503	
			294A00	25.2/33.5	69.9/80.6		154.6/168.0	175/175	151/164	441/452	158.4/171.8	175/175	156/168	445/456	
			288A00,294A00	32.7/43.5	90.7/104.7		180.6/198.1	200/200	175/191	552/580	184.4/201.9	200/225	180/196	556/584	
			291A00,294A00	37.6/50.0	104.3/120.3		197.6/187.5	200/200	191/209	580/612	201.4/191.3	225/200	195/214	584/616	
		HIGH	NONE	–	–	3.8	76.4/74.9	90/90	81/80	399	80.2/78.7	100/100	86/84	403	
			291A00	12.4/16.5	34.4/39.7		119.4/124.5	125/125	121/125	433/439	123.2/128.3	125/150	125/130	437/443	
			288A00,291A00	19.9/26.5	55.3/63.8		145.5/154.7	150/175	145/153	510/527	149.3/158.5	150/175	149/157	514/531	
			294A00	25.2/33.5	69.9/80.6		163.8/175.7	175/200	162/172	469/480	167.6/179.5	175/200	166/177	473/484	
			288A00,294A00	32.7/43.5	90.7/104.7		189.8/205.8	200/225	186/200	580/608	193.6/209.6	200/225	190/204	584/612	
			291A00,294A00	37.6/50.0	104.3/120.3		206.8/195.2	225/225	201/218	608/640	210.6/199.0	225/225	206/222	612/644	
	460 – 3 – 60	STD	NONE	–	–	1.8	31.9	40	34	186	33.7	40	36	188	
			292A00	16.5	19.9		56.7	60	56	206	58.5	60	59	208	
			289A00,292A00	26.5	31.9		71.7	80	70	250	73.5	80	72	252	
			295A00	33.5	40.3		82.2	90	80	226	84.0	90	82	228	
			289A00,295A00	43.5	52.3		97.2	100	94	291	99.0	100	96	293	
			292A00,295A00	50.0	60.2		92.1	100	103	306	93.9	100	105	308	
MED		NONE	–	–	1.8	31.9	40	34	186	33.7	40	36	188		
		292A00	16.5	19.9		56.7	60	56	206	58.5	60	59	208		
		289A00,292A00	26.5	31.9		71.7	80	70	250	73.5	80	72	252		
		295A00	33.5	40.3		82.2	90	80	226	84.0	90	82	228		
		289A00,295A00	43.5	52.3		97.2	100	94	291	99.0	100	96	293		
		292A00,295A00	50.0	60.2		92.1	100	103	306	93.9	100	105	308		
HIGH		NONE	–	–	1.8	36.1	45	38	200	37.9	45	40	202		
		292A00	16.5	19.9		60.9	70	61	220	62.7	70	63	222		
		289A00,292A00	26.5	31.9		75.9	80	75	264	77.7	80	77	266		
		295A00	33.5	40.3		86.4	90	85	240	88.2	90	87	242		
		289A00,295A00	43.5	52.3		101.4	110	99	305	103.2	110	101	307		
		292A00,295A00	50.0	60.2		96.3	100	108	320	98.1	110	110	322		
575 – 3 – 60	STD	NONE	–	–	3.8	25.7	30	27	138	29.5	35	32	142		
		293A00	16.5	15.9		45.6	50	45	154	49.4	50	50	158		
		290A00,293A00	26.5	25.5		57.6	60	56	189	61.4	70	61	193		
		296A00	33.5	32.2		66.0	70	64	170	69.8	70	69	174		
		290A00,296A00	43.5	41.8		78.0	80	75	222	81.8	90	80	226		
		293A00,296A00	50.0	48.1		73.8	80	82	234	77.6	80	87	238		
	MED	NONE	–	–	3.8	25.7	30	27	138	29.5	35	32	142		
		293A00	16.5	15.9		45.6	50	45	154	49.4	50	50	158		
		290A00,293A00	26.5	25.5		57.6	60	56	189	61.4	70	61	193		
		296A00	33.5	32.2		66.0	70	64	170	69.8	70	69	174		
		290A00,296A00	43.5	41.8		78.0	80	75	222	81.8	90	80	226		
		293A00,296A00	50.0	48.1		73.8	80	82	234	77.6	80	87	238		
	HIGH	NONE	–	–	3.8	29.0	35	31	141	32.8	40	35	145		
		293A00	16.5	15.9		48.9	50	49	157	52.7	60	54	161		
		290A00,293A00	26.5	25.5		60.9	70	60	192	64.7	70	65	196		
		296A00	33.5	32.2		69.3	70	68	173	73.1	80	72	177		
		290A00,296A00	43.5	41.8		81.3	90	79	225	85.1	90	83	229		
		293A00,296A00	50.0	48.1		77.1	80	86	237	80.9	90	91	241		

50TCQD14

NOTE: See page 6 for table legend and notes.

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



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.

50TCQD14