

Electrical Data Supplement

NOTE: Read the entire instruction manual before starting the installation

This supplement only applies to RAS210–303 units when there is “B” in the 9th position of the Model Number, as shown in the Model Number Nomenclature diagram below. Check the Unit Nameplate (see Figs. 1 & 2). If there is not a “B” in the 9th position of the model number discard this document.

MODEL NOMENCLATURE

[illegible]

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

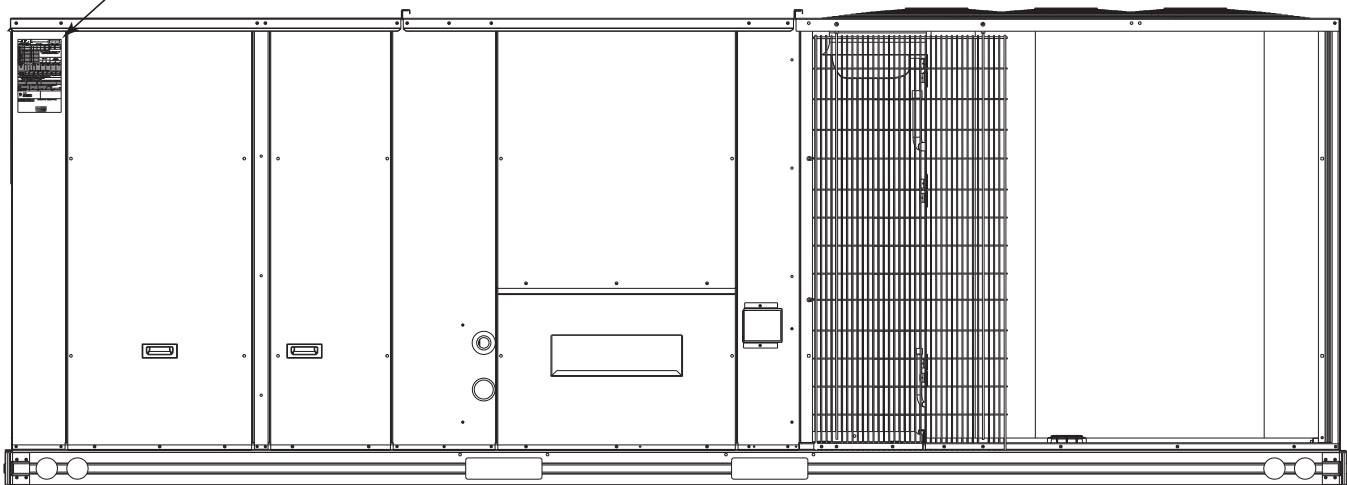


Fig. 1 – Location of Unit Nameplate

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 RAS210–303 which display a “B” in the 9th position of the 14 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 14 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.

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

UNIT	NO M. V – Ph – HZ	IFM TYPE	ELEC. HTR			PE.	NO C.O. or UNPWR C.O.							
			CRHEATER***A00	Nom (kW)	FLA	FLA	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
RAS210/213	208/230 – 3 – 60	STD	NONE	–	–	5.9	81.8	100.0	85	502	93.6	110.0	99	502
			270A00	18.8/25.0	52.1/60.1		81.8/87.9	100/100	85/85	502/502	93.6/102.6	110/110	99/99	502/502
			271A00	37.6/50.0	104.2/120.3		143.0/133.1	150/150	132/150	502/502	157.8/147.8	175/175	145/164	502/502
			272A00	56.3/75.0	156.4/180.4		169.2/193.2	200/225	192/219	502/502	183.9/207.9	200/225	205/233	502/502
		MED	NONE	–	–	5.9	86.6	100	91	511	98.4	125	105	511
			270A00	18.8/25.0	52.1/60.1		86.6/93.9	100/100	91/91	511/511	98.6/108.6	125/125	105/105	511/511
			271A00	37.6/50.0	104.2/120.3		149.0/139.1	150/175	137/156	511/511	163.8/153.8	175/175	151/169	511/511
			272A00	56.3/75.0	156.4/180.4		175.2/199.2	200/225	197/225	511/511	189.9/213.9	200/250	211/238	511/511
		HIGH	NONE	–	–	5.9	84.4	100.0	88	513	96.2	125.0	102	513
			270A00	18.8/25.0	52.1/60.1		84.4/91.1	100/100	88/88	513/513	96.2/105.9	125/125	102/102	513/513
			271A00	37.6/50.0	104.2/120.3		146.3/136.3	150/150	135/153	513/513	161.0/151.1	175/175	148/167	513/513
			272A00	56.3/75.0	156.4/180.4		172.4/196.4	200/225	195/222	513/513	187.2/211.2	200/225	208/236	513/513
	460 – 3 – 60	STD	NONE	–	–	3.1	43.1	50.0	45	252	49.3	60.0	52	252
			273A00	25.0	30.1		43.6	50	45	252	51.4	60	52	252
			274A00	50.0	60.1		66.1	80	75	252	73.9	80	82	252
			275A00	75.0	90.2		96.2	100	109	252	104.0	110	116	252
		MED	NONE	–	–	3.1	45.7	60	48	256	51.9	60	55	256
			273A00	25.0	30.1		46.9	60	48	256	54.6	60	55	256
			274A00	50.0	60.1		69.4	80	78	256	77.1	80	85	256
			275A00	75.0	90.2		99.5	110	112	256	107.2	125	119	256
		HIGH	NONE	–	–	3.1	44.7	60.0	47	257	50.9	60.0	54	257
			273A00	25.0	30.1		45.6	60	47	257	53.4	60	54	257
			274A00	50.0	60.1		68.1	80	76	257	75.9	80	84	257
			275A00	75.0	90.2		98.2	100	111	257	106.0	125	118	257
	575 – 3 – 60	STD	NONE	–	–	2.4	32.1	40.0	33	188	36.9	45.0	39	188
			276A00	24.8	23.9		33.4	40	33	188	39.4	45	39	188
			277A00	49.6	47.7		63.1	70	58	188	69.1	70	64	188
			278A00	74.4	71.6		75.1	80	86	188	81.1	90	91	188
		MED	NONE	–	–	2.4	34.9	45	37	202	39.7	50	42	202
			276A00	24.8	23.9		36.9	45	37	202	42.9	50	42	202
			277A00	49.6	47.7		66.6	70	61	202	72.6	80	67	202
			278A00	74.4	71.6		78.6	90	89	202	84.6	90	94	202
		HIGH	NONE	–	–	2.4	34.4	45.0	36	191	39.2	50.0	42	191
			276A00	24.8	23.9		36.3	45	36	191	42.3	50	42	191
			277A00	49.6	47.7		66.0	70	61	191	72.0	80	66	191
			278A00	74.4	71.6		78.0	90	88	191	84.0	90	94	191

NOTE: See page 7 for table legend and notes

Table 2 – Unit Wire/Fuse or HACR Breaker Sizing Data

UNIT	NO M. V – Ph – HZ	IFM TYPE	ELEC. HTR			PE.	NO C.O. or UNPWR C.O.							
			CRHEATER***A00	Nom (kW)	FLA	FLA	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
RAS240/243	208/230 – 3 – 60	STD	NONE	–	–	5.9	110.6	150.0	113	534	122.4	150.0	127	534
			270A00	18.8/25.0	52.1/60.1		110.6/110.6	150/150	113/113	534/534	122.4/122.4	150/150	127/127	534/534
			271A00	37.6/50.0	104.2/120.3		149.0/139.1	150/175	137/156	534/534	163.8/153.8	175/175	151/169	534/534
			272A00	56.3/75.0	156.4/180.4		175.2/199.2	200/225	197/225	534/534	189.9/213.9	200/250	211/238	534/534
		MED	NONE	–	–	5.9	108.4	150	111	536	120.2	150	124	536
			270A00	18.8/25.0	52.1/60.1		108.4/108.4	150/150	111/111	536/536	120.2/120.2	150/150	124/124	536/536
			271A00	37.6/50.0	104.2/120.3		146.3/136.3	150/150	135/153	536/536	161.0/151.1	175/175	148/167	536/536
			272A00	56.3/75.0	156.4/180.4		172.4/196.4	200/225	195/222	536/536	187.2/211.2	200/225	208/236	536/536
		HIGH	NONE	–	–	5.9	115.0	150.0	118	572	126.8	150.0	132	572
			270A00	18.8/25.0	52.1/60.1		115.0/115.0	150/150	118/118	572/572	126.8/126.8	150/150	132/132	572/572
			271A00	37.6/50.0	104.2/120.3		154.5/144.6	175/175	142/161	572/572	169.3/159.3	175/175	156/174	572/572
			272A00	56.3/75.0	156.4/180.4		180.7/204.7	200/225	202/230	572/572	195.4/219.4	200/250	216/243	572/572
	460 – 3 – 60	STD	NONE	–	–	3.1	49.0	60.0	51	269	55.2	60.0	58	269
			273A00	25.0	30.1		49.0	60	51	269	55.2	60	58	269
			274A00	50.0	60.1		69.4	80	78	269	77.1	80	85	269
			275A00	75.0	90.2		99.5	110	112	269	107.2	125	119	269
		MED	NONE	–	–	3.1	48	60	50	270	54.2	60	57	270
			273A00	25.0	30.1		48.0	60	50	270	54.2	60	57	270
			274A00	50.0	60.1		68.1	80	76	270	75.9	80	84	270
			275A00	75.0	90.2		98.2	100	111	270	106.0	125	118	270
		HIGH	NONE	–	–	3.1	51.3	60.0	54	288	57.5	70.0	61	288
			273A00	25.0	30.1		51.3	60	54	288	57.5	70	61	288
			274A00	50.0	60.1		72.2	80	80	288	80.0	90	87	288
			275A00	75.0	90.2		102.3	125	115	288	110.1	125	122	288
	575 – 3 – 60	STD	NONE	–	–	2.4	38.6	50.0	40	224	43.4	50.0	46	224
			276A00	24.8	23.9		38.6	50	40	224	43.4	50	46	224
			277A00	49.6	47.7		66.6	70	61	224	72.6	80	67	224
			278A00	74.4	71.6		78.6	90	89	224	84.6	90	94	224
		MED	NONE	–	–	2.4	38.1	50	40	213	42.9	50	45	213
			276A00	24.8	23.9		38.1	50	40	213	42.9	50	45	213
			277A00	49.6	47.7		66.0	70	61	213	72.0	80	66	213
			278A00	74.4	71.6		78.0	90	88	213	84.0	90	94	213
		HIGH	NONE	–	–	2.4	40.8	50.0	43	239	45.6	60.0	48	239
			276A00	24.8	23.9		40.8	50	43	239	45.6	60	48	239
			277A00	49.6	47.7		69.4	70	64	239	75.4	80	69	239
			278A00	74.4	71.6		81.4	90	91	239	87.4	90	97	239

NOTE: See page 7 for table legend and notes

Table 3 – Unit Wire/Fuse or HACR Breaker Sizing Data

UNIT	NO M. V – Ph – HZ	IFM TYPE	ELEC. HTR			PE.	NO C.O. or UNPWR C.O.							
			CRHEATER***A00	Nom (kW)	FLA	FLA	NO P.E.				w/ P.E. (pwrdr fr/unit)			
							MCA	FUSE or HACR BRKR	DISC. SIZE		MCA	FUSE or HACR BRKR	DISC. SIZE	
									FLA	LRA			FLA	LRA
RAS300/303	208/230 – 3 – 60	STD	NONE	–	–	5.9	129.2	175.0	135	584	141.0	175.0	148	584
			270A00	18.8/25.0	52.1/60.1		129.2/129.2	175/175	135/135	584/584	141.0/141.0	175/175	148/148	584/584
			271A00	37.6/50.0	104.2/120.3		149.0/139.1	175/175	137/156	584/584	163.8/153.8	175/175	151/169	584/584
			272A00	56.3/75.0	156.4/180.4		175.2/199.2	200/225	197/225	584/584	189.9/213.9	200/250	211/238	584/584
		MED	NONE	–	–	5.9	127.0	175.0	132	586	138.8	175.0	146	586
			270A00	18.8/25.0	52.1/60.1		127.0/127.0	175/175	132/132	586/586	138.8/138.8	175/175	146/146	586/586
			271A00	37.6/50.0	104.2/120.3		146.3/136.3	175/175	135/153	586/586	161.0/151.1	175/175	148/167	586/586
			272A00	56.3/75.0	156.4/180.4		172.4/196.4	200/225	195/222	586/586	187.2/211.2	200/225	208/236	586/586
		HIGH	NONE	–	–	5.9	133.6	175.0	140	622	145.4	175.0	153	622
			270A00	18.8/25.0	52.1/60.1		133.6/133.6	175/175	140/140	622/622	145.4/145.4	175/175	153/153	622/622
			271A00	37.6/50.0	104.2/120.3		154.5/144.6	175/175	142/161	622/622	169.3/159.3	175/175	156/174	622/622
			272A00	56.3/75.0	156.4/180.4		180.7/204.7	200/225	202/230	622/622	195.4/219.4	200/250	216/243	622/622
	460 – 3 – 60	STD	NONE	–	–	3.1	52.9	60.0	55	299	59.1	70.0	63	299
			273A00	25.0	30.1		52.9	60.0	55	299	59.1	70.0	63	299
			274A00	50.0	60.1		69.4	80.0	78	299	77.1	80.0	85	299
			275A00	75.0	90.2		99.5	110	112	299	107.2	125	119	299
		MED	NONE	–	–	3.1	51.9	60.0	54	300	58.1	70.0	61	300
			273A00	25.0	30.1		51.9	60.0	54	300	58.1	70.0	61	300
			274A00	50.0	60.1		68.1	80.0	76	300	75.9	80.0	84	300
			275A00	75.0	90.2		98.2	100	111	300	106.0	125	118	300
		HIGH	NONE	–	–	3.1	55.2	60.0	58	318	61.4	70.0	65	318
			273A00	25.0	30.1		55.2	60.0	58	318	61.4	70.0	65	318
			274A00	50.0	60.1		72.2	80.0	80	318	80.0	90.0	87	318
			275A00	75.0	90.2		102.3	125	115	318	110.1	125	122	318
	575 – 3 – 60	STD	NONE	–	–	2.4	41.1	50.0	43	244	45.9	60.0	49	244
			276A00	24.8	23.9		41.1	50.0	43	244	45.9	60.0	49	244
			277A00	49.6	47.7		66.6	70.0	61	244	72.6	80.0	67	244
			278A00	74.4	71.6		78.6	90	89	244	84.6	90	94	244
		MED	NONE	–	–	2.4	40.6	50.0	42	233	45.4	60.0	48	233
			276A00	24.8	23.9		40.6	50.0	42	233	45.4	60.0	48	233
			277A00	49.6	47.7		66.0	70.0	61	233	72.0	80.0	66	233
			278A00	74.4	71.6		78.0	90	88	233	84.0	90	94	233
		HIGH	NONE	–	–	2.4	43.3	50.0	46	259	48.1	60.0	51	259
			276A00	24.8	23.9		43.3	50.0	46	259	48.1	60.0	51	259
			277A00	49.6	47.7		69.4	70.0	64	259	75.4	80.0	69	259
			278A00	74.4	71.6		81.4	90	91	259	87.4	90	97	259

NOTE: See page 7 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
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.