

**40RU 10 to 15 Nominal Tons
Packaged Air-Handling Units
with Puron® (R-410A) Refrigerant
Sizes: 12-16**



Electrical Data Supplement

TWO-SPEED ELECTRICAL DATA

NOTE: Read the entire instruction manual before starting the installation

This supplement only applies to 40RU size 12 to 16 units when there is a “T” in the 9th position of the Model Number (Fan Motor Speed Controller) indicating that the unit is equipped with the factory-installed Two-Speed Fan Controller (VFD) option.

To select which table/row applies to a given unit, check the 5th digit for the unit’s Coil Type, the 7th & 8th digits for the unit size (Cooling Tons) and the 10th digit to determine the unit’s Indoor Fan Option - Belt Drive.

MODEL NUMBER NOMENCLATURE

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

Coil Type

A = Standard DX Coil
Q = Heat Pump
S = Chilled Water Coil

Cooling Tons

12 - 10 ton
14 - 12.5 ton
16 - 15 ton

Indoor Fan Options - Belt Drive

1 = Standard Motor / Standard Drive
2 = Standard Motor / Medium Drive & Alternate Motor / Medium Drive
3 = High Motor / High Drive
5 = Standard/Alternate High Efficient Motor/Medium Drive
6 = High Static, High Efficient Motor/High Drive


Fan Motor Speed Controller

A = None (Standard)
T = Two-Speed Fan Controller (VFD)

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 40RU size 12 to 16 units when there is a "T" in the 9th position of the Model Number. Retain this document and keep it with the unit's Installation Instructions.

See Fig. 1 for location of the unit's nameplate.

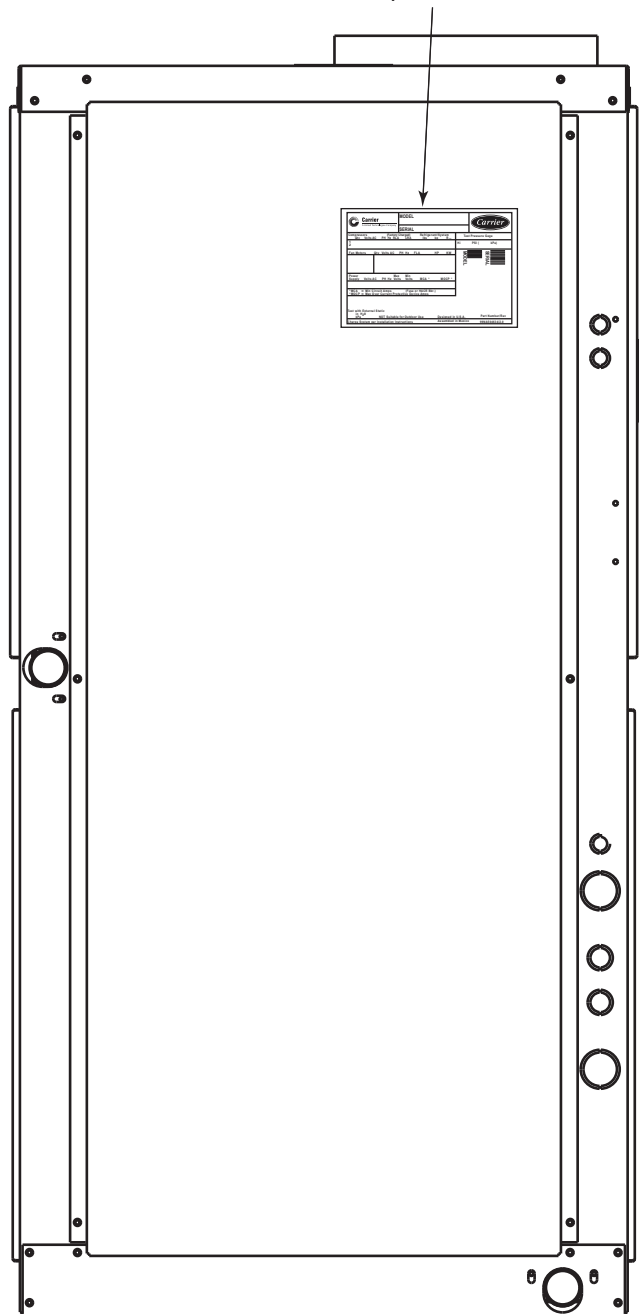
WARNING

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



C101312

Fig. 1 - Location of Unit Nameplate

Table 1 – Electrical Data, Standard Motors with Factory-Installed 2-Speed Fan Option

UNIT	V-PH-Hz†	VOLTAGE LIMITS	FAN MOTOR		POWER SUPPLY	
			Hp	FLA	Minimum Circuit Amps	MAX FUSE or HACR BRKR
40RUA*12 40RUQ*12	208/230-3-60	187-253	2.4	7.1	9.0	15
	460-3-60	414-506	2.4	3.8	5.0	15
	575-3-60	518-632	2.4	3.5	5.0	15
40RUA*14 40RUS*14	208/230-3-60	187-253	2.9	8.6	11.0	15
	460-3-60	414-506	2.9	3.8	5.0	15
	575-3-60	518-632	3.7	4.5	6.0	15
40RUA*16 40RUS*16 40RUQ*16	208/230-3-60	187-253	3.7	10.8	14.0	20
	460-3-60	414-506	3.7	4.9	7.0	15
	575-3-60	518-632	3.7	4.5	6.0	15

Table 2 – Electrical Data, Alternate Motors with Factory-Installed 2-Speed Fan Option

UNIT	V-PH-Hz†	VOLTAGE LIMITS	FAN MOTOR		POWER SUPPLY	
			Hp	FLA	Minimum Circuit Amps	MAX FUSE or HACR BRKR
40RUA*12 40RUQ*12	208/230-3-60	187-253	3.7	10.8	14.0	20
	460-3-60	414-506	3.7	4.9	7.0	15
	575-3-60	518-632	3.7	4.5	6.0	15
40RUA*14 40RUS*14	208/230-3-60	187-253	3.7	10.8	14.0	20
	460-3-60	414-506	3.7	4.9	7.0	15
	575-3-60	518-632	5.0	8.0	10.0	15
40RUA*16 40RUS*16 40RUQ*16	208/230-3-60	187-253	5.0	18.0	23.0	40
	460-3-60	414-506	5.0	9.1	12.0	20
	575-3-60	518-632	5.0	8.0	10.0	15

40RU**12--16

Legend and Notes for Tables 1 and 2

LEGEND:

FLA – Full Load Amps

MOCP – MAX FUSE or HACR BRKR

† Motors are designed for satisfactory operation within 10% of normal voltage shown. Voltages should not exceed the limits shown in the Voltage Limits column.

NOTES:

1. Minimum circuit amps (MCA) and fuse or HACR breaker values are calculated in accordance with The NEC, Article 440.
2. Motor FLA values are established in accordance with Underwriters' Laboratories (UL), Standard 1995.
3. **Unbalanced 3-Phase Supply Voltage**
Never operate a motor where a phase imbalance in supply voltage is greater than 2%. Use the formula in the example (see column to the right) to determine the percentage of voltage imbalance.
4. **Installation with Accessory Electric Heaters**
Size the Field Power Wiring between the heater TB1 and the 40RU indoor fan motor per NEC Article 430-28 (1) or (2) (depends on length of conduit between heater enclosure and 40RU power entry location). Install wires in field-installed conduit.

Example: Supply voltage is 230-3-60

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



AB = 393 v
BC = 403 v
AC = 396 v

$$\begin{aligned} \text{Average Voltage} &= \frac{(393 + 403 + 396)}{3} = \frac{1192}{3} \\ &= 397 \end{aligned}$$

Determine maximum deviation from average voltage.

(AB) 397 – 393 = 4 v

(BC) 403 – 397 = 6 v

(AC) 397 – 396 = 1 v

Maximum deviation is 4 v.

Determine percent of voltage imbalance.

$$\begin{aligned} \% \text{ Voltage Imbalance} &= 100 \times \frac{6}{397} \\ &= 1.5\% \end{aligned}$$

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.

