



INVERTER-RATED OPTION FOR 3 PHASE UNITS

Overview

Inverters, or Variable Frequency Drives (VFDs) are commonly used to control blowers for variable air flows. The “inverter-rated” option should be specified for RenewAire units that are to be controlled by VFDs.

See Configurator Code Chart for model to confirm if your unit is inverter ready.

Features of Inverter-Rated Option

The inverter-rated option is offered for the following units:

- HE-2X, HE-3X, HE-4X, HE-6X, HE-8X belt drive
- HE-1X direct drive
- 208-230V 3P, 460V 3P, 575V 3P

These units differ from the standard offering:

- Hard wired with no voltage adapters
- XHHW-2 shielded cable
- No contactors, disconnects, or TR40

Application Requirements

1. Variable Frequency Drives (VFDs) must be UL listed. VFDs are provided by others.
2. VFDs must be rated for the maximum motor loads. See Unit Specification table below, or unit motor nameplate.
3. Follow VFD manufacturer's requirements. Blower loads in these units can be considered variable torque.
4. Verify that airflow per core is not less than 250 CFM nor more than 1100 CFM.
5. Use our standard unit airflow tables to select unit horsepower to provide maximum required airflow without exceeding motor Full Load Amps (FLA) ratings.

Unit Specifications

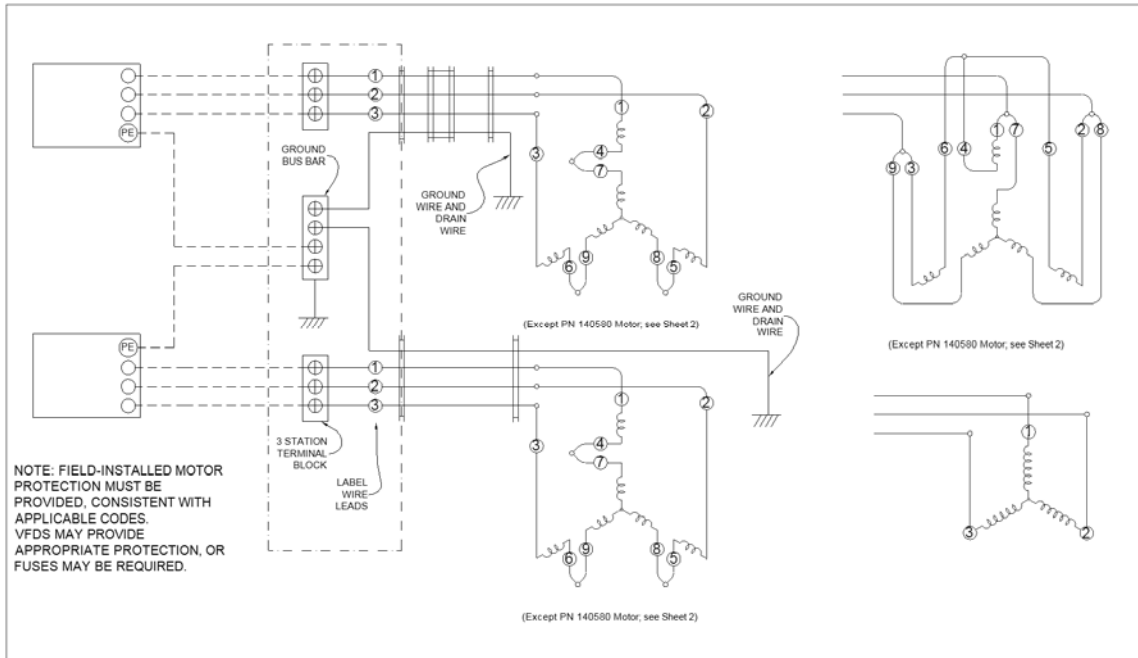
Model	HP	Voltage	FLA	Motor Protection	Model	HP	Voltage	FLA	Motor Protection
HE-1X		208-230	2.1	Thermal Protector	HE-3X HE-4X	5	208-230	14.0-13.0	Thermal Protector
		460	1.1	Thermal Protector			460	6.5	Thermal Protector
HE-2X	1 ½	208-230	5.6-5.0	Thermal Protector			575	5.2	Protect with VFD
		460	2.8	Thermal Protector	HE-6X HE-8X	5	208-230	14.2-13.0	Protect with VFD
		575	1.7	Protect with VFD			460	6.5	Protect with VFD
HE-2X HE-3X HE-4X	2	208-230	7.0-6.6	Thermal Protector	575	5.2	Protect with VFD		
		460	3.5	Thermal Protector	HE-6X HE-8X	7 ½	208-230	20.9-19.2	Protect with VFD
		575	2.1	Protect with VFD			460	9.6	Protect with VFD
HE-3X HE-4X	3	208-230	9.2-8.6	Thermal Protector	575	7.6	Protect with VFD		
		460	4.4	Thermal Protector	HE-8X	10	208-230	28.2-28.0	Protect with VFD
		575	3.4	Protect with VFD			460	14	Protect with VFD
				575			10.0	Protect with VFD	

6. Motor Protection:

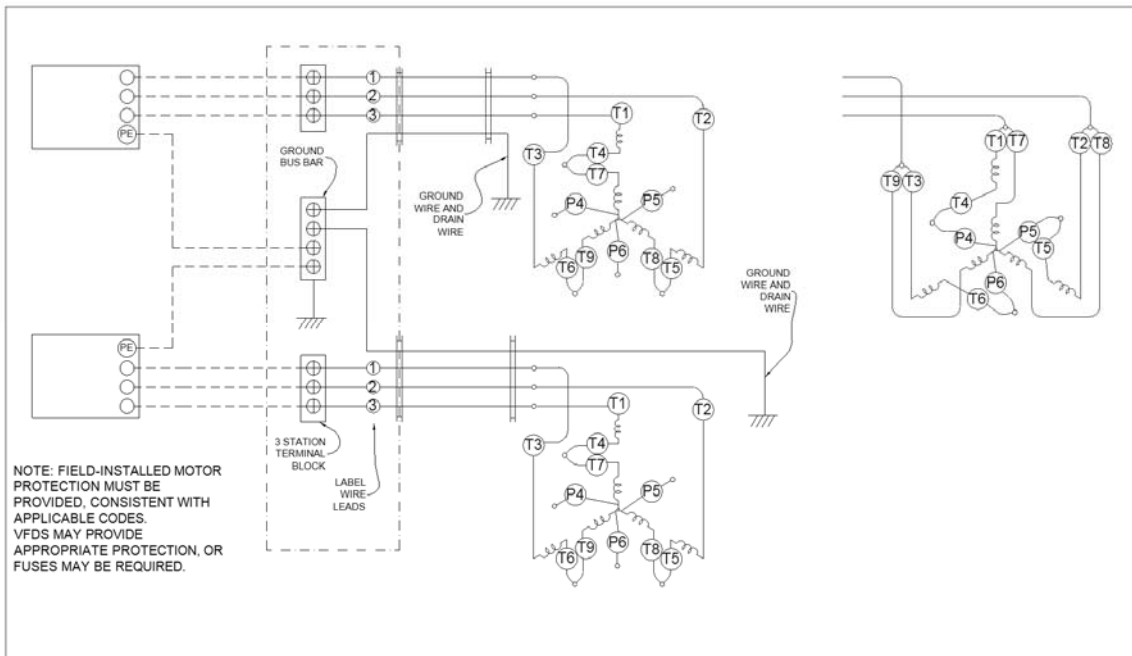
- a) Units whose motor protection is shown as “Protected by VFD” (above) require the VFD(s) provide the motor overload protection.
- b) Thermally protected motors may experience nuisance trips of the thermal protector at some specific frequency. Many inverters can be programmed to avoid specific frequencies.

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Wiring Schematic Belt Drive Units



Wiring Schematic Direct Drive Units





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Installation Recommendations

1. Installation work and electrical wiring must be done by properly licensed contractor(s) in accordance with all applicable codes and standards, including fire-rated construction codes and standards.
2. Use the unit only in the manner intended by the manufacturer. If you have questions, contact the manufacturer.
3. Most installations use two VFDs, one for each motor. If a single VFD is used to control both motors then
 - a. Make sure the VFD supports dual motor operation
 - b. Airflow in each air stream should be balanced
 - c. Adjusting the sheaves may be required to balance the airflow.
4. Follow VFD manufacturer's recommendations for maximum inverter to motor cable length and cable type.
5. Special motor cable is used to withstand the higher voltage spikes and for shielding.
6. Follow VFD manufacturer's recommendations for connecting, shielding, and grounding cable from VFD to terminal block in ERV unit's electrical box.
7. Most currently available inverters can detect and correct backward spinning motors at start up. Specify this feature in the VFD if the ERV is installed in series with other air handling equipment.