

Trane Drive Start-Up Check List



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| 1. Reference Material |
| a. VLT HVAC Installation, Operation and Maintenance Manual. |
| b. Customer Connection Diagram (specific for the order). |
| c. Schematic Diagram (specific for the order). |
| 2. Pre-Installation Checks |
| a. Compare the drive model number to what was ordered. |
| b. Be sure the following are for the same voltage: |
| i) Drive. |
| ii) Power line. |
| iii) Motor. |
| c. Record the following motor data: |
| i) Voltage |
| ii) Frequency |
| iii) Full load current |
| iv) Full load speed |
| v) Power (convert HP to Kw – approximately 746 watts/HP) |
| d. Be sure that rated drive current is greater than or equal to the total full load current of all motors which will be driven at once. |
| e. Check motor wiring: |
| i) A disconnect or contactor between the drive and the motor may need to be interlocked to the drive or else nuisance trips may occur. |
| ii) Multiple motors have individual motor overload and short circuit protection. |
| iii) No power factor correction capacitors between the drive and the motor. |
| iv) Two speed motors must be wired permanently for full speed. |
| v) Y-start, Δ -run motors must be wired permanently for run. |
| vi) Part winding start motors must be wired permanently for run. |
| 3. Installation Checks |
| a. Verify appropriate short circuit protection is provided at the input of the drive. Specific fuse requirement necessary for UL (see instruction manual) |
| b. Measure phase to phase line voltage and ensure measured voltage is within drive specification (see instruction manual) |
| c. Measure phase to ground voltage. If any measured phase voltage is greater than 60% of phase to phase voltage, open RFI switch. |
| d. Environmental concerns. |
| i) Suitable for drive enclosure type, Chassis, NEMA/UL Type 1, 12, 3R or 4 |
| ii) Max 95% relative humidity, non-condensing. |
| iii) 14°F to 113°F ambient temperature range (typical). |
| iv) 3300 foot maximum elevation with no de-rating. |
| v) Non-corrosive environment or unit conformal coated. |
| e. Mounting |
| i) No heat sink fins exposed out the back. |
| ii) Drive mounting clearances observed (see instruction manual) |
| iii) No excessive vibration. |
| iv) Keep dirt and debris out of the drive |
| v) Use knock-outs provided or conduit entry plates for wire entry |
| f. Connections and Wiring |
| i) Check all wiring connections are secure. |
| ii) Each drive grounded individually, no daisy chain grounds. |
| iii) 0-10Vdc and ma signal wires protected from noise. |
| iv) Separated runs for input power, motor power, and control wiring. |

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| | v) Note some control connections may be 115VAC. |
| | vi) Motor thermistor wires separate from load wires. |
| 4. Powering Drive | |
| | a. Double check all wire connections (correct terminal connection, correct tightness) |
| | b. All RUN commands off, all speed commands set to zero. |
| | c. Switch Power on. |
| | d. Display and PWR LED on. |
| 5. Basic Drive Set-up, Use Quick Menu — <i>This step is essential!</i> | |
| | a. Parameter 0-01, LANGUAGE |
| | b. Parameter 1-20, MOTOR POWER (Kw) |
| | c. Parameter 1-22, MOTOR VOLTAGE (V) |
| | d. Parameter 1-23, MOTOR FREQUENCY (Hz) |
| | e. Parameter 1-24, MOTOR CURRENT (A) |
| | f. Parameter 1-25, MOTOR NOMINAL SPEED (RPM) |
| | g. Parameter 3-41, RAMP 1 RAMP UP TIME (S) |
| | h. Parameter 3-42, RAMP 1 RAMP DOWN TIME (S) |
| | i. Parameter 4-11, MOTOR SPEED LOW LIMIT (RPM) |
| | j. Parameter 4-13, MOTOR SPEED HIGH LIMIT (RPM) |
| | k. Parameter 1-29, AUTOMATIC MOTOR ADAPTATION |
| 6. Set Application Related Parameters, Use Quick Menu Function Set-ups | |
| | a. Parameter Q3-4, Application Set-ups |
| | i) Parameter Q3-40, Fan Functions |
| | ii) Parameter Q3-41, Pump Functions |
| | iii) Parameter Q3-42, Compressor Functions |
| 7. Operational Tests — HAND | |
| | a. Check the motor's rotation from the drive. If incorrect, reverse two leads between the drive and the motor. |
| | b. If a bypass is provided, check the motor's rotation in bypass mode. If incorrect, reverse two input power lines. |
| | c. Accelerate the motor to full speed and verify operation. |
| | d. Decelerate the motor to a stop and verify operation. |
| | e. Slowly operate the motor over the speed range and check for resonance. Adjust parameters 1-64 and 4-60 thru 4-63 to set bypass frequencies to avoid resonance. |
| 8. Operational Tests — AUTO, Open Loop | |
| | a. Ensure that the drive follows run/stop commands from the system. |
| | b. Ensure that the drive follows the speed command from the system. |
| | c. Set final MIN/MAX References as required – Parameters 3-02 and 3-03 |
| | d. Set final RAMP UP/RAMP DOWN Times as required – Parameters 3-41 and 3-42 |
| 9. Operational Tests — Auto, Closed Loop | |
| | a. Set up the PID control parameters as required. |
| | b. Ensure that the drive follows run/stop commands from the system. |
| | c. Ensure that the drive responds to the feedback signal from the system. |
| 10. Final Adjustments | |
| | a. Set up parameter 1-73, FLYING START, as required. |
| | b. Copy parameters to other setups as required, Parameter 0-51 |
| | c. Copy parameters to the LCP, Parameter 0-50 |