



# INSTRUCTIONS FOR WIRING 2 OR MORE VFDs WITH 1 CPC-3

Tjernlund Products, Inc. • 1601 Ninth Street • White Bear Lake, MN 55110 • (800) 255-4208 • FAX (651) 426-9547 • [www.tjernlund.com](http://www.tjernlund.com)

The System Schematic for wiring 2 VFDs should consist of 3 sheets: the "FIRST SHEET", a "MIDDLE SHEET" and the "LAST SHEET". For each additional VFD needed, insert 1 additional "MIDDLE SHEET" between the "FIRST SHEET" and the "LAST SHEET". The drawing numbers and dates at the mating edges of the sheets should all be the same. This method is acceptable up to a maximum of 6 VFDs, in which case there would be 5 identical middle sheets in a row between the first sheet and the last sheet.

**SEE THE "LAST SHEET" FOR LEGEND, WARNINGS AND NOTES.**



# Modulating Combustion Air System with CPC-3 Controller, 460 volt VFDs and VSUB 8/12/16/20 Blowers

8052027 12/14/04  
FIRST SHEET

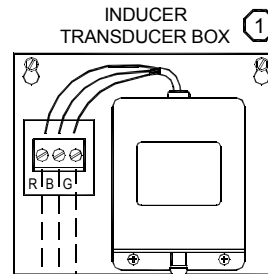
PROJECT: \_\_\_\_\_

10' (3m) COMMUNICATIONS CABLE PROVIDED WITH EACH VFD

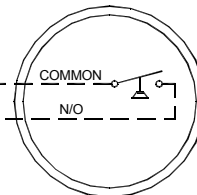


**WARNING:**  
Improper wiring to this transducer will destroy the transducer. Use caution to ensure that the wiring to the transducer is correct before activating the CPC-3 Controller.

Route transducer wiring in metal conduit or use Belden Shield Cable #9939 or equivalent. Make sure the transducer wiring does not contain or cross line voltage wiring or undesired transducer performance may result.



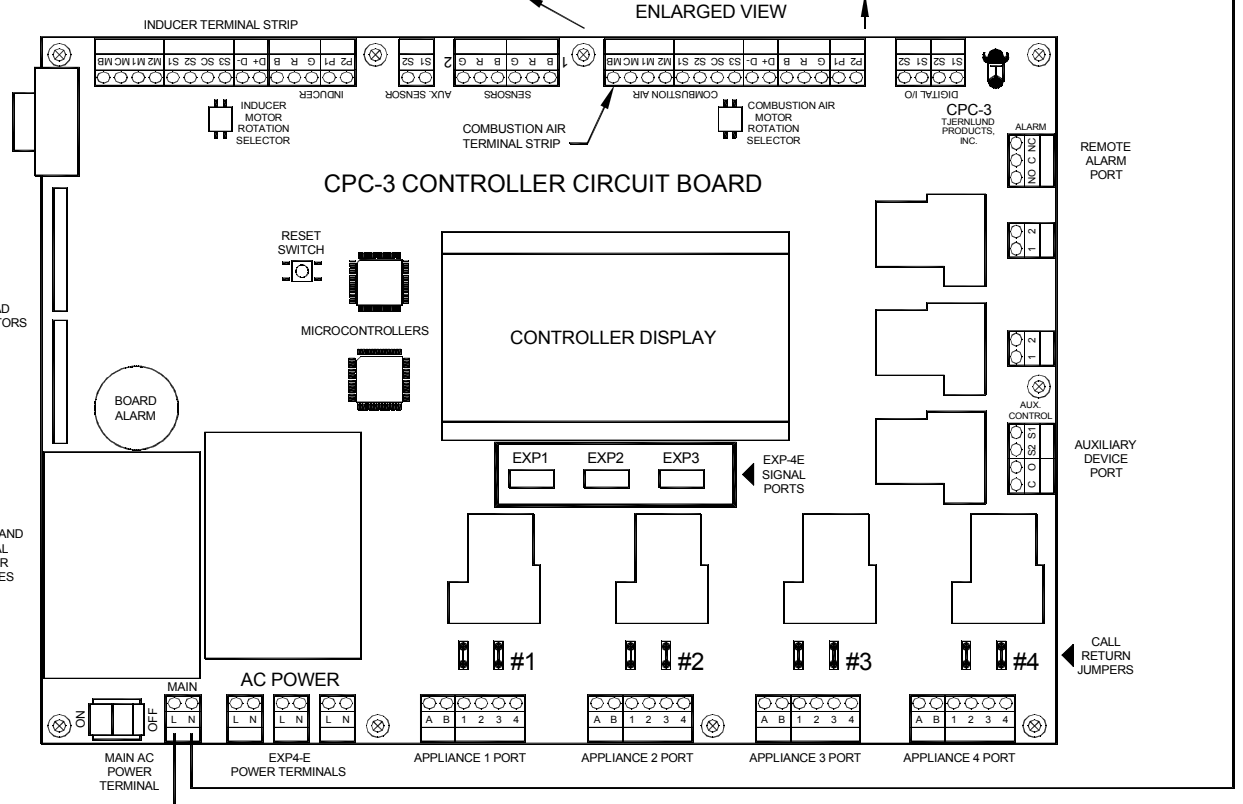
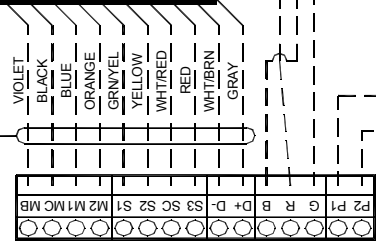
COMBUSTION AIR  
MANUAL MODE  
PROVING SWITCH



Wire Gage	Max. Distance
12 AWG	900' (274m)
14 AWG	600' (183m)
16 AWG	390' (119m)
18 AWG	220' (67m)
20 AWG	165' (50m)
22 AWG	110' (34m)



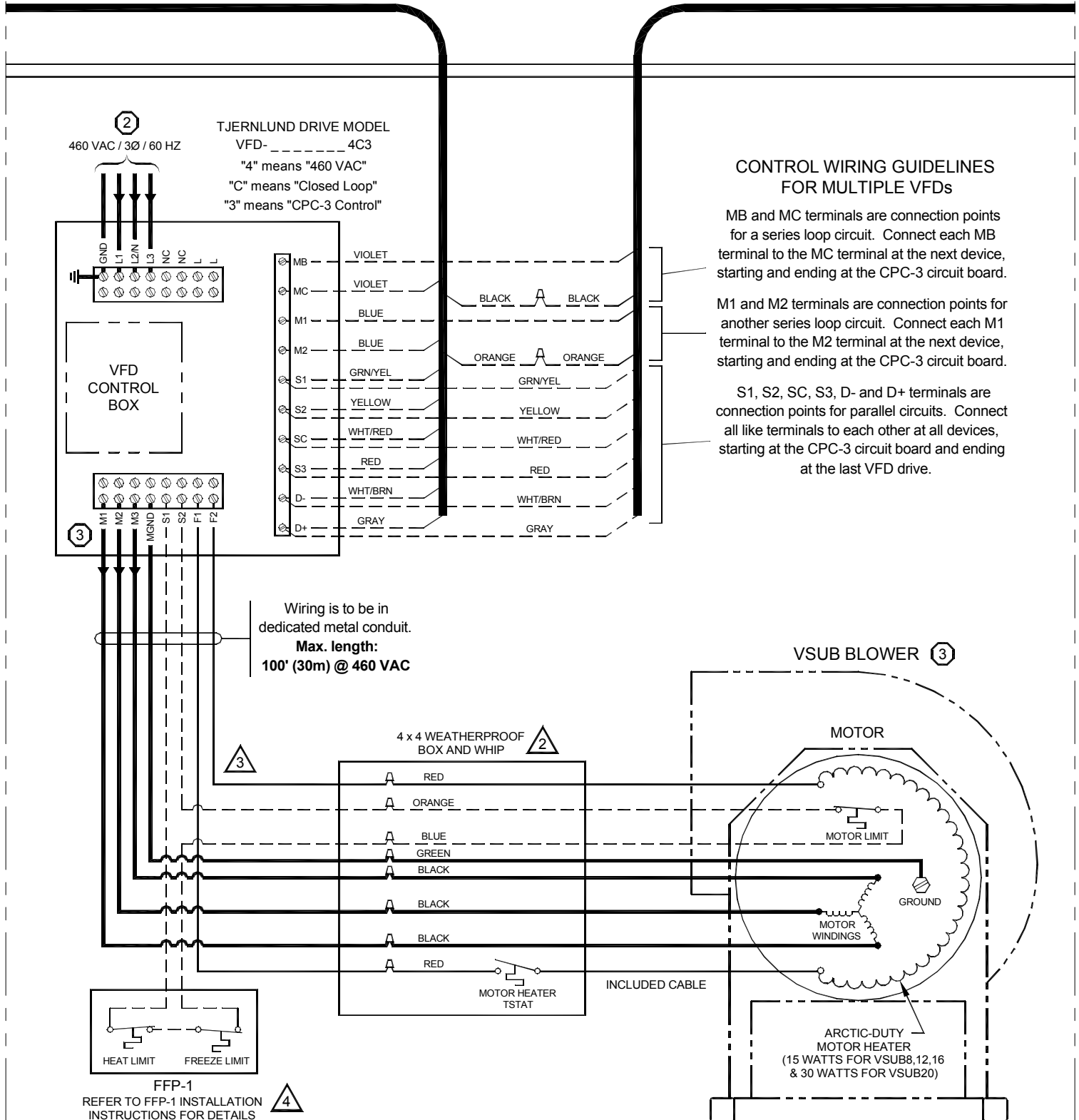
The low voltage VFD communication wiring is to be routed in metal conduit. If longer wiring is desired, see the wire length table at left for maximum wire lengths.



### WIRING 2 OR MORE VFDs WITH 1 CPC-3

The System Schematic for wiring 2 VFDs should consist of 3 sheets: A "FIRST SHEET", this "MIDDLE SHEET" and a "LAST SHEET". For each additional VFD needed, insert 1 additional "MIDDLE SHEET" between the "FIRST SHEET" and the "LAST SHEET". The drawing numbers and dates at the mating edges of the sheets should all be the same. This method is acceptable up to a maximum of 6 VFDs, in which case there would be 5 identical middle sheets in a row between the first sheet and the last sheet.

SEE THE LAST SHEET FOR LEGEND, WARNINGS AND NOTES.



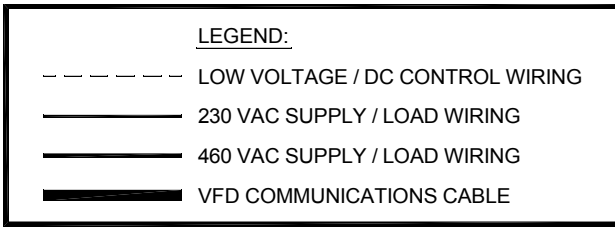


FIGURE 8052027 12/14/04

**WARNINGS:**

- ① Improper wiring to the transducer will destroy the transducer. Use caution to ensure that the wiring to the transducer is correct before activating the CPC-3 controller.
- ② Verify that the input power voltage matches the VFD's nameplate rating before applying power. Improper supply voltage to the VFD could damage the VFD.
- ③ Verify that the blower (VSUB 8/12/16/20) is wired for the output voltage from the VFD. If not correct, severe damage to the blower and/or the VFD could result.
4. When the system is completely installed, perform the safety interlock and operational test as outlined in the installation manuals. Failure to do these tests could result in an unsafe and/or incorrectly operating system.

**CAUTIONS:**

1. All wiring must be in metal conduit (best) or shielded cable.
2. Route transducer wiring in metal conduit or use Belden Shield Cable #9939 or equivalent. Make sure the transducer wiring does not contain or cross line voltage wiring or undesired transducer performance may result.
3. Do not run the VFD's input power and output power wiring in the same conduit. Undesired VFD operation could result.

**NOTES:**

- ① If the provided 10-foot, 10-wire VFD control cable is not long enough to meet the application needs, use caution to ensure that the connections from the VFD to the CPC-3 controller are correctly located. S1 to S1, S2 to S2, etc. In addition, reference the Wire Length Table.
- ② Use caulking to seal the electrical box cover to the electrical box, and to seal the conduit holes to hole plugs.
- ③ If required, non-fused disconnects are to be supplied by the installer.
- ④ The FFP-1 will disable the combustion air blower when excessively hot or cold room air is detected. Refer to the FFP-1 installation instructions for details.

