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.
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Modulating Induced Draft System
with CPC-3 Controller, 230 volt VFDs
and VSAD 8/10/12-230 Inducers

PROJECT:____________________________________________________________________

Terminology

Modulating Induced Draft System

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 below for maximum wire lengths.

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.

The CPC-3 Controller is a three-wire controller which may be used with Tjernlund products that have a three-wire sensor input. The CPC-3 Controller is an electronic control for modulating induced draft systems. It is designed to control and monitor power supplies, motor rotation, alarm functions and combustion air terminal strips. The controller provides automation features that create an easy-to-use, reliable and compact control panel.

Use caution to ensure that the wiring to the transducer is correct before activating the CPC-3 Controller.

IMPORTANT: 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.

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.

Please consult the CPC-3 Controller manual for detailed instructions.

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

The CPC-3 Controller has diagnostic features that allow for troubleshooting and monitoring of the system.

Key Features:

- Three-wire sensor input
- Motor rotation
- Alarm functions
- Combustion air terminal strips
- Automation features

Key Points:

- The CPC-3 Controller is compatible with Tjernlund products that have a three-wire sensor input.
- The controller provides automation features that create an easy-to-use, reliable and compact control panel.
- Use caution to ensure that the wiring to the transducer is correct before activating the CPC-3 Controller.

Please consult the CPC-3 Controller manual for detailed instructions.
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.

CONTROL WIRING GUIDELINES FOR MULTIPLE VFDs

MB and MC terminals are connection points for a series loop circuit. Connect each MB terminal to the MC terminal at the next device, starting and ending at the CPC-3 circuit board.

M1 and M2 terminals are connection points for another series loop circuit. Connect each M1 terminal to the M2 terminal at the next device, starting and ending at the CPC-3 circuit board.

S1, S2, SC, S3, D- and D+ terminals are connection points for parallel circuits. Connect all like terminals to each other at all devices, starting at the CPC-3 circuit board and ending at the last VFD drive.

Wiring is to be in dedicated metal conduit.
Max. length: 300' (91m) @ 230 VAC

VSAD MOTOR ENCLOSURE

WEATHERPROOF BOX AND WHIP
WARNING:
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 inducer (VSAD 8/10/12-230) is rated for the output voltage from the VFD. If not correct, severe damage to the inducer 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. For vertical termination of the VSAD inducer, connect the S2 position to the orange wire and cap off the gray wire as shown.

For horizontal termination of the VSAD inducer, connect the S2 position to the gray wire and cap off the orange wire.