



# Controls Operation and Troubleshooting

## CONTENTS

|   |       |
|---|-------|
| <b>SAFETY CONSIDERATIONS</b> .....                    | 1     |
| <b>GENERAL</b> .....                                  | 1     |
| <b>MAJOR SYSTEM COMPONENTS</b> .....                  | 1-7   |
| <b>Comfort Controller Processor (PCB1)</b> .....      | 1     |
| <b>Comfort Controller I/O Module (PCB2)</b> .....     | 2     |
| <b>Comfort Controller I/O Module (PCB3)</b> .....     | 2     |
| <b>Local Interface Display</b> .....                  | 2     |
| <b>PCB Addresses</b> .....                            | 2     |
| <b>Control Module Communication</b> .....             | 2     |
| <b>Carrier Comfort Network Interface</b> .....        | 4     |
| <b>Optional and Field-Installed</b>                   |       |
| <b>Accessory Sensors/Devices</b> .....                | 4     |
| <b>Wiring Control Devices</b> .....                   | 6     |
| <b>CONTROLS AND FUNCTIONS</b> .....                   | 8-15  |
| <b>Using the Local Interface Display</b> .....        | 8     |
| <b>Automatic Run Test</b> .....                       | 10    |
| <b>Power Up the LID Display</b> .....                 | 12    |
| <b>Log On to the LID Display</b> .....                | 12    |
| <b>Change the Default Password</b> .....              | 12    |
| <b>Set the Clock</b> .....                            | 12    |
| <b>Configure Schedules</b> .....                      | 13    |
| <b>Program Set Points</b> .....                       | 13    |
| <b>Check System Parameters</b> .....                  | 14    |
| <b>Display Alarm History</b> .....                    | 14    |
| <b>Configure Custom Programming Selections</b> .....  | 14    |
| <b>Set Controller Address</b> .....                   | 15    |
| <b>Log Off from Controller</b> .....                  | 15    |
| <b>OPERATION</b> .....                                | 16-26 |
| <b>Occupancy Determination</b> .....                  | 16    |
| <b>Fan Control</b> .....                              | 16    |
| <b>Sequence of Operation</b> .....                    | 16    |
| <b>Diagnostic Features</b> .....                      | 18    |
| <b>50XJ Variable Frequency Drive Control</b> .....    | 19    |
| <b>50BV Variable Frequency Drive Control</b> .....    | 22    |
| <b>TROUBLESHOOTING</b> .....                          | 27-29 |
| <b>Run Test Troubleshooting</b> .....                 | 27    |
| <b>Forcing and Clearing and Input or Output</b> ..... | 27    |
| <b>Standard Diagnostic Features</b> ,                 |       |
| <b>Alarm and Warning Lights</b> .....                 | 28    |
| <b>APPENDIX A — WIRING DIAGRAMS</b> .....             | 30-42 |
| <b>APPENDIX B — CONTROL SCREENS</b> .....             | 43-64 |
| <b>Display Screens</b> .....                          | 43    |
| <b>Configuration Screens</b> .....                    | 45    |
| <b>Maintenance Screens</b> .....                      | 58    |

## SAFETY CONSIDERATIONS

Installing, starting up, and servicing this equipment can be hazardous due to system pressures, electrical components, and equipment location. Only trained, qualified installers and service mechanics should install, start up, and service this equipment.

When working on this equipment, observe precautions in the literature; on tags, stickers, and labels attached to the equipment, and any other safety precautions that apply. Follow all safety codes. Wear safety glasses and work gloves. Use care in handling, rigging, and setting this equipment, and in handling all electrical components.

### ⚠ WARNING

Electrical shock can cause personal injury and death. Shut off all power to this equipment during installation and service. There may be more than one disconnect switch. Tag all disconnect locations to alert others not to restore power until work is completed.

### ⚠ CAUTION

This unit uses a microprocessor-based electronic control system. *Do not* use jumpers or other tools to short out components, or to bypass or otherwise depart from recommended procedures. Any short-to-ground of the control board or accompanying wiring may destroy the electronic modules or electrical components.

## GENERAL

This publication contains Start-Up, Controls Operation, and Troubleshooting information for the 50BV,XJ units. These OMNIZONE™ packaged units are self-contained, water-cooled or remote air-cooled indoor units for use in VAV (variable air volume) applications. Units are equipped with Comfort Controller 6400 (CC6400) system controls. Refer to the unit Installation Instructions for unit layout.

## MAJOR SYSTEM COMPONENTS

### Comfort Controller Processor (PCB1) —

The central processing unit for the OMNIZONE system control is the Comfort Controller 6400. The Comfort Controller provides general purpose HVAC (heating, ventilation and air conditioning) control and monitoring capability in a stand-alone or network environment using closed-loop, direct digital control. The Comfort Controller 6400 has been pre-programmed to work in either stand-alone or CCN (Carrier Comfort Network) system installations.

The CC6400 processor is designed to provide heating and cooling control, loop control, scheduling, and custom programming. The main processor provides 16 field points (8 input and 8 output). Additional points are provided by the I/O modules described on page 2. Table 1 lists the control inputs and outputs for all CC6400 modules.

Specifications for the Comfort Controller 6400 may be found in the Comfort Controller literature.

**Comfort Controller I/O Module (PCB2)** — This input/output module is factory installed in the 50XJ unit and allows additional field points (8 inputs and 8 outputs): VFD (variable frequency drive) Bypass, VAV Terminals Control, Building Ventilation, and Heating Interlock.

**Comfort Controller I/O Module (PCB3)** — This accessory control input/output module can be ordered separately and field-installed in the 50XJ unit. This module allows the addition of the following field-installed sensors: Tower Sump Temperature Sensor, Leaving Water Temperature Sensor, Building Pressure Sensor, CO<sub>2</sub> Sensor, Indoor Relative Humidity Sensor, and Outdoor Temperature Sensor.

The accessory I/O module provides the following control outputs (relays): 4-stage heat control, water pump request, tower request, modulating exhaust fan, and external dehumidification.

**Local Interface Display** — The Local Interface Display (LID) is mounted on the front of the 50BV,XJ units. A number of user-adjustable features are entered/changed using the display keypad. These features described in detail in the Using the Local Interface Display section of this manual.

**PCB Addresses** — Switch 1 (SW1) is used to set each controller's address. Individual DIP switches on each board are used to set the addresses for individual hardware points. PCB1 switches are factory-set for hardware points 1-15, PCB2 DIP switches are set for points 17-32, and PCB3 for points 33-48. For more information, refer to Table 1 and the Optional and Field-Installed Accessory Sensors/Devices section.

**Control Module Communication** — When power is applied to the OMNIZONE™ System Control panel, the red LED (light-emitting diode) on the top front of the processor module will flash at a rapid pace (about twice a second) for the first 30 to 60 seconds. See Fig. 1. This rapid flash will then be replaced by a slower paced flash (about once per second).

The green LED below the red LED will start flashing. This LED indicates input/output communications for accessory input output modules and the LID.

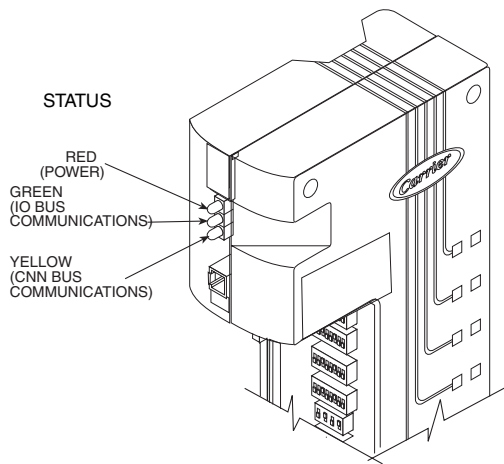
The yellow LED (the third LED from the bottom of the controller [PCB1]) will flash when the controller is broadcasting CCN messages to a laptop or other computer.

**Table 1 — Control Inputs and Outputs**

| DESCRIPTION                                   | ABBREV. | TYPE                       | CONTROLLER I/O NO. |                | DIP SWITCH SETTINGS     |        |   |      |   |              |
|---|---------|----------------------------|--------------------|----------------|-------------------------|--------|---|------|---|--------------|
|   |         |                            | Water Econ. Units  | Air Econ.Units | Switch No. and Position |        |   |      |   |              |
| <b>Inputs</b>                                 |         |                            |                    |                |                         |        |   |      |   |              |
| <b>Main Controller (PCB1)</b>                 |         |                            |                    |                |                         |        |   |      |   |              |
|   |         |                            |                    |                |                         |        |   |      |   | Addr = 1-16  |
| Supply Air Temperature                        | SAT     | Analog; 10K MCI            | 1                  | 1              | 1                       | Up     | 1 | Down | 1 | Up           |
| VFD Duct Static Pressure                      | DSP     | 4-20mA; Internally Powered | 2                  | 2              | 2                       | Up     | 2 | Up   | 2 | Down         |
| COL/Safeties — (Comprs.Status; Resister Bd.)  | CMP MUX | Analog; 0-10VDC            | 3                  | 3              | 3                       | Up     | 3 | Down | 3 | Down         |
| Fire Alarm/Shutdown                           | FSD     | Switch closure             | 4                  | 4              | 4                       | Up     | 4 | Down | 4 | Down         |
| Condenser Waterflow Switch                    | CDWF    | Switch closure             | 5                  | 5              | 5                       | Up     | 5 | Down | 5 | Down         |
| Remote Occupancy                              | RMT OCC | Switch closure             | 6                  | 6              | 6                       | Up     | 6 | Down | 6 | Down         |
| Duct High Static Limit Switch                 | DHS     | Switch closure             | 7                  | 7              | 7                       | Up     | 7 | Down | 7 | Up           |
| Entering Water Temp. Sensor                   | EWT     | Analog; 5K                 | 8                  | 8              | 8                       | Up     | 8 | Down | 8 | Up           |
| <b>I/O Board (PCB2)</b>                       |         |                            |                    |                |                         |        |   |      |   |              |
|   |         |                            |                    |                |                         |        |   |      |   | Addr = 17-32 |
| Mixed/Return Air Sensor                       | MAT/RAT | Analog; 10K MCI            | 1                  | 1              | 1                       | Up     | 1 | Down | 1 | Up           |
| Filter Status Switch (Dirty Filter Detect)    | FLTS    | Switch closure             | 2                  | 2              | 2                       | Up     | 2 | Down | 2 | Down         |
| Phase Loss Monitor                            | PHASE   | Switch closure             | 3                  | 3              | 3                       | Up     | 3 | Down | 3 | Down         |
| External reset                                | RESET   | 0-10VDC Externally Powered | 4                  | 4              | 4                       | Up     | 4 | Down | 4 | Down         |
| Water Econ. FreezeStat                        | FREEZE  | Switch closure             | 5                  | —              | 5                       | Up     | 5 | Down | 5 | Up           |
| Differential Enthalpy                         | ENTH    | Switch closure             | —                  | 5              | 5                       | Up     | 5 | Down | 6 | Down         |
| Space Zone Sensor(s)                          | SPT     | Analog; 10K MCI            | 6                  | 6              | 6                       | Up     | 6 | Down | 7 | Up           |
| VFD Bypass Enable                             | BYPASS  | Switch closure             | 7                  | 7              | 7                       | Up     | 7 | Down | 8 | Up           |
| Refrigerant Pressure (Compr.#1)               | PRES    | 4-20mA; Internally Powered | 8                  | 8              | 8                       | Up     | 8 | Up   | — | —            |
| <b>I/O Board (PCB3)</b>                       |         |                            |                    |                |                         |        |   |      |   |              |
|   |         |                            |                    |                |                         |        |   |      |   | Addr = 33-48 |
| Tower Sump Temp.                              | TWRTEMP | Analog; 10K MCI            | 1                  | 1              | 1                       | Up     | 1 | Up   | 1 | Up           |
| Building Pressure                             | BSP     | 4-20mA; Internally Powered | 2                  | 2              | 2                       | Up     | 2 | Down | 2 | Down         |
| Leaving Water Temp.                           | LWT     | Analog; 10K MCI            | 3                  | 3              | 3                       | Up     | 3 | Up   | 3 | Down         |
| Indoor Air Quality                            | IAQ     | 4-20mA; Internally Powered | —                  | 4              | 4                       | Up     | 4 | Down | 4 | Down         |
| Indoor relative Humidity                      | IRH     | 4-20mA; Internally Powered | —                  | 5              | 5                       | Up     | 5 | Down | 5 | Down         |
| Outside Air Temp.                             | OAT     | Analog; 10K MCI            | —                  | 6              | 6                       | Up     | 6 | Up   | 6 | Up           |
| Unassigned                                    | —       | —                          | —                  | —              | —                       | —      | — | —    | 7 | Up           |
| Unassigned                                    | —       | —                          | —                  | —              | —                       | —      | — | —    | 8 | Up           |
| DESCRIPTION                                   | ABBREV. | TYPE                       | CONTROLLER I/O NO. |                | DIP SWITCH SETTINGS     |        |   |      |   |              |
|   |         |                            | Water Econ. Units  | Air Econ.Units | Switch No. and Position |        |   |      |   |              |
| <b>Outputs</b>                                |         |                            |                    |                |                         |        |   |      |   |              |
| <b>Main Controller (PCB1)</b>                 |         |                            |                    |                |                         |        |   |      |   |              |
| Compressor #1 Relay                           | CMP1    | 24VDC Discrete             | 1                  | 1              | 1                       | Either | 1 | DO   | — | —            |
| Compressor #2 Relay                           | CMP2    | 24VDC Discrete             | 2                  | 2              | 2                       | Either | 2 | DO   | — | —            |
| Compressor #3 Relay                           | CMP3    | 24VDC Discrete             | 3                  | 3              | 3                       | Either | 3 | DO   | — | —            |
| Compressor #4 Relay                           | CMP4    | 24VDC Discrete             | 4                  | 4              | 4                       | Either | 4 | DO   | — | —            |
| VFD On/Off                                    | SF      | 24VDC Discrete             | 5                  | 5              | 5                       | Either | — | —    | 1 | DO           |
| VFD Speed Control                             | SPEED   | 4-20mA modulating          | 6                  | 6              | 6                       | Down   | — | —    | 2 | AO           |
| Alarm Pending                                 | ALARM1  | 24VDC Discrete             | 7                  | 7              | 7                       | Either | — | —    | 3 | DO           |
| Service Required                              | ALARM2  | 24VDC Discrete             | 8                  | 8              | 8                       | Either | — | —    | 4 | DO           |
| <b>I/O Board (PCB2)</b>                       |         |                            |                    |                |                         |        |   |      |   |              |
| Ventilation Output                            | VENTOUT | 24VDC Discrete             | 1                  | 1              | 1                       | Either | 1 | DO   | — | —            |
| Terminals Occupied                            | OCCTRM  | 24VDC Discrete             | 2                  | 2              | 2                       | Either | 2 | DO   | — | —            |
| 2-Position Reverse Operation Valve            | ECONO   | 4-20mA modulating          | 3                  | —              | 3                       | Down   | 3 | AO   | — | —            |
| Economizer Damper                             | ECONO   | 4-20mA modulating          | —                  | 3              | 3                       | Down   | 3 | AO   | — | —            |
| Modulating Valve Econ./ Head Pressure Control | MODVLV  | 4-20mA modulating          | 4                  | 4              | 4                       | Down   | 4 | AO   | — | —            |
| Hot Water Coil Valve Control                  | HWV     | 4-20mA modulating          | 5                  | 5              | 5                       | Down   | — | —    | 1 | AO           |
| Heat Interlock Relay                          | HIR     | 24VDC Discrete             | 6                  | 6              | 6                       | Either | — | —    | 2 | DO           |
| VFD Bypass Start                              | BPSS    | 24VDC Discrete             | 7                  | 7              | 7                       | Either | — | —    | 3 | DO           |
| VAV Terminals Open                            | DAMPERS | 24VDC Discrete             | 8                  | 8              | 8                       | Either | — | —    | 4 | DO           |
| <b>I/O Board (PCB3)</b>                       |         |                            |                    |                |                         |        |   |      |   |              |
| Electric Heat Control — Stage #1              | HEAT1   | 24VDC Discrete             | 1                  | 1              | 1                       | Either | 1 | DO   | — | —            |
| Electric Heat Control — Stage #2              | HEAT2   | 24VDC Discrete             | 2                  | 2              | 2                       | Either | 2 | DO   | — | —            |
| Electric Heat Control — Stage #3              | HEAT3   | 24VDC Discrete             | 3                  | 3              | 3                       | Either | 3 | DO   | — | —            |
| Electric Heat Control — Stage #4              | HEAT4   | 24VDC Discrete             | 4                  | 4              | 4                       | Either | 4 | DO   | — | —            |
| Water Pump Request                            | PUMP    | 24VDC Discrete             | 5                  | 5              | 5                       | Either | — | —    | 1 | DO           |
| Tower Request                                 | TOWER   | 24VDC Discrete             | 6                  | 6              | 6                       | Either | — | —    | 2 | DO           |
| Modulating Exhaust Fan                        | EXH     | 4-20mA modulating          | 7                  | 7              | 7                       | Down   | — | —    | 3 | AO           |
| External Dehumidification                     | DEHUM   | 24VDC Discrete             | 8                  | 8              | 8                       | Either | — | —    | 4 | DO           |

**LEGEND**

- AO — Analog Output
- DO — Discrete Output
- MCI — Precon Type II Thermistor
- VAV — Variable Air Volume
- VFD — Variable Frequency Drive



**Fig. 1 — CC6400 Control Module LEDs**

**Table 2 — Communication Cable Recommendations**

| MANUFACTURER | PART NUMBER  |
|--------------|--------------|
| Alpha        | 2413 or 5463 |
| American     | A22503       |
| Belden       | 8772         |
| Columbia     | 02525        |

**REMOTE OCCUPANCY CONTROL (PCB1)** — This control is a field located switch, controller or timer input which, when activated, tells system when to switch from Unoccupied to Occupied mode.

When in Occupied mode, the unit turns on the supply fan and controls supply fan speed to maintain a duct static set point measured at the Duct Static Pressure Sensor (DSP). The unit operates to provide conditioning to a set point. When in Unoccupied mode, the unit provides no cooling/heating, or controls to a 'setback' set point.

**FIRE ALARM (PCB1)** — The fire alarm is a control voltage input to the 50XJ unit, which causes the controller to shut the system down in the event of a fire.

**CONDENSER WATER FLOW SWITCH (50XJ PCB1)** — This thermal dispersion type flow switch if factory installed, is located in the unit waterline to ensure that there is waterflow before allowing the unit to start the compressor(s). If no flow is detected, then compressor operation and economizer cooling is avoided until waterflow is again detected. An warning light (yellow) is provided during this state.

**HEAT INTERLOCK OUTPUT (50XJ PCB2)** — This output is activated whenever heating is activated, commanding the VAV dampers to operate in heating control mode.

**NOTE:** In order to this output to function, the Terminal Occupied output must also be on.

**TERMINAL OCCUPIED (50XJ PCB2)** — Terminal Occupied is activated to command VAV dampers to control to the cooling set point. Terminal Occupied must be on along with Heat Interlock for heating set point control to function.

**EXTERNAL RESET INPUT (50XJ PCB2)** — This modulating input (0 to 10 vdc) allows remote adjustment (upward) of the Supply Air Temperature (SAT) sensor set point. The default External Reset Input setting is 55 F. This variable input can raise the set point by up to 20 F for a full-range input signal, or to any point in between.

**WATER ECONOMIZER COIL (50XJ PCB2)** — This factory-installed option contains a water-to-air coil, two (2) electronic motorized water valves, and related piping. Control of the water economizer also requires a Mixed/Return Air Temperature Sensor, a Condenser Water Inlet Temperature Sensor and an Economizer Freezestat safety switch.

The electronic motorized water valves are each controlled by the unit controller via separate 4 to 20 mA variable signals to define variable valve position.

The Mixed/Return Air Sensor (MA\_RA) is an air temperature sensor located in the unit, between economizer coil and evaporator.

The Condenser Water Inlet Temperature Sensor (CWT) is located at the unit water inlet connection. This sensor receives input power from the unit main controller and provides a linear variable 1 to 5 vdc signal back to the controller. The full temperature range is 32 to 120 F.

The 50XJ units can be connected to two types of building water systems: variable and fixed or constant flow control. In either case, the economizer water valves are opened whenever there is a call for Cooling and the Inlet Water Temperature is colder than the Econ Start Set Point in the custom configuration.

**Carrier Comfort Network Interface** — The 50BV,XJ units can be connected to the CCN (Carrier Comfort Network) if desired. System elements are connected to the communication bus in a daisy chain arrangement. The negative pin of each system element's communication connector must be wired to the respective negative pins, and positive pins on each component must be connected to respective positive pins. The controller signal pins must be wired to the signal ground pins. Wiring connections for CCN must be made at the 3-pin plug.

At any baud rate (9600, 19200, 38400 baud), the number of controllers is limited to 239 devices maximum. Bus length may not exceed 4000 ft, with no more than 60 total devices on any 1000-ft section. Optically isolated RS-485 repeaters are required every 1000 ft.

**NOTE:** Carrier device default is 9600 baud.

The CCN Communication Bus wiring is field-supplied and field-installed. It consists of shielded three-conductor cable with drain (ground) wire. The cable selected must be identical to the CCN Communication Bus wire used for the entire network. See Table 2 for cable recommendations.

**NOTE:** Conductors and drain wire must be at least 20 AWG (American Wire Gage), stranded, and tinned copper. Individual conductors must be insulated with PVC, PVC/nylon, vinyl, Teflon, or polyethylene. An aluminum/polyester 100% foil shield and an outer jacket of PVC, PVC/nylon, chrome vinyl, or Teflon with a minimum operating temperature range of -20 C to 60 C is required.

The communication bus shields must be tied together at each system element. If the communication bus is entirely within one building, the resulting continuous shield must be connected to ground at only one single point. If the communication bus cable exits from one building and enters another building, the shields must be connected to the grounds at a lightning suppressor in each building (one point only).

**Optional and Field-Installed Accessory Sensors/Devices** — The 50XJ unit can be ordered with options and accessories that add functionality and control. These options and accessories are controlled by the CC6400 system as described below.

**NOTE:** The CC6400 Control software includes all PCB1 functions, and most of the sensors/devices associated with those functions are factory installed. However, some PCB1 sensors/devices must be field-connected to the proper terminal. PCB2 devices are field-installed accessories. The CC6400 software includes these functions, but the actual sensor/device must be installed and wired in the field. PCB3 is an accessory control module. All PCB3 sensors/devices and software are field-installed.

Dependencies — Water Economizer option is enabled, and Fan is On, and Inlet Water Temperature is below set point; or from “Remote Scheduler,” or from “Remote Linkage.”

Economizer mode is switched to Off or no start if: there is no condenser waterflow, Fire Input is On, Fan is not On, or Un-occupied mode is On.

Variable Waterflow Systems — Whenever water economizer is off, the economizer flow control valve is fully closed, and the reverse flow valve directly to the condenser is fully open. Upon engagement of the water economizer, the economizer flow control valve shall be controlled to maintain the MA\_RA located between the economizer coil and the DX cooling coil, at a temperature near the supply air set point. The reverse flow valve will be controlled in reverse of the economizer flow control valve’s position. The following formula is an example: Reverse/Head Press Ctrl output = 100 – two-position/Econo output.

When the unit is off, both valves are closed.

Constant Waterflow Systems — Control of the economizer flow control valve is same as for variable waterflow systems. Control of the reverse flow control valve position will inversely track the economizer flow control valve, such that the total sum of the two valves open positions always equals 100%. The only difference between the variable waterflow system and the constant waterflow system is that for the constant flow system when the unit is off, the economizer valve will be closed and the reverse flow control valve will be open.

WATER ECONOMIZER COIL (50BV) — For the 50BV unit, this factory-installed option contains a water-to-air coil, a two-position diverting valve, and related piping. The water economizer is controlled by an Aquastat and a return-air thermostat.

HEATING COILS AND VALVE (50XJ PCB2) — Water or steam heating options are factory installed. Each includes a motorized, variable control water or steam flow control valve, which can be factory supplied for field installation outside the unit. Installed in the water or steam inlet pipe, this valve is wired to the unit main controller and operates on a 4 to 20 mA signal. A Heating mode PID control is needed to control the valve position (i.e., coil heating capacity) variably between 10 and 100%. The PID will control a set point to + 1° F; for VAV Units this set point is at the Supply Air Temperature Sensor, or as communicated from a remote thermostat.

HEAD PRESSURE CONTROL (50XJ PCB2) — Head Pressure Control is required for unit installations that will experience entering condenser water temperatures of 55 F or lower.

NOTE: Head Pressure Control is not needed or used in conjunction with a Water Economizer. A refrigerant pressure transducer will monitor head pressure on compressor circuit 1, allowing the unit main controller to regulate water flow rate in the main water line entering the unit; i.e., flow to all condensers. (Water header design to the condensers will be optimized such as to provide relative flow rates to each condenser based on its compressor capacity, enabling successful waterflow control at the main entering pipe.) There are two possible water valving configurations, as outlined below.

Pressure transducer input is factory installed in the discharge line of compressor circuit 1. It is provided 5 vdc by the unit main controller and returns a signal 1 to 5 vdc linearly. The sensor’s range is 0 to 550 psig.

#### Water Valve(s) Control

Variable Building Waterflow Systems — Variable waterflow configurations use only one water valve in the main water supply pipe. The factory installed valve is a normally open motorized variable control type. The valve is controlled by a 4 to 20 mA signal from the main unit controller using the Reverse/Head Press Ctrl output, which modulates to maintain the head pressure set point (Setpoint 04).

Constant Building Waterflow Systems — Constant waterflow configurations use two (2) water valves, only one of which is in the main water supply pipe. The second valve is located in a bypass pipe to the main outlet water pipe branched off of the supply pipe immediately ahead of the first valve. This valve is same type, but normally closed and is controlled in unison with the first valve, but opposite position, such that the total opening of the 2 valves always equals 100%.

VFD BYPASS (50XJ PCB2) — The VFD Bypass option provides backup for the VFD Drive in VAV units. It uses a manually operated rotary switch, which includes a series of high voltage contacts. The bypass is a direct input to the unit controller, and will be activated via a switch on the unit front panel. When manually activated, the rotary switch takes the VFD out of the fan power circuit and provides the 3-phase power directly to the fan motor, running it at constant speed. A low voltage control circuit ensures that the unit controller provides a signal to allow all VAV dampers to open fully before the fan is turned on (at constant/full speed). A blue indicator light located on the front of the unit indicates that the VFD Bypass is active. A High Duct Static Switch (HDS) shuts the fan down if duct static exceeds a maximum setting.

VENTILATION OUTPUT (50XJ PCB2) — The ventilation output is controller output signal (available for field connection) to a field-supplied ventilation damper(s). This signal is activated whenever the unit is in the occupied mode.

SPACE TEMPERATURE SENSOR (50XJ PCB2) — A field-supplied Carrier space temperature sensor is required to maintain space temperature in sensor mode.

SUPPLY AIR RESET (50XJ PCB2) — Supply air temperature set point may be reset using either the SPT or MA\_RA.

SUPPLY AIR RESET (50BV) — Reset is provided by a field-installed temperature sensor.

EXHAUST FAN CONTROL OUTPUT (50XJ PCB2) — This output is activated whenever the unit is in the Occupied mode. This is a modulating output that controls based on the Building Pressure Input set point.

CONDENSER WATER PUMP/WATER TOWER (50XJ PCB2) — This output (provided for field connection) is used to control condenser water flow. Either an On/Off signal or a variable output may be required for this feature.

PHASE LOSS/REVERSAL PROTECTION SWITCH (50XJ PCB2) — This switch monitors VFD/Fan Motor supply leads to detect phase loss or reversal. If the switch detects improper phasing, an input is sent to the unit controller, which shuts the unit down. After a time delay, the controller attempts to restart the unit.

A phase loss/reversal switch may be installed in the unit to detect over/under voltage conditions and phase loss or reversal. When the switch opens, the controller outputs are forced to off with Safety forces, the alarm output will close and the red alarm light will be lit. A system alarm will be generated and displayed on the unit keypad. Unit reset is automatic when the voltage and power phases have been restored.

FREEZE THERMOSTAT (FREEZSTAT) (50XJ PCB2) — The Economizer Freezestat, used in conjunction with an optional water economizer coil or heating coil, is a factory installed averaging (capillary tube) air temperature sensor positioned in the unit inlet airstream.

If the freeze protection switch contacts open the ventilation request output will be closed for 15 minutes and the warning light will light. If the freeze protection switch contacts are still open after 15 minutes the supply fan will be stopped, all compressor cooling will stop, the economizer valve will open to 100%, the pump request output will remain on, and the alarm light will light. This will maintain condenser water flow through the coil to prevent freezing the coil while stopping all other operations that could have contributed or will be affected

by the freeze condition. Unit reset is automatic when the contacts on the freeze protection switch close again. The contacts on the freeze protection switch open below 37 F.

**TOWER SUMP TEMPERATURE SENSOR (50XJ PCB3)** — This sensor is used for monitoring (only) the tower sump temperature.

**LEAVING WATER TEMPERATURE SENSOR (50XJ PCB3)** — This sensor is used for monitoring (only) the leaving water temperature.

**BUILDING STATIC PRESSURE SENSOR (50XJ PCB3)** — This sensor is used to control both the speed of the building exhaust fan and the building static pressure.

**INDOOR AIR QUALITY (CO<sub>2</sub>) SENSOR (50XJ PCB3)** — This sensor monitors CO<sub>2</sub> levels.

**INDOOR RELATIVE HUMIDITY SENSOR (50XJ PCB3)** — This sensor monitors and controls the humidity control relay.

**OUTDOOR AIR TEMPERATURE SENSOR (50XJ PCB3)** — This sensor is used to monitor outdoor air and broadcast the value over the Carrier Comfort Network (CCN).

**STAGE HEAT RELAYS (50XJ PCB3)** — These relays control up to four stages of electric heat, or other heating methods.

**PUMP REQUEST RELAY (50XJ PCB3)** — This relay turns on a tower pump when requested.

**TOWER REQUEST/CONTROL RELAY (50XJ PCB3)** — This relay is used to activate a tower fan.

**BUILDING EXHAUST FAN SPEED CONTROL (50XJ PCB3)** — This output controls building exhaust fan speed.

**HUMIDITY CONTROL RELAY (50XJ PCB3)** — This relay controls a humidifier or dehumidification device.

**Wiring Control Devices** — Standard controls for the 50XJ require no field-wiring. Standard 50XJ controls include: Supply Air Temperature (SAT), Duct Static Pressure (DSP), Duct High Static Limit Switch (DHS), Filter Status Switch (FLTS), Entering Water Temperature (EWT), Compressor Status (CSMUX), Supply Fan Start/Stop (SF), Supply Fan Speed (SPEED), and Mixed/Air Return/Air sensor (MA\_RA).

**NOTE:** The MA\_RA sensor will be located in the return air stream if the unit does not have a water economizer, and in the mixed airstream if the unit is equipped with a water economizer.

For the 50BV unit, standard controls include: Duct Static Pressure (DSP), Duct High Static Limit Switch (DHS), Compressor Status (CSMUX), Supply Fan Start/Stop (SF), and Supply Fan Speed (SPEED).

For the 50XJ unit, optional controls will be wired to the field terminal blocks (TB5 and TB6) provided. Refer to Fig. 2A and the descriptions below.

For the 50BV unit, optional controls are wired to field terminal block TB2 as shown in Fig. 2B.

**EXTERNAL 0 TO 10 VOLT DC RESET SIGNAL (RESET) (50XJ PCB2)** — This field-supplied 0 to 10 vdc signal is used to reset the 50XJ supply-air temperature. The controller will scale the signal to provide 0 reset at 0 volts and 20 degrees of reset at 10 volts. Wire the positive of the signal to the RESET terminal and the negative to the C or common terminal.

**SUPPLY AIR RESET (50BV)** — Use a 5k ohm sensor installed at the Entering Water Temperature sensor (EWT) location on PCB1. For space temperature averaging, two 10k ohm Space Temperature Sensors (SPT) can be wired in parallel.

**SPACE TEMPERATURE SENSOR (50XJ PCB2)** — The space temperature sensor (33ZCT55SPT) is used in the following cases:

- When using the optional water economizer and not using Carrier's ComfortID™ System.

FIELD CONNECTION

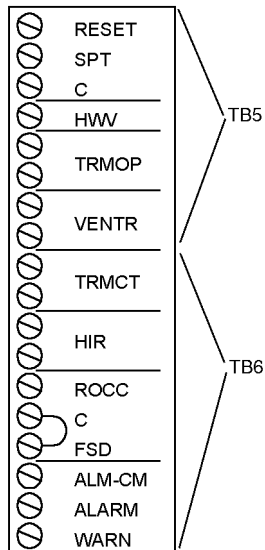


Fig. 2A — Field Terminal Blocks for 50XJ Unit

FIELD CONNECTION

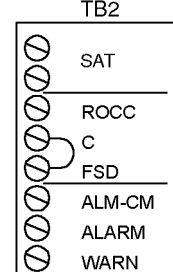


Fig. 2B — Field Terminal Block for 50BV Unit

- To determine the average temperature of the space being served.
- To determine supply-air temperature reset, occupied heating, unoccupied heating and cooling (refer to Sequence of Operation in the Start-Up section.).

To wire the sensor, perform the following (see Fig. 3).

Identify which cable is for the sensor wiring.

1. Strip back the jacket from the cable for at least 3 inches. Strip 1/4-in. of insulation from each conductor. Cut the shield and drain wire from the sensor end of the cable.
2. Wire the sensor to the SPT and C terminals on the field terminal block (TB5). A typical 10K thermistor such as the 33ZCT55SPT sensor may be used. If the SPT sensor is not installed and the MA\_RA (mixed air/return air) sensor is configured for return air, the 50XJ unit will use this sensor to control supply air reset, occupied heat, and unoccupied heating and cooling

See Fig. 4 for space temperature sensor averaging.

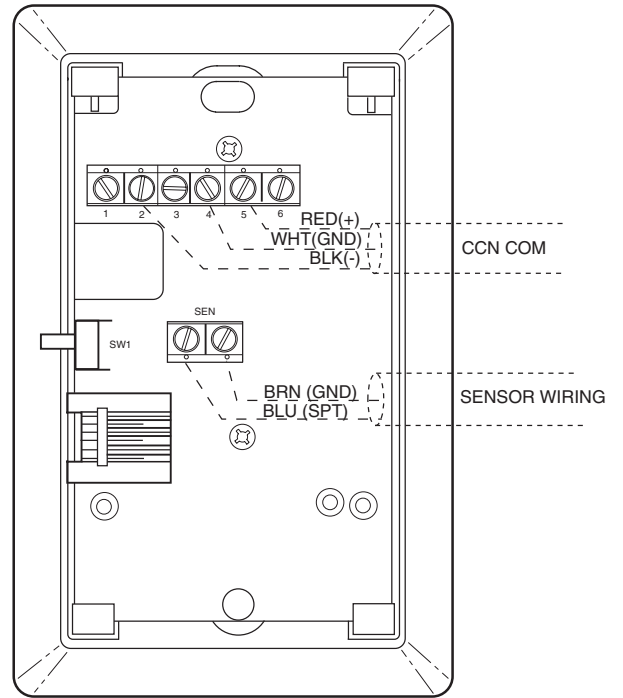
**HOT WATER OR STEAM VALVE (HWV) (50XJ PCB2)** — The HWV terminal supplies the positive signal to control a 4 to 20 mA hot water or steam valve for occupied and unoccupied heat. Connect the common side of the valve to the C terminal or an equipment ground.

**AIR TERMINALS AND FRESH AIR DAMPER (50XJ PCB2)** — The VAV Terminal Open (TRMOP), Ventilation Output (VENTR), VAV Terminals Control (TRMCT), and Heat Interlock Relay (HIR) terminals provide dry contacts to command the VAV terminals open; a ventilation damper open; VAV terminals to control to their cooling set points; and VAV terminals to control to their heat set points, respectively.

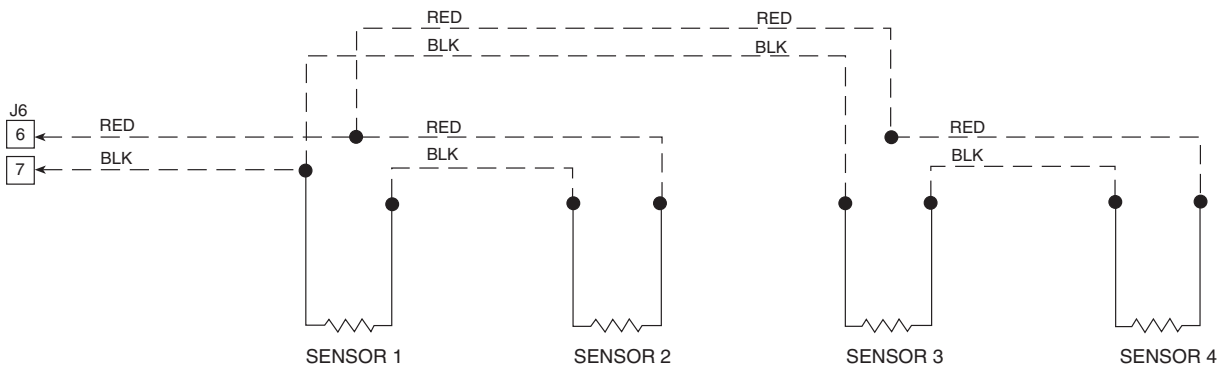
**REMOTE OCCUPANCY (ROCC) (TB2 50BV, TB6 50XJ)** — The 50XJ,BV unit may be commanded by a remote control system or a twist timer to become occupied and run when a set of dry contacts close. In order for this to occur, wire the contacts to ROCC and C.

**SMOKE DETECTOR/FIRE ALARM SHUTDOWN (FSD) (TB2 50BV, TB6 50XJ)** — To allow a smoke detector to shut the 50XJ,BV unit down, remove the jumper from FSD to C and wire these terminals to a set of normally closed contacts on the smoke detector.

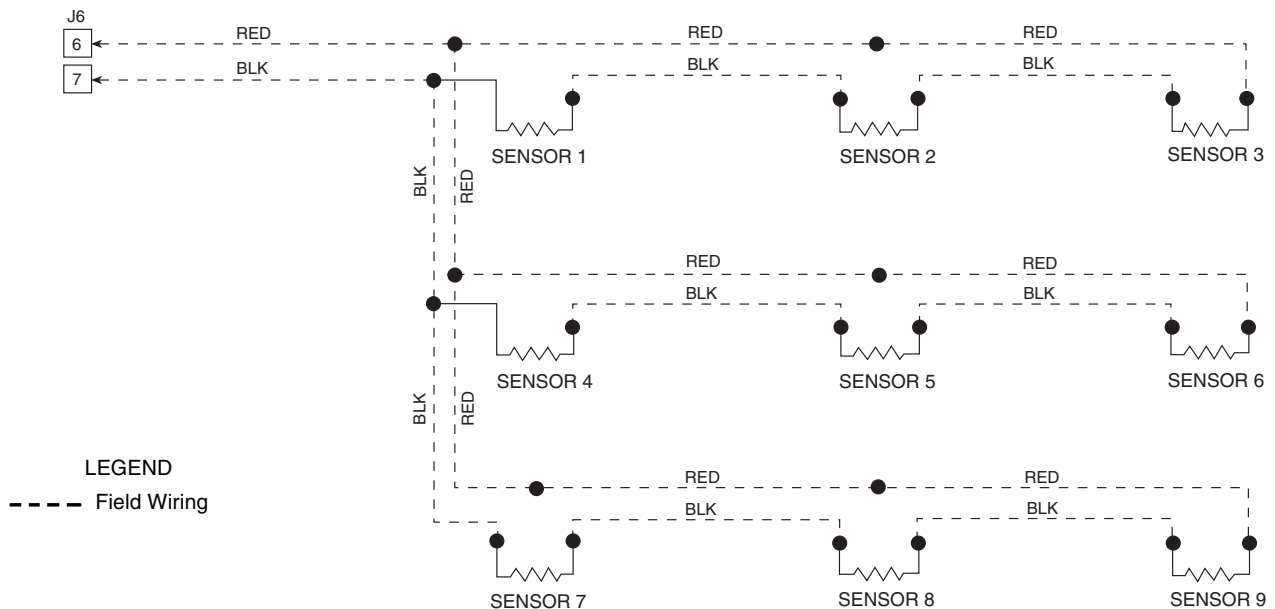
**ALARM (ALARM) AND WARNING (WARN) OUTPUTS (TB2 50BV, TB6 50XJ)** — Two dry contacts output a discrete signal when the alarm and warning lights on the display are lit. To pick up the alarm output signal, wire between the ALARM and ALM-CM terminals. To pick up the warning output signal, wire between the WARN and ALM-CM terminals.



**Fig. 3 — Space Temperature Sensor Typical Wiring (33ZCT55SPT)**



**SPACE TEMPERATURE AVERAGING — 4 SENSOR APPLICATION**



**SPACE TEMPERATURE AVERAGING — 9 SENSOR APPLICATION**

**Fig. 4 — Space Temperature Averaging**



## CONTROLS AND FUNCTIONS

**Using the Local Interface Display** — The Local Interface Device (LID) is a CCN operator interface that gives the user the capability to view and modify all configuration and service data for the CC6400 control system. The LID also allows the user to override all point display and maintenance data.

**MENU STRUCTURE** — The LID operates on a hierarchy of four levels (menus).

The top level contains the LID's major functions. Each function has a corresponding key on the LID. For an explanation of each function key, refer to Table 3.

The second level separates the major functions (items) into types with corresponding type numbers that can be used for quick access.









The third level gives the user the capability to access each occurrence of an item. For example, the application may require two DO (Discreet Output) — Analog Comparison algorithms. Thus, the CC6400 Controller would have two occurrences of the DO — Analog Comparison algorithm.

The fourth level gives the user the capability to access maintenance and configuration data associated with the selected occurrence of the item.

**DEFAULT SCREEN** — Figure 5 shows the LID. The LID's screen provides the user with the 24-character controller name and the controller's current time, date, and alarm status. This screen appears when the LID is powered up and communicating with the controller or there is no keyboard activity for 10 minutes.

**KEYPAD AND DISPLAY** — The LID consists of a keypad with 8 function keys, 4 operative keys, 12 numeric keys (0 to 9, ,, and -) and a two-line, alphanumeric liquid crystal display (LCD). Each line on the LCD can display up to 24 characters. See Fig. 5. Table 4 defines the purpose of the LID's operative keys. Table 5 defines the purpose of the LID's numeric keys.





**Table 3 — LID Function Keys**

| OPERATIVE KEYS  | USE   |
|---|---|
|  | Status — gives access to maintenance values and configuration data for points.  |
|  | Alarm — gives access to maintenance and configuration data for alarms.  |
|  | History — gives access to maintenance and configuration data for history system functions.  |
|  | Service — gives access to maintenance and configuration data for service system functions.  |
|  | Setup — gives access to configuration data for setup system functions.  |
|  | Schedule — gives access to maintenance and configuration data for schedules.  |
|  | Algorithm — gives access to maintenance and configuration data for AO, DO, and global algorithms. It also gives access to BEST ++™ custom programs. |
|  | Edit — gives the capability to switch from Status mode to Edit (configuration) mode for the selected item.  |




### LEGEND

**AO** — Analog Output  
**DO** — Digital/Discreet Output

**Table 4 — Operative Keys**

| OPERATIVE KEYS  | USE  |
|---|--|
|  | Clear — performs three operations: <ul style="list-style-type: none"> <li>• Cancels a data entry before the user presses Enter, thus leaving the current value unchanged.</li> <li>• Returns a forced point to automatic control.</li> <li>• Redisplays the previous menu level.</li> </ul>  |
|  | Enter — performs two operations: <ul style="list-style-type: none"> <li>• Selects the displayed item, thus displaying either its maintenance or configuration data, depending on whether the user is in the Status mode or the Edit mode.</li> <li>• Accepts the value entered in a configuration decision as new configuration data or as a force.</li> </ul> |
|  | Down arrow — displays the next configured item or decision. When the last configured item or decision is displayed, the LID re-displays the first configured item or decision. For example, when the user presses the down arrow key while viewing the last configuration decision of an algorithm, the LID re-displays the first configuration decision.      |
|  | Up arrow — Displays the previous configured item or decision.  |

**Table 5 — Numeric Keys**

| OPERATIVE KEYS  | USE   |
|---|---|
|    | Numeric keys  |
|    | Performs two operations: <ul style="list-style-type: none"> <li>• Separates items, such as an algorithm from its occurrence or hours from minutes.</li> <li>• Serves as a decimal point in numeric values.</li> </ul>               |
|  | Performs two operations: <ul style="list-style-type: none"> <li>• Negates the value of numeric keys.</li> <li>• Clears current data entry value any time it is not the first key pressed during the data entry sequence.</li> </ul> |

**VIEWING MODES** — The user can view items in either the Status (maintenance) mode or the Edit (configuration) mode.

**Status Mode** — When the user first powers up the LID, it displays the CC6400 controller items in Status (maintenance) mode. The user may view the current value or status of an item in Status mode without actually logging on to the Controller. Knowing the current values or status of items can be useful when troubleshooting. For example, the user could determine if a point was forced.

**NOTE:** Not all items have maintenance data. If the item you select does not have maintenance data, the LID will display "No maintenance."

**Accessing Items in Status Mode** — The user can access maintenance data in Status mode in two ways:

- Pressing the appropriate function key (i.e., **ALRM**) once to access a category (i.e., alarms) and then continuing to press that key (**ALRM**) to scroll through all the items in that category (i.e., Limit Alarm, Set point Alarm, Discrete Alarm, First Out Alarm, Runtime Alarm, and Number of Starts Alarm). Press **ENTER** to display the first maintenance decision.

**NOTE:** *Scrolling by repeatedly pressing the function key* displays the name of all the items in that category, whether or not they are actually configured. *Scrolling by pressing the up or down arrow* displays only the configured items within that category.



- Pressing the appropriate LID numeric key (i.e., 2) and the appropriate function key (i.e., **ALRM**) to directly access an item without having to scroll through all the items in that category. Press **ENTER** to display the first maintenance decision.

**Edit Mode** — Because the LID first displays items in Status mode when it is powered up, the user must log on to the connected CC6400 Controller and press the **EXPN/EDIT** key to switch to Edit mode.

While in Edit mode, the user can change the configuration of items. For example, the user could change the value of an algorithm's configuration decision.

**NOTE:** Not all items have configuration data. If the item selected does not have configuration data, pressing the **EXPN/EDIT** key will have no effect. The LID will display "No configuration."

**Accessing Items in Edit Mode** — The two ways to access items in Edit mode are the same as in Status mode, except for an additional step — pressing the **EXPN/EDIT** key.

The user can access configuration data in Edit mode in two ways:

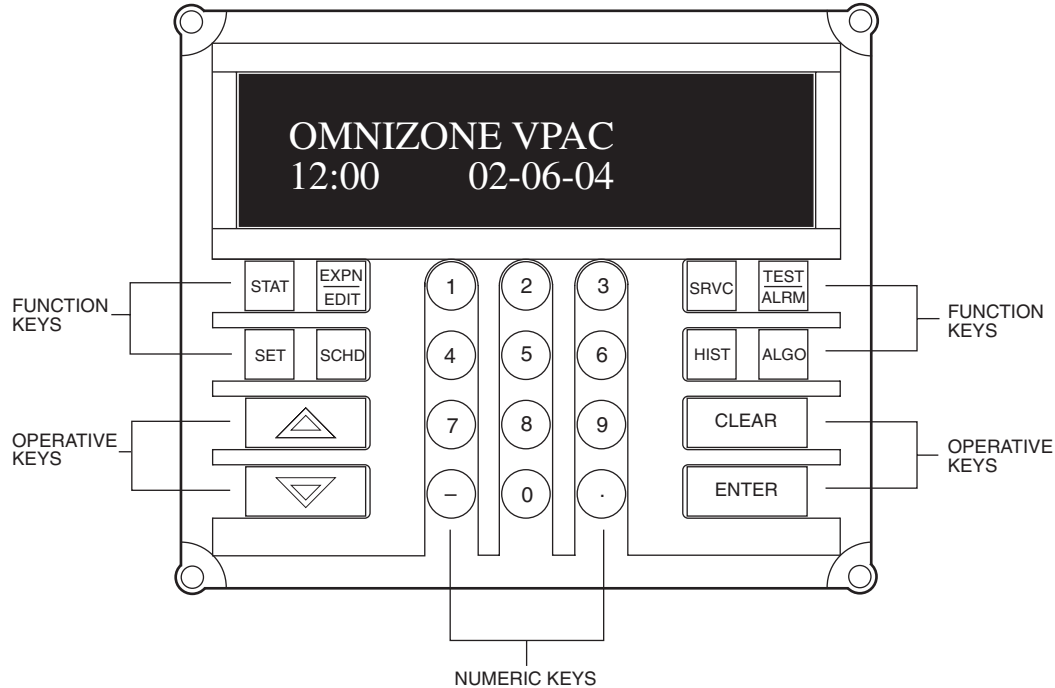
- Pressing the appropriate function key (i.e., **ALRM**) once to access a category (i.e., alarms), pressing **EXPN/EDIT** and then continuing to press that key (**ALRM**) to scroll through all the items in that category (i.e., Limit Alarm,

Set point Alarm, Discrete Alarm, First Out Alarm, Runtime Alarm, and Number of Starts Alarm).

**NOTE:** *Scrolling by repeatedly pressing the function key* displays the name of all the items in that category, whether or not they are actually configured. *Scrolling by pressing the up or down arrow* displays only the configured items within that category.

- Pressing the appropriate LID numeric key (i.e., 2), the appropriate function key (i.e., **ALRM**), and **EXPN/EDIT** to directly access an item without having to scroll through all the items in that category.

**QUICK ACCESS IN EITHER STATUS OR EDIT MODE** — Use Table 6 as a reference to directly access CC6400 Controller items using a LID in either Status or Edit mods. For example, to access maintenance data for the AO — Heating VAV algorithm, press **6**, **ALGO**, and **ENTER**. To access configuration data for the AO (Analog Output) — Heating VAV algorithm, press **6**, **ALGO**, **EXPN/EDIT**, and **ENTER**. If the database consisted of two AO — Heating VAV algorithms, to access the second one, press **6**, **.** (*decimal*), **2**, **ALGO**, **EXPN/EDIT**, and **ENTER**.



**Fig. 5 — Local Interface Display (LID)**

**Table 6 — Quick Access Chart**

| LID NUM. KEY | LID FUNCTION KEYS       |                         |                      |                     |              |                     |                  |
|--------------|-------------------------|-------------------------|----------------------|---------------------|--------------|---------------------|------------------|
|              | Algorithms (ALGO)       | Status (STAT)           | History (HIST)       | Service (SRVC)      | Alarm (ALRM) | Setup (SET)         | Schedules (SCHD) |
| 1            | AO—Adaptive Control     | Hardware Points         | Alarm History        | Function Definition | Limit        | Set Clock           | Occupancy        |
| 2            | AO—Cooling CV           | Software Points         | Analog Point Trace   | Channel Definition  | Setpoint     | Real Time Clock     | Setpoint         |
| 3            | AO—Cooling VAV          | Temperature Input       | Discrete Point Trace | System Definition   | Discrete     | Controller Password | Holiday          |
| 4            | AO—Fan Tracking         | Milliamp Input          | Consumable Channel   | Setpoint Definition | First out    | N/A                 | S/W Setpoint     |
| 5            | AO—Heating CV           | Custom Milliamp Input   | Internal Consumable  | Database Control    | Runtime      | N/A                 | Network Time     |
| 6            | AO—Heating VAV          | Voltage Input           | Runtime Channel      | Comfort Controller  | # of starts  | N/A                 | N/A              |
| 7            | AO—Humidity Control     | Custom Voltage Input    | N/A                  | CCN Control         | N/A          | N/A                 | N/A              |
| 8            | AO—Mixed Air CV w/IAQ   | Sensed Discrete Input   | N/A                  | LID Preferences     | N/A          | N/A                 | N/A              |
| 9            | AO—Mixed Air VAV w/IAQ  | Latched Discrete Input  | N/A                  | N/A                 | N/A          | N/A                 | N/A              |
| 10           | AO—Permissive Interlock | Pulsed Discrete Input   | N/A                  | N/A                 | N/A          | N/A                 | N/A              |
| 11           | AO—Reset                | Milliamp Output         | N/A                  | N/A                 | N/A          | N/A                 | N/A              |
| 12           | AO—Shared Transducer    | Custom Milliamp Output  | N/A                  | N/A                 | N/A          | N/A                 | N/A              |
| 13           | AO—Static Pressure      | Voltage Output          | N/A                  | N/A                 | N/A          | N/A                 | N/A              |
| 14           | DO—Analog               | Custom Voltage Output   | N/A                  | N/A                 | N/A          | N/A                 | N/A              |
| 15           | DO—DX-Staging VAV       | Discrete Output         | N/A                  | N/A                 | N/A          | N/A                 | N/A              |
| 16           | DO—Electric Heat CV     | Stepper Motor Output    | N/A                  | N/A                 | N/A          | N/A                 | N/A              |
| 17           | DO—Electric Heat VAV    | Discrete Software Point | N/A                  | N/A                 | N/A          | N/A                 | N/A              |
| 18           | DO—Enthalpy Comparison  | Analog Software Point   | N/A                  | N/A                 | N/A          | N/A                 | N/A              |
| 19           | DO—Interlock            | Network Data Out        | N/A                  | N/A                 | N/A          | N/A                 | N/A              |
| 20           | DO—Lighting Control     | Network Data In         | N/A                  | N/A                 | N/A          | N/A                 | N/A              |
| 21           | DO—Permissive Interlock | N/A                     | N/A                  | N/A                 | N/A          | N/A                 | N/A              |
| 22           | DO—Pump Control         | N/A                     | N/A                  | N/A                 | N/A          | N/A                 | N/A              |
| 23           | DO—Prop Thermo          | N/A                     | N/A                  | N/A                 | N/A          | N/A                 | N/A              |
| 24           | DO—Prop Thermo 2 Pipe   | N/A                     | N/A                  | N/A                 | N/A          | N/A                 | N/A              |
| 25           | DO—Prop Thermo 4 Pipe   | N/A                     | N/A                  | N/A                 | N/A          | N/A                 | N/A              |
| 26           | DO—Staged Thermostat    | N/A                     | N/A                  | N/A                 | N/A          | N/A                 | N/A              |
| 27           | DO—Staging Control      | N/A                     | N/A                  | N/A                 | N/A          | N/A                 | N/A              |
| 28           | DO—Time Clock           | N/A                     | N/A                  | N/A                 | N/A          | N/A                 | N/A              |
| 29           | DO—Time Clock w/Check   | N/A                     | N/A                  | N/A                 | N/A          | N/A                 | N/A              |
| 30           | AOSS Schedule           | N/A                     | N/A                  | N/A                 | N/A          | N/A                 | N/A              |
| 31           | Network Broadcast       | N/A                     | N/A                  | N/A                 | N/A          | N/A                 | N/A              |
| 32           | Linkage/AOSS Schedule   | N/A                     | N/A                  | N/A                 | N/A          | N/A                 | N/A              |
| 33           | NTFC w/Enthalpy Check   | N/A                     | N/A                  | N/A                 | N/A          | N/A                 | N/A              |
| 34           | Sensor Group            | N/A                     | N/A                  | N/A                 | N/A          | N/A                 | N/A              |
| 35           | WSM Air Source          | N/A                     | N/A                  | N/A                 | N/A          | N/A                 | N/A              |
| 36           | WSM Cool Source         | N/A                     | N/A                  | N/A                 | N/A          | N/A                 | N/A              |
| 37           | Custom Program          | N/A                     | N/A                  | N/A                 | N/A          | N/A                 | N/A              |

**LEGEND**

- AO — Analog Output
- AOSS — Adaptive Optimal Start/Stop
- CV — Constant Volume
- DO — Digital Output
- IAQ — Indoor Air Quality
- N/A — Not Available
- NTFC — Nighttime Free Cooling
- VAV — Variable Air Volume
- WSM — Water System Manager

**NOTES:**

1. To change from Edit mode to Status mode, press **CLEAR** or press **EXPN/EDIT** again.
2. Not all available selections will have items to select in sublevels.

**Automatic Run Test** — The 50BV,XJ unit controls are programmed with an automatic run test that checks connection and operation of major components. To perform the run test:

Verify that the control display (LID device/System Monitor) interface cable is connected to internal jack on main controller; that the fire alarm/shutdown switch input (FSD) has a factory jumper or field input; that Bypass (if installed) is set in the DRIVE position; and that the Local/Off/Remote switch is set to the REMOTE position.

NOTE: When the Local/Off/Remote switch is in the REMOTE position, the controller time schedule is pre-set (from the factory) as unoccupied. This means that the unit will not turn on until the run test is enabled. However, if the controller schedule has already been modified in the field, and the current time of day is occupied, then the supply fan will start. The run test will shut the fan down when it

begins. The run test will complete and then the supply will automatically restart.

NOTE: If the Local/Off/Remote switch is in the OFF position, it is normal for the red alarm light on the display panel to be lit, indicating that the unit is disabled.

NOTE: If the red light stays on when the switch is moved to REMOTE, or if any other problems occur during the run test, refer to the Troubleshooting section of this manual.

To perform the Run Test:

1. Turn unit power on.

The LID display will show the controller identification, time and date (Fig. 5):

OMNIZONE VPAC

hh:mm mm-dd-yy

2. Press 3 and then **[SET]**. The LID display will show:  
Controller Password
3. Press **[ENTER]**. The LID display will show:  
Log in to Controller  
Enter Password  
NOTE: The LID display has two modes: Edit mode and Status/Maintenance mode. If the LID display is in Edit mode, then the display will only show the word "password." Press the **[EXPN/EDIT]** key to toggle to the Status mode.  
Press the **[EXPN/EDIT]** to display:  
Log in to Controller  
Enter Password
4. Key in the password and press **[ENTER]**.  
NOTE: The default password is 1111.
5. The LID display will show:  
Log in to Controller  
Logged In  
**NOTE: At this point, for the 50BV unit only, the run test will follow these steps:**
  - a. Press 37 **[ALGO]**. The display will show:  
Custom Program
  - b. Press **[ENTER]**. The display will show:  
2.0 Global Dictionary  
OMNIZONE
  - c. Press **[EXPN/EDIT]** (NOTE: Display will flash, indicating that the device is now in edit mode.)  
The display will show:  
2.0 Global Dictionary  
OMNIZONE
  - d. Press **[ENTER]**. The display will show:  
Compressor Stages  
4.00  
NOTE: A 50BV unit with only 2 compressors will display 2.00. Skip to Step 6.
  - e. Input 2.00 and Press **[ENTER]**. The display will show:  
Compressor Stages  
2.00
6. Press **[STAT]**. The LID display will show:  
Hardware Points
7. Press **[STAT]** again. The LID display will show:  
Software Points
8. Press **[ENTER]**. The LID display will show:  
Compressor 1 Status
9. Press **[▼]** 6 times. The LID display will show:  
Factory/Field Test  
Stop
10. Press 1 then **[ENTER]**. The LID display will show:  
Factory/Field Test  
Start  
NOTE: At this point, the yellow warning light on the display panel will be lit and will stay on throughout the run test. After each successful step, the red alarm light will blink once.
11. The control module will now check if there is input from BYPAS (50XJ), DHS, FSD, SAT, DSP, and CSMUX.  
If the control does not receive open/open/closed/in range/in range/in range, the red alarm LED will go on and the test will stop.  
If the inputs are OK, the red alarm LED blinks once and the test continues.
12. Next, the control forces the Supply Fan (SF) and all of the Compressors (COMP) off, and waits 15 seconds.  
For the 50XJ unit, if the REMOTE LED and AUTO LED on the VFD display are on, the red LED blinks once and the test continues.  
NOTE: For the 50XJ unit, if the controller is configured with a water Economizer, the delay is 2 min. and both valves are commanded to 0%. Both water valves will close.
13. The control forces SF on and SPEED to 20 percent and then waits 30 seconds.  
If the VFD display shows "10.6 Hz," the Remote and Auto LEDs blink, and the fan goes on, then the red LED on the control module blinks once and the test continues.  
NOTE: For the 50XJ unit, if the controller is configured with a water Economizer the delay is 2 min. and Econo valve is commanded to 100%. The economizer valve will open and the RVS/HD (reverse/head pressure) valve will remain closed.
14. The control forces SF on and SPEED to 35 percent and then waits 30 seconds.  
If the VFD display shows "20.0 Hz," the Remote and Auto LEDs blink, and the fan goes on, then the red LED on the control module blinks once and the test continues.  
NOTE: For the 50XJ unit, if the controller is configured with a water Economizer the delay is 2 min. and RVS/HD valve is commanded to 100%. The economizer valve is commanded to 0% and the RVS/HD valve will open.
15. The control forces SF off then waits 15 seconds.  
If the VFD display shows "Off," the Remote and Auto LEDs are off, and the fan goes off, then the red LED on the control module blinks once and the test continues.  
NOTE: For the 50XJ unit, if the controller is configured with a water Economizer both valves are commanded to 0%. The economizer valve and RVS/HD will close.  
NOTE: For the 50BV unit, the steps below (16-24) will be completed for the number of compressors configured.
16. The control forces CMP1 (compressor 1) on then waits 5 seconds.  
If CSMUX is not in range the red LED will go on and the test will stop.  
If CSMUX is in range, the red LED blinks once and the test continues.
17. The control forces CMP1 off.
18. The control forces CMP2 (compressor 2) on then waits 5 seconds.  
If CSMUX is not in range the red LED will go on and the test will stop.  
If CSMUX is in range, the red LED blinks once and the test continues.
19. The control forces CMP2 off.
20. The control forces CMP3 (compressor 3) on, if configured, then waits 5 seconds.  
If CSMUX is not in range the red LED will go on and the test will stop.  
If CSMUX is in range, the red LED blinks once and the test continues.
21. The control forces CMP3 off.

22. The control forces CMP4 (compressor 4) on, if configured, then waits 5 seconds.  
The LID display shows:  
Factory/Field Test  
Stop  
The yellow LED will go off, and the red LED will go off.
23. The control forces CMP4 off.
24. The run test is complete.

**Power Up the LID Display** — After completing the automatic run test, perform the following procedures to change the controller password, set the controller clock, configure schedules, set parameters, view settings, and view alarm history.

1. Set the Remote/Local/Off switch on the front of the unit to the OFF position. This prevents operation of the fan and compressors while still providing power to the unit controls.  
NOTE: When the switch is in the OFF position, the red alarm LED will be lit; this is normal. The bypass point will also indicate OK.
2. If the unit access panel (for power and controls) is still on the unit, remove it in order to view the control modules during start-up.
3. Switch the main unit power disconnect to ON.

When power is applied to the OMNIZONE™ System Control panel, the red LED on the top front of the processor module will flash at a rapid pace (about twice a second) for the first 30 to 60 seconds. This rapid flash will then be replaced by a slower paced flash (about once per second).

The green LED below the red LED will start flashing. This LED indicates input/output communications for accessory input output modules and the LID display.

The yellow LED will flash when the controller is broadcasting CCN messages to a laptop or other computer.

The third LED from the bottom of the controller (PCB1) will light.

The LID display will show the controller identification, time and date as shown below.

OMNIZONE VPAC  
hh:mm mm-dd-yy

**Log On to the LID Display** — To Log On to the LID display, perform the following procedure:

1. Press 3 and then **[SET]**. The LID display will show:  
Controller Password
2. Press **[ENTER]**. The LID display will show:  
Log in to Controller  
Enter Password  
NOTE: The LID display has two modes: Edit mode and Status/Maintenance mode. Edit mode allows the user to change settings on the configurations screens. Status/Maintenance mode only allows the user to look at the settings.  
If the LID display is in Edit mode, then the display will only show the word “password.” Press the **[EXPN/EDIT]** key to toggle to the Status mode. Make sure the LID display shows:  
Log in to Controller  
Enter Password
3. Key in the password and press **[ENTER]**.  
NOTE: The default password is 1111.

4. The LID display will show:  
Log in to Controller  
Logged In  
NOTE: The user will be automatically logged off after 15 min. of non-use.

**Change the Default Password** — To change the default password, perform the following procedure:

NOTE: The password must have already been entered to perform this procedure.

1. Press 3 and then **[SET]**. The LID display will show:  
Controller Password
2. Press **[ENTER]**. The LID display will show:  
Log in to Controller  
Logged in
3. Press **[EXPN/EDIT]**. The LID display will show:  
Password  
1111 (default password, or previous password entered)
4. Enter the new password (up to 6 digits) and press **[ENTER]**. The LID display will show:  
Password  
(password just entered)  
NOTE: Remember this password; write it down.
5. Press **[CLEAR]** twice to leave the password screen and return to the default display screen.

**Set the Clock** — The user must be logged in to set the clock. To set the clock, perform the following procedure:

1. Press 1 and then **[SET]**. The LID display will show:  
Set Clock
2. Press **[ENTER]**. The LID display will show:  
No Maintenance  
NOTE: There is no maintenance information regarding setting the clock.
3. Press **[EXPN/EDIT]**. The LID display will show:  
Time  
00:00
4. Enter the time. The time is entered in military time (for example 14.59 for 2.59 pm). Press **[ENTER]** then press the **▼** button. The LID display will show:  
Day of Week  
1
5. Enter the day of week. The numbers 1 through 7 correspond to the days of the week (1 = MON, 2 = TUE, 3 = WED, 4 = THUR, 5 = FRI, 6 = SAT, 7 = SUN). Press **[ENTER]** then press **▼**. The LID display will show:  
Month  
1
6. Enter the number of the corresponding month (1 through 12). Press **[ENTER]** then press **▼**. The LID display will show:  
Day  
1
7. Enter the day of the month. Press **[ENTER]** then press **▼**. The LID display will show:  
Year  
95

8. Enter the last two digits of the current year. Press **ENTER** then press **▼**. The LID display will show:  
Update Clock  
No
9. Press 1 and then **ENTER** to cause the controller to update the clock. The LID display will flash. Press **CLEAR** twice to view the default display and the clock should update to the input time and date.

**Configure Schedules** — Schedules are one method of starting and stopping the unit at specified intervals. To configure the schedules, perform the following procedure:

1. Press 1 and then **SCHD**. The LID display will show:  
Occupancy Algorithm
2. Press **ENTER**. The LID display will show:  
Time Schedule  
Enter to select
3. Press **ENTER**. If the LID display shows “MODE 0” then the user is in Maintenance mode and the LID display is showing the maintenance information for the occupancy schedule. Press **EXPN/EDIT** to enter the configuration mode. The LID display will show:  
Manual Override Hours  
0 hours  
This is the first configuration for each occupancy algorithm and is used to put the schedule in or out of occupancy override for the number of hours entered.
4. Press **▼**. The LID display will show:  
Period 1: Day of week  
00000000  
The eight digits represent if this period should apply to certain days of the week or holidays. The digits represent M, Tu, W, Th, F, Sa, Su, and Hol, respectively. Enter a series of 0s or 1s with a 1 corresponding to the days that this period should apply to and a 0 for the days that this schedule should not apply to. As an example, entering 11111000 would make the schedule apply to days Monday through Friday and not apply to Saturday, Sunday, or Holidays.
5. Press the **▼** button. The LID display will show:  
Period 1 occupied from  
00:00
6. Input the Occupancy Start time for this period.  
NOTE: 12.00 represents 12:00 pm.
7. Press the **▼** to input the Occupied To time for period 1.
8. Input the days and times for periods 2 through 8 as required.
9. Press clear to leave the occupancy programming.

**Program Set Points** — To program the set points, perform the following procedure:

1. Press 2 and then **SCHD**. The LID display will show:  
Set point Schedule
2. Press **ENTER**. The LID display will show:  
Supply Fan Status  
SETPT01
3. Press **ENTER**.

4. If “No maintenance” is displayed, press **EXPN/EDIT** to view the set point information. The LID display will show:  
Occupied Lo Set point  
0.30 " H2O  
This is the pressure set point below which the fan is considered to be off.
5. Press **▼**. The LID display will show:  
Occupied Hi Set point  
0.40 " H2O  
This is the pressure set point above which the fan is considered to be on.  
The down or up arrow will also display the Unoccupied Low and High Temperature set points. These values should be kept the same as the occupied values.
6. Setpoint 02 internally coordinates the supply air set point reset in several of the algorithms and can not be modified. Setpoint 03 is used for comparison by the unit to return air, Space temperature or Average space temperature through linkage to determine when to start reset of the supply air when occupied, when to turn on heat and disable cooling when occupied and when to bring the unit on for unoccupied heating or cooling.  
Setpoint 04 is used to set the head pressure set point if the unit is ordered with the head pressure control option. Only the Occupied Low set point may be modified the other values will change to the Occupied low valued shortly after it is modified so that all the values remain the same.  
Setpoint 05 is used to set the supply air static pressure the unit should maintain. Only the Occupied Low set point may be modified the other values will change to the Occupied low value shortly after it is modified so that all the values remain the same. The set point in the static pressure control algorithm will also follow and cannot be modified in the algorithm configuration screens.  
Setpoint 06 is the Supply air temperature set point. Only the Occupied Low set point may be modified the other values will change to the Occupied low value shortly after it is modified so that all the values remain the same. The set point in DX VAV staging and some of the other algorithms will also follow and cannot be modified in the algorithm configuration screens.  
Setpoint 07 is the building pressure set point for the building pressure control of a variable speed exhaust fan from a field-supplied module. Only the Occupied Low set point may be modified the other values will change to the Occupied low value shortly after it is modified so that all the values remain the same.  
Setpoint 08 is the raw milliamp set point for the building pressure control and is tied to Setpoint 07 for the sensor range selected in the custom programming configuration. Several choices of building static pressure sensors may be purchased and supplied for building pressure control.  
Setpoint 09 is used for the humidification/dehumidification output from a field-supplied module. This set point may be modified to enable the Humidity output to either humidify or dehumidify when the indoor relative humidity (IRH) exceeds the set point.  
Table 7 lists the available controller set points and their default values.
7. Pressing the **CLEAR** button will take the user out of the set point configuration mode.



**Table 7 — Controller Set Points**

| DESCRIPTION<br>DISPLAY<br>SCREENS                     | VALUE | UNITS  | STATUS | FORCE | NAME     |
|---|-------|--------|--------|-------|----------|
| <b>OMNIZONE::SETPT01:</b><br>Supply fan Status        |       |        |        |       |          |
| Occupied Lo Setpoint                                  | 0.3   | in H2O |        |       | OccLow   |
| Occupied Hi Setpoint                                  | 0.4   | in H2O |        |       | OccHgh   |
| Unoccupied Lo Setpoint                                | 0.3   | in H2O |        |       | UnOccLow |
| Unoccupied Hi Setpoint                                | 0.4   | in H2O |        |       | UnOccHgh |
| <b>OMNIZONE::SETPT02:</b><br>VAVRESETbaseline         |       |        |        |       |          |
| Occupied Lo Setpoint                                  | 0     | dF     |        |       | OccLow   |
| Occupied Hi Setpoint                                  | 0     | dF     |        |       | OccHgh   |
| Unoccupied Lo Setpoint                                | 0     | dF     |        |       | UnOccLow |
| Unoccupied Hi Setpoint                                | 0     | dF     |        |       | UnOccHgh |
| <b>OMNIZONE::SETPT03:</b><br>Heat/Cool Mode & Reset   |       |        |        |       |          |
| Occupied Lo Setpoint                                  | 70    | dF     |        |       | OccLow   |
| Occupied Hi Setpoint                                  | 74    | dF     |        |       | OccHgh   |
| Unoccupied Lo Setpoint                                | 55    | dF     |        |       | UnOccLow |
| Unoccupied Hi Setpoint                                | 85    | dF     |        |       | UnOccHgh |
| <b>OMNIZONE::SETPT04:</b><br>Head Pressure Control    |       |        |        |       |          |
| Occupied Lo Setpoint                                  | 225   | PSIG   |        |       | OccLow   |
| Occupied Hi Setpoint                                  | 225   | PSIG   |        |       | OccHgh   |
| Unoccupied Lo Setpoint                                | 225   | PSIG   |        |       | UnOccLow |
| Unoccupied Hi Setpoint                                | 225   | PSIG   |        |       | UnOccHgh |
| <b>OMNIZONE::SETPT05:</b><br>Supply Static Pressure   |       |        |        |       |          |
| Occupied Lo Setpoint                                  | 1.5   | in H2O |        |       | OccLow   |
| Occupied Hi Setpoint                                  | 1.5   | in H2O |        |       | OccHgh   |
| Unoccupied Lo Setpoint                                | 1.5   | in H2O |        |       | UnOccLow |
| Unoccupied Hi Setpoint                                | 1.5   | in H2O |        |       | UnOccHgh |
| <b>OMNIZONE::SETPT06:</b><br>Supply Air Temperature   |       |        |        |       |          |
| Occupied Lo Setpoint                                  | 55    | dF     |        |       | OccLow   |
| Occupied Hi Setpoint                                  | 55    | dF     |        |       | OccHgh   |
| Unoccupied Lo Setpoint                                | 55    | dF     |        |       | UnOccLow |
| Unoccupied Hi Setpoint                                | 55    | dF     |        |       | UnOccHgh |
| <b>OMNIZONE::SETPT07:</b><br>Building Static Pressure |       |        |        |       |          |
| Occupied Lo Setpoint                                  | 0.02  | in H2O |        |       | OccLow   |
| Occupied Hi Setpoint                                  | 0.02  | in H2O |        |       | OccHgh   |
| Unoccupied Lo Setpoint                                | 0.02  | in H2O |        |       | UnOccLow |
| Unoccupied Hi Setpoint                                | 0.02  | in H2O |        |       | UnOccHgh |
| <b>OMNIZONE::SETPT08:</b><br>BSP raw control          |       |        |        |       |          |
| Occupied Lo Setpoint                                  | 12.32 | ma     |        |       | OccLow   |
| Occupied Hi Setpoint                                  | 12.32 | ma     |        |       | OccHgh   |
| Unoccupied Lo Setpoint                                | 12.32 | ma     |        |       | UnOccLow |
| Unoccupied Hi Setpoint                                | 12.32 | ma     |        |       | UnOccHgh |
| <b>OMNIZONE::SETPT09:</b><br>Humidity Control         |       |        |        |       |          |
| Occupied Lo Setpoint                                  | 0     | %RH    |        |       | OccLow   |
| Occupied Hi Setpoint                                  | 99    | %RH    |        |       | OccHgh   |
| Unoccupied Lo Setpoint                                | 0     | %RH    |        |       | UnOccLow |
| Unoccupied Hi Setpoint                                | 99    | %RH    |        |       | UnOccHgh |

**LEGEND**

- BSP** — Building Static Pressure
- RH** — Relative Humidity

**Check System Parameters** — To check system parameters, press the **[STAT]** button. The LID display will show: “Hardware Points Table 1.” Press **[ENTER]** to view the hardware points. The user can navigate up and down through the points with the up and down arrows.

Press 2 and **[STAT]** to display the software points. The user can navigate up and down through the points with the up and down arrows.

Refer to Tables 8 and 9 for hardware and software points.

**Display Alarm History** — If the controller is indicating there are alarms, the user can view the alarm history by

pressing the **[HIST]** button. The LID display will show “Alarm History.” Press **[ENTER]**. The LID display will show the date and type of alarm.

As an example, if the LID display shows:

ALARM — 10:55 11-27-02  
SFS

That display indicates that on 11/27/02 at 10:55 A.M. the system Supply Fan was either on when it had not been commanded on or was off when it was commanded on.

The user can view other stored alarms by pressing the up and down arrows. The twenty-four most recent alarms are stored.

**Configure Custom Programming Selections** —

To configure the custom programming selections, perform the following procedure:

1. Press 37 **[ALGO]**. The LID display will show:  
Custom Program
2. Press **[ENTER]**. The LID display will show:  
2.0 Global Dictionary  
OMNIZONE
3. Press **[ENTER]**. The display indicates “No Data.” Press **[CLEAR]** then press **[EXPN/EDIT]**. Press **[ENTER]** again. The LID display should now show:  
Compressor Stages  
4.00
4. Press 4 and then **[ENTER]** to indicate that 4 compressors are installed.
5. Use the down and up arrows to select the other configuration parameters as required. See Table 10 for a list of configuration parameters.
6. A field-supplied 0 to 10 vdc signal to the 50XJ unit may be used to reset the supply-air temperature.

The reset will be taken off the supply air set point configured in the controller. The reset range can be changed by adjusting the High Conversion Endpoint value of the custom voltage input to a value other than 20. For example for 10 degrees of reset change the Hi input value to 10. This may be found by pressing 7 **[STAT]** from the Keypad. RESET will be the second custom voltage input point in the controller. The first will be CSMUX, which is the compressor status multiplexed input. Press **[▼]** to see the following in the LID display:

Ext. Supply Air Reset  
RESET

Press **[ENTER]**. If the LID display shows:

System Value

Press **[EXPN/EDIT]**. The LID display will show:

Low Input Endpoint  
2.0 Volts

Press **[▼]** three times to get to the High Conversion Endpoint. The user must be logged in to be able to change this otherwise you can only view it. See the start up section for how to log into the controller.

Configuration parameters are shown in Table 10.



**Table 8 — Controller Hardware Points**

| DESCRIPTION<br>DISPLAY<br>SCREENS              | VALUE   | UNITS  | STATUS | FORCE   | NAME  |
|--|---------|--------|--------|---------|-------|
| OMNIZONE::HWP01-32:<br>Hardware points Table 1 |         |        |        |         |       |
| Supply Air Temperature                         | 67      | dF     |        |         | SAT   |
| Duct Static Pressure                           | 0.2     | in H2O |        |         | DSP   |
| Comp. Status MUX                               | 1.86    | Volts  |        |         | CSMUX |
| Fire Alarm/ShutDown                            | Enable  |        |        |         | FSD   |
| Cond. Water Flow Switch                        | Yes     |        |        |         | CDWF  |
| Remote Occupancy                               | Disable |        |        |         | ROCC  |
| Duct High Press. Switch                        | Normal  |        |        |         | DHS   |
| Entering Water Temp.                           | 69.9    | dF     |        |         | EWT   |
| Compressor 1 Relay                             | Stop    |        |        |         | CMP1  |
| Compressor 2 Relay                             | Stop    |        |        |         | CMP2  |
| Compressor 3 Relay                             | Stop    |        |        |         | CMP3  |
| Compressor 4 Relay                             | Stop    |        |        |         | CMP4  |
| Supply Fan/VFD                                 | Stop    |        |        |         | SF    |
| VFD Speed Signal                               | 0       | %      |        |         | SPEED |
| Non Critical Fault                             | Off     |        |        |         | WARN  |
| Critical Fault                                 | Off     |        |        |         | ALARM |
| Mixed/Return Air Temp                          | 77.2    | dF     |        |         | MA_RA |
| Dirty Filter Status                            | Clean   |        |        |         | FLTS  |
| Phase Loss Protection                          | Normal  |        |        |         | PHASE |
| Ext. Supply Air Reset                          | 0       | dF     |        |         | RESET |
| Water Econ. FreezeStat                         | Normal  |        |        |         | FREEZ |
| Space_Reset Sensor                             | 79.2    | dF     |        |         | SPT   |
| VFD Bypass Enable                              | Disable |        |        |         | BYPAS |
| Head Pressure(Comp1)                           | 118.76  | PSIG   |        |         | PRES  |
| Ventilation Request                            | Close   |        |        |         | VENTR |
| VAV Terminals Control                          | No      |        |        |         | TRMCT |
| 2-position/Econo Valve                         | 0       | %      |        |         | ECONO |
| Reverse/Head Press Ctrl                        | 100     | %      |        | Control | MVLV  |
| Hot Water Valve                                | 0       | %      |        |         | HWV   |
| Heat Interlock Relay                           | Off     |        |        |         | HIR   |
| Bypass Start_Stop                              | Stop    |        |        |         | BPS_S |
| VAV Terminals Open MAX                         | Close   |        |        |         | TRMOP |
| OMNIZONE::HWP33-64:<br>Hardware points table 2 |         |        |        |         |       |
| Cooling Tower Sump Temp.                       | 57.5    | dF     |        |         | TWR   |
| Building Static Milliamp                       | 12.51   | ma     |        |         | BSP   |
| Condenser Leaving Water                        | 70.3    | dF     |        |         | LWT   |
| Indoor Air Quality                             | 587.21  |        |        |         | IAQ   |
| Indoor Relative Humidity                       | 49.7    | %      |        |         | IRH   |
| Outdoor Air Temp.                              | 76.1    | dF     |        |         | OAT   |
| Heat Stage 1                                   | Off     |        |        |         | HEAT1 |
| Heat Stage 2                                   | Off     |        |        |         | HEAT2 |
| Heat Stage 3                                   | Off     |        |        |         | HEAT3 |
| Heat Stage 4                                   | Off     |        |        |         | HEAT4 |
| Pump Request                                   | Off     |        |        |         | PUMP  |
| Cooling Tower Request                          | Off     |        |        |         | TOWER |
| Exhaust Fan                                    | 0       | %      |        |         | EXH   |
| Ext. Dehumidification                          | Stop    |        |        |         | DEHUM |

**Table 9 — Software Points**

| DESCRIPTION<br>DISPLAY<br>SCREENS      | VALUE   | UNITS  | STATUS | FORCE   | NAME     |
|--|---------|--------|--------|---------|----------|
| OMNIZONE::SWP65-96:<br>Software Points |         |        |        |         |          |
| Compressor 1 Status                    | Off     |        |        |         | CLO1     |
| Compressor 2 Status                    | Off     |        |        |         | CLO2     |
| Compressor 3 Status                    | Off     |        |        |         | CLO3     |
| Compressor 4 Status                    | Off     |        |        |         | CLO4     |
| Bypass Acc Panel Secure                | No      |        |        |         | BP_SAFE  |
| DX VAVRESET control                    | 0       | dF     |        |         | VAVRESET |
| Factory/Field Test                     | Stop    |        |        |         | FLDTST   |
| Building Static Pressure               | 0.03    | in H2O |        |         | BSP_IN   |
| Time Clock                             | Off     |        |        |         | TIMCLOCK |
| Cooling                                | Disable |        |        |         | COOLOK   |
| Supply Fan Status                      | Off     |        |        | Control | SFS      |
| Ok to run Fan                          | No      |        |        |         | OKFAN    |
| OK Fan + Sup. Fan Stat                 | FALSE   |        |        |         | SF_SFS   |
| Fan + Cond. Water Flow                 | FALSE   |        |        |         | FAN_CDWF |
| Equipment Mode                         | Cool    |        |        | Control | MODE     |
| Activate Evacuation Mode               | Disable |        |        |         | EVAC     |
| Space Control Point                    | 74      | dF     |        |         | CTRLPT   |
| Mod. Econ Enabled                      | No      |        |        | Control | ECON_OK  |
| Head Pressure Control                  | Disable |        |        | Control | HEAD     |
| Economizer Control Temp.               | 77.22   | dF     |        |         | ECONPT   |
| Compressor Cooling                     | Disable |        |        |         | COMPRES  |
| Duct Static Failure                    | Normal  |        |        |         | DSP_ALM  |
| Compressor 1 Alarm                     | Normal  |        |        |         | C1_ALM   |
| Compressor 2 Alarm                     | Normal  |        |        |         | C2_ALM   |
| Compressor 3 Alarm                     | Normal  |        |        |         | C3_ALM   |
| Compressor 4 Alarm                     | Normal  |        |        |         | C4_ALM   |
| Cond. Flow Alarm Status                | Disable |        |        | Control | CDWF_ST  |

**Table 10 — Configuration Parameters**

| DESCRIPTION          | VALUE | UNITS  | NAME     |
|----------------------|-------|--------|----------|
| Compressor Stages    | 2.00  |        | NUM_CMP  |
| Reset Ratio          | 3.00  | dF     | RSET_RTO |
| CDWF 0=NO,1=YES      | 0.00  |        | CDWF_SWT |
| ECON 0=NO,1=YES      | 0.00  |        | EWT_SNS  |
| EWT Reset 0=NO,1=YES | 1.00  |        | EWT_RST  |
| MOD.VLV 0=NO,1=YES   | 0.00  |        | MOD_ECON |
| 0=CONST.,1=VARIABLE  | 0.00  |        | FLOW_TYP |
| 0=RAT,1=MAT 2=NONE   | 2.00  |        | MARA_SNS |
| PHASE 0=NO,1=YES     | 0.00  |        | PHAS_SWT |
| FREEZ 0=NO,1=YES     | 0.00  |        | FREZ_SWT |
| ENABLE ECON.         | 68.00 | dF     | ECON_SET |
| SPT 0=NO,1=YES       | 0.00  |        | SPT_SNS  |
| PRES 0=NO,1=YES      | 0.00  |        | PRES_SNS |
| TWR 0=NO,1=YES       | 0.00  |        | TWR_SNS  |
| LWT 0=NO,1=YES       | 0.00  |        | LWT_SNS  |
| IAQ 0=NO,1=YES       | 0.00  |        | IAQ_SNS  |
| IRH 0=NO,1=YES       | 0.00  |        | IRH_SNS  |
| BSP 0=NO,1=YES       | 0.00  |        | BSP_SNS  |
| BSP Range            | 1.00  | in H2O | BSP_RNG  |
| BSP LOW VALUE        | -0.50 | in H2O | BSP_LOW  |

**LEGEND**

- BSP — Building Static Pressure
- CDWF — Condenser Water Flow
- ECON — Economizer
- EWT — Entering Water Temperature
- IAQ — Indoor Air Quality
- IRH — Indoor Relative Humidity
- LWT — Leaving Water Temperature
- MAT — Mixed Air Temperature
- RAT — Return Air Temperature
- SPT — Space Temperature

**Set Controller Address** — To set the address of the OMNIZONE™ System Control panel controller, perform the following procedure:

1. Press 7 and then **[SRVC]**. Press **[ENTER]** and then **[EXPN/EDIT]**.
2. Type in the CCN element number and press **[ENTER]**.
3. Press the **▼** button. Type in the CCN bus number and press **[ENTER]**.

**Log Off from Controller** — To log off from the OMNIZONE System controller Press 3 and then **[SET]**. The controller password will be displayed.

1. Press **[ENTER]**. The display should show:

Log in to Controller

Logged in

If this is not displayed, Press **[EXPN/EDIT]** until it is displayed.

2. Press the **▼** button. The LID display will show:

Log out of Controller

Press 1. Press **[ENTER]** to log off.

## OPERATION

**Occupancy Determination** — The OMNIZONE™ controller can determine occupancy in many ways. Local occupancy is determined by either a local schedule contained in the CC6400 controller, the use of the ROCC discrete input point or by setting the Local/Off/Remote switch to Local. In order for the CC6400 schedule or ROCC point to function the Local/Off/Remote switch must be set to Remote.

When the OMNIZONE unit is connected to a Carrier Comfort Network and the Local/Off/Remote switch is set to Remote, the controller occupancy can be determined by a Network Group schedule, a Network Global schedule, or via Linkage from a linkage device such as a ComfortID™ linkage master.

**Fan Control** — All Variable Air Volume (VAV) units have a Variable Frequency Drive (VFD) to provide variable fan motor speed and thus variable airflow. Fan control turns the fan on and off based on unit operating mode, and controls fan speed to maintain a particular duct static pressure at a Duct Static Pressure Sensor (DSP). The objective is to maintain a reasonably constant supply-air exit velocity at VAV system outlet grilles, regardless of damper opening positions. The duct static pressure sensor is field-installed about  $\frac{2}{3}$  of the way toward the “far end” of the ductwork. A High Duct Static Switch (HDS) provides protection by shutting the fan down if the duct static pressure exceeds a maximum setting.

For the 50XJ unit, a VFD interface display is mounted in the front of the unit. A number of user-adjustable features can be entered/changed using the keypad on the display. These features described in detail in the Variable Frequency Drive Control section.

**Sequence of Operation** — The following control sequence of operation for the 50XJ,BV unit describes the various sequences that occur depending upon the way an operation is triggered and which software control points are involved.

**SUPPLY FAN** — The Supply fan can be activated in any of the following ways:

- Unoccupied space or return air temperature demand.
- Unoccupied Linkage demand.
- Local Time Schedule (TIMCLOCK software point).
- Remote Occupancy (ROCC software point).
- By placing the remote-off-local switch in the local mode.
- Enabled by Schedule.

Once one of the above conditions exists, either TIMECLOCK or ROCC indicates ON or Enable. The software point OKFAN will turn on followed by the points TRMCT for air terminal control and PUMP and TOWER to request condenser water flow and temperature control. Approximately 20 to 30 seconds later the supply fan (SF) point will turn ON and the VFD output SPEED will increase. The SPEED point will output a signal, determined by a PID calculation, based on the duct static pressure DSP input and the Supply Static Pressure set point in SETPT05.

Once the supply fan is running and the static pressure increases above the Supply fan status set point in SETPT01, the supply fan status point (SFS) will indicate ON and the software point SF\_SFS will indicate TRUE.

**Enabled By Unoccupied Demand** — A software point “Space Control Point” will display the current value of the sensor used to determine unoccupied demand. The EWT sensor provides this function for the 50BV unit. The display is based on the

sensors installed and the configuration of these sensors in the custom configuration, or the status of linkage.

If the Return/Mixed air sensor is in the mixed airstream and configured as such and there is no Space temperature sensor installed and no Linkage, the Space Control Point will display a default value of 75 F, which is above the default occupied cooling set point and below the unoccupied cooling set point. If this condition exists, supply air reset from a sensor and unoccupied unit operation will not occur.

If the unit is configured to use a sensor for the Space Control Point or if Linkage is active and the space has unoccupied demand, the software point OKFAN will turn on followed by the points TRMCT for air terminal control and PUMP and TOWER to request condenser water flow and temperature control. Approximately 20 to 30 seconds later the SF point will turn ON and then the VFD output SPEED will increase. If unoccupied demand is the reason the fan is on, a control force will appear next to the OKFAN point. Otherwise there should not be a force on that point.

If the fan is running due to unoccupied heating or cooling demand, either the space temperature (if installed), return air temperature or average linkage temperature must rise or drop to within half way between the occupied and unoccupied set points in order for the fan to turn back off.

**Enabled by Switching to Local Mode** — When the switch is placed in the local mode the ROCC point will indicate enable. If ROCC is ENABLED a software routine will override the occupancy schedule so that TIMECLOCK will also turn on. When ROCC is turned off the TIMECLOCK point will turn off within 60 seconds.

**Supply Fan Shutdown** — If the unoccupied demand is satisfied and TIMECLOCK and ROCC are off and disabled, OKFAN will turn off, SF\_SFS will turn off, Tower and PUMP will turn off, and then 5 minutes later the SF point will turn off and the VFD speed will go to 0%.

During the 5-minute delay, the cooling and heating routines become disabled. This delay allows a compressor that may have just started to run for its 5-minute minimum on time with the supply fan on. For example, if the staging routine had just started Compressor 3 at the time the OK\_FAN point changed to OFF, the cooling routine would become disabled and compressors 1 and 2 would shut off right away. Compressor three would continue to run for its minimum on time of 5 minutes. The fan continues running until all compressors meet the minimum on time and run with a load, preventing them from shutting down due to a safety.

**Supply Fan operation with Optional Bypass (50XJ)** — If the optional VFD Bypass is installed and the Bypass switch has been turned to Bypass, and the access panel is in place, the software point Bypass access panel secure BB\_SAFE has been turned to ON, and the unit operation switch has been placed back in local or remote, then the bypass start stop point BPS\_S will follow the SF point when it turns on and off. The terminal open point TRMOP will go on with the TRMCT point before the fan starts.

**COMPRESSOR COOLING** — If the fan is on and there is no demand for Heat, the equipment mode (MODE) will be COOL, and Cooling (COOLOK) will switch to ENABLE.

If the unit is configured for variable flow the Reverse/Head Pressure CTRL valve will open (otherwise it will already be open), and if there is condenser water flow (CDWF is YES), then the Fan + Condenser water flow point will become TRUE and the Compressor Cooling (COMRES) point will switch to Enable.

COMRES triggers the compressor staging routine that controls the number of compressors energized. Units are equipped with 4 compressors piped in separate refrigerant circuits, and staged On/Off in a fixed sequential manner (compressor no. 1 through compressor no. 4). The compressor control routine uses a PID calculation to determine the percentage of cooling required, from 1 to 100%. Demand for the PID calculation is determined from the supply air temperature and the supply air set point (SETPT06).

Compressor cooling (COMPRES) will be turned off for any of the following reasons:

- There is no condenser water flow (CDWF is Off).
- Economizer Freezestat (FREEZ) has been in alarm for more than 15 minutes.
- MODE changes to heat.
- OK-FAN turns off during normal shut down.
- During normal compressor operation the minimum on time is 5 minutes and the minimum off time is 5 min.

**ECONOMIZER COOLING (50XJ)** — The unit diverts condenser inlet water flow through an optional economizer coil to precool evaporator entering airflow. This occurs when there is demand for the cooling, and the temperature at an Entering Water Temperature (EWT) thermistor is colder than the economizer start set point. Waterflow is controlled via two electronic water flow valves. This option also incorporates an Economizer Freeze Switch (EFS), located at the inlet of the economizer coil.

Economizer water flow is in series with the condensers allowing compressor operation while the economizer is operating.

If the Fan is on, and there is no demand for heat then the equipment mode (MODE) will be COOL and Cooling (COOLOK) will switch to ENABLE.

If the unit is configured for variable flow the Reverse/Head Pressure CTRL valve will open (otherwise it will already be open), and if there is condenser water flow (CDWF is YES) then the Fan + Condenser water flow point will become TRUE.

If the entering-water temperature is below the Economizer start set point in the configuration parameters table (Table 10), then the Mod. Econ Enabled point (ECONOK) will change to enable and the Economizer valve will modulate open to lower the Economizer control temp to the supply air set point (SETPT06) temperature. The economizer modulation is controlled by a PID loop and the Reverse/Head pressure control valve will modulate in reverse of the Economizer valve using the formula  $MVLV = 100 - ECONO$ .

**ECONOMIZER COOLING (50BV)** — The unit diverts condenser inlet waterflow through an optional economizer coil to precool evaporator entering airflow. If the entering-water temperature is colder than the setting on the Aquastat, and the return-air temperature is warmer than the setting on the return air thermostat, the two-position diverting valve will direct water to the economizer coil.

Economizer water flow is in series with the condensers allowing compressor operation while the economizer is operating.

**COOLING RESET (50XJ)** — The controller can reset the supply air set point using these three methods:

- An external 0 to 10 volt input RESET
- The value of the space control point
- Linkage

The external 0 to 10 volt input reset is configured to produce a 0 to 20 degree supply air reset over the 2 to 10 volt range. If more than 1.8 volts is sensed on the input, this method of reset takes priority over other methods.

**NOTE:** The reset from all methods may be limited to 10 F or 15 F by changing the high end point of the custom voltage input from the default (20 F) to 15 F or 10 F.

Either the return air or a space temperature sensor will be used as the space control point. If this variable goes below the Occupied High set point in the HEAT/COOL MODE AND RESET set point (SETPT03), then for each degree that the Space control point is below the set point value the supply air set point will be reset by the value configured in the custom configuration RESET RATIO.

If Linkage is active, for each degree that the average occupied space temperature is below the average occupied cool set point, the supply air set point will be reset by the amount configured in the RESET RATIO. Reset will be limited to the maximum value the custom voltage input RESET can display.

**COOLING RESET (50BV)** — The 5k ohm temperature sensor will be used as the space control point. If this variable goes below the Occupied High set point in the HEAT/COOL MODE AND RESET set point (SETPT03), then for each degree that the Space control point is below the set point value the supply air set point will be reset by the value configured in the custom configuration RESET RATIO.

**HEATING (50XJ)** — The controller is configured to control two types of heat:

- A modulating 4 to 20 mA output Hot Water Valve (HWV) in the base unit, wired to the second module.
- Four stages of staged heat wired to a third, accessory module (PCB3).

For either method of heat to function, a space control point must be configured in the custom configuration. This control point comes from a return air sensor or space sensor, or from the average space temperature received through linkage.

Whenever the space control point is below the occupied or unoccupied heat set point the mode will change to heat and if unoccupied the fan will be started. For linkage, this occurs if the average space temperature is below the appropriate average heat set point.

Both heat control routines use a PID to calculate a supply air set point that will satisfy the heat demand in the space. The modulating output and the staged outputs will both operate at the same time to control an attached heat source, such as steam valves or electric heaters, to provide the supply-air temperature required.

The heat mode changes back to cool when the space control point is back above the occupied heat set point. For linkage, the mode changes back to cool when the average space temperature is back above the average occupied heat set point.

When unoccupied heat is enabled the fan will be stopped and the heat turned off when the space control temperature is more than halfway above the difference between the occupied heat set point and the unoccupied heat set point. For example, if the occupied heat set point is 70 and the unoccupied heat set point is 60 the unit will come on for unoccupied heating below 60 F and turn off again above 65 F. The average occupied and unoccupied set points are used when linkage is active.

**HEAD PRESSURE CONTROL (HPC) (50XJ)** — In installations where entering water temperature can fall below 55 F, where a water economizer (described above) is not installed, the HPC provides 1 or 2 electronic water flow control valves to vary flow to the condensers. Controlling the water flow maintains compressor discharge pressure above a minimum value, ensuring sufficient refrigerant flow out of the condenser and throughout the refrigerant circuit. Refrigerant pressure is measured at compressor circuit no. 1 by a Discharge Pressure Sensor (DPS).

Units not equipped with a water economizer can be ordered with the reverse/head pressure control valve factory installed and a pressure transducer located in the discharge line of compressor no. 1.

When the condenser water temperature gets low enough to cause the head pressure to drop, the valve will be modulated to control the head pressure of all four compressors by varying the water flow through the condensers.

When the unit is operating and the COOLOK software point is enabled and the EWT gets below 60 F, the Head software point will become enabled and the head pressure control valve will modulate to keep the head pressure at the head pressure set point (SETPT04). The default set point is 225 PSI and may be set from 200 to 250 PSI. The minimum output value for the head pressure control algorithm is 40% in order to maintain a minimum flow through the condensers. The valve will modulate between 40 and 100%. Do not set the minimum lower than 40% or the compressors may shut down due to low flow, resulting in the high-pressure switch tripping.

**VENTILATION REQUEST (50XJ)** — The ventilation request output will close a set of relay contacts to activate a ventilation damper whenever the supply fan and supply fan status are both true and the TIMECLOCK software point is on.

**VAV TERMINAL OPERATION OUTPUT (50XJ)** — The VAV terminal control output (TRMCT) closes a set of relay contacts to indicate to non-Carrier air terminals that the fan is either forced on or is going to turn on. This signals the terminals to open and start controlling to the desired CFM and Temperature set points.

**VAV TERMINAL OPEN OUTPUT (50XJ)** — The VAV terminal open output (TRMOP) closes a set of relay contacts to command the air terminals to open to maximum CFM at times when the fan is operating on the VFD Bypass.

**PUMP AND TOWER OUTPUTS (50XJ)** — The pump and Tower outputs close a set of relay contacts to indicate that the 50XJ unit is in operation and may require condenser water flow through the unit.

**BUILDING PRESSURE CONTROL (50XJ)** — The building pressure control output provides an analog 4 to 20 mA signal to control return fan or exhaust fan speed. Fan speed is modulated to maintain the building static pressure set point (SETPT07).

The control parameters for the building pressure set point and building pressure are read and controlled in milliamps but are converted to inches of water for ease of setting and display. The range and low start values of the sensor selected should be configured in the custom configurations screen. The raw sensor value in milliamps will be displayed on the hardware point BSP. The converted sensor reading in inches of H<sub>2</sub>O will be displayed at the software point BSP\_IN. The set point input in SETPT07 in inches of H<sub>2</sub>O is converted to a raw milliamp set point in SETPT08. The algorithm controls to the milliamp values since the math required for control using the static pressure in inches generates numbers too small to be used given the range of the controller configuration parameters.

**Diagnostic Features** — The CC6400 provides a number of features to help protect the unit and allow problem diagnosis.

**CRITICAL FAULT** — The controller provides an output (for field connection) to signal an external building systems monitor or control that the unit is not operating properly and has shut down. A red light mounted on the front of the unit provides visual indication of this alarm condition.

**NOTE:** If the Local/Off/Remote switch is in the OFF position, it is normal for the red alarm light on the display panel to be lit, indicating that the unit is disabled.

**NON-CRITICAL FAULT** — The controller provides an output for a yellow light, mounted on the front of the unit, that indicates the need for minor maintenance or service.

**FIRE INPUT (FSD)** — This is a normally closed input, which when opened, deenergizes an isolation relay in the unit, opening the input to the controller. When this input turns On, all control outputs are immediately turned Off, including the fan. Unit reset requires manual resetting at the main controller keypad.

**DUCT HIGH STATIC INPUT (DHS)** — This air switch provides backup protection for the ductwork. It is factory installed in the unit, wired to the unit main controller to receive 5 vdc. It is a normally open discreet switch, with adjustable manual setting at the switch (range is 1 to 5 in. wg). Upon switch closure, the controller immediately turns all outputs Off, including fan, and then indicates an alarm both by turning On its Alarm Output, Red Alarm light and via communications.

**DIRTY FILTERS SWITCH (DFLTS) (50XJ)** — This switch measures the change (delta) in air pressure across the filters. When the delta increases beyond the preset setting, a yellow warning light will be lit, indicating that the filters need cleaning or replacement.

The switch receives 5 vdc from the unit controller and monitors air pressure delta across the return air filters. Switch is normally open, with manually adjustable setting at the switch between 0.5 and 1.5 in. wg. Upon closure, controller should wait to assure closure for minimum 1 minute, then indicate an alert via its non-critical alert output and via communications. All other unit operation should remain normal.

**COMPRESSOR OVERLOAD (COL)/SAFETIES** — Each compressor circuit is provided with a temperature overload board (Copeland Protector Bd.), a Current Overload/Sensor Board (COL), High Pressure Switch (HPS), Low Pressure Switch (LPS), and Evaporator Freeze Switch (EFS). These devices are wired in series to the contactor for each compressor. Each such circuit is then wired through a common resistor board; such that any one or more input(s) to the main controller allows it to discern which compressor is not operating when it should be.

The Current Overload Board (COL) is located in the unit control box, wired in the control power line for the compressor pilot relay (which drives the compressor contactor), and incorporates a current loop which monitors one leg of the compressor power leads. This board is powered along with the related compressor contactor.

Whenever the compressor current falls below a threshold level (i.e., compressor not operating), it activates an on-board relay which opens power to the compressor pilot relay (i.e., compressor contactor), and turns On a control power feedback line to the unit controller, via the resistor board (described above). Any one of the safety switches described herein will cause this event. In the event this occurs, the controller shall turn OFF this compressor, and start the next compressor in sequence. After a 5-minute period, the controller shall restart this compressor, and turn the other one off, as cooling demand requires. If the ‘problem’ compressor then operates for 10 minutes of run time normally, the unit reverts to normal operation and compressor sequencing. If not, and the same error occurs again, this compressor shall be shut down and replaced with the next compressor, as before, and held off for 10 minutes. It shall then be restarted and the other compressor shut down, as before. If it does not run successfully for 10 minutes of normal run time again, it is shut down and replaced a third time. This time it is held off for 15 minutes. If the “problem” compressor does not operate successfully for the 10 minutes of normal run time this third time, this compressor ONLY is shut down and locked out for servicing. Alarm output (Red light) flashes and then remains on.

**HIGH-PRESSURE SWITCH (HPS)** — This switch is located in the discharge refrigerant line of each compressor, and is set to open at pressures above 360 psig. It is wired in the 115 vac control power line of the compressor contactor (in series with the LPS and EFS), and activates the COL board (above) when it opens.

**LOW-PRESSURE SWITCH (LPS)** — The Low-Pressure Switch is located in the suction refrigerant line of each compressor, and is set to open at pressures below 27 psig. It is wired in the 115 vac control power line of the compressor contactor (in series with the HPS and EFS), and activates the COL board (above) when it opens.

**EVAPORATOR FREEZE SWITCH (EFS)** — This is a thermal disk type switch, mounted on a return bend of the evaporator, refrigerant circuit for which corresponds to each respective compressor, and is set to open at temperatures below 28 F. It is wired in the 115 vac control power line of the compressor contactor (in series with the HPS), and activates the COL board (above) when it opens.

**COPELAND PROTECTOR BOARD** — This board is provided with each compressor, installed in the terminal box, since these compressors do not have internal current protection. This board activates at an overtemperature setting, and locks out operation of the compressor for 30 minutes; there is no method to over-ride or reset this timer. Due to this timing function, please note that the compressor will not attempt to restart until the third attempt described above.

**ALARMS** — Alarms can be provided via 4 methods; Unit mounted Alarm Light (Red and Yellow), Keypad Display, Network Communications, or a discreet Alarm Output to the Field Low Voltage Terminal Strip. This field output circuit includes an isolation relay and dry contacts. Alarms are covered in detail in the Troubleshooting section.

**50XJ Variable Frequency Drive Control** — The variable frequency drive is factory wired and programmed for proper operation with the unit controls; no installation or service adjustments are normally required. There is an interface display for the VFD, independent of the main control display, mounted on the front of the 50XJ unit.

The VFD default conditions at unit power up are: “AUTO” run mode, “REMOTE” speed control, and “OFF” in the LED display. When the fan is operating, the LED displays the output frequency in Hz.

**OPERATING KEYPAD** — The keypad allows users to enable or disable the keypad, input commands from the keypad, and monitor drive operation. Fig. 6 shows the operating panel keypad layout and the locations of the keys and display LEDs.

The 7-character LED displays various values, depending upon what mode is running.

- In Standard Monitor mode: the LED displays the current output frequency.
- In Status Monitor mode: monitors the status conditions and frequency command value setting.
- In Setup mode: displays setup parameter titles and values.
- In Program mode: displays parameter group titles, individual parameter names, and parameter values.
- During a trip: displays the trip title.

The appropriate local/remote LED, which is inset into the speed control key, is lit when the unit is in Local or Remote mode.

The appropriate manual/auto LED, which is inset into the run mode key, is lit when the unit is Manual or Auto mode.

When numeric data is shown on the LED display, the corresponding unit indication LED will be lit. If no unit indication LED is lit, the current data has no unit or the corresponding unit does not exist on the display panel.

**KEY FUNCTIONS** — Refer to Table 11 for the functions of each key on the keypad.

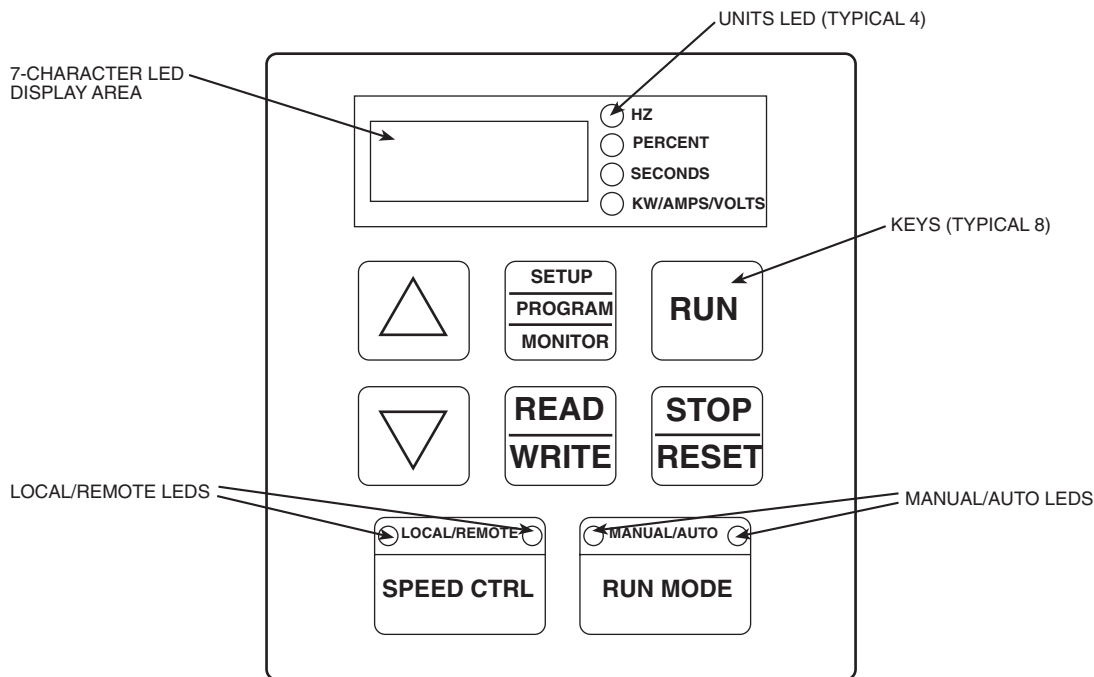
**NON-TRIP MESSAGES** — Non-trip messages are those that may be displayed but do not cause a trip and are not recorded in the fault history. Table 12 lists the non-trip messages with their explanations.

**TRIP MESSAGES** — Trip messages and their causes are shown in Table 13.

**CLEARING A TRIP** — A trip clear can be performed after the cause of the trip has been removed. To perform a trip clear, either switch off power to the inverter or use the following procedure:



Press Stop/Reset. The display will show: CLr. Press Stop/Reset again. The display will show: 0.0, indicating that the trip is cleared and the display will return to Standard Monitor mode.

If any key other than the STOP/RESET key is pressed at the trip clear command prompt, the trip clear command is aborted and the display returns to Standard Monitor mode (where the trip title will be displayed flashing). The trip clear command does not clear the recorded past faults.




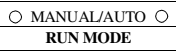

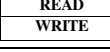


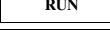
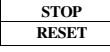
**Fig. 6 — 50XJ VFD Display Keypad**

**STATUS MONITOR MODE** — In Status Monitor mode, it is possible to monitor the VFD status (frequency command, output voltage, current, terminal information, etc.). Status monitor mode is entered by pressing the Setup/Program/Monitor key, then selecting MON at the mode selection menu and pressing the Read/Write key. Table 11 details the procedure for entering status monitor mode (from standard monitor mode) and viewing all the monitored status variables. The present output frequency (which, just after power is applied, is 0.0) is displayed. (If the ST-CC terminals are not shorted, OFF will be displayed).

If either  or  is pressed continuously, every 0.5 sec the next/previous item will be displayed. As optional points, RUN, STOP, displaying the frequency status, and switching to local/remote and manual/auto modes can be performed.

**MANUAL MODE** — To override the automatic unit controls and manually operate the fan from the VFD display, press keys for “MANUAL” run mode, “LOCAL” speed control, and press the Up or Down arrow keys to increase or decrease output frequency.

**Table 11 — Keys and Functions for 50XJ VFD**

| KEY  | FUNCTION  |
|--|---|
|   | Local/Remote Key<br>Switches the source of frequency command information from panel/terminal block. The appropriate LED is lit to indicate local or remote frequency command.   |
|   | Manual/Auto Key<br>Switches the source of run/stop command information from panel/terminal block. The appropriate LED is lit to indicate manual or auto run/stop command.   |
|   | Setup/Program/Monitor Key<br>Toggles between Setup, Program, Monitor, and Frequency Mode.   |
|   | Read/Write Key<br>Mode, group, parameter, data, and frequency selection key. This key is used to select or enter a parameter value, a frequency command, or a group name.   |
|   | Up Key<br>Scrolls up the setting of the currently displayed parameter. If the key is held down, the scrolling speed gradually increases. Only RAM values are changed. Also toggles to other function group entries. Pushing Read/Write key saves the setting.     |
|   | Down Key<br>Scrolls down the setting of the currently displayed parameter. If the key is held down, the scrolling speed gradually increases. Only RAM values are changed. Also toggles to other function group entries. Pushing Read/Write key saves the setting. |
|   | Run Key<br>This key is used to start a RUN command (only valid when in manual control mode).  |
|  | Stop/Reset Key<br>Functions as the STOP key and emergency stop key during local operation. Functions as the RESET key when an inverter trip occurs. In all other modes, emergency off is engaged when this key is pressed twice.                                  |

**Table 12 — VFD Non-Trip Messages for 50XJ Unit**

| LED MESSAGE | EXPLANATION  |
|-------------|--|
| OFF         | Displayed whenever the ST-CC connection is open.   |
| pOFF        | Displayed when the VFD control power supply voltage is too low.  |
| nOFF        | Displayed when the VFD's main DC bus voltage is low.   |
| rtrY        | Auto-restart message: alternately displayed with the output frequency whenever the VFD tries to automatically restart after a non-critical trip.   |
| Err1        | Displayed when 2 frequency points (F-P1,F-P2,etc.) are set too close to each other.  |
| CLr         | Displayed during a pending clear command (after the STOP/RESET key has been pressed ONCE after a trip).  |
| EOFF        | Displayed during a pending emergency off command (after the STOP/RESET key has been pressed ONCE when in terminal control mode).   |
| Ctrl        | Displayed during a pending coast stop command (after the Local/Remote key has been pressed once when in local control mode while the VFD is running).  |
| HI          | This maximum value warning message "HI" will be alternately displayed in the data field of a parameter when an attempt is made to increase the setting value greater than the parameter's maximum value. |
| LO          | This minimum value warning message "LO" will be alternately displayed in the data field of a parameter when an attempt is made to decrease the setting value less than the parameter's minimum value.    |
| PASS        | Displayed if the correct password is entered at the password prompt.   |
| Err         | Displayed if an incorrect password is entered at the password prompt.  |
| E1          | Displayed when the VFD attempts to display a number that exceeds four numerical digits.  |
| db          | Displayed when DC injection braking is being executed.   |
| dbon        | Displayed when motor shaft stationary control is being executed.   |
| FJOG        | Displayed when in forward JOG mode.  |
| rJOG        | Displayed when in reverse JOG mode.  |
| L           | VFD/motor overload pre-alarm display.  |
| C           | Overcurrent pre-alarm display.   |
| P           | Overvoltage pre-alarm display.   |
| H           | Overheat pre-alarm display.  |
| t           | Option board communication alarm display.  |
| Init        | Displayed when the VFD is initializing values during resetting/power-up.   |



**Table 13 — VFD Trip Messages for 50XJ Unit**

| <b>LED MESSAGE</b> | <b>EXPLANATION</b>  |
|--------------------|---|
| <b>nErr</b>        | Displayed in the trip history in standard monitor mode when no trip has been recorded since the last VFD reset or trip clear.   |
| <b>OC1</b>         | Overcurrent during acceleration trip  |
| <b>OC2</b>         | Overcurrent during deceleration trip  |
| <b>OC3</b>         | Overcurrent during normal (constant speed) run trip   |
| <b>OC1P</b>        | Overcurrent in DC section during acceleration trip  |
| <b>OC2P</b>        | Overcurrent in DC section during deceleration trip  |
| <b>OC3P</b>        | Overcurrent in DC section during normal (constant speed) run trip   |
| <b>OCL</b>         | Load end over current trip detected at start-up (output terminals, motor wiring, etc.)  |
| <b>OCA1</b>        | U-phase short circuit trip detected at start-up   |
| <b>OCA2</b>        | V-phase short circuit trip detected at start-up   |
| <b>OCA3</b>        | W-phase short circuit trip detected at start-up   |
| <b>OP1</b>         | Overvoltage during acceleration trip  |
| <b>OP2</b>         | Overvoltage during deceleration trip  |
| <b>OP3</b>         | Overvoltage during normal (constant speed) run trip   |
| <b>OLIn</b>        | VFD overloaded trip   |
| <b>OLnt</b>        | Motor overloaded trip   |
| <b>OCr</b>         | Dynamic braking resistor overcurrent trip   |
| <b>OLr</b>         | Dynamic braking resistor overload trip  |
| <b>OH</b>          | Inverter overheat trip  |
| <b>E</b>           | Emergency off trip message. Displayed after the STOP/RESET key has been pressed once when in Auto Control mode, or press STOP/RESET key twice within one second in Manual control mode. |
| <b>EEP1</b>        | EEPROM failure during write cycle   |
| <b>EEP2</b>        | EEPROM abnormality during initial reading   |
| <b>Err2</b>        | RAM error   |
| <b>Err3</b>        | ROM error   |
| <b>Err4</b>        | CPU error   |
| <b>Err5</b>        | Communication interruption error  |
| <b>Err6</b>        | Gate array error  |
| <b>Err7</b>        | Output current detection circuit error  |
| <b>Err8</b>        | Option PCB error trip   |
| <b>Err9</b>        | Option ROM error  |
| <b>UC</b>          | Low operating current trip  |
| <b>UP1</b>         | Main circuit undervoltage trip  |
| <b>Ot</b>          | Overtorque trip   |
| <b>EF1</b>         | Software detected earth fault trip  |
| <b>EF2</b>         | Hardware detected earth fault trip  |
| <b>Etn</b>         | Auto-tuning error   |
| <b>EtYP</b>        | Inverter typeform and EEPROM typeform mismatch error  |
| <b>dANP</b>        | Damper trip. When damper function is selected, and damper is closed while the motor is running.   |
| <b>LOSS</b>        | IV analog input loss. Valid when LA15 = 3 and frequency command is selected from IV analog input terminal.  |

**LEGEND**

- CPU** — Central Processing Unit
- IV** — Analog Input Terminal
- PCB** — Printed Circuit Board
- RAM** — Random Access Memory
- ROM** — Read-Only Memory
- U-phase** — Phase 1 Output (T1)
- V-phase** — Phase 2 Output (T2)
- W-phase** — Phase 3 Output (T3)

**Table 14 — VFD Mode Summary for 50XJ Unit**

| KEY OPERATON | LED MESSAGE | EXPLANATION  |
|--------------|-------------|--|
| —            | 0.0         | Standard monitor mode  |
| S/P/M        | SEtP        | Switch to mode selection menu.   |
| S/P/M        | PrG         | Program mode.  |
| S/P/M        | non         | Select Status Monitor mode title with U/D keys.  |
| R/W          | Fr-F        | Enter Status Monitor mode by pressing R/W. First monitor item (motor run direction) is displayed.    |
| DOWN         | 60.0        | Pressing UP/DOWN views next/previous status variable. Frequency command value displayed (monitor #1) |
| DOWN         | C 0         | Load current (%) monitor (monitor #2)  |
| DOWN         | Y 228       | Input voltage (V) monitor (monitor #3)   |
| DOWN         | P 0         | Output voltage (V) monitor (monitor #4)  |
| DOWN         | A....       | Input terminal status monitor  |
| DOWN         | b....       | Input terminal status monitor  |
| DOWN         | O....       | Output terminal status monitor   |
| DOWN         | t0.00       | Total RUN time monitor   |
| DOWN         | OC1         | Past trip #1 monitor   |
| DOWN         | OC2         | Past trip #2 monitor   |
| DOWN         | OC3         | Past trip #3 monitor   |
| DOWN         | nErr        | Past trip #4 monitor   |
| DOWN         | Fr-F        | Return to the top menu item  |

**50BV Variable Frequency Drive Control** — The variable frequency drive is factory wired and programmed for proper operation with the unit controls; no installation or service adjustments are normally required.

The VFD default conditions at unit power up are: “0.0 Hz” in the LED display. When the fan is operating, the LED displays the output frequency in Hz.

**OPERATING KEYPAD** — The keypad allows users to enable or disable the keypad, input commands from the keypad, and monitor drive operation. Fig. 7 shows the operating panel keypad layout and the locations of the keys and display LEDs.

The 4-character LED displays various values, depending upon what mode is running.

- In Standard Monitor mode: the LED displays the current output frequency.
- In Status Monitor mode: monitors the status conditions and frequency command value setting.
- In Setup mode: displays setup parameter titles and values.
- During a trip: displays the trip title.

The appropriate local/remote LED, which is inset into the speed control key, is lit when the unit is in local or remote mode.

**KEY FUNCTIONS** — Refer to Fig. 8 for the functions of each key on the keypad.

**NON-TRIP MESSAGES** — Non-trip messages are those that may be displayed but do not cause a trip and are not recorded in the fault history. Table 15 lists the non-trip messages with their explanations.



**TRIP MESSAGES** — Trip messages and their causes are shown in Table 16.

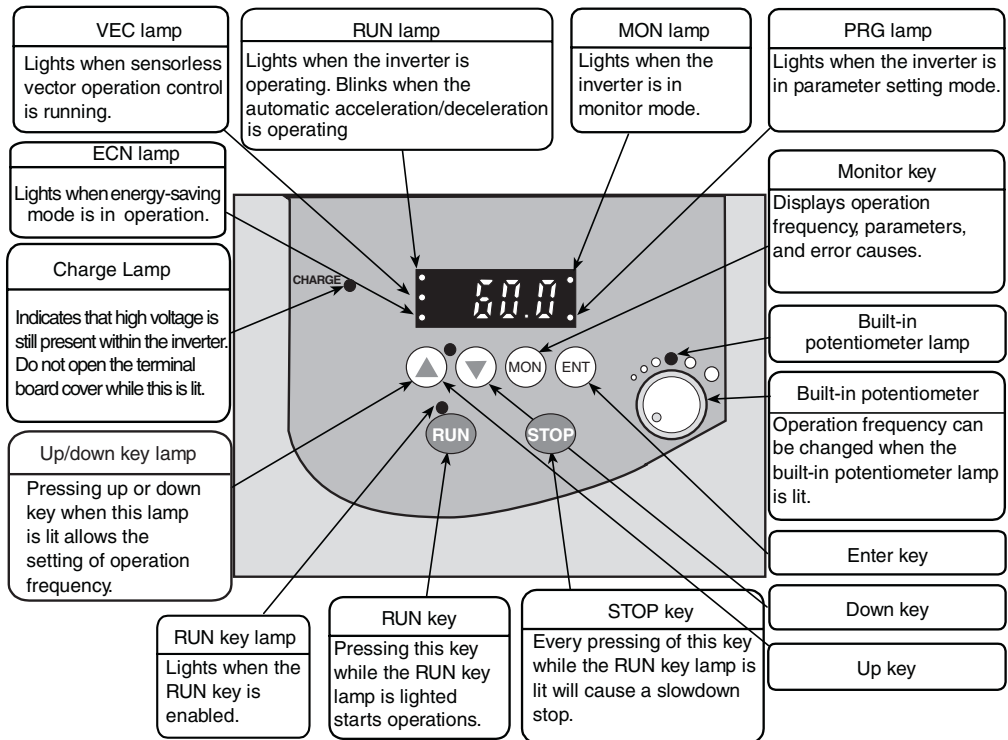
**CLEARING A TRIP** — A trip clear can be performed after the cause of the trip has been removed. To perform a trip clear, either switch off power to the inverter (keep VFD off until charge LED turns off) or use the following procedure:

Press STOP. The display will show: CLr. Press STOP again. The display will show: 0.0, indicating that the trip is cleared and the display will return to Standard Monitor mode.

If any key other than the STOP key is pressed at the trip clear command prompt, the trip clear command is aborted and the display returns to Standard Monitor mode (where the trip title will be displayed flashing). The trip clear command does not clear the recorded past faults.

**STATUS MONITOR MODE** — In Status Monitor mode, it is possible to monitor the inverter status (frequency command, output voltage, current, terminal information, etc.). Status monitor mode is entered by pressing the MON key until the monitor LED is lit. The present output frequency (which, just after power is applied, is 0.0) is displayed. (If the ST-CC terminals are not shorted, OFF will be displayed.)

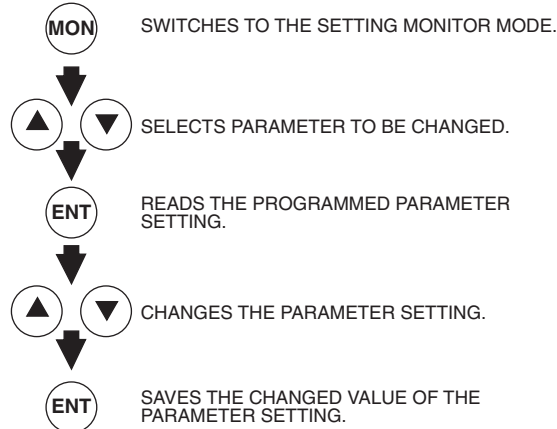
If either  or  is pressed continuously, every 0.5 sec the next/previous item will be displayed. As optional points, RUN, STOP, displaying the frequency status, and switching to local/remote and manual/auto modes can be performed.



**Fig. 7 — 50BV VFD Display**

ALL OF THE BASIC PARAMETERS CAN BE SET BY THE SAME STEP PROCEDURES.

[STEPS IN KEY ENTRY FOR BASIC PARAMETERS]



**Fig. 8 — 50BV VFD Display Function Keys**

**Table 15 — Non-Trip Messages for the 50BV VFD**

| ERROR CODE          | PROBLEM  | POSSIBLE CAUSES  | REMEDIES   |
|---------------------|--|--|--|
| <b>OFF (Note 1)</b> | ST terminal OFF  | <ul style="list-style-type: none"> <li>The ST-CC circuit is opened.</li> </ul>   | <ul style="list-style-type: none"> <li>Close the ST-CC circuit.</li> </ul>   |
| <b>NOFF</b>         | Undervoltage in main circuit   | <ul style="list-style-type: none"> <li>The supply voltage between R, S and T is under voltage.</li> </ul>  | <ul style="list-style-type: none"> <li>Measure the main circuit supply voltage. If the voltage is at a normal level, the inverter requires repairing.</li> </ul>   |
| <b>rtY</b>          | Retry in process   | <ul style="list-style-type: none"> <li>The inverter is in the process of retry.</li> <li>A momentary stop occurred.</li> </ul>                   | <ul style="list-style-type: none"> <li>The inverter is normal if it restarts after several tens of seconds. The inverter restarts automatically. Be careful of the machine because it may suddenly restart.</li> </ul> |
| <b>Err1</b>         | Frequency point setting error  | <ul style="list-style-type: none"> <li>The frequency setting signals at points 1 and 2 are set too close to each other.</li> </ul>               | <ul style="list-style-type: none"> <li>Set the frequency setting signals at points 1 and 2 apart from each other.</li> </ul>   |
| <b>CLr</b>          | Clear command acceptable   | <ul style="list-style-type: none"> <li>This message is displayed when pressing the STOP key while an error code is displayed.</li> </ul>         | <ul style="list-style-type: none"> <li>Press the STOP key again to clear the trip.</li> </ul>  |
| <b>EOffF</b>        | Emergency stop command acceptable  | <ul style="list-style-type: none"> <li>The operation panel is used to stop the operation in automatic control or remote control mode.</li> </ul> | <ul style="list-style-type: none"> <li>Press the STOP key for an emergency stop. To cancel the emergency stop, press any other key.</li> </ul>   |
| <b>HI/LO</b>        | Setting error alarm / An error code and data are displayed alternately twice each. | <ul style="list-style-type: none"> <li>An error is found in a setting when data is reading or writing.</li> </ul>                                | <ul style="list-style-type: none"> <li>Check whether the setting is made correctly.</li> </ul>   |
| <b>db</b>           | DC braking   | <ul style="list-style-type: none"> <li>DC braking in process</li> </ul>  | <ul style="list-style-type: none"> <li>Normal if the message disappears after several tens of seconds. (See Note 2.)</li> </ul>  |
| <b>In It</b>        | Parameters in the process of initialization  | <ul style="list-style-type: none"> <li>Parameters are being initialized to default values.</li> </ul>  | <ul style="list-style-type: none"> <li>Normal if the message disappears after a while (several seconds to several tens of seconds).</li> </ul>   |
|                     | Setup parameters in the process of being set                                       | <ul style="list-style-type: none"> <li>Setup parameters are in the process of being set.</li> </ul>  | <ul style="list-style-type: none"> <li>Normal if the message disappears after a while (several seconds to several tens of seconds).</li> </ul>   |
| <b>Atn</b>          | Auto-tuning in process   | <ul style="list-style-type: none"> <li>Auto-tuning is in process.</li> </ul>   | <ul style="list-style-type: none"> <li>Normal if the message disappears after several seconds.</li> </ul>  |

NOTES:

1. ST : Terminal of stand by function.
2. When the ON/OFF function is selected for DC braking (DB), using the input terminal selection parameter, you can judge the inverter to be normal if “db” disappears when opening the circuit between the terminal and CC.

**Table 16 — Trip Messages for 50BV VFD**

| ERROR CODE | COMMUNICATION NO. | PROBLEM   | POSSIBLE CAUSES   | REMEDIES  |
|------------|-------------------|---|---|---|
| <b>OC1</b> | 1                 | Overcurrent during acceleration                           | <ul style="list-style-type: none"> <li>The acceleration time ACC is too short.</li> <li>The V/F setting is improper.</li> <li>A restart signal is input to the rotating motor after a momentary stop, etc.</li> <li>A special motor (e.g. motor with a small impedance) is used.</li> </ul>   | <ul style="list-style-type: none"> <li>Increase the acceleration time ACC.</li> <li>Check the V/F parameter.</li> <li>Use F301 (auto-restart) and F302 (ride-through control).</li> <li>Increase the carrier frequency F300.</li> </ul>   |
| <b>OC2</b> | 2                 | Overcurrent during deceleration                           | <ul style="list-style-type: none"> <li>The deceleration time dEC is too short. (During deceleration)</li> </ul>   | <ul style="list-style-type: none"> <li>Increase the deceleration time dEC.</li> </ul>   |
| <b>OC3</b> | 3                 | Overcurrent during operation                              | <ul style="list-style-type: none"> <li>The load fluctuates abruptly.</li> <li>The load is in an abnormal condition.</li> </ul>  | <ul style="list-style-type: none"> <li>Reduce the load fluctuation.</li> <li>Check the load (operated machine).</li> </ul>  |
| <b>OCR</b> | 5                 | Arm overcurrent at start-up                               | <ul style="list-style-type: none"> <li>A main circuit element is defective.</li> </ul>  | <ul style="list-style-type: none"> <li>Make a service call.</li> </ul>  |
| <b>OCL</b> | 4                 | Overcurrent (An overcurrent on the load side at start-up) | <ul style="list-style-type: none"> <li>The insulation of the output main circuit or motor is defective.</li> <li>The motor has too small impedance.</li> </ul>  | <ul style="list-style-type: none"> <li>Check the cables and wires for defective insulation.</li> </ul>  |
| <b>OP1</b> | A                 | Overvoltage during acceleration                           | <ul style="list-style-type: none"> <li>The input voltage fluctuates abnormally. (1) The power supply has a capacity of 200kVA or more.</li> <li>(2) A power factor improvement capacitor is opened or closed.</li> <li>(3) A system using a thyristor is connected to the same power distribution line.</li> <li>A restart signal is input to the rotating motor after a momentary stop, etc.</li> </ul>  | <ul style="list-style-type: none"> <li>Insert a suitable input reactor.</li> <li>Use F301 (auto-restart) and F302 (ride-through control).</li> </ul>  |
| <b>OP2</b> | B                 | Overvoltage during deceleration                           | <ul style="list-style-type: none"> <li>The deceleration time dEC is too short. (Regenerative energy is too large.)</li> <li>F304 (dynamic braking resistor activation) is off.</li> <li>F305 (overvoltage limit operation) is off.</li> <li>(1) The input voltage fluctuates abnormally. The power supply has a capacity of 200kVA or more.</li> <li>(2) A power factor improvement capacitor is opened or closed.</li> <li>(3) A system using a thyristor is connected to the same power distribution line.</li> </ul> | <ul style="list-style-type: none"> <li>Increase the deceleration time dEC.</li> <li>Install a suitable dynamic braking resistor.</li> <li>Enable F304 (dynamic braking selection).</li> <li>Enable F305 (overvoltage limit operation).</li> <li>Insert a suitable input reactor.</li> </ul> |

**Table 16 — Trip Messages for 50BV VFD (cont)**

| <b>ERROR CODE</b> | <b>COMMUNICATION NO.</b> | <b>PROBLEM</b>                              | <b>POSSIBLE CAUSES</b>   | <b>REMEDIES</b>  |
|-------------------|--------------------------|---|--|--|
| <b>OP3</b>        | C                        | Overvoltage during constant-speed operation | <ul style="list-style-type: none"> <li>The input voltage fluctuates abnormally.</li> <li>(1) The power supply has a capacity of 200kVA or more.</li> <li>(2) A power factor improvement capacitor is opened or closed.</li> <li>(3) A system using a thyristor is connected to the same power distribution line.</li> <li>The motor is in a regenerative state because the load causes the motor to run at a frequency higher than the inverter output frequency.</li> </ul> | <ul style="list-style-type: none"> <li>Insert a suitable input reactor.</li> <li>Install a dynamic braking resistor.</li> </ul>  |
| <b>OL1</b>        | D                        | Inverter overload                           | <ul style="list-style-type: none"> <li>The acceleration ACC time is too short.</li> <li>The DC braking amount is too large.</li> <li>The V/F setting is improper.</li> <li>A restart signal is input to the rotating motor after a momentary stop, etc.</li> <li>The load is too large.</li> </ul>   | <ul style="list-style-type: none"> <li>Increase the acceleration time ACC.</li> <li>Reduce the DC braking amount F251 and the DC braking time F252.</li> <li>Check the V/F parameter setting.</li> <li>Use F301 (auto-restart) and F302 (ride-through control).</li> <li>Use an inverter with a larger rating.</li> </ul>  |
| <b>OL2</b>        | E                        | Motor overload                              | <ul style="list-style-type: none"> <li>The V/F setting is improper.</li> <li>The motor is locked up.</li> <li>Low-speed operation is performed continuously.</li> <li>An excessive load is applied to the motor during operation.</li> </ul>   | <ul style="list-style-type: none"> <li>Check the V/F parameter setting.</li> <li>Check the load (operated machine).</li> <li>Adjust OLN to the overload that the motor can withstand during operation in a low speed range.</li> </ul>   |
| <b>*EPHO</b>      | 9                        | Output phase failure                        | <ul style="list-style-type: none"> <li>A phase failure occurred in the output line of the main circuit.</li> </ul>   | <ul style="list-style-type: none"> <li>Check the main circuit output line, motor, etc., for phase failure.</li> <li>Enable F605 (Output phase failure detection).</li> </ul>   |
| <b>*EPH1</b>      | 8                        | Input phase failure                         | <ul style="list-style-type: none"> <li>A phase failure occurred in the input line of the main circuit.</li> </ul>  | <ul style="list-style-type: none"> <li>Check the main circuit input line for phase failure.</li> <li>Enable F608 (input phase failure detection).</li> </ul>   |
| <b>OH2</b>        | 2Eh                      | External thermal trip                       | <ul style="list-style-type: none"> <li>A thermal trip command is entered from an external input device.</li> </ul>   | <ul style="list-style-type: none"> <li>Check the external input device.</li> </ul>   |
| <b>*Ot</b>        | 20h                      | Over-torque trip                            | <ul style="list-style-type: none"> <li>The load torque rises up to the over-torque detection level during operation</li> </ul>   | <ul style="list-style-type: none"> <li>Enable F615 (Over-torque trip selection)</li> <li>Check whether the system is in a normal condition.</li> </ul>   |
| <b>OLr</b>        | F                        | Dynamic braking resistor overload trip      | <ul style="list-style-type: none"> <li>The deceleration time is too short.</li> <li>The dynamic braking amount is too large.</li> </ul>  | <ul style="list-style-type: none"> <li>Increase the deceleration time dEC.</li> <li>Use a dynamic resistor with a larger capacity (W) and adjust F308 (PBR capacity parameter) accordingly.</li> </ul>   |
| <b>OH</b>         | 10h                      | Overheat                                    | <ul style="list-style-type: none"> <li>The cooling fan does not rotate.</li> <li>The ambient temperature is too high.</li> <li>The vent is blocked up.</li> <li>A heat generating device is installed close to the inverter.</li> <li>The thermistor in the unit is broken.</li> </ul>   | <ul style="list-style-type: none"> <li>Restart the operation by resetting the inverter after it has cooled down enough.</li> <li>The fan requires replacement if it does not rotate during operation.</li> <li>Secure sufficient space around the inverter.</li> <li>Do not place any heat-generating device near the inverter.</li> <li>Make a service call.</li> </ul> |
| <b>*UP1</b>       | 1E                       | Undervoltage trip (main circuit)            | <ul style="list-style-type: none"> <li>The input voltage (in the main circuit) is too low.</li> </ul>  | <ul style="list-style-type: none"> <li>Check the input voltage.</li> <li>Enable F627 (undervoltage trip selection).</li> <li>To cope with a momentary stop due to undervoltage, enable F302 (ride-through control) and F301 (auto-restart).</li> </ul>   |

**Table 16 — Trip Messages for 50BV VFD (cont)**

| ERROR CODE | COMMUNICATION NO. | PROBLEM                      | POSSIBLE CAUSES   | REMEDIES  |
|------------|-------------------|------------------------------|---|---|
| *UC        | 1D                | Small-current operation trip | • The output current falls to the low-current detection level during operation.   | <ul style="list-style-type: none"> <li>• Enable F610 (low-current detection parameter).</li> <li>• Check whether the detection level is set properly to the system. (F611 and F612)</li> <li>• If no error is found in the setting, make a service call.</li> </ul> |
| EF2        | 22h               | Ground fault trip            | • A ground fault occurs in the output cable or the motor.   | • Check the cable and the motor for ground faults.  |
| E          | 11h               | Emergency stop               | • During automatic operation or remote operation, a stop command is entered from the operation panel or a remote input device.  | • Reset the inverter.   |
| Err2       | 15h               | Main unit RAM fault          | • The control RAM is defective.   | • Make a service call.  |
| Err3       | 16h               | Main unit ROM fault          | • The control ROM is defective.   | • Make a service call.  |
| Err4       | 17h               | CPU fault trip               | • The control CPU is defective.   | • Make a service call.  |
| Err5       | 18h               | Remote control error         | • An error arises during remote operation.  | • Check the remote control device, cables, etc.   |
| EtYP       | 29h               | Inverter type error          | • The control circuit board (main circuit board or drive circuit board) is replaced.  | • Make a service call.  |
| EEP1       | 12h               | EEPROM fault                 | • A data writing error occurs.  | • Turn off the inverter, then turn it on again. If it does not recover from the error, make a service call.   |
| Etn        | 28h               | Auto-tuning error            | <ul style="list-style-type: none"> <li>• Check the settings of the motor parameters F401to F408</li> <li>• Check that the motor is not two or more sizes smaller in capacity than the inverter.</li> <li>• Check that the inverter output cable is not too thin.</li> <li>• Check that the motor is not running.</li> <li>• Check that the motor is a three-phase inductive motor.</li> </ul> |   |

\*With a parameter, you can choose between trip-on and -off.

**NOTES:**

1. During operation, the following alarms may be displayed, which have the same meaning as previously defined alarms.

- C (overcurrent alarm) — same as OC
- P (overvoltage alarm) — same as OP
- L (overload alarm) — same as OL1/OL2
- H (overheat alarm) — same as OH

2. If two or more problems arise simultaneously, one of the following alarms appears and blinks.

CP, PL, CPL

The blinking alarms, C, P, L, H are displayed in this order from left to right.



## TROUBLESHOOTING

Refer to Tables 17-21 for troubleshooting information.

**Run Test Troubleshooting** — The automatic run test is a diagnostic tool used during unit start-up. Table 17 describes troubleshooting specifically for the automated run test.

**Table 17 — Run Test Troubleshooting**

| PROBLEM   | POSSIBLE CAUSE  |
|---|---|
| Control modules do not have lights when unit power on.                                  | Transformer open. Circuit breaker open. Power wiring open. Module failure.  |
| Control display does not light up when unit power on.                                   | Connection location. Interface cable open. Display failure.   |
| Run test will not start.  | Pre-existing ALARM (red)? Not "Logged in" with password. Switch not in Local.   |
| WARN (yel) does not light during run test.  | Wiring open. Lamp failure. Control module failure.  |
| ALARM (red) does not light during run test.   | Wiring open. Lamp open. Control module failure.   |
| Run test stops, ALARM (red) light is lit after it blinks once.                          | Bypass switch to LINE. Mode switch to OFF. Duct high pressure switch open. Fire shutdown input or jumper open. Supply air temp out of range. Duct static pressure sensor out of range. Compressor resistor board wiring error or failure.                       |
| Fan does not start/ALARM (red) blinks 2 times.  | Fan relay failure.  |
| Run test stop, ALARM (red) light is lit after blinking 3 times.                         | Wiring open. VFD connection error. VFD setup error. Fan relay failure. Current isolator failure. Control module failure.  |
| Run test stop, ALARM (red) is lit after it blinks 4 times. Fan does not increase speed. | VFD connection error. VFD setup error. Current isolator load adjustment too low.  |
| Fan does not stop after ALARM (red) blinks 5 times.                                     | Fan relay failure.  |
| Fan rotation is backwards.  | VFD to motor wiring sequence error. VFD setup error.  |
| Run test stop, ALARM (red) is lit after blinking 6 times. Compressor 1 does not start.  | Wiring open. Compressor resistor board wiring error or failure. High-pressure switch, low-pressure switch, coil frost switch, or compressor protection module open. Compressor relay failure. Contactor failure. Control module failure. No refrigerant charge. |
| Run test stop, ALARM (red) is lit after blinking 7 times. Compressor 2 does not start.  | Wiring open. Compressor resistor board wiring error or failure. High-pressure switch, low-pressure switch, coil frost switch, or compressor protection module open. Compressor relay failure. Contactor failure. Control module failure. No refrigerant charge. |
| Run test stop, ALARM (red) is lit after blinking 8 times. Compressor 3 does not start.  | Wiring open. Compressor resistor board wiring error or failure. High-pressure switch, low-pressure switch, coil frost switch, or compressor protection module open. Compressor relay failure. Contactor failure. Control module failure. No refrigerant charge. |
| Run test stop, ALARM (red) is lit after blinking 9 times. Compressor 4 does not start.  | Wiring open. Compressor resistor board wiring error or failure. High-pressure switch, low-pressure switch, coil frost switch, or compressor protection module open. Compressor relay failure. Contactor failure. Control module failure. No refrigerant charge. |
| Compressor rotation is backwards.   | Field power wiring sequence error. Compressor power wiring sequence error.  |
| "C" message in I/O status display.  | No input signal/communication failure.  |
| "Service" message in I/O status display.  | Value is forced from 6400 keypad entry.   |
| "Supervisor" message in I/O status display.   | Value is forced from network communication (i.e., PC).  |
| ALARM (red) always on, will not enter run test.   | SAT, DSP, CSMUX, DHS, or PHASE input values out of range. Mode switch OFF.  |

**Forcing and Clearing an Input or Output** — During unit operation and/or troubleshooting, it may be necessary or desirable to clear an input or output. Tables 18 and 19 describe the procedure for clearing inputs and outputs.

**Table 18 — Forcing an Input or Output**

| STEP # INSTRUCTION/ACTION                               | RESULT  |
|---|---|
| 1. Press 3, SET, ENTER                                  | "Controller Password"                         |
| 2. Press ENTER  | "Log in to Controller" "Enter Password"       |
| 3. Press 1111, ENTER                                    | "Log in to Controller" "Logged in"            |
| 4. Press STAT   | "Hardware Points"                             |
| 5. Press ENTER  | "Supply Air Temperature"                      |
| 6. Press down arrow to obtain desired item              | (NOTE: order is PCB1 I/O, PCB2 I/O, PCB3 I/O) |
| 7. Key in force value (1=on/start, 0 = off/stop), ENTER | force value/status "Service"                  |

**Table 19 — Clearing a Forced Input or Output**

| STEP # INSTRUCTION/ACTION                  | RESULT  |
|--|---|
| 1. Press 3, SET, ENTER                     | "Controller Password"                           |
| 2. Press ENTER                             | "Log in to Controller" "Enter Password"         |
| 3. Press 1111, ENTER                       | "Log in to Controller" "Logged in"              |
| 4. Press STAT                              | "Hardware Points"                               |
| 5. Press ENTER                             | "Supply Air Temperature"                        |
| 6. Press down arrow to obtain desired item | (NOTE: order is PCB1 I/O, PCB2 I/O, PCB3 I/O)   |
| 7. Press CLEAR, ENTER                      | auto value/status (NOTE "Service" must be gone) |

**Table 20 — Alarms Displayed at Unit LID**

| <b>FUNCTION</b>                                | <b>ALARM MESSAGE (Actual Text)</b>   | <b>CAUSE</b>   | <b>UNIT RESPONSE (See Notes)</b>   | <b>RESET</b> |
|--|--|--|--|--------------|
| <b>SAT</b>                                     | SAT xx.x dF outside limit of xxx.x dF  | SAT reads out of prescribed range for 5 sec. during operation  | Unit shuts down and indicates alarm  | Automatic    |
| <b>DSP_ALM</b>                                 | Duct Static Sensor Failure   | Duct Pressure Sensor reading is out of range (i.e., likely faulty sensor or circuit).  | Unit shuts down, indicates alarm   | Automatic    |
| <b>FSD</b>                                     | Fire Shutdown  | External Fire Alarm input opens for 5 sec.   | Unit shuts down, indicates alarm   | Automatic    |
| <b>DHS</b>                                     | Duct High Static Pressure  | Pressure rises above 3.0 in.H2O during operation. Set point adjustable on the switch. Used for Off position of switch on smaller units with one controller | Unit shuts down, indicates alarm   | Automatic    |
| <b>CSMUX</b>                                   | CSMUX x.xx Volts outside limit of x.xx Volts   | Compressor safety circuit Resistor Board reads out of prescribed range for 5 sec. during operation   | Unit shuts down and indicates alarm  | Automatic    |
| <b>CDWF</b>                                    | Check Condenser Water Flow   | Waterflow Switch contacts are open at startup, or go open for 5 sec. during operation.   | Compressor Cooling shuts down, locks out and indicates warning   | Automatic    |
| <b>FLTS</b>                                    | Change Filters   | Filter pressure drop exceeds Filter Pressure Switch setting (and contacts open) for 5 sec.   | Unit operates normally, but still indicates Warning  | Automatic    |
| <b>FREEZ</b>                                   | Economizer Freeze Condition  | Economizer Freeze Switch contacts for 5 sec. open during operation.  | Warning indicated for 15 minutes turns off ventilation request, then unit shuts down and Econo valve opens, pump request stays on, and Alarm indicated | Automatic    |
| <b>C1_ALM<br/>C2_ALM<br/>C3_ALM<br/>C4_ALM</b> | Compressor 1 Fault<br>Compressor 2 Fault<br>Compressor 3 Fault<br>Compressor 4 Fault | Compressor safety circuit opens for 2 sec.   | Unit shuts that compressor down, and indicates Warning, but retries 2 more times before locking it out.  | Automatic    |
| <b>SFS</b>                                     | Check Supply Fan   | Duct Pressure Sensor reading is below .3 in. H2O at 10 sec. after starting fan, or during operation, or reads above .3" when fan is supposed to be Off.    | If on but indicates off cooling, and heating will be disabled warning light will be on   | Automatic    |
| <b>EWT</b>                                     | EWT xx.x dF outside limit of xxx.x dF  | EWT reads out of prescribed range for 5 sec. or more   | Indicates warning  | Automatic    |
| <b>MA_RA</b>                                   | MA_RA xx.x dF outside limit of xxx.x dF  | ma_ra reads out of prescribed range for 5 sec. or more   | Indicates warning  | Automatic    |
| <b>PHASE</b>                                   | Phase Loss   | Phase monitor activates (see "Phase Loss/Reversal Protection Switch" on page 5) for 5 sec. during operation.   | Unit shuts down, indicates alarm   | Automatic    |
| <b>BYPAS</b>                                   |  | BYPAS switch in Bypass position or Off, local remote in Off position   |  |              |

**NOTES:**

1. Unit display will indicate alarm by displaying "There is 1 Alarm" or "There are X alarms", for the active alarms in the controller.
2. Red light on, indicating alarm.
3. Yellow light is on, indicating a warning.

**Standard Diagnostic Features, Alarm and Warning Lights**

**SUPPLY AIR TEMPERATURE SENSOR FAILURE** — If the supply air temperature sensor fails and indicates either 245 F from a short or -40.0 F from and open sensor the controller outputs will be forced to off with safety forces, the alarm output will close and the red Alarm light will be lit. A system alarm will be generated and displayed on the unit keypad. Unit reset is automatic when the supply air sensor has a valid reading again.

**DUCT STATIC PRESSURE SENSOR FAILURE** — If the duct static pressure sensor fails and indicates either 5.0 inches from a short or 0.0 inches from and open sensor the controller outputs will be forced to off with safety forces, the alarm output will close and the red Alarm light will be lit. A system alarm will be generated and displayed on the unit keypad. Unit reset is automatic when the supply air sensor has a valid reading again.

**FIRE/SHUTDOWN INPUT (FSD)** — This is a normally closed input, which when opened, deenergizes an isolation relay in the unit, opening the input to the controller. When this input turns opens, all control outputs are immediately turned off, including the fan. Fire forces will be displayed on the outputs. Unit reset is automatic when the FSD input is closed

again. A system alarm will be generated and displayed at the keypad.

**DUCT HIGH STATIC INPUT (DHS)** — This air switch provides over pressurization protection for the ductwork. It is factory installed in the unit. The switch is a normally open switch, with adjustable manual setting (range is 1 to 5 in. wg default setting is 3.0 in. wg). Upon switch closure, the controller outputs will be forced to off with safety forces, the alarm output will close and the red Alarm light will be lit. A system alarm will be generated and displayed on the unit keypad. Unit reset is automatic when the duct pressure is again below the switch setting minus the device hysteresis.

**COMPRESSOR MULTIPLEX (MUX) BOARD** — A resistance board is used to generate a variable voltage input to the controller to determine compressor status. If the voltage output from this board gets out of the acceptable range the controller outputs will be forced to off with safety forces, the alarm output will close and the red Alarm light will be lit. A system alarm will be generated and displayed on the unit keypad. Unit reset is automatic when the Mux board has a valid reading again. The valid range is between 1.5 and 10 vdc. The table below indicates what voltages correspond to the compressor status indicated in the controller.

**Table 21 — Compressor MUX Board Voltages**

| COMP    | VOLTS | RANGE                                      |
|---------|-------|--|
| None    | 1.86  | $1.50 < V < .95$                           |
| 1       | 2.88  | last val $\leq V < 2.95$                   |
| 2       | 3.59  | last val $\leq V < 3.68$                   |
| 1,2     | 4.44  | last val $\leq V < 4.55$                   |
| 3       | 5.13  | last val $\leq V < 5.25$                   |
| 4       | 5.71  | last val $\leq V < 5.85$<br>and CMP4 is on |
| 1,3     | 5.85  | last val $\leq V < 5.99$                   |
| 1,4     | 6.39  | last val $\leq V < 6.51$<br>and CMP4 is on |
| 2,3     | 6.36  | last val $\leq V < 6.54$                   |
| 2,4     | 6.87  | last val $\leq V < 7.03$<br>and CMP4 is on |
| 1,2,3   | 6.99  | last val $\leq V < 7.15$                   |
| 1,2,4   | 7.46  | last val $\leq V < 7.63$                   |
| 3,4     | 7.94  | last val $\leq V < 8.11$                   |
| 1,3,4   | 8.45  | last val $\leq V < 8.58$                   |
| 2,3,4   | 8.81  | last val $\leq V < 8.99$                   |
| 1,2,3,4 | 9.26  | $V > 8.99$                                 |

**CONDENSER WATER FLOW** — This is an optional switch that can be used with the OMNIZONE™ controller. A thermal dispersion flow switch detects water flowing past the sensor element and closes normally open contacts that energize a relay with normally open contacts to the unit controller. If no flow switch is installed, a jumper must be in place to indicate that there is water flow all the time in order for the economizer and compressors to operate. A configuration decision is used to indicate if a flow switch is installed and disable alarms from the flow switch. When the flow switch is installed, the controller will check for water flow when flow is requested for unit operation. The controller will also test or to see if there is water flow when the unit is not operating. If there is no flow when the unit is operating or if there is flow when the unit is not operating, the warning relay will energize and the yellow light will be lit. If only loss of flow indication is desired, the configuration for the flow switch may be set to no and the controller will only energize the warning relay and turn on the yellow light if there is a loss of flow while the unit is in operation.

**DIRTY FILTERS INPUT** — This air pressure delta switch is factory installed in the 50XJ unit. It receives 5 vdc from the unit controller and monitors air pressure delta across the return air filters. Switch is normally open, with manually adjustable setting at the switch between 0.5 to 1.5 in. wg. Upon closure, controller should wait to assure closure for minimum 1 minute, and then indicate an alarm both via its Alarm Output and via communications. However, all other unit operation should remain normal.

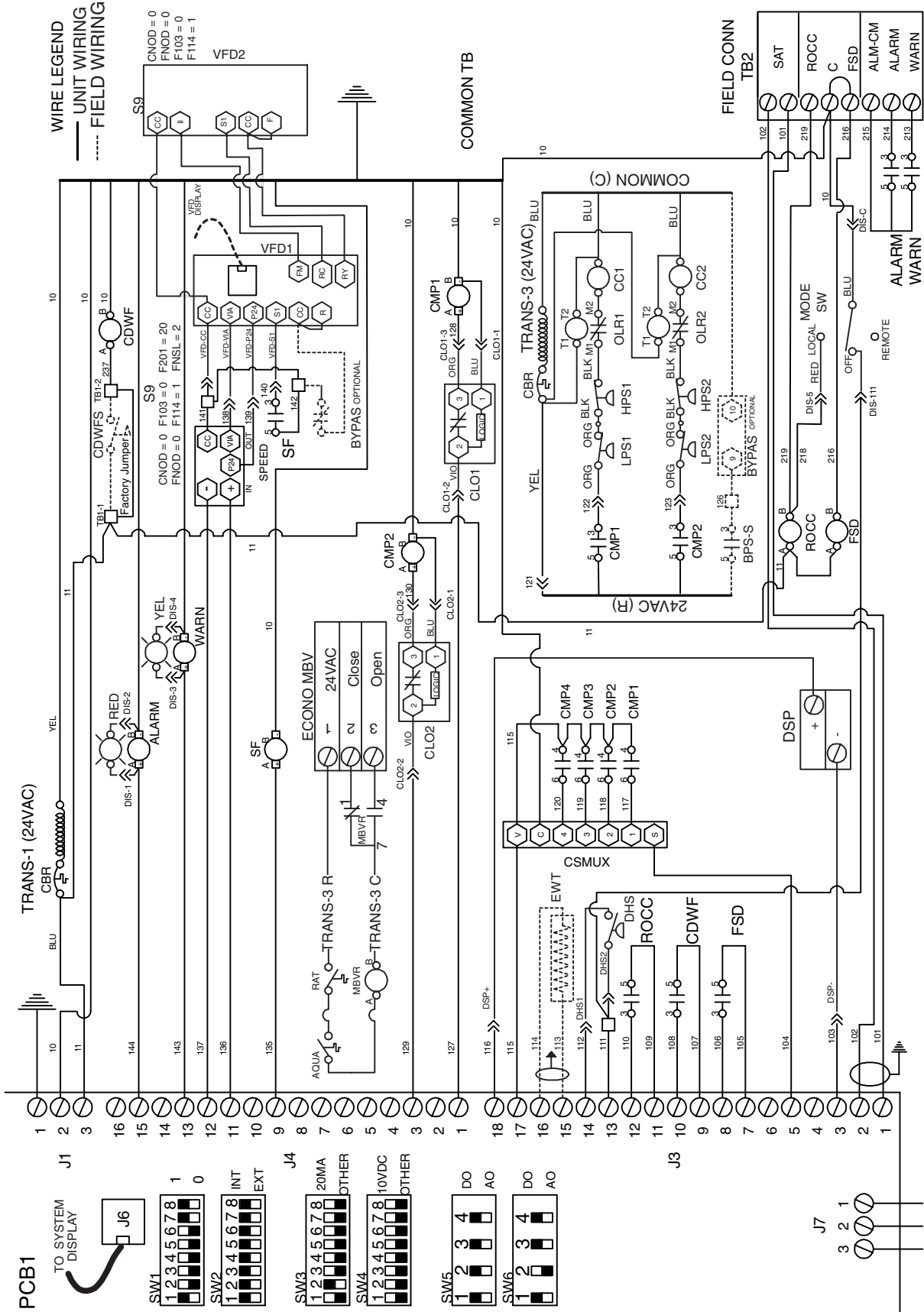
A phase loss reversal switch may be installed in the unit to detect over, under voltage conditions and phase loss or reversal. Upon switch opening, the controller outputs will be forced to off with safety forces, the alarm output will close and the red Alarm light will be lit. A system alarm will be generated and displayed on the unit keypad. Unit reset is automatic when the voltage and power phases have been restored.

**ECONOMIZER COIL FREEZE PROTECTION SWITCH** — This switch is installed in the 50XJ unit when the economizer coil is provided. In the event the freeze protection switch contacts open, the ventilation request output will be closed for 15 minutes and the Warning light will light. If the freeze protection switch contacts are still open after 15 minutes, the supply fan will be stopped, all compressor cooling will stop, the economizer valve will open to 100%, the pump request output will remain on, and the Alarm light will light. This will maintain condenser water flow through the coil to prevent freezing the coil while stopping all other operations that could have contributed or will be affected by the freeze condition. Unit reset is automatic when the contacts on the freeze protection switch close again. The contacts on the freeze protection switch open below 37 F.

**SUPPLY FAN STATUS** — Supply fan status is determined by the duct static pressure sensor. If the fan is operating and a fan speed signal is sent to the variable frequency drive, the duct static pressure must become greater than the supply fan status high set point (SETPT01) for the supply fan status software point to turn on. When the duct static pressure becomes lower than the supply fan status low set point, the supply fan status will indicate OFF. If at any time the commanded state of the supply fan does not agree with the supply fan status for more than a minute, a supply fan status warning will be issued and the warning light will be lit.

**COMPRESSOR STATUS** — Compressor status is determined from the compressor MUX voltage input to the OMNIZONE controller. If at any time the compressor status indicates off for more than 30 seconds when the compressor commanded state is on, the compressor will be turned off with a safety force and the controller will try to start the compressor after five minutes. If the compressor status does not indicate on for more than 30 seconds then the compressor will be turned off again with a safety force for ten minutes. The controller will then try to restart the compressor a second time. If the compressor status does not come on within 30 seconds the compressor will be turned off for 15-minutes this time. After the 15-minute delay the controller will try to restart the compressor for a third time. If the compressor does not start it will be locked out for this operating cycle and will not be restarted until the OMNIZONE controller goes through an off cycle where the cooling and supply fan are shut down. When the compressor is going through the three restarts or when it is locked out the Warning light will be lit and the specific compressor alarm will be indicated on the display and via communications. The three strikes compressor test is reset automatically if the compressor status comes on while the compressor is on.

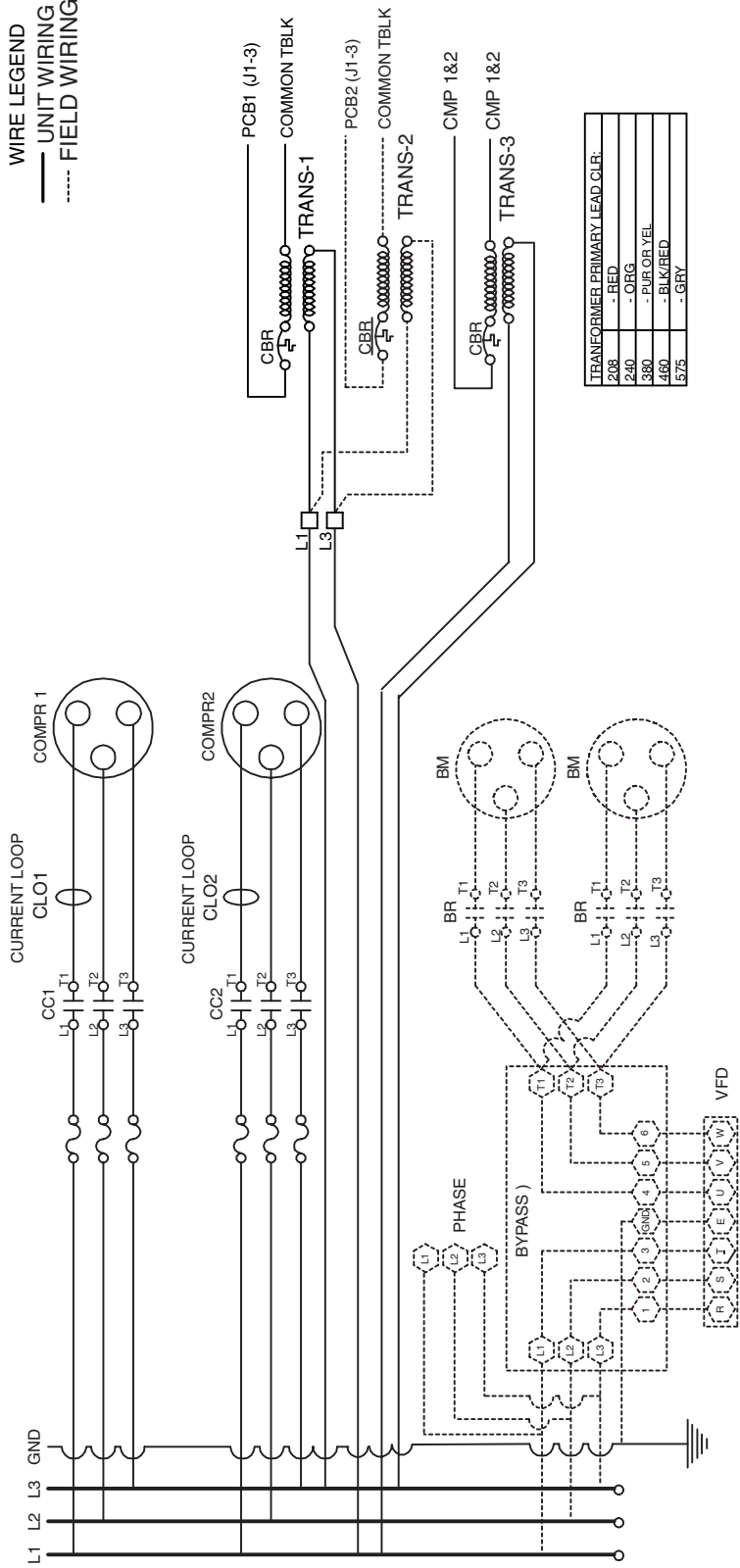
# APPENDIX A — WIRING DIAGRAMS



NOTES:  
 JUMPER INSTALLED FOR THIS DEVICE WHEN NOT SUPPLIED.  
 SEE W/D NUMBER CNTL0038C-EM FOR HIGH VOLTAGE WIRING.  
 SEE W/D NUMBER CNTL0038D FOR LEGEND.

**50BVJ,K Low Voltage Schematic**

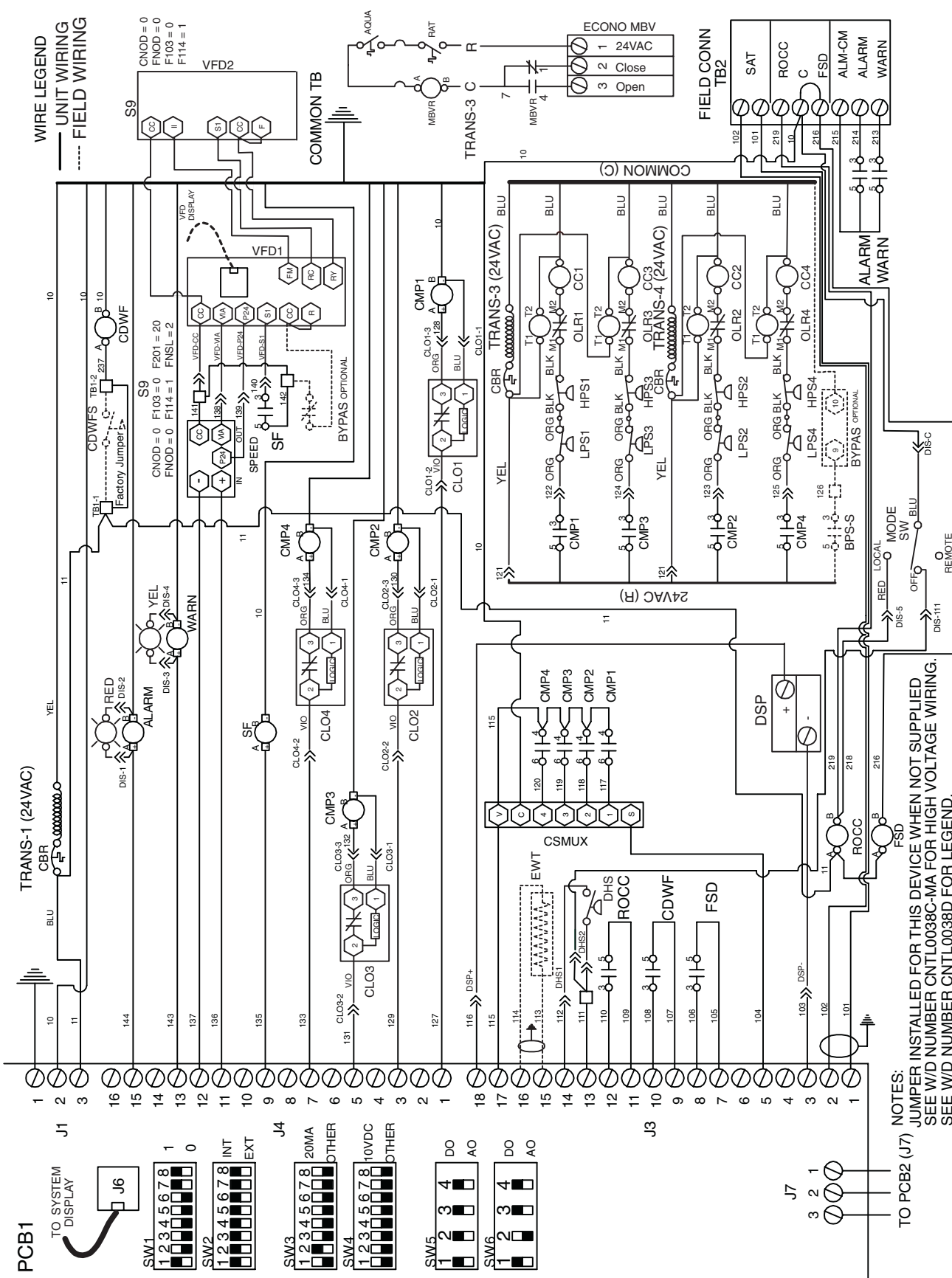
WIRE LEGEND  
 — UNIT WIRING  
 - - - - FIELD WIRING



| TRANSFORMER PRIMARY LEAD CLR. |              |
|-------------------------------|--------------|
| 208                           | - RED        |
| 240                           | - ORG        |
| 380                           | - PUR OR VEL |
| 460                           | - BLK/FED    |
| 575                           | - GRY        |

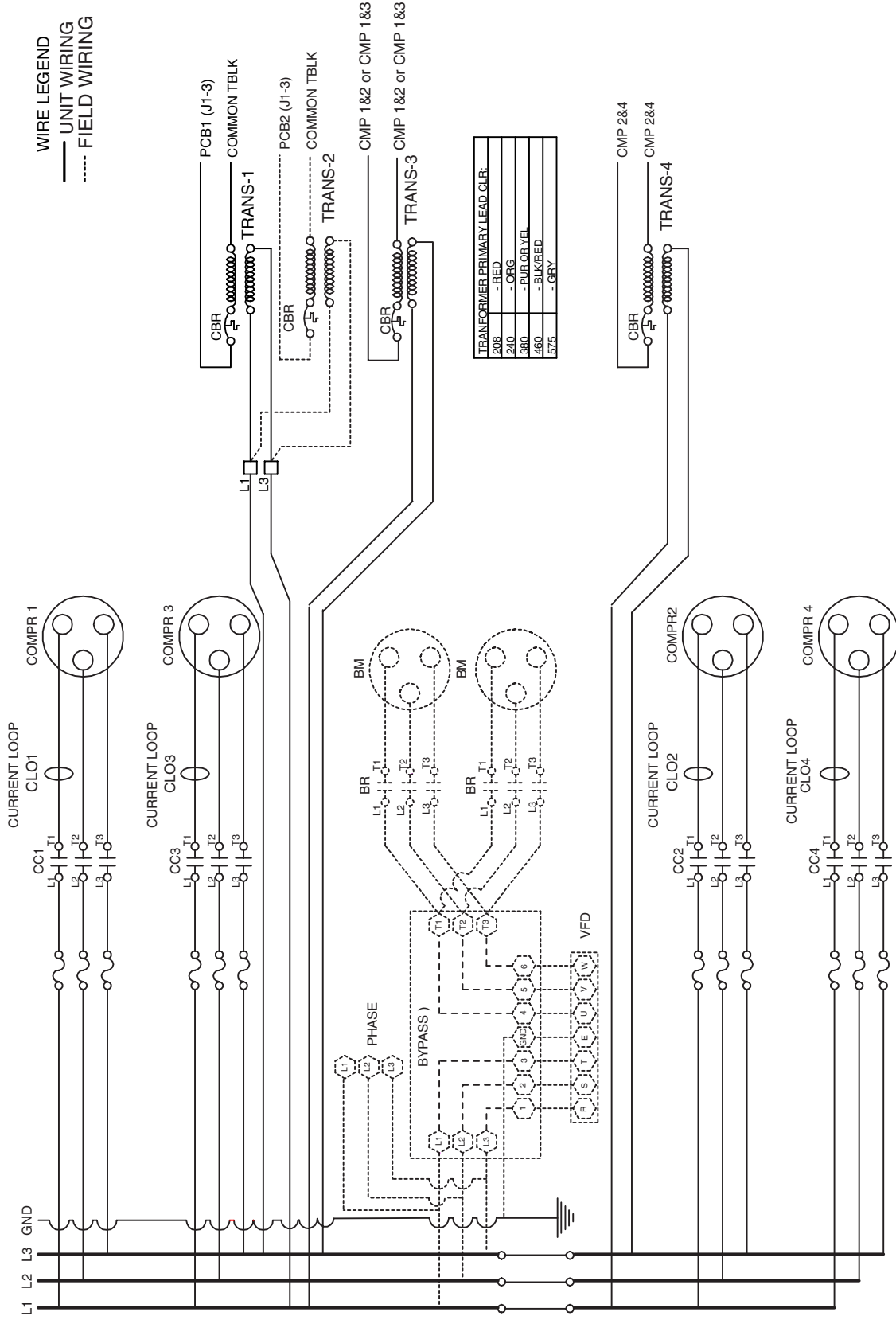
NOTES:  
 SEE W/D NUMBER CNTL0038A-EM FOR PCB1 LOW VOLTAGE WIRING.  
 SEE W/D NUMBER CNTL0038B FOR PCB2 LOW VOLTAGE WIRING.  
 SEE W/D NUMBER CNTL0038D FOR LEGEND.

**50BVJ,K High Voltage Schematic**



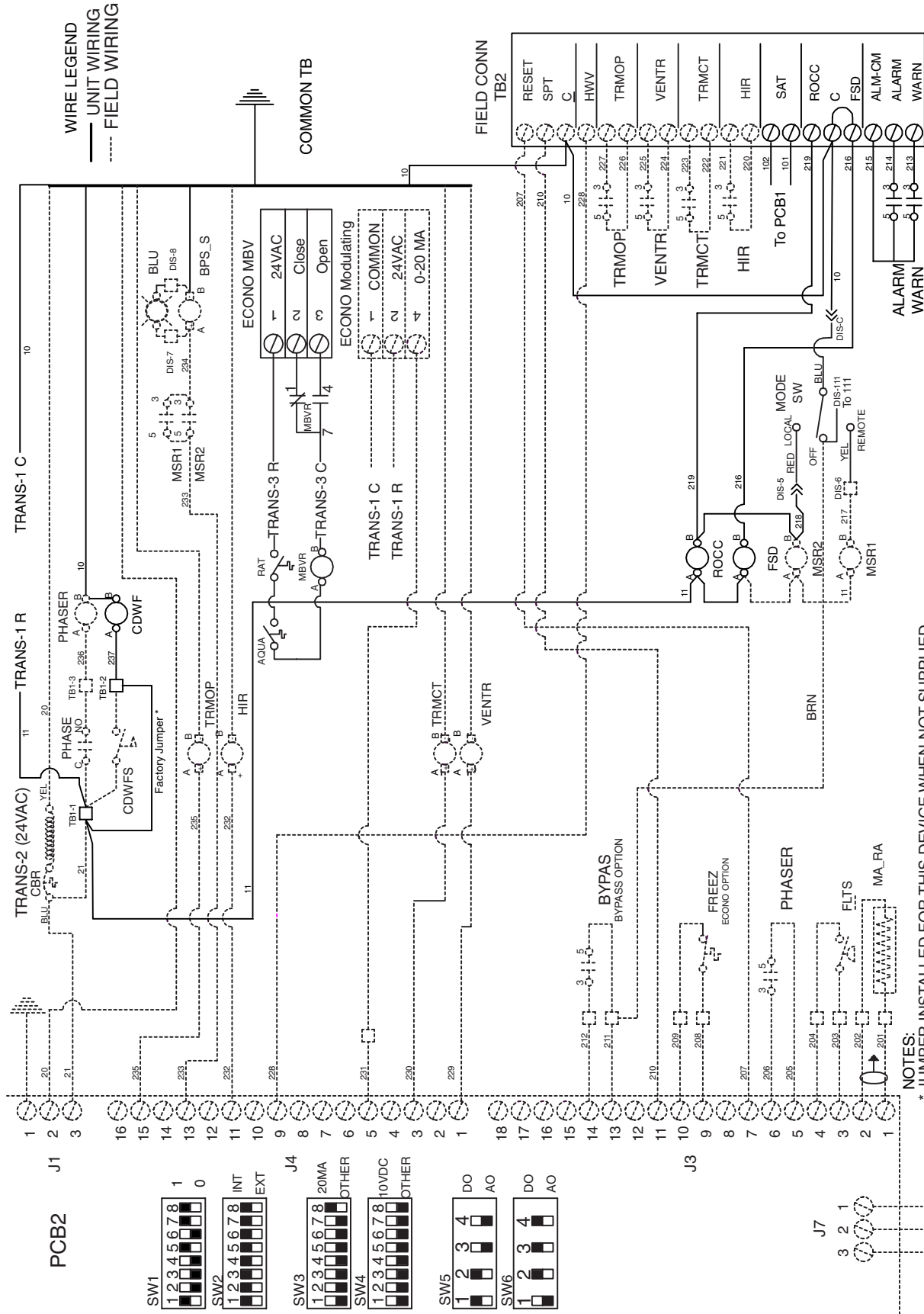
**50BWV,X Low Voltage Schematic**

NOTES:  
 JUMPER INSTALLED FOR THIS DEVICE WHEN NOT SUPPLIED  
 SEE W/D NUMBER CNTL0038C-MA FOR HIGH VOLTAGE WIRING.  
 SEE W/D NUMBER CNTL0038D FOR LEGEND.



NOTES:  
 SEE W/D NUMBER CNTL0038A-MA FOR PCB1 LOW VOLTAGE WIRING.  
 SEE W/D NUMBER CNTL0038B FOR PCB2 LOW VOLTAGE WIRING.  
 SEE W/D NUMBER CNTL0038D FOR LEGEND.

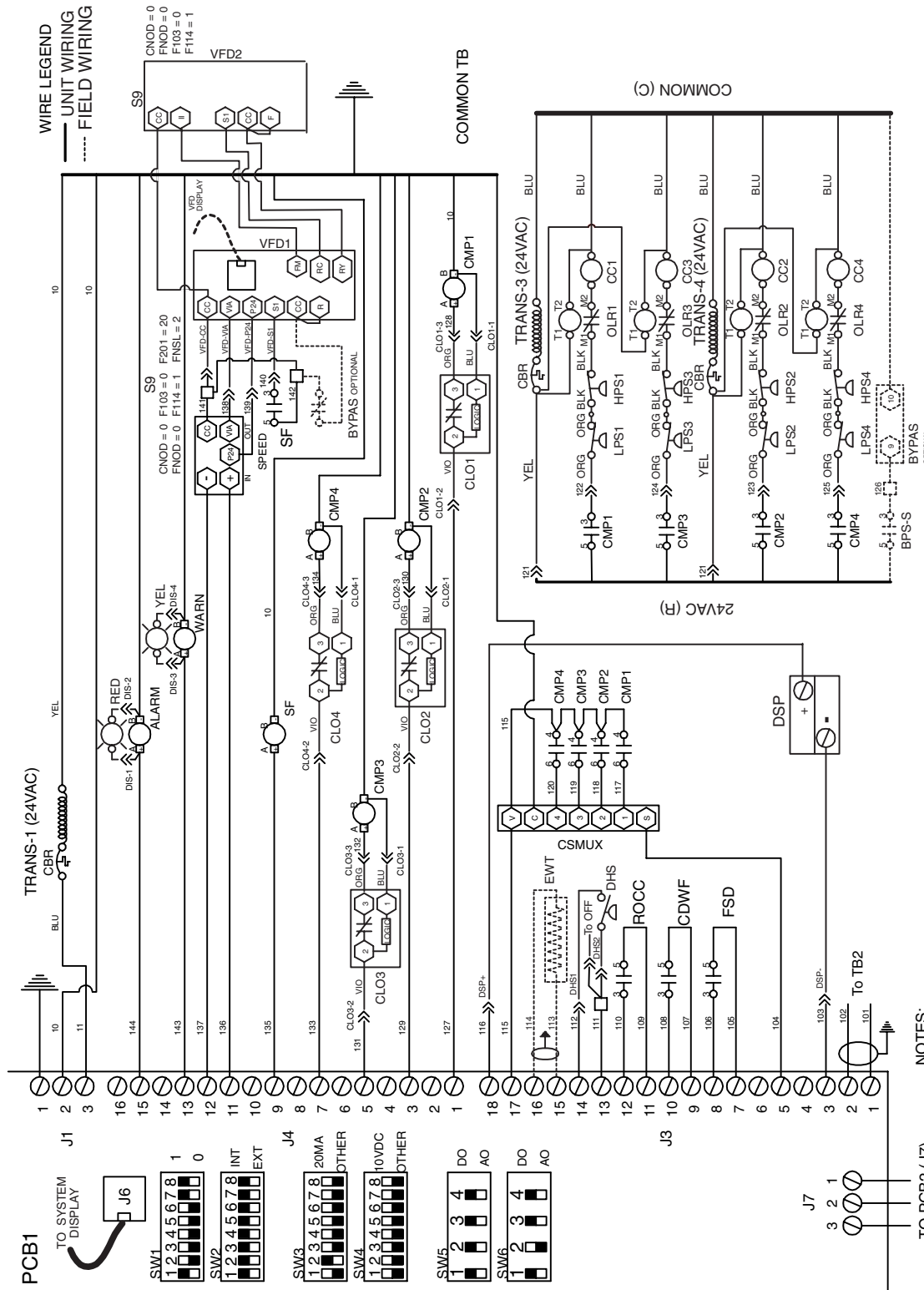
**50BVW,X High Voltage Schematic**



**50BVJ,K,W,X Field-Installed Low Voltage Schematic**







NOTES:  
 SEE W/D NUMBER CNTL0038B FOR PCB2 LOW VOLTAGE WIRING.  
 SEE W/D NUMBER CNTL0038C-MA FOR HIGH VOLTAGE WIRING.  
 SEE W/D NUMBER CNTL0038D FOR LEGEND.

**50BVW,X Field-installed Low Voltage Schematic**

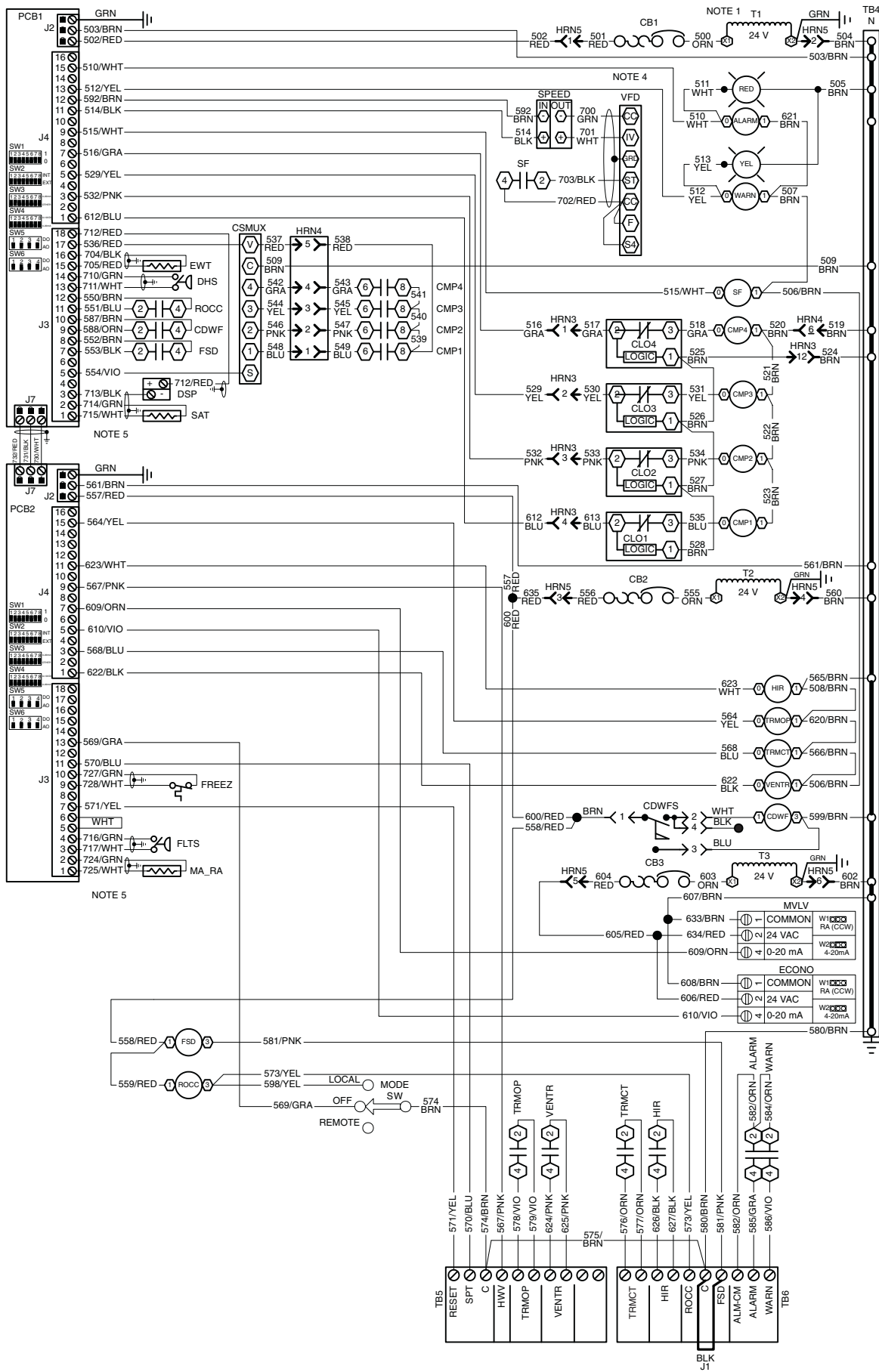
## LEGEND AND NOTES FOR ALL 50BV WIRING DIAGRAMS

### LEGEND

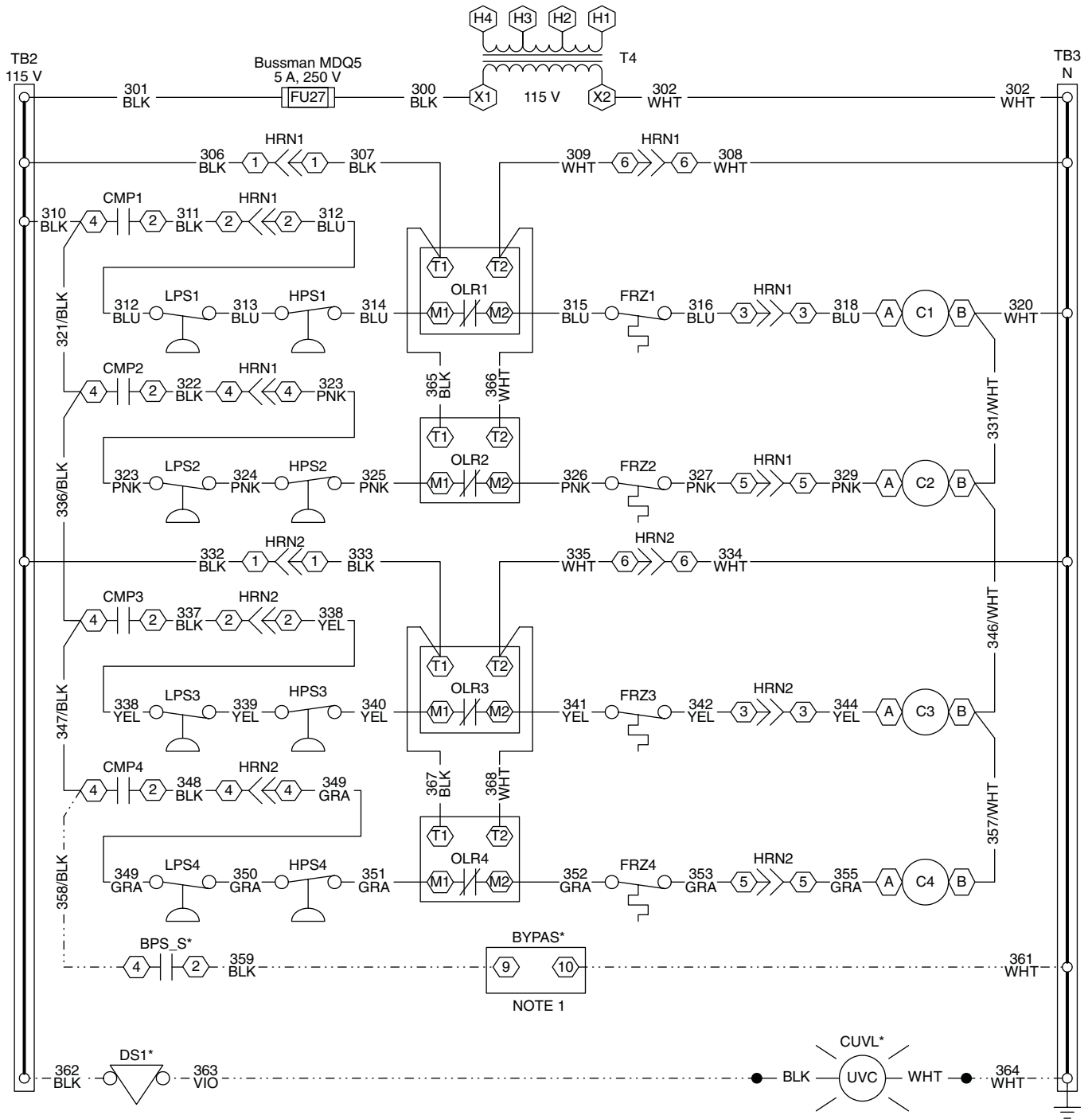
|   |   |   |
|---|---|---|
| <b>ALARM</b> — Unit Alarm Relay (Critical Fault)      | <b>ECONO</b> — Economizer Valve/Damper Control      | <b>RESET</b> — External Reset                         |
| <b>ALM-CM</b> — Alarm/Warning Relay Common            | <b>EWT</b> — Entering Water Temp. Sensor            | <b>ROCC</b> — Remote Occupancy                        |
| <b>AO</b> — Analog Output                             | <b>FLTS</b> — Filter Status Switch                  | <b>SAT</b> — Supply Air Temp. Sensor                  |
| <b>AQUA</b> — Aquastat                                | <b>FREEZ</b> — Freeze Thermostat (Water Economizer) | <b>SPT</b> — Space/Zone Temperature Sensor            |
| <b>BM</b> — Blower Motor                              | <b>FRZ</b> — Freeze Thermostat (DX Circuit)         | <b>SF</b> — Supply Fan Start/Stop Relay               |
| <b>BPS_S</b> — Fan Start/Stop Relay (VFD Bypass Mode) | <b>FSD</b> — Fire Alarm/Shutdown                    | <b>SPEED</b> — 0-10 VDC Signal Isolator for VFD       |
| <b>BR</b> — Blower Relay                              | <b>GND</b> — Ground                                 | <b>SW</b> — Switch                                    |
| <b>BYPAS</b> — VFD Bypass Control                     | <b>HIR</b> — Heat Interlock Relay                   | <b>T</b> — Transformer                                |
| <b>CBR</b> — Circuit Breaker                          | <b>HPS</b> — High Refrigerant Pressure Switch       | <b>TB2</b> — Terminal Block for Field Connections     |
| <b>CC</b> — Compressor Contactor                      | <b>HWV</b> — Hot Water Valve                        | <b>TRANS</b> — Transformer                            |
| <b>CDWF</b> — Condenser Waterflow Relay               | <b>LPS</b> — Low Refrigerant Pressure Switch        | <b>TRMCT</b> — VAV Terminals Control                  |
| <b>CDWFS</b> — Condenser Waterflow Switch             | <b>MA_RA</b> — Mixed/Return Air Temp. Sensor        | <b>TRMOP</b> — VAV Terminals Open                     |
| <b>CLO</b> — Compressor Lockout Control               | <b>MBVR</b> — Motorized Ball Valve Relay            | <b>VENTR</b> — Ventilation Output                     |
| <b>CMP</b> — Compressor Control Relay                 | <b>MSR</b> — Local/Remote Control Relays            | <b>VFD</b> — Variable Frequency Drive                 |
| <b>COMPR</b> — Compressor                             | <b>OLR</b> — Compressor Motor Protector             | <b>WARN</b> — Unit Warning Relay (Non-Critical Fault) |
| <b>CSMUX</b> — Signal Multiplexer-Comp Status         | <b>PCB1</b> — Unit Control Board                    | — Unit Wire   |
| <b>DEHUM</b> — External Dehumidification              | <b>PCB2,3</b> — I/O Expansion Board                 | — Field Wiring  |
| <b>DHS</b> — Duct High Static Limit Switch            | <b>PHASE</b> — Phase/Rotation Monitor               |   |
| <b>DO</b> — Digital Output                            | <b>PHASER</b> — Phase Monitor Relay                 |   |
| <b>DSP</b> — Duct Static Pressure Transducer          | <b>RAT</b> — Return Air Thermostat                  |   |

#### NOTES:

1. Partial wiring shown on both power and control diagrams.
2. Class 2 transformer TRANS-1 is wired into separate circuit. Do not interconnect other transformers or circuits; circuit separation or compressor transformers from low voltage control panel transformers shall be maintained.
3. Shielded wire shall have drain wire connected to VFD ground screw. The floating end of the drain wire shall be insulated.
4. Shielded wire shall have drain wire connected to the control panel, adjacent to the PCB. The floating end of the drain wire shall be insulated.



50XJ Low Voltage Control Wiring



SWITCH SETTINGS

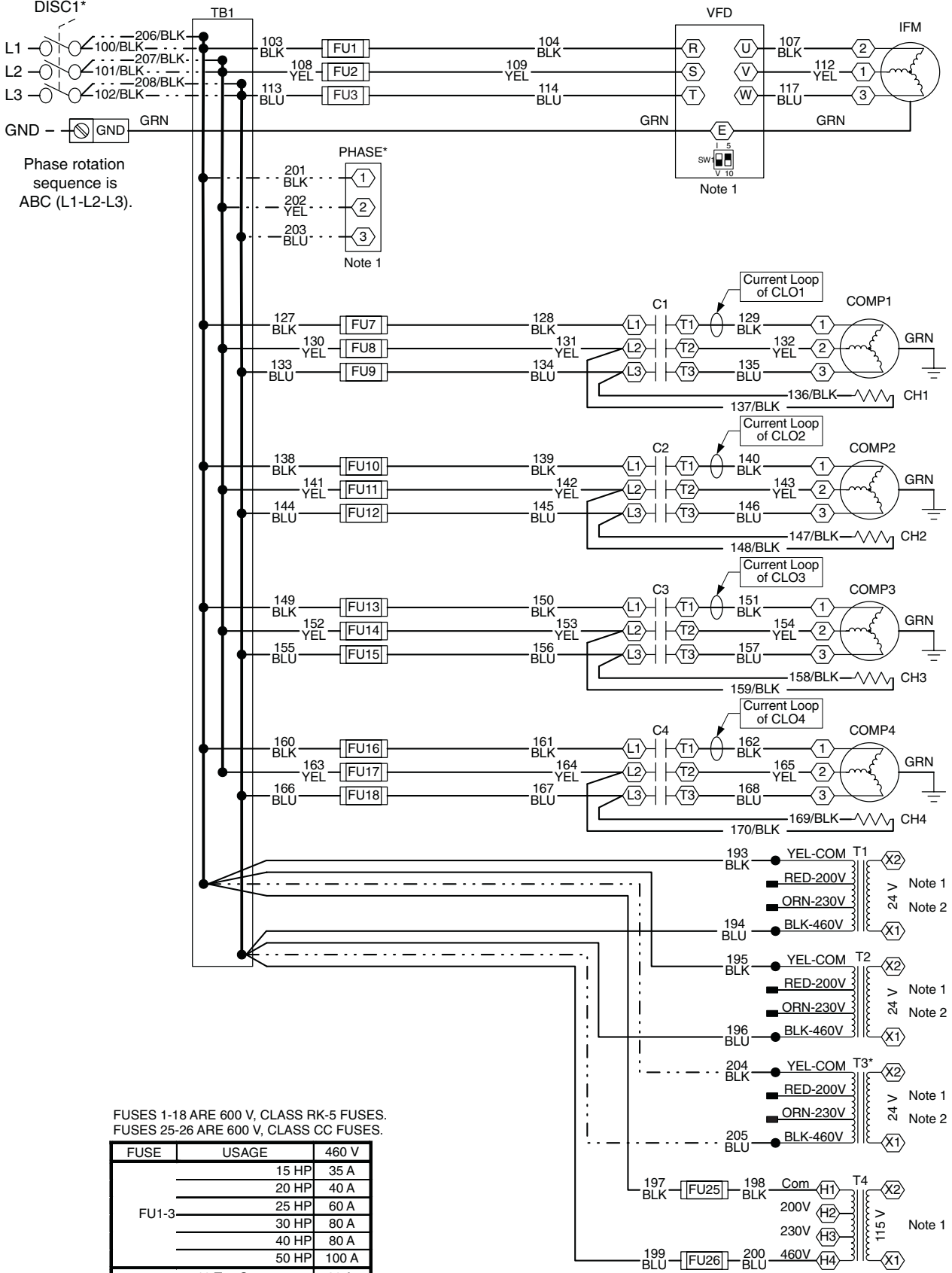
| ID     | Open            | Close           |
|--------|-----------------|-----------------|
| FRZ1-4 | 30 +/- 5 °F     | 45 +/- 6 °F     |
| HPS1-4 | 360 +/- 10 PSIG | 264 +/- 15 PSIG |
| LPS1-4 | 27 +/- 4 PSIG   | 67 +/- 7 PSIG   |

50XJ 115V Control Wiring

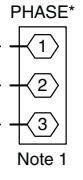
USE COPPER SUPPLY WIRES.

POWER WIRING

50XJ - 460 V Unit



Phase rotation sequence is ABC (L1-L2-L3).

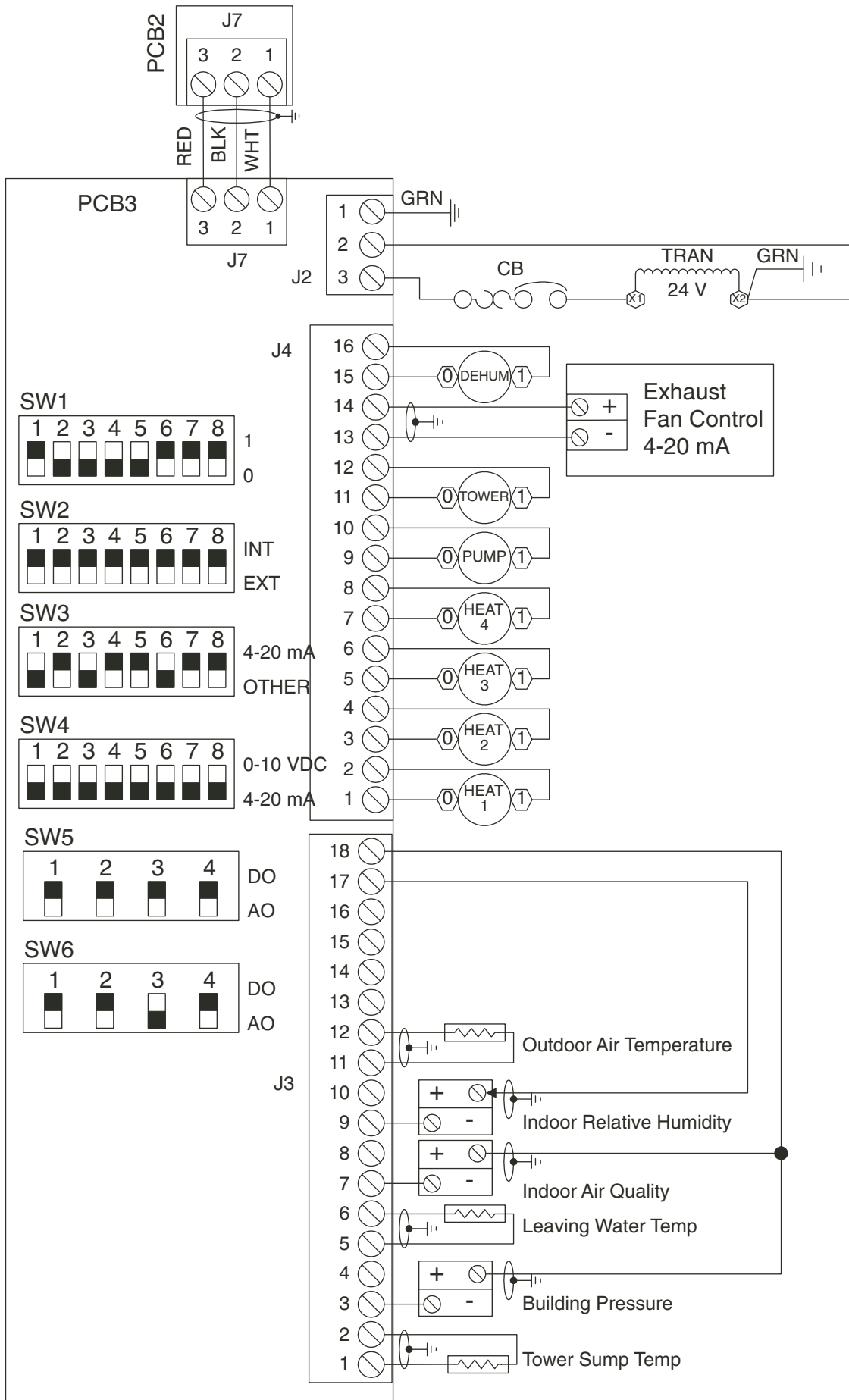


Note 1

FUSES 1-18 ARE 600 V, CLASS RK-5 FUSES.  
 FUSES 25-26 ARE 600 V, CLASS CC FUSES.

| FUSE     | USAGE             | 460 V |
|----------|-------------------|-------|
| FU1-3    | 15 HP             | 35 A  |
|          | 20 HP             | 40 A  |
|          | 25 HP             | 60 A  |
|          | 30 HP             | 80 A  |
|          | 40 HP             | 80 A  |
| FU 7-18  | 50 HP             | 100 A |
|          | 10 Ton Compressor | 30 A  |
|          | 13 Ton Compressor | 40 A  |
|          | 15 Ton Compressor | 40 A  |
|          | 20 Ton Compressor | 50 A  |
| FU 25-26 | 25 Ton Compressor | 60 A  |
|          |                   | 3 A   |

50XJ Power Wiring



50BV,XJ Accessory Control Module (PCB3) Schematic



## LEGEND AND NOTES FOR ALL 50XJ WIRING DIAGRAMS

### LEGEND

|   |   |  |
|---|---|--|
| <b>ALARM</b> — Unit Alarm Relay (Critical Fault)      | <b>FREEZ</b> — Freeze Thermostat (Water Economizer)   | <b>SAT</b> — Supply Air Temp. Sensor                     |
| <b>ALM-CM</b> — Alarm/Warning Relay Common            | <b>FRZ</b> — Freeze Thermostat (DX Circuit)           | <b>SPT</b> — Space/Zone Temperature Sensor               |
| <b>BPS_S</b> — Fan Start/Stop Relay (VFD Bypass Mode) | <b>FSD</b> — Fire Alarm/Shutdown                      | <b>SF</b> — Supply Fan Start/Stop Relay                  |
| <b>BYPAS</b> — VFD Bypass Control                     | <b>FU</b> — Fuse                                      | <b>SPEED</b> — 0-10 VDC Signal Isolator for VFD          |
| <b>C</b> — Compressor Contactor                       | <b>GND</b> — Ground                                   | <b>SW</b> — Switch                                       |
| <b>CB</b> — Circuit Breaker                           | <b>HEAT</b> — Electric Heat Stage Control             | <b>T</b> — Transformer                                   |
| <b>CDWF</b> — Condenser Waterflow Relay               | <b>HIR</b> — Heat Interlock Relay                     | <b>TB1</b> — Power Distribution Terminal Block           |
| <b>CDWFS</b> — Condenser Waterflow Switch             | <b>HPS</b> — High Refrigerant Pressure Switch         | <b>TB2</b> — 120 V-Hot Terminal Block                    |
| <b>CH</b> — Crankcase Heater                          | <b>HRN</b> — Harness                                  | <b>TB3</b> — 120 V-Neutral Terminal Block                |
| <b>CLO</b> — Compressor Lockout Control               | <b>HWV</b> — Hot Water Valve                          | <b>TB5-7</b> — Terminal Blocks for Field Connections     |
| <b>CMP</b> — Compressor Control Relay                 | <b>IFM</b> — Indoor Fan Motor                         | <b>TOWE</b> — Tower Request                              |
| <b>COMP</b> — Compressor                              | <b>J</b> — Jumper Wire                                | <b>R</b> —   |
| <b>CSMUX</b> — Signal Multiplexer-Comp Status         | <b>LPS</b> — Low Refrigerant Pressure Switch          | <b>TRMCT</b> — VAV Terminals Control                     |
| <b>CUVL</b> — UVC Light For Indoor Coil Area          | <b>MA_RA</b> — Mixed/Return Air Temp. Sensor          | <b>TRMOP</b> — VAV Terminals Open                        |
| <b>DEHUM</b> — External Dehumidification              | <b>MVLV</b> — Modulating Valve (Econ)/Heat Pres. Ctl. | <b>VENTR</b> — Ventilation Output                        |
| <b>DHS</b> — Duct High Static Limit Switch            | <b>OLR</b> — Compressor Motor Protector               | <b>VFD</b> — Variable Frequency Drive                    |
| <b>DISC1</b> — Disconnect Switch                      | <b>PCB1</b> — Unit Control Board                      | <b>WARN</b> — Unit Warning Relay (Non-Critical Fault)    |
| <b>DS</b> — Door Switch                               | <b>PCB2,3</b> — I/O Expansion Board                   | — · · — Optional Wiring (Optional Items Noted With “**”) |
| <b>DSP</b> — Duct Static Pressure Transducer          | <b>PHASE</b> — Phase/Rotation Monitor                 | — — Field Wiring   |
| <b>ECONO</b> — Economizer Valve/Damper Control        | <b>PUMP</b> — Water Pump Request                      |  |
| <b>EWT</b> — Entering Water Temp. Sensor              | <b>RESET</b> — External Reset                         |  |
| <b>FLTS</b> — Filter Status Switch                    | <b>ROCC</b> — Remote Occupancy                        |  |

#### NOTES:

1. Partial wiring shown on both power and control diagrams.
2. All class 2 transformers are wired into separate circuits. Do not interconnect these transformers or circuits; circuit separation shall be maintained.
3. On 200/240 v units, the transformers are factory wired for 240 v. For 200 v applications, move the blue wire to the 200 v tap of each transformer.
4. Shielded wire shall have drain wire connected to VFD ground screw. The floating end of the drain wire shall be insulated.
5. Shielded wire shall have drain wire connected to the control panel, adjacent to the PCB. The floating end of the drain wire shall be insulated.

## APPENDIX B — CONTROL SCREENS

### Display Screens

| DESCRIPTION                                 | VALUE   | UNITS  | STATUS | FORCE   | NAME     |
|---|---------|--------|--------|---------|----------|
| OMNIZONE::HWP01-32:Hardware points Table 1  |         |        |        |         |          |
| Supply Air Temperature                      | 67      | dF     |        |         | SAT      |
| Duct Static Pressure                        | 0.2     | in H2O |        |         | DSP      |
| Comp. Status MUX                            | 1.86    | Volts  |        |         | CSMUX    |
| Fire Alarm/Shut Down                        | Enable  |        |        |         | FSD      |
| Cond. Water Flow Switch                     | Yes     |        |        |         | CDWF     |
| Remote Occupancy                            | Disable |        |        |         | ROCC     |
| Duct High Press. Switch                     | Normal  |        |        |         | DHS      |
| Entering Water Temp.                        | 69.9    | dF     |        |         | EWT      |
| Compressor 1 Relay                          | Stop    |        |        |         | CMP1     |
| Compressor 2 Relay                          | Stop    |        |        |         | CMP2     |
| Compressor 3 Relay                          | Stop    |        |        |         | CMP3     |
| Compressor 4 Relay                          | Stop    |        |        |         | CMP4     |
| Supply Fan/VFD                              | Stop    |        |        |         | SF       |
| VFD Speed Signal                            | 0       | %      |        |         | SPEED    |
| Non Critical Fault                          | Off     |        |        |         | WARN     |
| Critical Fault                              | Off     |        |        |         | ALARM    |
| Mixed/Return Air Temp                       | 77.2    | dF     |        |         | MA_RA    |
| Dirty Filter Status                         | Clean   |        |        |         | FLTS     |
| Phase Loss Protection                       | Normal  |        |        |         | PHASE    |
| Ext. Supply Air Reset                       | 0       | dF     |        |         | RESET    |
| Water Econ. FreezeStat                      | Normal  |        |        |         | FREEZ    |
| Space_Reset Sensor                          | 79.2    | dF     |        |         | SPT      |
| VFD Bypass Enable                           | Disable |        |        |         | BYPAS    |
| Head Pressure(Comp1)                        | 118.76  | PSIG   |        |         | PRES     |
| Ventilation Request                         | Close   |        |        |         | VENTR    |
| VAV Terminals Control                       | No      |        |        |         | TRMCT    |
| 2-position/Econo Valve                      | 0       | %      |        |         | ECONO    |
| Reverse/Head Press Ctrl                     | 100     | %      |        | Control | MVLV     |
| Hot Water Valve                             | 0       | %      |        |         | HWV      |
| Heat Interlock Relay                        | Off     |        |        |         | HIR      |
| Bypass Start_Stop                           | Stop    |        |        |         | BPS_S    |
| VAV Terminals Open MAX                      | Close   |        |        |         | TRMOP    |
| OMNIZONE::HWP33-64: Hardware points table 2 |         |        |        |         |          |
| Cooling Tower Sump Temp.                    | 57.5    | dF     |        |         | TWR      |
| Building Static Milliamp                    | 12.51   | ma     |        |         | BSP      |
| Condenser Leaving Water                     | 70.3    | dF     |        |         | LWT      |
| Indoor Air Quality                          | 587.21  |        |        |         | IAQ      |
| Indoor Relative Humidity                    | 49.7    | %      |        |         | IRH      |
| Outdoor Air Temp.                           | 76.1    | dF     |        |         | OAT      |
| Heat Stage 1                                | Off     |        |        |         | HEAT1    |
| Heat Stage 2                                | Off     |        |        |         | HEAT2    |
| Heat Stage 3                                | Off     |        |        |         | HEAT3    |
| Heat Stage 4                                | Off     |        |        |         | HEAT4    |
| Pump Request                                | Off     |        |        |         | PUMP     |
| Cooling Tower Request                       | Off     |        |        |         | TOWER    |
| Exhaust Fan                                 | 0       | %      |        |         | EXH      |
| Ext. Dehumidification                       | Stop    |        |        |         | DEHUM    |
| OMNIZONE::SWP65-96:Software Points          |         |        |        |         |          |
| Compressor 1 Status                         | Off     |        |        |         | CLO1     |
| Compressor 2 Status                         | Off     |        |        |         | CLO2     |
| Compressor 3 Status                         | Off     |        |        |         | CLO3     |
| Compressor 4 Status                         | Off     |        |        |         | CLO4     |
| Bypass Acc Panel Secure                     | No      |        |        |         | BP_SAFE  |
| DX VAV RESET Control                        | 0       | dF     |        |         | VAVRESET |
| Factory/Field Test                          | Stop    |        |        |         | FLDTST   |
| Building Static Pressure                    | 0.03    | in H2O |        |         | BSP_IN   |
| Time Clock                                  | Off     |        |        |         | TIMCLOCK |
| Cooling                                     | Disable |        |        |         | COOLOK   |
| Supply Fan Status                           | Off     |        |        | Control | SFS      |
| Ok to run Fan                               | No      |        |        |         | OKFAN    |
| OK Fan + Sup. Fan Stat                      | FALSE   |        |        |         | SF_SFS   |
| Fan + Cond. Water Flow                      | FALSE   |        |        |         | FAN_CDWF |
| Equipment Mode                              | Cool    |        |        | Control | MODE     |
| Activate Evacuation Mode                    | Disable |        |        |         | EVAC     |
| Space Control Point                         | 74      | dF     |        |         | CTRLPT   |
| Mod. Econ Enabled                           | No      |        |        | Control | ECON_OK  |
| Head Pressure Control                       | Disable |        |        | Control | HEAD     |
| Economizer Control Temp.                    | 77.22   | dF     |        |         | ECONPT   |
| Compressor Cooling                          | Disable |        |        |         | COMPRES  |
| Duct Static Failure                         | Normal  |        |        |         | DSP_ALM  |
| Compressor 1 Alarm                          | Normal  |        |        |         | C1_ALM   |
| Compressor 2 Alarm                          | Normal  |        |        |         | C2_ALM   |
| Compressor 3 Alarm                          | Normal  |        |        |         | C3_ALM   |
| Compressor 4 Alarm                          | Normal  |        |        |         | C4_ALM   |
| Cond. Flow Alarm Status                     | Disable |        |        | Control | CDWF_ST  |

### Display Screens (cont)

| DESCRIPTION                                 | VALUE | UNITS  | STATUS | FORCE | NAME     |
|---|-------|--------|--------|-------|----------|
| OMNIZONE:Custom Configuration               |       |        |        |       |          |
| Compressor Stages                           | 2     |        |        |       | NUM_CMP  |
| Reset Ratio                                 | 3     | dF     |        |       | RSET_RTO |
| CDWF 0=NO,1=YES                             | 0     |        |        |       | CDFW_SWT |
| ECON 0=NO,1=YES                             | 0     |        |        |       | EWT_SNS  |
| EWT Reset 0=NO,1=YES                        | 1     |        |        |       | EWT_RST  |
| MOD.VLV 0=NO,1=YES                          | 0     |        |        |       | MOD_ECON |
| 0=CONST.,1=VARIABLE                         | 0     |        |        |       | FLOW_TYP |
| 0=RAT,1=MAT,2=NONE                          | 2     |        |        |       | MARA_SNS |
| PHASE 0=NO,1=YES                            | 0     |        |        |       | PHAS_SWT |
| FREEZ 0=NO,1=YES                            | 0     |        |        |       | FREZ_SWT |
| ENABLE ECON.                                | 68    | dF     |        |       | ECON_SET |
| SPT 0=NO,1=YES                              | 0     |        |        |       | SPT_SNS  |
| PRES 0=NO,1=YES                             | 0     |        |        |       | SPT_SNS  |
| TWR 0=NO,1=YES                              | 0     |        |        |       | TWR_SNS  |
| LWT 0=NO,1=YES                              | 0     |        |        |       | LWT_SNS  |
| IAQ 0=NO,1=YES                              | 0     |        |        |       | IAQ_SNS  |
| IRH 0=NO,1=YES                              | 0     |        |        |       | IRH_SNS  |
| BSP 0=NO,1=YES                              | 0     |        |        |       | BSP_SNS  |
| BSP Range                                   | 1.00  | in H2O |        |       | BSP_RNG  |
| BSP LOW VALUE                               | -0.5  | in H2O |        |       | BSP_LOW  |
| <b>Setpoints</b>                            |       |        |        |       |          |
| OMNIZONE::SETPT01: Supply fan Status        |       |        |        |       |          |
| Occupied Lo Setpoint                        | 0.3   | in H2O |        |       | OccLow   |
| Occupied Hi Setpoint                        | 0.4   | in H2O |        |       | OccHgh   |
| Unoccupied Lo Setpoint                      | 0.3   | in H2O |        |       | UnOccLow |
| Unoccupied Hi Setpoint                      | 0.4   | in H2O |        |       | UnOccHgh |
| OMNIZONE::SETPT02: VAVRESETbaseline         |       |        |        |       |          |
| Occupied Lo Setpoint                        | 0     | dF     |        |       | OccLow   |
| Occupied Hi Setpoint                        | 0     | dF     |        |       | OccHgh   |
| Unoccupied Lo Setpoint                      | 0     | dF     |        |       | UnOccLow |
| Unoccupied Hi Setpoint                      | 0     | dF     |        |       | UnOccHgh |
| OMNIZONE::SETPT03: Heat\Cool Mode & Reset   |       |        |        |       |          |
| Occupied Lo Setpoint                        | 70    | dF     |        |       | OccLow   |
| Occupied Hi Setpoint                        | 74    | dF     |        |       | OccHgh   |
| Unoccupied Lo Setpoint                      | 55    | dF     |        |       | UnOccLow |
| Unoccupied Hi Setpoint                      | 85    | dF     |        |       | UnOccHgh |
| OMNIZONE::SETPT04: Head Pressure Control    |       |        |        |       |          |
| Occupied Lo Setpoint                        | 225   | PSIG   |        |       | OccLow   |
| Occupied Hi Setpoint                        | 225   | PSIG   |        |       | OccHgh   |
| Unoccupied Lo Setpoint                      | 225   | PSIG   |        |       | UnOccLow |
| Unoccupied Hi Setpoint                      | 225   | PSIG   |        |       | UnOccHgh |
| OMNIZONE::SETPT05: Supply Static Pressure   |       |        |        |       |          |
| Occupied Lo Setpoint                        | 1.5   | in H2O |        |       | OccLow   |
| Occupied Hi Setpoint                        | 1.5   | in H2O |        |       | OccHgh   |
| Unoccupied Lo Setpoint                      | 1.5   | in H2O |        |       | UnOccLow |
| Unoccupied Hi Setpoint                      | 1.5   | in H2O |        |       | UnOccHgh |
| OMNIZONE::SETPT06: Supply Air Temperature   |       |        |        |       |          |
| Occupied Lo Setpoint                        | 55    | dF     |        |       | OccLow   |
| Occupied Hi Setpoint                        | 55    | dF     |        |       | OccHgh   |
| Unoccupied Lo Setpoint                      | 55    | dF     |        |       | UnOccLow |
| Unoccupied Hi Setpoint                      | 55    | dF     |        |       | UnOccHgh |
| OMNIZONE::SETPT07: Building Static Pressure |       |        |        |       |          |
| Occupied Lo Setpoint                        | 0.02  | in H2O |        |       | OccLow   |
| Occupied Hi Setpoint                        | 0.02  | in H2O |        |       | OccHgh   |
| Unoccupied Lo Setpoint                      | 0.02  | in H2O |        |       | UnOccLow |
| Unoccupied Hi Setpoint                      | 0.02  | in H2O |        |       | UnOccHgh |
| OMNIZONE::SETPT08: BSP raw control          |       |        |        |       |          |
| Occupied Lo Setpoint                        | 12.32 | ma     |        |       | OccLow   |
| Occupied Hi Setpoint                        | 12.32 | ma     |        |       | OccHgh   |
| Unoccupied Lo Setpoint                      | 12.32 | ma     |        |       | UnOccLow |
| Unoccupied Hi Setpoint                      | 12.32 | ma     |        |       | UnOccHgh |
| OMNIZONE::SETPT09: Humidity Control         |       |        |        |       |          |
| Occupied Lo Setpoint                        | 0     | %RH    |        |       | OccLow   |
| Occupied Hi Setpoint                        | 99    | %RH    |        |       | OccHgh   |
| Unoccupied Lo Setpoint                      | 0     | %RH    |        |       | UnOccLow |
| Unoccupied Hi Setpoint                      | 99    | %RH    |        |       | UnOccHgh |

## Configuration Screens

| DESCRIPTION  | VALUE*   | UNITS  | NAME  |
|--|--|--|---|
| OMNIZONE::CC6400:Controller Identification<br>Description:<br>Location:<br>Software Part Number:<br>Model Number:<br>Serial Number:<br>Reference Number:   | OMNIZONE VPAC<br>Test Version 0.009<br>CEPP-130124-07<br>6400<br><br>Version 1.6   |  | DevDesc<br>Location<br>PartNum<br>ModelNum<br>SerialNo<br>RefNum  |
| OMNIZONE::ADAPT01: VAVRESET Software point control<br>Analog Output Point<br>Status Point<br>Time Schedule<br>Setpoint Schedule<br>Reset Point<br>Reset<br>Start Reset Value<br>Stop Reset Value<br>Control Point<br>PID_Master_Loop<br>Proportional Gain<br>Integral Gain<br>Derivative Gain<br>Disabled Output Value<br>Minimum Output Value<br>Maximum Output Value<br>Starting Value<br>Block Iteration Rate<br>Power on Delay | VAVRESET<br>COOLOK<br>LINK_01<br>SETPT02<br>TEMP_100<br><br>-40<br>245<br>RESET<br><br>1<br>0<br>0<br>0<br>0<br>20<br>20<br>10<br>0      | <br><br><br><br><br>dF<br>dF<br><br><br><br>%<br>%<br>%<br>%<br>sec<br>sec     | Name<br>Name<br>Name<br>Name<br>Name<br><br>StrtRst<br>StopRst<br>Name<br><br>KP<br>KI<br>KD<br>DsblOut<br>MinOut<br>MaxOut<br>StartVal<br>BlkRate<br>PowerUp |
| OMNIZONE::ADAPT02: Head Pressure control<br>Analog Output Point<br>Status Point<br>Time Schedule<br>Setpoint Schedule<br>Reset Point<br>Reset<br>Start Reset Value<br>Stop Reset Value<br>Control Point<br>PID_Master_Loop<br>Proportional Gain<br>Integral Gain<br>Derivative Gain<br>Disabled Output Value<br>Minimum Output Value<br>Maximum Output Value<br>Starting Value<br>Block Iteration Rate<br>Power on Delay           | MVLV<br>HEAD<br>LINK_01<br>SETPT04<br>TEMP_100<br><br>-40<br>245<br>PRES<br><br>-0.2<br>-0.1<br>-0.1<br>0<br>40<br>100<br>100<br>10<br>0 | <br><br><br><br><br>PSIG<br>PSIG<br><br><br><br>%<br>%<br>%<br>%<br>sec<br>sec | Name<br>Name<br>Name<br>Name<br>Name<br><br>StrtRst<br>StopRst<br>Name<br><br>KP<br>KI<br>KD<br>DsblOut<br>MinOut<br>MaxOut<br>StartVal<br>BlkRate<br>PowerUp |
| OMNIZONE::ADAPT03: Building Pressure Ctrl.<br>Analog Output Point<br>Status Point<br>Time Schedule<br>Setpoint Schedule<br>Reset Point<br>Reset<br>Start Reset Value<br>Stop Reset Value<br>Control Point<br>PID_Master_Loop<br>Proportional Gain<br>Integral Gain<br>Derivative Gain<br>Disabled Output Value<br>Minimum Output Value<br>Maximum Output Value<br>Starting Value<br>Block Iteration Rate<br>Power on Delay         | EXH<br>OKFAN<br>LINK_01<br>SETPT08<br>TEMP_100<br><br>-40<br>245<br>BSP<br><br>-20<br>-10<br>0<br>0<br>0<br>100<br>40<br>10<br>0         | <br><br><br><br><br>ma<br>ma<br><br><br><br>%<br>%<br>%<br>%<br>sec<br>sec     | Name<br>Name<br>Name<br>Name<br>Name<br><br>StrtRst<br>StopRst<br>Name<br><br>KP<br>KI<br>KD<br>DsblOut<br>MinOut<br>MaxOut<br>StartVal<br>BlkRate<br>PowerUp |
| OMNIZONE::ANCTL01: Supply Fan Status<br>Discrete Output Point<br>Sensor Group/SPT Sensor<br>Time Schedule<br>Setpoint Schedule<br>Analog<br>Hysteresis<br>Block Iteration Rate<br>Power on Delay   | SFS<br>DSP<br>OCCPC01<br>SETPT01<br><br>0<br>30<br>0   | <br><br><br><br><br>in H2O<br>sec<br>sec                                       | Name<br>Name<br>Name<br>Name<br><br>Hyst<br>BlkRate<br>PowerUp  |

\*Default values from factory.

NOTE: See CC6400 Comfort Controller Overview and Configuration Manual for configuration information.

### Configuration Screens (cont)

| DESCRIPTION                                      | VALUE*   | UNITS  | NAME     |
|--|----------|--------|----------|
| OMNIZONE::DOPI_01: Supply Fan Status             |          |        |          |
| Discrete Output Point                            | SFS      |        | Name     |
| Time Schedule                                    | OCCPC01  |        | Name     |
| Setpoint Schedule                                | SETPT01  |        | Name     |
| Permissive Interlock                             |          |        |          |
| Control Point Type                               | Analog   |        | Type     |
| Occ Discrete State                               | On       |        | OccSt    |
| Unocc Discrete State                             | On       |        | UnoccSt  |
| Occ Analog Test                                  | Low      |        | OAnlgTst |
| Unocc Analog Test                                | Low      |        | UAnlgTst |
| Override Value                                   | 0        |        | Ovrd     |
| Hysteresis                                       | 0.2      | in H2O | Hyst     |
| Persistence Time                                 | 0        | sec    | Persist  |
| Analog Control Point                             | DSP      |        | Name     |
| Discrete Control Point                           | PNT_NAME |        | Name     |
| Power on Delay                                   | 0        | sec    | PowerUp  |
| OMNIZONE::ANCTL02: Humidity Control              |          |        |          |
| Discrete Output Point                            | DEHUM    |        | Name     |
| Sensor Group/SPT Sensor                          | IRH      |        | Name     |
| Time Schedule                                    | LINK_01  |        | Name     |
| Setpoint Schedule                                | SETPT09  |        | Name     |
| Analog   |          |        |          |
| Hysteresis                                       | 10       | %RH    | Hyst     |
| Block Iteration Rate                             | 60       | sec    | BlkRate  |
| Power on Delay                                   | 0        | sec    | PowerUp  |
| OMNIZONE::CCVAV01: Modulating Economizer Control |          |        |          |
| Cooling Coil Valve                               | ECONO    |        | Name     |
| Fan Status Point                                 | ECON_OK  |        | Name     |
| Sensor Group/SPT Sensor                          | VAVRESET |        | Name     |
| Time Schedule                                    | LINK_01  |        | Name     |
| Setpoint Schedule                                | SETPT02  |        | Name     |
| High Humidity Switch                             | SENSDI00 |        | Name     |
| Humidity Setpoint                                | SETPT00  |        | Name     |
| High Humidity Sensor                             | MAMP_I00 |        | Name     |
| VAV Setpoint Reset                               |          |        |          |
| Supply Air Setpoint                              | 53       | dF     | Setpt    |
| Reset Ratio                                      | 1        | ^F     | RstRat   |
| Start Reset                                      | 20       | dF     | StrtRst  |
| Maximum Reset                                    | 20       | ^F     | MaxReset |
| Supply Air Temperature                           | ECONPT   |        | Name     |
| PID_Master_Loop                                  |          |        |          |
| Proportional Gain                                | -4       |        | KP       |
| Integral Gain                                    | -2       |        | KI       |
| Derivative Gain                                  | 0        |        | KD       |
| Disabled Output Value                            | 0        | %      | DsblOut  |
| Minimum Output Value                             | 0        | %      | MinOut   |
| Maximum Output Value                             | 100      | %      | MaxOut   |
| Starting Value                                   | 30       | %      | StartVal |
| Block Iteration Rate                             | 30       | sec    | BlkRate  |
| Power on Delay                                   | 0        | sec    | PowerUp  |
| OMNIZONE::BSP: Building Static Milliamp          |          |        |          |
| Low Input Endpoint                               | 4        | ma     | LowRange |
| High Input Endpoint                              | 20       | ma     | HighRng  |
| Low Conversion Endpoint                          | 4        | ma     | LowConv  |
| High Conversion Endpoint                         | 20       | ma     | HighConv |
| Low Input Fault                                  | 4        | ma     | LowFlt   |
| High Input Fault                                 | 20       | ma     | HighFlt  |
| Externally Powered                               | No       |        | ExtPower |
| OMNIZONE::IAQ: Indoor Air Quality                |          |        |          |
| Low Input Endpoint                               | 4        | ma     | LowRange |
| High Input Endpoint                              | 20       | ma     | HighRng  |
| Low Conversion Endpoint                          | 0        |        | LowConv  |
| High Conversion Endpoint                         | 2000     |        | HighConv |
| Low Input Fault                                  | 4        | ma     | LowFlt   |
| High Input Fault                                 | 20       | ma     | HighFlt  |
| Externally Powered                               | Yes      |        | ExtPower |
| OMNIZONE::CSMUX: Comp. Status MUX                |          |        |          |
| Low Input Endpoint                               | 0        | Volts  | LowRange |
| High Input Endpoint                              | 11       | Volts  | HighRng  |
| Low Conversion Endpoint                          | 0        | Volts  | LowConv  |
| High Conversion Endpoint                         | 11       | Volts  | HighConv |
| Low Input Fault                                  | 1        | Volts  | LowFlt   |
| High Input Fault                                 | 10.5     | Volts  | HighFlt  |

\*Default values from factory.

NOTE: See CC6400 Comfort Controller Overview and Configuration Manual for configuration information.

## Configuration Screens (cont)

| DESCRIPTION   | VALUE*                                 | UNITS  | NAME  |
|---|--|--|---|
| OMNIZONE::PRES: Head Pressure(Comp1)<br>Low Input Endpoint<br>High Input Endpoint<br>Low Conversion Endpoint<br>High Conversion Endpoint<br>Low Input Fault<br>High Input Fault   | 0.6<br>4<br>6.23<br>309.77<br>0.3<br>5 | Volts<br>Volts<br>PSIG<br>PSIG<br>Volts<br>Volts | LowRange<br>HighRng<br>LowConv<br>HighConv<br>LowFlt<br>HighFlt |
| OMNIZONE::RESET: Ext. Supply Air Reset<br>Low Input Endpoint<br>High Input Endpoint<br>Low Conversion Endpoint<br>High Conversion Endpoint<br>Low Input Fault<br>High Input Fault | 2<br>10<br>0<br>20<br>0<br>10          | Volts<br>Volts<br>dF<br>dF<br>Volts<br>Volts     | LowRange<br>HighRng<br>LowConv<br>HighConv<br>LowFlt<br>HighFlt |
| OMNIZONE::ALARM: Critical Fault<br>Output Logic Type<br>Minimum Off Time<br>Minimum On Time<br>Delay Time   | Normal<br>4<br>4<br>10                 | <br>sec<br>sec<br>sec                            | LogType<br>MinOff<br>MinOn<br>DlyTim                            |
| OMNIZONE::BPS_S: Bypass Start_Stop<br>Output Logic Type<br>Minimum Off Time<br>Minimum On Time<br>Delay Time  | Normal<br>60<br>60<br>5                | <br>sec<br>sec<br>sec                            | LogType<br>MinOff<br>MinOn<br>DlyTim                            |
| OMNIZONE::CMP1: Compressor 1 Relay<br>Output Logic Type<br>Minimum Off Time<br>Minimum On Time<br>Delay Time  | Normal<br>300<br>300<br>30             | <br>sec<br>sec<br>sec                            | LogType<br>MinOff<br>MinOn<br>DlyTim                            |
| OMNIZONE::CMP2: Compressor 2 Relay<br>Output Logic Type<br>Minimum Off Time<br>Minimum On Time<br>Delay Time  | Normal<br>300<br>300<br>30             | <br>sec<br>sec<br>sec                            | LogType<br>MinOff<br>MinOn<br>DlyTim                            |
| OMNIZONE::CMP3: Compressor 3 Relay<br>Output Logic Type<br>Minimum Off Time<br>Minimum On Time<br>Delay Time  | Normal<br>300<br>300<br>30             | <br>sec<br>sec<br>sec                            | LogType<br>MinOff<br>MinOn<br>DlyTim                            |
| OMNIZONE::CMP4: Compressor 4 Relay<br>Output Logic Type<br>Minimum Off Time<br>Minimum On Time<br>Delay Time  | Normal<br>300<br>300<br>30             | <br>sec<br>sec<br>sec                            | LogType<br>MinOff<br>MinOn<br>DlyTim                            |
| OMNIZONE::DEHUM: Ext. Dehumidification<br>Output Logic Type<br>Minimum Off Time<br>Minimum On Time<br>Delay Time  | Normal<br>60<br>60<br>10               | <br>sec<br>sec<br>sec                            | LogType<br>MinOff<br>MinOn<br>DlyTim                            |
| OMNIZONE::HEAT1: Heat Stage 1<br>Output Logic Type<br>Minimum Off Time<br>Minimum On Time<br>Delay Time   | Normal<br>60<br>60<br>10               | <br>sec<br>sec<br>sec                            | LogType<br>MinOff<br>MinOn<br>DlyTim                            |
| OMNIZONE::HEAT2: Heat Stage 2<br>Output Logic Type<br>Minimum Off Time<br>Minimum On Time<br>Delay Time   | Normal<br>60<br>60<br>10               | <br>sec<br>sec<br>sec                            | LogType<br>MinOff<br>MinOn<br>DlyTim                            |
| OMNIZONE::HEAT3: Heat Stage 3<br>Output Logic Type<br>Minimum Off Time<br>Minimum On Time<br>Delay Time   | Normal<br>60<br>60<br>10               | <br>sec<br>sec<br>sec                            | LogType<br>MinOff<br>MinOn<br>DlyTim                            |
| OMNIZONE::HEAT4: Heat Stage 4<br>Output Logic Type<br>Minimum Off Time<br>Minimum On Time<br>Delay Time   | Normal<br>60<br>60<br>10               | <br>sec<br>sec<br>sec                            | LogType<br>MinOff<br>MinOn<br>DlyTim                            |

\*Default values from factory.

NOTE: See CC6400 Comfort Controller Overview and Configuration Manual for configuration information.

### Configuration Screens (cont)

| DESCRIPTION  | VALUE*  | UNITS  | NAME   |
|--|---|--|--|
| OMNIZONE::HIR: Heat Interlock Relay<br>Output Logic Type<br>Minimum Off Time<br>Minimum On Time<br>Delay Time  | Normal<br>60<br>60<br>5   | <br>sec<br>sec<br>sec                                    | LogType<br>MinOff<br>MinOn<br>DlyTim   |
| OMNIZONE::PUMP: Pump Request<br>Output Logic Type<br>Minimum Off Time<br>Minimum On Time<br>Delay Time   | Normal<br>5<br>5<br>5   | <br>sec<br>sec<br>sec                                    | LogType<br>MinOff<br>MinOn<br>DlyTim   |
| OMNIZONE::SF: Supply Fan/VFD<br>Output Logic Type<br>Minimum Off Time<br>Minimum On Time<br>Delay Time   | Normal<br>30<br>60<br>10  | <br>sec<br>sec<br>sec                                    | LogType<br>MinOff<br>MinOn<br>DlyTim   |
| OMNIZONE::TOWER: Cooling Tower Request<br>Output Logic Type<br>Minimum Off Time<br>Minimum On Time<br>Delay Time   | Normal<br>5<br>5<br>5   | <br>sec<br>sec<br>sec                                    | LogType<br>MinOff<br>MinOn<br>DlyTim   |
| OMNIZONE::TRMCT: VAV Terminals Control<br>Output Logic Type<br>Minimum Off Time<br>Minimum On Time<br>Delay Time   | Normal<br>60<br>60<br>5   | <br>sec<br>sec<br>sec                                    | LogType<br>MinOff<br>MinOn<br>DlyTim   |
| OMNIZONE::TRMOP: VAV Terminals Open MAX<br>Output Logic Type<br>Minimum Off Time<br>Minimum On Time<br>Delay Time  | Normal<br>5<br>5<br>5   | <br>sec<br>sec<br>sec                                    | LogType<br>MinOff<br>MinOn<br>DlyTim   |
| OMNIZONE::VENTR: Ventilation Request<br>Output Logic Type<br>Minimum Off Time<br>Minimum On Time<br>Delay Time   | Normal<br>3<br>3<br>5   | <br>sec<br>sec<br>sec                                    | LogType<br>MinOff<br>MinOn<br>DlyTim   |
| OMNIZONE::WARN: Non Critical Fault<br>Output Logic Type<br>Minimum Off Time<br>Minimum On Time<br>Delay Time   | Normal<br>4<br>4<br>10  | <br>sec<br>sec<br>sec                                    | LogType<br>MinOff<br>MinOn<br>DlyTim   |
| OMNIZONE::DSALM01: Duct High Pressure<br>Monitored Input Point<br>Comparison Point<br>Alarm Inhibit Point<br>Discrete Check<br>Alarm Logic<br>Enable Delay Time<br>Persistence Time<br>Alarm Processor<br>Alarm Processing<br>Re-Alarm Interval<br>Alarm=1 or Alert=0<br>Alarm Level<br>Alarm Source<br>Alarm Routing<br>Alarm Description Index<br>Alarm Message - Part 1<br>Alarm Message - Part 2<br>Alarm Message - Part 3<br>Alarm Message - Part 4<br>Power on Delay | DHS<br>SENSDI00<br>SENSDI00<br><br>Normal<br>15<br>10<br><br>Enable<br>0<br>1<br>1<br>5<br>11010000<br>0<br>Duct High Static<br>Pressure<br><br>0 | <br><br><br><br><br>sec<br>sec<br><br>min<br><br><br>sec | Name<br>Name<br>Name<br><br>AlmLogic<br>DlyTim<br>Persist<br><br>AlmProc<br>ReAlmTim<br>Type<br>AlmLevel<br>AlmSrc<br>AlmRtg<br>AlmDesc<br>Message<br>Message<br>Message<br>Message<br>PowerUp |

\*Default values from factory.

NOTE: See CC6400 Comfort Controller Overview and Configuration Manual for configuration information.



### Configuration Screens (cont)

| DESCRIPTION   | VALUE*  | UNITS  | NAME   |
|---|---|--|--|
| OMNIZONE::DSALM02: Phase Protection<br>Monitored Input Point<br>Comparison Point<br>Alarm Inhibit Point<br>Discrete Check<br>Alarm Logic<br>Enable Delay Time<br>Persistence Time<br>Alarm Processor<br>Alarm Processing<br>Re-Alarm Interval<br>Alarm=1 or Alert=0<br>Alarm Level<br>Alarm Source<br>Alarm Routing<br>Alarm Description Index<br>Alarm Message - Part 1<br>Alarm Message - Part 2<br>Alarm Message - Part 3<br>Alarm Message - Part 4<br>Power on Delay    | PHASE<br>SENSDI00<br>SENSDI00<br><br>Normal<br>15<br>10<br><br>Enable<br>0<br>1<br>1<br>5<br>11010000<br>0<br>Phase Loss<br><br>0                       | <br><br><br>sec<br>sec<br><br>min<br><br><br><br><br>sec | Name<br>Name<br>Name<br><br>AlmLogic<br>DlyTim<br>Persist<br><br>AlmProc<br>ReAlmTim<br>Type<br>AlmLevel<br>AlmSrc<br>AlmRtg<br>AlmDesc<br>Message<br>Message<br>Message<br>Message<br>PowerUp |
| OMNIZONE::DSALM03: Freeze Protection<br>Monitored Input Point<br>Comparison Point<br>Alarm Inhibit Point<br>Discrete Check<br>Alarm Logic<br>Enable Delay Time<br>Persistence Time<br>Alarm Processor<br>Alarm Processing<br>Re-Alarm Interval<br>Alarm=1 or Alert=0<br>Alarm Level<br>Alarm Source<br>Alarm Routing<br>Alarm Description Index<br>Alarm Message - Part 1<br>Alarm Message - Part 2<br>Alarm Message - Part 3<br>Alarm Message - Part 4<br>Power on Delay   | FREEZ<br>SENSDI00<br>SENSDI00<br><br>Normal<br>15<br>900<br><br>Enable<br>0<br>1<br>1<br>5<br>11010000<br>0<br>Economizer Freez<br>e Condition<br><br>0 | <br><br><br>sec<br>sec<br><br>min<br><br><br><br><br>sec | Name<br>Name<br>Name<br><br>AlmLogic<br>DlyTim<br>Persist<br><br>AlmProc<br>ReAlmTim<br>Type<br>AlmLevel<br>AlmSrc<br>AlmRtg<br>AlmDesc<br>Message<br>Message<br>Message<br>Message<br>PowerUp |
| OMNIZONE::DSALM04: Duct Static Failure<br>Monitored Input Point<br>Comparison Point<br>Alarm Inhibit Point<br>Discrete Check<br>Alarm Logic<br>Enable Delay Time<br>Persistence Time<br>Alarm Processor<br>Alarm Processing<br>Re-Alarm Interval<br>Alarm=1 or Alert=0<br>Alarm Level<br>Alarm Source<br>Alarm Routing<br>Alarm Description Index<br>Alarm Message - Part 1<br>Alarm Message - Part 2<br>Alarm Message - Part 3<br>Alarm Message - Part 4<br>Power on Delay | DSP_ALM<br>SENSDI00<br>SENSDI00<br><br>Normal<br>10<br>10<br><br>Enable<br>0<br>1<br>1<br>5<br>11010000<br>0<br>Duct Static Sens<br>or Failure<br><br>0 | <br><br><br>sec<br>sec<br><br>min<br><br><br><br><br>sec | Name<br>Name<br>Name<br><br>AlmLogic<br>DlyTim<br>Persist<br><br>AlmProc<br>ReAlmTim<br>Type<br>AlmLevel<br>AlmSrc<br>AlmRtg<br>AlmDesc<br>Message<br>Message<br>Message<br>Message<br>PowerUp |

\*Default values from factory.

NOTE: See CC6400 Comfort Controller Overview and Configuration Manual for configuration information.

### Configuration Screens (cont)

| DESCRIPTION  | VALUE*   | UNITS  | NAME   |
|--|--|--|--|
| OMNIZONE::DSALM05: Fire alarm<br>Monitored Input Point<br>Comparison Point<br>Alarm Inhibit Point<br>Discrete Check<br>Alarm Logic<br>Enable Delay Time<br>Persistence Time<br>Alarm Processor<br>Alarm Processing<br>Re-Alarm Interval<br>Alarm=1 or Alert=0<br>Alarm Level<br>Alarm Source<br>Alarm Routing<br>Alarm Description Index<br>Alarm Message - Part 1<br>Alarm Message - Part 2<br>Alarm Message - Part 3<br>Alarm Message - Part 4<br>Power on Delay           | FSD<br>SENSDI00<br>SENSDI00<br><br>Invert<br>10<br>10<br><br>Enable<br>0<br>1<br>0<br>5<br>11010000<br>0<br>Fire Shutdown<br><br>0                 | <br><br><br>sec<br>sec<br><br>min<br><br><br>sec | Name<br>Name<br>Name<br><br>AlmLogic<br>DlyTim<br>Persist<br><br>AlmProc<br>ReAlmTim<br>Type<br>AlmLevel<br>AlmSrc<br>AlmRtg<br>AlmDesc<br>Message<br>Message<br>Message<br>Message<br>PowerUp |
| OMNIZONE::DSALM06: Condenser Water Flow<br>Monitored Input Point<br>Comparison Point<br>Alarm Inhibit Point<br>Discrete Check<br>Alarm Logic<br>Enable Delay Time<br>Persistence Time<br>Alarm Processor<br>Alarm Processing<br>Re-Alarm Interval<br>Alarm=1 or Alert=0<br>Alarm Level<br>Alarm Source<br>Alarm Routing<br>Alarm Description Index<br>Alarm Message - Part 1<br>Alarm Message - Part 2<br>Alarm Message - Part 3<br>Alarm Message - Part 4<br>Power on Delay | CDWF<br>COOLOK<br>CDWF_ST<br><br>Normal<br>120<br>120<br><br>Enable<br>0<br>1<br>2<br>5<br>11010000<br>0<br>Check Condenser<br>Water Flow<br><br>0 | <br><br><br>sec<br>sec<br><br>min<br><br><br>sec | Name<br>Name<br>Name<br><br>AlmLogic<br>DlyTim<br>Persist<br><br>AlmProc<br>ReAlmTim<br>Type<br>AlmLevel<br>AlmSrc<br>AlmRtg<br>AlmDesc<br>Message<br>Message<br>Message<br>Message<br>PowerUp |
| OMNIZONE::DSALM07: Filter Alarm<br>Monitored Input Point<br>Comparison Point<br>Alarm Inhibit Point<br>Discrete Check<br>Alarm Logic<br>Enable Delay Time<br>Persistence Time<br>Alarm Processor<br>Alarm Processing<br>Re-Alarm Interval<br>Alarm=1 or Alert=0<br>Alarm Level<br>Alarm Source<br>Alarm Routing<br>Alarm Description Index<br>Alarm Message - Part 1<br>Alarm Message - Part 2<br>Alarm Message - Part 3<br>Alarm Message - Part 4<br>Power on Delay         | FLTS<br>SENSDI00<br>SENSDI00<br><br>Normal<br>10<br>20<br><br>Enable<br>0<br>1<br>2<br>5<br>11010000<br>0<br>Change Filters<br><br>0               | <br><br><br>sec<br>sec<br><br>min<br><br><br>sec | Name<br>Name<br>Name<br><br>AlmLogic<br>DlyTim<br>Persist<br><br>AlmProc<br>ReAlmTim<br>Type<br>AlmLevel<br>AlmSrc<br>AlmRtg<br>AlmDesc<br>Message<br>Message<br>Message<br>Message<br>PowerUp |

\*Default values from factory.

NOTE: See CC6400 Comfort Controller Overview and Configuration Manual for configuration information.

### Configuration Screens (cont)

| DESCRIPTION  | VALUE*   | UNITS  | NAME   |
|--|--|--|--|
| OMNIZONE::DSALM08: Compressor 1 Alarm<br>Monitored Input Point<br>Comparison Point<br>Alarm Inhibit Point<br>Discrete Check<br>Alarm Logic<br>Enable Delay Time<br>Persistence Time<br>Alarm Processor<br>Alarm Processing<br>Re-Alarm Interval<br>Alarm=1 or Alert=0<br>Alarm Level<br>Alarm Source<br>Alarm Routing<br>Alarm Description Index<br>Alarm Message - Part 1<br>Alarm Message - Part 2<br>Alarm Message - Part 3<br>Alarm Message - Part 4<br>Power on Delay | C1_ALM<br>SENSDI00<br>SENSDI00<br><br>Normal<br>10<br>10<br><br>Enable<br>0<br>1<br>2<br>5<br>11010000<br>0<br>Compressor 1 fau<br>lt<br><br>0 | <br><br><br><br>sec<br>sec<br><br><br>min<br><br><br><br><br><br><br><br>sec | Name<br>Name<br>Name<br><br>AlmLogic<br>DlyTim<br>Persist<br><br>AlmProc<br>ReAlmTim<br>Type<br>AlmLevel<br>AlmSrc<br>AlmRtg<br>AlmDesc<br>Message<br>Message<br>Message<br>Message<br>PowerUp |
| OMNIZONE::DSALM09: Compressor 2 Alarm<br>Monitored Input Point<br>Comparison Point<br>Alarm Inhibit Point<br>Discrete Check<br>Alarm Logic<br>Enable Delay Time<br>Persistence Time<br>Alarm Processor<br>Alarm Processing<br>Re-Alarm Interval<br>Alarm=1 or Alert=0<br>Alarm Level<br>Alarm Source<br>Alarm Routing<br>Alarm Description Index<br>Alarm Message - Part 1<br>Alarm Message - Part 2<br>Alarm Message - Part 3<br>Alarm Message - Part 4<br>Power on Delay | C2_ALM<br>SENSDI00<br>SENSDI00<br><br>Normal<br>10<br>10<br><br>Enable<br>0<br>1<br>2<br>5<br>11010000<br>0<br>Compressor 2 Fau<br>lt<br><br>0 | <br><br><br><br>sec<br>sec<br><br><br>min<br><br><br><br><br><br><br><br>sec | Name<br>Name<br>Name<br><br>AlmLogic<br>DlyTim<br>Persist<br><br>AlmProc<br>ReAlmTim<br>Type<br>AlmLevel<br>AlmSrc<br>AlmRtg<br>AlmDesc<br>Message<br>Message<br>Message<br>Message<br>PowerUp |
| OMNIZONE::DSALM10: Compressor 3 Alarm<br>Monitored Input Point<br>Comparison Point<br>Alarm Inhibit Point<br>Discrete Check<br>Alarm Logic<br>Enable Delay Time<br>Persistence Time<br>Alarm Processor<br>Alarm Processing<br>Re-Alarm Interval<br>Alarm=1 or Alert=0<br>Alarm Level<br>Alarm Source<br>Alarm Routing<br>Alarm Description Index<br>Alarm Message - Part 1<br>Alarm Message - Part 2<br>Alarm Message - Part 3<br>Alarm Message - Part 4<br>Power on Delay | C3_ALM<br>SENSDI00<br>SENSDI00<br><br>Normal<br>10<br>10<br><br>Enable<br>0<br>1<br>2<br>5<br>11010000<br>0<br>Compressor 3 Fau<br>lt<br><br>0 | <br><br><br><br>sec<br>sec<br><br><br>min<br><br><br><br><br><br><br><br>sec | Name<br>Name<br>Name<br><br>AlmLogic<br>DlyTim<br>Persist<br><br>AlmProc<br>ReAlmTim<br>Type<br>AlmLevel<br>AlmSrc<br>AlmRtg<br>AlmDesc<br>Message<br>Message<br>Message<br>Message<br>PowerUp |

\*Default values from factory.

NOTE: See CC6400 Comfort Controller Overview and Configuration Manual for configuration information.

## Configuration Screens (cont)

| DESCRIPTION                           | VALUE*           | UNITS | NAME     |
|---------------------------------------|------------------|-------|----------|
| OMNIZONE::DSALM11: Compressor 4 Alarm |                  |       |          |
| Monitored Input Point                 | C4_ALM           |       | Name     |
| Comparison Point                      | SENSDI00         |       | Name     |
| Alarm Inhibit Point                   | SENSDI00         |       | Name     |
| Discrete Check                        |                  |       |          |
| Alarm Logic                           | Normal           |       | AlmLogic |
| Enable Delay Time                     | 10               | sec   | DlyTim   |
| Persistence Time                      | 10               | sec   | Persist  |
| Alarm Processor                       |                  |       |          |
| Alarm Processing                      | Enable           |       | AlmProc  |
| Re-Alarm Interval                     | 0                | min   | ReAlmTim |
| Alarm=1 or Alert=0                    | 1                |       | Type     |
| Alarm Level                           | 2                |       | AlmLevel |
| Alarm Source                          | 5                |       | AlmSrc   |
| Alarm Routing                         | 11010000         |       | AlmRtg   |
| Alarm Description Index               | 0                |       | AlmDesc  |
| Alarm Message - Part 1                | Compressor 4 Fau |       | Message  |
| Alarm Message - Part 2                | lt               |       | Message  |
| Alarm Message - Part 3                |                  |       | Message  |
| Alarm Message - Part 4                |                  |       | Message  |
| Power on Delay                        | 0                | sec   | PowerUp  |
| OMNIZONE::DSALM12: Supply Fan Alarm   |                  |       |          |
| Monitored Input Point                 | SFS              |       | Name     |
| Comparison Point                      | SF               |       | Name     |
| Alarm Inhibit Point                   | SENSDI00         |       | Name     |
| Discrete Check                        |                  |       |          |
| Alarm Logic                           | Normal           |       | AlmLogic |
| Enable Delay Time                     | 120              | sec   | DlyTim   |
| Persistence Time                      | 120              | sec   | Persist  |
| Alarm Processor                       |                  |       |          |
| Alarm Processing                      | Enable           |       | AlmProc  |
| Re-Alarm Interval                     | 0                | min   | ReAlmTim |
| Alarm=1 or Alert=0                    | 1                |       | Type     |
| Alarm Level                           | 2                |       | AlmLevel |
| Alarm Source                          | 5                |       | AlmSrc   |
| Alarm Routing                         | 11010000         |       | AlmRtg   |
| Alarm Description Index               | 0                |       | AlmDesc  |
| Alarm Message - Part 1                | Check Supply Fan |       | Message  |
| Alarm Message - Part 2                |                  |       | Message  |
| Alarm Message - Part 3                |                  |       | Message  |
| Alarm Message - Part 4                |                  |       | Message  |
| Power on Delay                        | 0                | sec   | PowerUp  |
| OMNIZONE::DXVAV01: Compressor Staging |                  |       |          |
| Discrete Output Point 1               | CMP1             |       | Name     |
| Discrete Output Point 2               | CMP2             |       | Name     |
| Discrete Output Point 3               | CMP3             |       | Name     |
| Discrete Output Point 4               | CMP4             |       | Name     |
| Discrete Output Point 5               | DISCRO00         |       | Name     |
| Discrete Output Point 6               | DISCRO00         |       | Name     |
| Fan Status Point                      | COMPRES          |       | Name     |
| Sensor Group/SPT Sensor               | VAVRESET         |       | Name     |
| Time Schedule                         | LINK_01          |       | Name     |
| Setpoint Schedule                     | SETPT02          |       | Name     |
| High Humidity Switch                  | SENSDI00         |       | Name     |
| Humidity Setpoint                     | SETPT00          |       | Name     |
| High Humidity Sensor                  | IRH              |       | Name     |
| VAV Setpoint Reset                    |                  |       |          |
| Supply Air Setpoint                   | 57               | dF    | SetPT    |
| Reset Ratio                           | 1                | ^F    | RstRat   |
| Start Reset                           | 20               | dF    | StrtRst  |
| Maximum Reset                         | 20               | ^F    | MaxReset |
| Supply Air Temperature                | SAT              |       | Name     |
| PID_Master_Loop                       |                  |       |          |
| Proportional Gain                     | -1               |       | KP       |
| Integral Gain                         | -0.4             |       | KI       |
| Derivative Gain                       | -0.7             |       | KD       |
| Disabled Output Value                 | 0                | %     | DsblOut  |
| Minimum Output Value                  | 0                | %     | MinOut   |
| Maximum Output Value                  | 100              | %     | MaxOut   |
| Starting Value                        | 0                | %     | StartVal |
| Block Iteration Rate                  | 30               | sec   | BlkRate  |
| Staging Control                       |                  |       |          |
| Total Number of Stages                | 4                |       | TotalStg |
| On Time Delay                         | 2                | min   | OnDelay  |
| Off Time Delay                        | 1                | min   | OffDelay |
| Power on Delay                        | 0                | sec   | PowerUp  |

\*Default values from factory.

NOTE: See CC6400 Comfort Controller Overview and Configuration Manual for configuration information.

### Configuration Screens (cont)

| DESCRIPTION                              | VALUE*   | UNITS | NAME     |
|--|----------|-------|----------|
| OMNIZONE::EHVAV01: DO - Elec Heat VAV 01 |          |       |          |
| Discrete Output Point 1                  | HEAT1    |       | Name     |
| Discrete Output Point 2                  | HEAT2    |       | Name     |
| Discrete Output Point 3                  | HEAT3    |       | Name     |
| Discrete Output Point 4                  | HEAT4    |       | Name     |
| Discrete Output Point 5                  | DISCRO00 |       | Name     |
| Discrete Output Point 6                  | DISCRO00 |       | Name     |
| Fan Status Point                         | MODE     |       | Name     |
| Sensor Group/SPT Sensor                  | LINK_09  |       | Name     |
| Time Schedule                            | LINK_01  |       | Name     |
| Setpoint Schedule                        | LINK_01  |       | Name     |
| High Humidity Switch                     | SENSDI00 |       | Name     |
| Humidity Setpoint                        | SETPT00  |       | Name     |
| High Humidity Sensor                     | IRH      |       | Name     |
| Duct Temperature                         | SAT      |       | Name     |
| Duct High Limit                          | 150      | dF    | Value    |
| Occupied Heating                         | Yes      |       | OccHeat  |
| PID_Master_Loop                          |          |       |          |
| Proportional Gain                        | 5        |       | KP       |
| Integral Gain                            | 2.5      |       | KI       |
| Derivative Gain                          | 0        |       | KD       |
| Disabled Output Value                    | 0        | %     | DdblOut  |
| Minimum Output Value                     | 0        | %     | MinOut   |
| Maximum Output Value                     | 100      | %     | MaxOut   |
| Starting Value                           | 0        | %     | StartVAL |
| Block Iteration Rate                     | 15       | sec   | BlkRate  |
| Heating Setpoint Offset                  | 3        | ^F    | Value    |
| Staging Control                          |          |       |          |
| Total Number of Stages                   | 4        |       | TotalStg |
| On Time Delay                            | 3        | min   | OnDelay  |
| Off Time Delay                           | 1        | min   | OffDelay |
| Power on Delay                           | 0        | sec   | PowerUp  |
| OMNIZONE::HCVAV01: AO - Heating VAV 01   |          |       |          |
| Heating Coil Valve                       | HWV      |       | Name     |
| Fan Status Point                         | MODE     |       | Name     |
| Sensor Group/SPT Sensor                  | LINK_09  |       | Name     |
| Time Schedule                            | LINK_01  |       | Name     |
| Setpoint Schedule                        | LINK_01  |       | Name     |
| Heating Setpoint Offset                  | 3        | ^F    | Value    |
| High Humidity Switch                     | SENSDI00 |       | Name     |
| Humidity Setpoint                        | SETPT00  |       | Name     |
| High Humidity Sensor                     | IRH      |       | Name     |
| Occupied Heating                         | Yes      |       | OccHeat  |
| PID_Master_Loop                          |          |       |          |
| Proportional Gain                        | 3        |       | KP       |
| Integral Gain                            | 1.5      |       | KI       |
| Derivative Gain                          | 0        |       | KD       |
| Disabled Output Value                    | 35       | dF    | DsblOut  |
| Minimum Output Value                     | 40       | dF    | MinOut   |
| Maximum Output Value                     | 140      | dF    | MaxOut   |
| Starting Value                           | 80       | dF    | StartVal |
| Block Iteration Rate                     | 15       | sec   | BlkRate  |
| Supply Air Temperature                   | SAT      |       | Name     |
| P_Submaster_Loop                         |          |       |          |
| Proportional Gain                        | 3        |       | KP       |
| Disabled Output Value                    | 0        | %     | FanOff   |
| Minimum Output Value                     | 0        | %     | MinOut   |
| Maximum Output Value                     | 100      | %     | MaxOut   |
| Center Value                             | 30       | %     | Center   |
| Block Iteration Rate                     | 2        | sec   | BlkRate  |
| Power on Delay                           | 0        | sec   | PowerUp  |
| OMNIZONE::INTLK01: OK to run Fan         |          |       |          |
| Discrete Output Point                    | OKFAN    |       | Name     |
| Discrete Input Point 1                   | TIMCLOCK |       | Name     |
| Discrete Input Point 2                   | ROCC     |       | Name     |
| Discrete Interlock                       |          |       |          |
| Input 1 Comparison                       | Off      |       | Sns1Sta  |
| Input 2 Comparison                       | Off      |       | Sns2Sta  |
| Off Persistence Time                     | 5        | sec   | OffPrst  |
| On Persistence Time                      | 5        | sec   | OnPrst   |
| Output Logic Type                        | Invert   |       | LogType  |
| Power on Delay                           | 5        | sec   | PowerUp  |

\*Default values from factory.

NOTE: See CC6400 Comfort Controller Overview and Configuration Manual for configuration information.

## Configuration Screens (cont)

| DESCRIPTION  | VALUE*   | UNITS                                 | NAME  |
|--|--|---------------------------------------|---|
| OMNIZONE::INTLK02: Ok to Cool<br>Discrete Output Point<br>Discrete Input Point 1<br>Discrete Input Point 2<br>Discrete Interlock<br>Input 1 Comparison<br>Input 2 Comparison<br>Off Persistence Time<br>On Persistence Time<br>Output Logic Type<br>Power on Delay               | COOLOK<br>MODE<br>SF_SFS<br><br>Off<br>On<br>3<br>10<br>Normal<br>0  | <br><br><br><br>sec<br>sec<br><br>sec | Name<br>Name<br>Name<br><br>Sns1Sta<br>Sns2Sta<br>OffPrst<br>OnPrst<br>LogType<br>PowerUp |
| OMNIZONE::INTLK03: OK Fan + Sup. Fan Stat<br>Discrete Output Point<br>Discrete Input Point 1<br>Discrete Input Point 2<br>Discrete Interlock<br>Input 1 Comparison<br>Input 2 Comparison<br>Off Persistence Time<br>On Persistence Time<br>Output Logic Type<br>Power on Delay   | SF_SFS<br>OKFAN<br>SFS<br><br>On<br>On<br>2<br>2<br>Normal<br>0      | <br><br><br><br>sec<br>sec<br><br>sec | Name<br>Name<br>Name<br><br>Sns1Sta<br>Sns2Sta<br>OffPrst<br>OnPrst<br>LogType<br>PowerUp |
| OMNIZONE::INTLK04: Supply Fan Delays<br>Discrete Output Point<br>Discrete Input Point 1<br>Discrete Input Point 2<br>Discrete Interlock<br>Input 1 Comparison<br>Input 2 Comparison<br>Off Persistence Time<br>On Persistence Time<br>Output Logic Type<br>Power on Delay        | SF<br>OKFAN<br>SENSDI00<br><br>On<br>Off<br>300<br>20<br>Normal<br>0 | <br><br><br><br>sec<br>sec<br><br>sec | Name<br>Name<br>Name<br><br>Sns1Sta<br>Sns2Sta<br>OffPrst<br>OnPrst<br>LogType<br>PowerUp |
| OMNIZONE::INTLK05: Dis. Cool befor SF delay<br>Discrete Output Point<br>Discrete Input Point 1<br>Discrete Input Point 2<br>Discrete Interlock<br>Input 1 Comparison<br>Input 2 Comparison<br>Off Persistence Time<br>On Persistence Time<br>Output Logic Type<br>Power on Delay | FAN_CDWF<br>CDWF<br>OKFAN<br><br>On<br>On<br>3<br>3<br>Normal<br>0   | <br><br><br><br>sec<br>sec<br><br>sec | Name<br>Name<br>Name<br><br>Sns1Sta<br>Sns2Sta<br>OffPrst<br>OnPrst<br>LogType<br>PowerUp |
| OMNIZONE::INTLK06: Activate VAV Terminals<br>Discrete Output Point<br>Discrete Input Point 1<br>Discrete Input Point 2<br>Discrete Interlock<br>Input 1 Comparison<br>Input 2 Comparison<br>Off Persistence Time<br>On Persistence Time<br>Output Logic Type<br>Power on Delay   | TRMCT<br>OKFAN<br>SF<br><br>Off<br>Off<br>1<br>1<br>Invert<br>1      | <br><br><br><br>sec<br>sec<br><br>sec | Name<br>Name<br>Name<br><br>Sns1Sta<br>Sns2Sta<br>OffPrst<br>OnPrst<br>LogType<br>PowerUp |
| OMNIZONE::INTLK07: Ventilation Request<br>Discrete Output Point<br>Discrete Input Point 1<br>Discrete Input Point 2<br>Discrete Interlock<br>Input 1 Comparison<br>Input 2 Comparison<br>Off Persistence Time<br>On Persistence Time<br>Output Logic Type<br>Power on Delay      | VENTR<br>TIMCLOCK<br>SF_SFS<br><br>On<br>On<br>1<br>1<br>Normal<br>1 | <br><br><br><br>sec<br>sec<br><br>sec | Name<br>Name<br>Name<br><br>Sns1Sta<br>Sns2Sta<br>OffPrst<br>OnPrst<br>LogType<br>PowerUp |
| OMNIZONE::INTLK08: Heat Interlock Relay<br>Discrete Output Point<br>Discrete Input Point 1<br>Discrete Input Point 2<br>Discrete Interlock<br>Input 1 Comparison<br>Input 2 Comparison<br>Off Persistence Time<br>On Persistence Time<br>Output Logic Type<br>Power on Delay     | HIR<br>MODE<br>SF_SFS<br><br>On<br>On<br>30<br>30<br>Normal<br>5     | <br><br><br><br>sec<br>sec<br><br>sec | Name<br>Name<br>Name<br><br>Sns1Sta<br>Sns2Sta<br>OffPrst<br>OnPrst<br>LogType<br>PowerUp |

\*Default values from factory.

NOTE: See CC6400 Comfort Controller Overview and Configuration Manual for configuration information.

## Configuration Screens (cont)

| DESCRIPTION   | VALUE*  | UNITS  | NAME   |
|---|---|--|--|
| OMNIZONE::INTLK09: Condenser Pump<br>Discrete Output Point<br>Discrete Input Point 1<br>Discrete Input Point 2<br>Discrete Interlock<br>Input 1 Comparison<br>Input 2 Comparison<br>Off Persistence Time<br>On Persistence Time<br>Output Logic Type<br>Power on Delay  | PUMP<br>COOLOK<br>SENSDI00<br><br>On<br>Off<br>30<br>2<br>Normal<br>0   | <br><br><br><br>sec<br>sec<br><br>sec  | Name<br>Name<br>Name<br><br>Sns1Sta<br>Sns2Sta<br>OffPrst<br>OnPrst<br>LogType<br>PowerUp  |
| OMNIZONE::INTLK10: Tower Request<br>Discrete Output Point<br>Discrete Input Point 1<br>Discrete Input Point 2<br>Discrete Interlock<br>Input 1 Comparison<br>Input 2 Comparison<br>Off Persistence Time<br>On Persistence Time<br>Output Logic Type<br>Power on Delay   | TOWER<br>COOLOK<br>SENSDI00<br><br>On<br>Off<br>30<br>2<br>Normal<br>0  | <br><br><br><br>sec<br>sec<br><br>sec  | Name<br>Name<br>Name<br><br>Sns1Sta<br>Sns2Sta<br>OffPrst<br>OnPrst<br>LogType<br>PowerUp  |
| OMNIZONE::INTLK11: Compressor Cooling<br>Discrete Output Point<br>Discrete Input Point 1<br>Discrete Input Point 2<br>Discrete Interlock<br>Input 1 Comparison<br>Input 2 Comparison<br>Off Persistence Time<br>On Persistence Time<br>Output Logic Type<br>Power on Delay  | COMPRES<br>COOLOK<br>FAN_CDWF<br><br>On<br>On<br>2<br>30<br>Normal<br>0   | <br><br><br><br>sec<br>sec<br><br>sec  | Name<br>Name<br>Name<br><br>Sns1Sta<br>Sns2Sta<br>OffPrst<br>OnPrst<br>LogType<br>PowerUp  |
| OMNIZONE::LINK_01: Linkage/AOSS Schedule 01<br>Setpoint Bias<br>Setpoint Schedule<br>Adaptive Optimal Start<br>AO Start Enable<br>Building Insulation<br>Unoccupied 24hr Factor<br>Offset Low Value<br>Offset High Value<br>Sensor Group/SPT Sensor<br>Time Schedule<br>Outside Air Temp<br>NTFC Algorithm<br>Heating Algorithm<br>Supply Air Temp<br>Fan Status<br>Adaptive Optimal Stop<br>AO Stop Enable<br>Maximum Stop Time<br>Setpoint Bias<br>Power on Delay<br>Evacuation<br>Pressurization | VOLT_I00<br>SETPT03<br><br>Disable<br>30<br>15<br>0<br>0<br>CTRLPT<br>OCCPC01<br>OAT<br>NTFC_00<br>HCVAV01<br>SAT<br>SF_SFS<br><br>Disable<br>60<br>2<br>0<br>EVAC<br>TRMOP | <br><br><br><br><br><br>^F<br>^F<br><br><br><br><br><br><br><br>min<br>^F<br>sec | Name<br>Name<br><br>Enable<br>BldInsul<br>UnOccFct<br>Value<br>Value<br>Name<br>Name<br>Name<br>Name<br>Name<br>Name<br>Name<br>Name<br>Name<br>Enable<br>MaxStop<br>SPBias<br>PowerUp<br>Evacuate<br>Pressure |
| OMNIZONE::LMALM01: Supply air Sensor<br>Monitored Input Point<br>Alarm Inhibit Point<br>Limit Check<br>Low Limit<br>High Limit<br>Enable Delay Time<br>Persistence Time<br>Hysteresis<br>Alarm Processor<br>Alarm Processing<br>Re-Alarm Interval<br>Alarm=1 or Alert=0<br>Alarm Level<br>Alarm Source<br>Alarm Routing<br>Alarm Description Index<br>Alarm Message - Part 1<br>Alarm Message - Part 2<br>Alarm Message - Part 3<br>Alarm Message - Part 4<br>Power on Delay                        | SAT<br>SENSDI00<br><br>25<br>150<br>15<br>10<br>5<br><br>Enable<br>0<br>1<br>1<br>5<br>11010000<br>7<br><br>0   | <br><br><br><br>dF<br>dF<br>sec<br>sec<br>^F<br><br><br>min<br><br><br>sec       | Name<br>Name<br><br>LowLim<br>HighLim<br>DlyTim<br>Persist<br>Hyst<br><br>AlmProc<br>ReAlmTim<br>Type<br>AlmLevel<br>AlmSrc<br>AlmRtg<br>AlmDesc<br>Message<br>Message<br>Message<br>Message<br>PowerUp        |

\*Default values from factory.

NOTE: See CC6400 Comfort Controller Overview and Configuration Manual for configuration information.



### Configuration Screens (cont)

| DESCRIPTION  | VALUE*   | UNITS   | NAME  |
|--|--|---|---|
| OMNIZONE::LMALM02: Entering WaterTemp.<br>Monitored Input Point<br>Alarm Inhibit Point<br>Limit Check<br>Low Limit<br>High Limit<br>Enable Delay Time<br>Persistence Time<br>Hysteresis<br>Alarm Processor<br>Alarm Processing<br>Re-Alarm Interval<br>Alarm=1 or Alert=0<br>Alarm Level<br>Alarm Source<br>Alarm Routing<br>Alarm Description Index<br>Alarm Message - Part 1<br>Alarm Message - Part 2<br>Alarm Message - Part 3<br>Alarm Message - Part 4<br>Power on Delay | EWT<br>SENSDI00<br><br>35<br>95<br>15<br>10<br>5<br><br>Enable<br>0<br>1<br>1<br>5<br>11010000<br>7<br><br>0       | <br><br><br>dF<br>dF<br>sec<br>sec<br>^F<br><br><br>min<br><br><br><br><br><br><br><br>sec          | Name<br>Name<br><br>LowLim<br>HighLim<br>DlyTim<br>Persist<br>Hyst<br><br>AlmProc<br>ReAlmTim<br>Type<br>AlmLevel<br>AlmSrc<br>AlmRtg<br>AlmDesc<br>Message<br>Message<br>Message<br>Message<br>PowerUp |
| OMNIZONE::LMALM03: Compressor Mux<br>Monitored Input Point<br>Alarm Inhibit Point<br>Limit Check<br>Low Limit<br>High Limit<br>Enable Delay Time<br>Persistence Time<br>Hysteresis<br>Alarm Processor<br>Alarm Processing<br>Re-Alarm Interval<br>Alarm=1 or Alert=0<br>Alarm Level<br>Alarm Source<br>Alarm Routing<br>Alarm Description Index<br>Alarm Message - Part 1<br>Alarm Message - Part 2<br>Alarm Message - Part 3<br>Alarm Message - Part 4<br>Power on Delay      | CSMUX<br>SENSDI00<br><br>1.5<br>9.9<br>15<br>10<br>0.2<br><br>Enable<br>0<br>1<br>1<br>5<br>11010000<br>7<br><br>0 | <br><br><br>Volts<br>Volts<br>sec<br>sec<br>Volts<br><br><br>min<br><br><br><br><br><br><br><br>sec | Name<br>Name<br><br>LowLim<br>HighLim<br>DlyTim<br>Persist<br>Hyst<br><br>AlmProc<br>ReAlmTim<br>Type<br>AlmLevel<br>AlmSrc<br>AlmRtg<br>AlmDesc<br>Message<br>Message<br>Message<br>Message<br>PowerUp |
| OMNIZONE::LMALM04: Mixed/Return Air<br>Monitored Input Point<br>Alarm Inhibit Point<br>Limit Check<br>Low Limit<br>High Limit<br>Enable Delay Time<br>Persistence Time<br>Hysteresis<br>Alarm Processor<br>Alarm Processing<br>Re-Alarm Interval<br>Alarm=1 or Alert=0<br>Alarm Level<br>Alarm Source<br>Alarm Routing<br>Alarm Description Index<br>Alarm Message - Part 1<br>Alarm Message - Part 2<br>Alarm Message - Part 3<br>Alarm Message - Part 4<br>Power on Delay    | MA_RA<br>SENSDI00<br><br>35<br>120<br>10<br>10<br>5<br><br>Enable<br>0<br>1<br>2<br>5<br>11010000<br>7<br><br>0    | <br><br><br>dF<br>dF<br>sec<br>sec<br>^F<br><br><br>min<br><br><br><br><br><br><br><br>sec          | Name<br>Name<br><br>LowLim<br>HighLim<br>DlyTim<br>Persist<br>Hyst<br><br>AlmProc<br>ReAlmTim<br>Type<br>AlmLevel<br>AlmSrc<br>AlmRtg<br>AlmDesc<br>Message<br>Message<br>Message<br>Message<br>PowerUp |

\*Default values from factory.

NOTE: See CC6400 Comfort Controller Overview and Configuration Manual for configuration information.



### Configuration Screens (cont)

| DESCRIPTION                                  | VALUE* | UNITS | NAME     |
|--|--------|-------|----------|
| OMNIZONE::VPTESTC: Field Test                |        |       |          |
| Field Test                                   |        |       |          |
| Reschedule Rate                              | 5      | sec   | RESCHRAT |
| Power on Delay                               | 40     | sec   | RESCHPOR |
| OMNIZONE::MODECTRC: Mode Control             |        |       |          |
| Determines Heat                              |        |       |          |
| Reschedule Rate                              | 10     | sec   | RESCHRAT |
| Power on Delay                               | 30     | sec   | RESCHPOR |
| Run Fan in Bypass                            |        |       |          |
| Reschedule Rate                              | 10     | sec   | RESCHRAT |
| Power on Delay                               | 30     | sec   | RESCHPOR |
| Water Economizer Control                     |        |       |          |
| Reschedule Rate                              | 10     | sec   | RESCHRAT |
| Power on Delay                               | 30     | sec   | RESCHPOR |
| Mod Valve & Econo                            |        |       |          |
| Reschedule Rate                              | 2      | sec   | RESCHRAT |
| Power on Delay                               | 10     | sec   | RESCHPOR |
| OMNIZONE::SETSYNCC: Setpoint Synchronization |        |       |          |
| Setpoint Synch                               |        |       |          |
| Reschedule Rate                              | 3      | sec   | RESCHRAT |
| Power on Delay                               | 10     | sec   | RESCHPOR |

\*Default values from factory.

NOTE: See CC6400 Comfort Controller Overview and Configuration Manual for configuration information.

### Maintenance Screens

| DESCRIPTION  | VALUE  | UNITS | STATUS | FORCE   | NAME     |
|--|--------|-------|--------|---------|----------|
| OMNIZONE::ADAPT01: VAVRESET Software point control |        |       |        |         |          |
| Analog Output Point                                | 0      | %     |        |         | Value    |
| Status Point                                       | Off    |       |        |         | Value    |
| Occupied ?   | No     |       |        |         | Status   |
| Reset Point  | 0      | dF    |        |         | Value    |
| Controlling Setpoint                               | 0      | dF    |        |         | RefOut   |
| Control Point                                      | 0      | dF    |        |         | Value    |
| PID_Master_Loop                                    |        |       |        |         |          |
| Reference Output                                   | 0      | %     |        |         | RefOut   |
| Proportional Term                                  | 0      | %     |        |         | PTerm    |
| Integral Term                                      | 0      | %     |        |         | ITerm    |
| Derivative Term                                    | 0      | %     |        |         | DTerm    |
| Integrator Flags                                   | 100    |       |        |         | Flags    |
| Task Timer   | 6      | sec   |        |         | TaskTimr |
| OMNIZONE::ADAPT02: Head Pressure control           |        |       |        | Control |          |
| Analog Output Point                                | 100    | %     |        | Control | Value    |
| Status Point                                       | Off    |       |        | Control | Value    |
| Occupied ?   | No     |       |        | Control | Status   |
| Reset Point  | 0      | PSIG  |        | Control | Value    |
| Controlling Setpoint                               | 0      | PSIG  |        | Control | RefOut   |
| Control Point                                      | 117.72 | PSIG  |        | Control | Value    |
| PID_Master_Loop                                    |        |       |        |         |          |
| Reference Output                                   | 0      | %     |        |         | RefOut   |
| Proportional Term                                  | 0      | %     |        |         | PTerm    |
| Integral Term                                      | 0      | %     |        |         | ITerm    |
| Derivative Term                                    | 0      | %     |        |         | DTerm    |
| Integrator Flags                                   | 100    |       |        |         | Flags    |
| Task Timer   | 2      | sec   |        |         | TaskTimr |
| OMNIZONE::ADAPT03: Building Pressure Ctrl.         |        |       |        |         |          |
| Analog Output Point                                | 0      | %     |        |         | Value    |
| Status Point                                       | Off    |       |        |         | Value    |
| Occupied ?   | No     |       |        |         | Status   |
| Reset Point  | 0      | ma    |        |         | Value    |
| Controlling Setpoint                               | 12.32  | ma    |        |         | RefOut   |
| Control Point                                      | 12.44  | ma    |        |         | Value    |
| PID_Master_Loop                                    |        |       |        |         |          |
| Reference Output                                   | 0      | %     |        |         | RefOut   |
| Proportional Term                                  | 2      | %     |        |         | PTerm    |
| Integral Term                                      | 0      | %     |        |         | ITerm    |
| Derivative Term                                    | 0      | %     |        |         | DTerm    |
| Integrator Flags                                   | 100    |       |        |         | Flags    |
| Task Timer   | 3      | sec   |        |         | TaskTimr |

### Maintenance Screens (cont)

| DESCRIPTION   | VALUE  | UNITS  | STATUS | FORCE   | NAME  |
|---|--|--|--------|---------|---|
| OMNIZONE::ANCTL01: Supply Fan Status<br>Discrete Output Point<br>Sensor Group/SPT Sensor<br>Occupied ?<br>Analog<br>Low Setpoint<br>Lo Setpoint + Hyst<br>Hi Setpoint - Hyst<br>High Setpoint<br>Reference Output<br>Task Timer   | Off<br>0.17<br>No<br><br>0.3<br>0<br>0<br>0.4<br>FALSE<br>47   | <br>in H2O<br><br>in H2O<br>in H2O<br>in H2O<br>in H2O<br><br>sec                        |        | Control | Value<br>Value<br>Status<br><br>LowSP<br>ModLowSP<br>ModHghSP<br>HghSP<br>RefOut<br>TaskTimr  |
| OMNIZONE::ANCTL02: Humidity Control<br>Discrete Output Point<br>Sensor Group/SPT Sensor<br>Occupied ?<br>Analog<br>Low Setpoint<br>Lo Setpoint + Hyst<br>Hi Setpoint - Hyst<br>High Setpoint<br>Reference Output<br>Task Timer  | Off<br>49.56<br>No<br><br>0<br>10<br>89<br>99<br>FALSE<br>25   | <br>%RH<br><br>%RH<br>%RH<br>%RH<br>%RH<br><br>sec                                       |        |         | Value<br>Value<br>Status<br><br>LowSP<br>ModLowSP<br>ModHghSP<br>HghSP<br>RefOut<br>TaskTimr  |
| OMNIZONE::BSP_IN: Building Static Pressure (Typical Analog Software point)<br>System Value<br>Force<br>Status<br>Alarm Status   | 0.03<br>0<br>0<br>Normal   | <br>in H2O   |        |         | Sysvalue<br>Force<br>Status<br>AlmStat  |
| OMNIZONE::CCVAV01: Modulating Economizer Control<br>Cooling Coil Valve<br>Fan Status Point<br>Sensor Group/SPT Sensor<br>Occupied ?<br>High Humidity Switch<br>High Humidity Setpoint<br>High Humidity Sensor<br>VAV Setpoint Reset<br>Setpoint<br>Setpoint Offset<br>CCV Supply Air Setpoint<br>Supply Air Temperature<br>PID_Master_Loop<br>Reference Output<br>Proportional Term<br>Integral Term<br>Derivative Term<br>Integrator Flags<br>Task Timer | 0<br>Off<br>0<br>No<br>Off<br>99<br>0<br><br>73<br>20<br>73<br>77.19<br><br>0<br>0<br>0<br>0<br>100<br>4 | <br>%<br>dF<br><br>%RH<br>%RH<br><br>dF<br>^F<br>dF<br>dF<br><br>%<br>%<br>%<br>%<br>sec |        | Control | Value<br>Value<br>Value<br>Status<br>Value<br>Value<br>Value<br><br>Setpoint<br>Offset<br>CCVVRV<br>Value<br><br>RefOut<br>PTerm<br>ITerm<br>DTerm<br>Flags<br>TaskTimr |
| OMNIZONE::BSP: Building Static Milliamp<br>System Value<br>Force<br>Status<br>Alarm Status<br>Sensor Value<br>Hardware Value<br>Channel Number<br>Control Algorithm Name<br>Alarm Algorithm Name  | 12.4<br>0<br>0<br>Normal<br>12.4<br>12.4<br>34<br>ADAPT03  | <br>ma<br><br>ma<br>ma   |        |         | Sysvalue<br>Force<br>HwStat<br>AlmStat<br>SenValue<br>HwValue<br>ChanNum<br>AlgoName<br>AlmName   |
| OMNIZONE::IAQ: Indoor Air Quality<br>System Value<br>Force<br>Status<br>Alarm Status<br>Sensor Value<br>Hardware Value<br>Channel Number<br>Control Algorithm Name<br>Alarm Algorithm Name  | 584.3<br>0<br>0<br>Normal<br>584.3<br>8.7<br>36  | <br><br>ma   |        |         | Sysvalue<br>Force<br>HwStat<br>AlmStat<br>SenValue<br>HwValue<br>ChanNum<br>AlgoName<br>AlmName   |
| OMNIZONE::CSMUX: Comp. Status MUX<br>System Value<br>Force<br>Status<br>Alarm Status<br>Sensor Value<br>Hardware Value<br>Channel Number<br>Control Algorithm Name<br>Alarm Algorithm Name  | 1.83<br>0<br>0<br>Normal<br>1.83<br>1.8<br>3<br>LMALM03  | <br>Volts<br><br>Volts<br>Volts  |        |         | Sysvalue<br>Force<br>HwStat<br>AlmStat<br>SenValue<br>HwValue<br>ChanNum<br>AlgoName<br>AlmName   |

### Maintenance Screens (cont)

| DESCRIPTION   | VALUE  | UNITS  | STATUS | FORCE   | NAME   |
|---|--|--|--------|---------|--|
| OMNIZONE::PRES: Head Pressure(Comp1)<br>System Value<br>Force<br>Status<br>Alarm Status<br>Sensor Value<br>Hardware Value<br>Channel Number<br>Control Algorithm Name<br>Alarm Algorithm Name   | 118.76<br>0<br>0<br>Normal<br>118.76<br>1.9<br>24<br>ADAPT02             | PSIG<br><br><br>PSIG<br>Volts                                |        |         | Sysvalue<br>Force<br>HwStat<br>AlmStat<br>SenValue<br>HwValue<br>ChanNum<br>AlgoName<br>AlmName                    |
| OMNIZONE::RESET: Ext. Supply Air Reset<br>System Value<br>Force<br>Status<br>Alarm Status<br>Sensor Value<br>Hardware Value<br>Channel Number<br>Control Algorithm Name<br>Alarm Algorithm Name   | 0<br>0<br>0<br>Normal<br>0<br>1.1<br>20<br>ADAPT01                       | dF<br><br><br>dF<br>Volts                                    |        |         | Sysvalue<br>Force<br>HwStat<br>AlmStat<br>SenValue<br>HwValue<br>ChanNum<br>AlgoName<br>AlmName                    |
| OMNIZONE::UPDATEDB: Database Control<br>Database Error<br>EEPROM Error<br>RAM Error<br>Available Program Bytes<br>Available Data Bytes  | No<br>No<br>No<br>11130<br>14742   |  |        |         | DBError<br>EEError<br>RAMEError<br>EEPROM<br>RAM   |
| OMNIZONE::ALARM: Critical Fault (Typical Discrete Out)<br>System Value<br>Force<br>Status<br>Alarm Status<br>Control Value<br>Hardware Value<br>Channel Number<br>Control Algorithm Name<br>Alarm Algorithm Name  | Off<br>0<br>0<br>Normal<br>Off<br>Open<br>16                             |  |        |         | SysVal<br>Force<br>HwStat<br>AlmStat<br>CtrValue<br>HdwValue<br>ChanNum<br>AlgoName<br>AlmName                     |
| OMNIZONE::BP_SAFE: Bypass Acc Panel Secure (Typical Discrete Software)<br>System Value<br>Force<br>Status<br>Alarm Status   | No<br>0<br>0<br>Normal   |  |        |         | Sysvalue<br>Force<br>Status<br>AlmStat   |
| OMNIZONE::DOPI_01: Supply Fan Status<br>Discrete Output Point<br>Occupied ?<br>Permissive Interlock<br>Reference Output<br>Perm Interlock Flag<br>Conditional<br>Modified Setpoint<br>Persistence Timer<br>Setpoint Limit<br>Analog Control Point<br>Discrete Control Point<br>Task Timer         | Off<br>No<br><br>0<br>TRUE<br>Low<br>0.5<br>0<br>0.3<br>0.17<br>Off<br>1 | <br><br><br><br><br>in H2O<br>sec<br>in H2O<br>in H2O<br>sec |        | Control | Value<br>Status<br><br>RefOut<br>PIFlag<br>Condition<br>ModStpt<br>PersTime<br>Value<br>Value<br>Value<br>TaskTimr |
| OMNIZONE::DSALM01: Duct High Pressure (Typical Discrete Alarm)<br>Monitored Input Point<br>Comparison Point<br>Alarm Inhibit Point<br>Alarm Status<br>Alarm Processor<br>Alarm Type<br>Time of Last Message<br>Month of Last Message<br>Day of Last Message<br>Year of Last Message<br>Task Timer | Off<br>Off<br>Off<br>Normal<br><br>0<br>0:00<br>0<br>0<br>0<br>2         |  |        |         | Value<br>Value<br>Value<br>Status<br><br>AlmType<br>LastTime<br>LastDate<br>LastDate<br>LastDate<br>TaskTimr       |

### Maintenance Screens (cont)

| DESCRIPTION                              | VALUE | UNITS | STATUS | FORCE   | NAME     |
|--|-------|-------|--------|---------|----------|
| OMNIZONE::DXVAV01: Compressor Staging    |       |       |        |         |          |
| Discrete Output Point 1                  | Off   |       |        |         | Value    |
| Discrete Output Point 2                  | Off   |       |        |         | Value    |
| Discrete Output Point 3                  | Off   |       |        |         | Value    |
| Discrete Output Point 4                  | Off   |       |        |         | Value    |
| Discrete Output Point 5                  | Off   |       |        |         | Value    |
| Discrete Output Point 6                  | Off   |       |        |         | Value    |
| Fan Status Point                         | Off   |       |        |         | Value    |
| Sensor Group/SPT Sensor                  | 0     | dF    |        |         | Value    |
| Occupied ?                               | No    |       |        |         | Status   |
| High Humidity Switch                     | Off   |       |        |         | Value    |
| High Humidity Setpoint                   | 99    | %RH   |        |         | Value    |
| High Humidity Sensor                     | 49.56 | %RH   |        |         | Value    |
| VAV Setpoint Reset                       |       |       |        |         |          |
| Setpoint                                 | 75    | dF    |        |         | Setpoint |
| Setpoint Offset                          | 20    | ^F    |        |         | Offset   |
| DX Supply Air Setpoint                   | 75    | dF    |        |         | DODXRF   |
| Supply Air Temperature                   | 66.97 | dF    |        |         | Value    |
| PID_Master_Loop                          |       |       |        |         |          |
| Reference Output                         | 0     | %     |        |         | RefOut   |
| Proportional Term                        | 11.9  | %     |        |         | PTerm    |
| Integral Term                            | 0     | %     |        |         | ITerm    |
| Derivative Term                          | 0     | %     |        |         | DTerm    |
| Integrator Flags                         | 100   |       |        |         | Flags    |
| Staging Control                          |       |       |        |         |          |
| Number of Stages                         | 0     |       |        |         | NumStgs  |
| Requested Stages                         | 0     |       |        |         | ReqStgs  |
| Delta Stages                             | 0     |       |        |         | DltaStgs |
| Delay Timer                              | 0     | min   |        |         | DlyTimer |
| PID Integrator Clamp                     | Off   |       |        |         | PIDClamp |
| Task Timer                               | 4     | sec   |        |         | TaskTimr |
| OMNIZONE::EHVAV01: DO - Elec Heat VAV 01 |       |       |        |         |          |
| Discrete Output Point 1                  | Off   |       |        |         | Value    |
| Discrete Output Point 2                  | Off   |       |        |         | Value    |
| Discrete Output Point 3                  | Off   |       |        |         | Value    |
| Discrete Output Point 4                  | Off   |       |        |         | Value    |
| Discrete Output Point 5                  | Off   |       |        |         | Value    |
| Discrete Output Point 6                  | Off   |       |        |         | Value    |
| Fan Status Point                         | Off   |       |        |         | Value    |
| Sensor Group/SPT Sensor                  | 74    | dF    |        | Control | Value    |
| Occupied ?                               | No    |       |        |         | Status   |
| High Humidity Switch                     | Off   |       |        |         | Value    |
| High Humidity Setpoint                   | 99    | %RH   |        |         | Value    |
| High Humidity Sensor                     | 49.71 | %RH   |        |         | Value    |
| Duct Temperature                         | 66.97 | dF    |        |         | Value    |
| Duct High Limit                          | 150   | dF    |        |         | Value    |
| Morning Warm Up                          |       |       |        |         |          |
| Reference Output                         | Off   |       |        |         | RefOut   |
| Morning Warmup ?                         | FALSE |       |        |         | HeatFlg  |
| PID_Master_Loop                          |       |       |        |         |          |
| Reference Output                         | 0     | %     |        |         | RefOut   |
| Proportional Term                        | 84.9  | %     |        |         | PTerm    |
| Integral Term                            | 0     | %     |        |         | ITerm    |
| Derivative Term                          | 0     | %     |        |         | DTerm    |
| Integrator Flags                         | 100   |       |        |         | Flags    |
| Space Setpoint                           | 55    | dF    |        |         | Value    |
| Staging Control                          |       |       |        |         |          |
| Number of Stages                         | 0     |       |        |         | NumStgs  |
| Requested Stages                         | 0     |       |        |         | ReqStgs  |
| Delta Stages                             | 0     |       |        |         | DltaStgs |
| Delay Timer                              | 0     | min   |        |         | DlyTimer |
| PID Integrator Clamp                     | Off   |       |        |         | PIDClamp |
| Task Timer                               | 7     | sec   |        |         | TaskTimr |

### Maintenance Screens (cont)

| DESCRIPTION  | VALUE | UNITS | STATUS | FORCE   | NAME      |
|--|-------|-------|--------|---------|-----------|
| OMNIZONE::HCVAV01: AO - Heating VAV 01               |       |       |        |         |           |
| Heating Coil Valve                                   | 0     | %     |        | Control | Value     |
| Fan Status Point                                     | Off   |       |        |         | Value     |
| Sensor Group/SPT Sensor                              | 74    | dF    |        |         | Value     |
| Occupied ?   | No    |       |        |         | Status    |
| Space Setpoint                                       | 55    | dF    |        |         | Value     |
| High Humidity Switch                                 | Off   |       |        |         | Value     |
| High Humidity Setpoint                               | 99    | %RH   |        |         | Value     |
| High Humidity Sensor                                 | 49.56 | %RH   |        |         | Value     |
| Morning Warm Up                                      |       |       |        |         |           |
| Reference Output                                     | Off   |       |        |         | RefOut    |
| Morning Warmup ?                                     | FALSE |       |        |         | HeatFlg   |
| PID_Master_Loop                                      |       |       |        |         |           |
| Reference Output                                     | 35    | dF    |        |         | RefOut    |
| Proportional Term                                    | 50.9  | ^F    |        |         | PTerm     |
| Integral Term  | 0     | ^F    |        |         | ITerm     |
| Derivative Term                                      | 0     | ^F    |        |         | DTerm     |
| Integrator Flags                                     | 100   |       |        |         | FLAGS     |
| HCV Supply Air Setpoint                              | 35    | dF    |        |         | HCVVRF    |
| Supply Air Temperature                               | 66.99 | dF    |        |         | Value     |
| P_Submaster_Loop                                     |       |       |        |         |           |
| Reference Output                                     | 0     | %     |        |         | RefOut    |
| Proportional Term                                    | -96   | %     |        |         | PropTerm  |
| Submaster Flags                                      | 1     |       |        |         | SubmFlag  |
| Task Timer   | 1     | sec   |        |         | TaskTimr  |
| OMNIZONE::INTLK01: OK to run Fan (Typical Interlock) |       |       |        |         |           |
| Discrete Output Point                                | Off   |       |        |         | Value     |
| Discrete Input Point 1                               | Off   |       |        |         | Value     |
| Discrete Input Point 2                               | Off   |       |        |         | Value     |
| Reference Output                                     | On    |       |        |         | RefOut    |
| Task Timer   | 1     | sec   |        |         | TaskTimr  |
| OMNIZONE::LINK_01: Linkage/AOSS Schedule 01          |       |       |        |         |           |
| Setpoint Bias  | 0     | %     |        |         | Value     |
| Adaptive Optimal Start                               |       |       |        |         |           |
| Start Bias   | 0     | min   |        |         | StrtBias  |
| Start Cool K Factor                                  | 10    |       |        |         | CoolKFct  |
| Start Heat K Factor                                  | 5     |       |        |         | HeatKFct  |
| Biased Start Day                                     |       |       |        |         | StartDay  |
| Biased Start Time                                    | 0:00  |       |        |         | BiasTim   |
| Biased Occupied                                      | No    |       |        |         | BiasOcc   |
| Cool Flag  | FALSE |       |        |         | CoolFlg   |
| Sensor Group/SPT Sensor                              | 74    | dF    |        |         | Value     |
| Occupied ?   | No    |       |        |         | Status    |
| Outside Air Temp                                     | 76.1  | dF    |        |         | Value     |
| Linkage Time Schedule                                |       |       |        |         |           |
| Mode   | 0     |       |        |         | Mode      |
| Biased Occupied                                      | 0     |       |        |         | BiasFlag  |
| Next Occupied Day                                    |       |       |        |         | NxtOcDay  |
| Next Occupied Time                                   | 0:00  |       |        |         | NxtOccT   |
| Next Unoccupied Day                                  |       |       |        |         | NxtUnDay  |
| Next Unoccupied Time                                 | 0:00  |       |        |         | NxtUnoT   |
| Last Unoccupied Day                                  | Thu   |       |        |         | PrvUnDay  |
| Last Unoccupied Time                                 | 15:04 |       |        |         | PrvUnoT   |
| Status   | 0     |       |        |         | Status    |
| Override is set                                      | 0     |       |        |         | Override  |
| Linkage Setpt Schedule                               |       |       |        |         |           |
| Occupied Lo Setpoint                                 | 70    | dF    |        |         | OccLow    |
| Occupied Hi Setpoint                                 | 74    | dF    |        |         | OccHigh   |
| Unoccupied Lo Setpoint                               | 55    | dF    |        |         | UnoccLow  |
| Unoccupied Hi Setpoint                               | 85    | dF    |        |         | UnoccHigh |
| Linkage Space Temp                                   | 74    | dF    |        |         | Link      |
| Supply Air Temp                                      | 66.97 | dF    |        |         | Value     |
| Fan Status   | Off   |       |        |         | Value     |
| Air Side Linkage                                     |       |       |        |         |           |
| Linkage Status                                       | 1     |       |        |         | LinkStat  |
| Supervisory Element                                  | 140   |       |        |         | Supe-Adr  |
| Supervisory Bus                                      | 0     |       |        |         | Supe-Bus  |
| Supervisory Block No.                                | 3     |       |        |         | BlockNum  |
| Avg Occ Heat Setpoint                                | 0     | dF    |        |         | OcLoStpt  |
| Avg Occ Cool Setpoint                                | 0     | dF    |        |         | OcHiStpt  |
| Avg Unocc Heat Setpoint                              | 0     | dF    |        |         | UnLoStpt  |
| Avg Unocc Cool Setpoint                              | 0     | dF    |        |         | UnHiStpt  |
| Avg Zone Temperature                                 | 0     | dF    |        |         | AZT       |
| Avg Occ Zone Temp                                    | 0     | dF    |        |         | AOZT      |
| Adaptive Optimal Stop                                |       |       |        |         |           |
| Stop Bias  | 0     | min   |        |         | StopBias  |
| Stop Cool K Factor                                   | 10    |       |        |         | CoolKFct  |
| Stop Heat K Factor                                   | 15    |       |        |         | HeatKFct  |
| Biased Low Setpoint                                  | 70    | dF    |        |         | BiasLow   |
| Biased High Setpoint                                 | 74    | dF    |        |         | BiasHigh  |
| Biased Stop  | No    |       |        |         | AOStop    |
| Cool Flag  | FALSE |       |        |         | CoolFlg   |
| Biased Stop Day                                      |       |       |        |         | BiasDay   |
| Biased Stop Time                                     | 0:00  |       |        |         | BiasTim   |
| Task Timer   | 9     | sec   |        |         | TaskTimr  |
| Evacuation   | Off   |       |        |         | Evacuate  |
| Pressurization                                       | Off   |       |        |         | Pressure  |

### Maintenance Screens (cont)

| DESCRIPTION  | VALUE  | UNITS   | STATUS | FORCE | NAME  |
|--|--|---|--------|-------|---|
| OMNIZONE::LMALM01: Supply air Sensor (Typical Limit Alarm)<br>Monitored Input Point<br>Alarm Inhibit Point<br>Limit Check<br>Alarm Status<br>Alarm Value<br>Exceeded Limit<br>Alarm Processor<br>Alarm Type<br>Time of Last Message<br>Month of Last Message<br>Day of Last Message<br>Year of Last Message<br>Task Timer  | 66.97<br>Off<br><br>Normal<br>0<br>0<br><br>2<br>15:08<br>10<br>26<br>1<br>4               | dF<br><br><br>dF<br>dF<br><br>sec                                     |        |       | Value<br>Value<br><br>Status<br>AlmValue<br>ExcdLim<br><br>AlmType<br>LastTime<br>LastDate<br>LastDate<br>LastDate<br>TaskTimr                                |
| OMNIZONE::DSP: Duct Static Pressure (Typical Milliamp Input)<br>System Value<br>Force<br>Status<br>Alarm Status<br>Sensor Value<br>Hardware Value<br>Channel Number<br>Control Algorithm Name<br>Alarm Algorithm Name  | 0.2<br>0<br>0<br>Normal<br>0.2<br>4.5<br>2<br>ANCTL01                                      | in H2O<br><br><br><br>in H2O<br>ma                                    |        |       | Sysvalue<br>Force<br>HwStat<br>AlmStat<br>SenValue<br>HdwValue<br>ChanNum<br>AlgoName<br>AlmName  |
| OMNIZONE::ECONO: 2-position/Econo Valve (Typical Milliamp Output)<br>System Value<br>Force<br>Status<br>Alarm Status<br>Control Value<br>Hardware Value<br>Channel Number<br>Control Algorithm Name<br>Alarm Algorithm Name  | 0<br>0<br>0<br>Normal<br>0<br>4<br>27<br>CCVAV01   | %<br><br><br><br>%<br>ma  |        |       | Sysvalue<br>Force<br>HwStat<br>AlmStat<br>CtrValue<br>HdwValue<br>ChanNum<br>AlgoName<br>AlmName  |
| OMNIZONE::OCCPC01: Occupancy 01<br>Time Schedule<br>Mode<br>Current Occupied Period<br>Override in Progress<br>Override Duration<br>Occupied Start Time<br>Unoccupied Start Time<br>Next Occupied Day<br>Next Occupied Time<br>Next Unoccupied Day<br>Next Unoccupied Time<br>Last Unoccupied Day<br>Last Unoccupied Time<br>Push Button Override<br>Thermostat Override<br>Task Timer | 0<br>0<br>No<br>0<br>0:00<br>0:00<br><br>0:00<br><br>0:00<br>Thu<br>15:04<br>Off<br>0<br>1 | <br><br><br><br><br><br><br><br><br><br><br><br><br><br><br>dF<br>sec | min    |       | Mode<br>Period<br>OverLast<br>OverDura<br>OccStart<br>UnStart<br>NxtOccD<br>NxtOccT<br>NxtUnOD<br>NxtUnOT<br>PrvUnOD<br>PrvUnOT<br>Value<br>Value<br>TaskTimr |
| OMNIZONE::BYPAS: VFD Bypass Enable (Typical)<br>System Value<br>Force<br>Status<br>Alarm Status<br>Sensor Value<br>Hardware Value<br>Channel Number<br>Control Algorithm Name<br>Alarm Algorithm Name  | Disable<br>0<br>0<br>Normal<br>Disable<br>Open<br>23                                       |   |        |       | Sysvalue<br>Force<br>HwStat<br>AlmStat<br>SenValue<br>HdwValue<br>ChanNum<br>AlgoName<br>AlmName  |
| OMNIZONE::STPR_01: Supply Fan Speed<br>Analog Output Point<br>Fan Status Point<br>Duct Static Pressure<br>Static Pressure Setpoint<br>PID_Master_Loop<br>Reference Output<br>Proportional Term<br>Integral Term<br>Derivative Term<br>Integrator Flags<br>Task Timer   | 0<br>Off<br>0<br>0<br><br>0<br>0<br>0<br>0<br>0<br>0<br>0                                  | %<br><br>in H2O<br>in H2O<br><br>%<br>%<br>%<br>%                     |        |       | Value<br>Value<br>Value<br>Value<br><br>RefOut<br>PTerm<br>ITerm<br>DTerm<br>Flags<br>TaskTimr  |



## Maintenance Screens (cont)

| DESCRIPTION   | VALUE   | UNITS  | STATUS | FORCE | NAME   |
|---|---|--|--------|-------|--|
| OMNIZONE::TC01: DO - Time Clock 01<br>Discrete Output Point<br>Occupied ?<br>Redline ?<br>Duty Cycle<br>Reference Output<br>Off Time Duration<br>Region of Hour<br>Task Timer   | Off<br>No<br>No<br><br>Off<br>0<br>0<br>22  | <br><br><br><br>min<br>sec   |        |       | Value<br>Status<br>Status<br><br>RefOut<br>OffTime<br>Region<br>TaskTimr   |
| OMNIZONE::EWT: Entering Water Temp.<br>System Value<br>Force<br>Status<br>Alarm Status<br>Sensor Value<br>Channel Number<br>Control Algorithm Name<br>Alarm Algorithm Name  | 69.9<br>0<br>0<br>Normal<br>69.9<br>8<br>LMALM02  | dF<br><br><br>dF   |        |       | Sysvalue<br>Force<br>HwStat<br>AlmStat<br>SenValue<br>Varnum<br>AlgoName<br>AlmName  |
| OMNIZONE::VPIOM: I/O & Faults (Typical BEST++ maintenance)<br>Compressor Status<br>Task State<br>Task Timer<br>Execution Time<br>Critical Fault<br>Task State<br>Task Timer<br>Execution Time<br>Fire Shutdown<br>Task State<br>Task Timer<br>Execution Time<br>Non Critical Fault<br>Task State<br>Task Timer<br>Execution Time<br>Compressor Fault/Test<br>Task State<br>Task Timer<br>Execution Time | RESCHED<br>1<br>0.183<br><br>RESCHED<br>1<br>0.111<br><br>RESCHED<br>1<br>0.049<br><br>RESCHED<br>1<br>0.113<br><br>RESCHED<br>1<br>0.046 | <br>sec<br>sec<br><br>sec<br>sec<br><br>sec<br>sec<br><br>sec<br>sec<br><br>sec<br>sec |        |       | TASKSTAT<br>TASKTIMR<br>EXETIME<br><br>TASKSTAT<br>TASKTIMR<br>EXETIME<br><br>TASKSTAT<br>TASKTIMR<br>EXETIME<br><br>TASKSTAT<br>TASKTIMR<br>EXETIME |