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GCL PLC Ventilation Controller

1 Display

- 1.0 Outside Temperature (Degrees Fahrenheit).
- 1.1 Plenum Temperature (Degrees Fahrenheit).
- 1.2 Return Temperature (Degrees Fahrenheit).

2 Navigation

- 2.0 F1 and F4 scroll through the menus.
- 2.1 F2 and F3 are used to adjust settings.
- 2.2 The Up and Down Arrow will scroll between the date/ time and the sensor readings.
- 2.3 The Down Arrow will display any errors (See section 5 for description).
- 2.4 Do not use the Right and Left Arrows except for instruction 2.6.
- 2.5 The display will return to the temperature and humidity readings after one minute.
- 2.6 Accumulated Fan Time is displayed by holding 'Esc' and the right arrow buttons.

3 Settings

- 3.0 Outside high temperature limit (Degrees Fahrenheit).
 - The outside temperature must be below this temperature for the system to run.
- 3.1 Outside low temperature limit (Degrees Fahrenheit).
 - The temperature must be above this temperature for the system to run.
- 3.2 Ideal inside temperature (Degrees Fahrenheit).
 - The temperature the system will attempt to achieve by modulating the intake door.

4 Description of Operation

- 4.0 Automatic Operation
 - The outside temperature and humidity are monitored against the high and low set-points. If the monitored values are within these limits the fan will turn on. If they are outside these values for 5 minutes the fan will shut off.
 - If the fan shuts off on either of these limits, it will remain off for 30 minutes, and until the outside temperature comes back into the set limits.
 - The Ideal inside temperature is the desired supply air temperature. It is controlled by modulating the intake door to reach this setpoint.

4.1 Manual Operation

- The fans will run as long as the Low Plenum temperature is not reached.
 - The Low Plenum Control will trip if the temperature in the plenum (supply air) is lower than the setting on the adjustment dial.

4.2 Intake Door Operation

- The door will only operate if the fan is running.
- The intake door is powered from the Powerware UPS, this ensures the door will close if there is a power outage.
- Automatic operation: The door will open if the plenum temperature is above the ideal inside setpoint and the outside temperature is below the ideal inside setpoint. The door will begin closing if the plenum temperature drops below the ideal inside setting or the outside air temperature rises above the ideal inside setting.
- Manual operation: With the door switch in Manual, the door can be opened by using the 'up' switch or closed using the 'down' switch.
- The A419 Door Heater Control is factory set and should not need any adjustment. It works in conjunction with the 15 amp arc fault breaker to control the block heater in the intake door to keep it from freezing.

4.3 Humidity Control

- The humidification system will only run when the fan is running. The fan contactor will send power to the humidification system.
- A timer relay is used to control the humidifier pump or the dry fog solenoid valve.
 - The white needle sets the pump/valve 'off' time.
 - The orange needle sets the pump/valve 'on' time.
- Humidifier Switch
 - Auto: The pump or valve will pulse based on the timer relay setting.
 - Manual: The pump or valve will be on as long as the fan is running.

4.4 Mode Switch: Constant or Timed

- Constant: The fans will run as long as the outside temperature is within the limits.
- Timed: The fans will operate during the times selected on the time clock. The pins on the time clock represent 15 minute intervals. Pushing the pin towards the center of the clock activates the fan for that time period. Set the correct time of day by turning the dial to match the time to the white arrow at the top of the time clock.

4.5 Outside Red and Green Light

- Only the red light on: no fans are running.
- Only the green light on: means all fans are running.
- Both lights are on: at least one fan is running and at least one is off.

5 Errors

- 5.0 There are three errors that will shut the system down.
 - Low temperature cut-out.
 - Fan overload.
 - Fan current.
- 5.1 Press the Down Arrow to display the error.
- 5.2 The errors must be corrected prior to the system re-starting.
- 5.3 The error can be cleared from the display by pressing 'OK'.