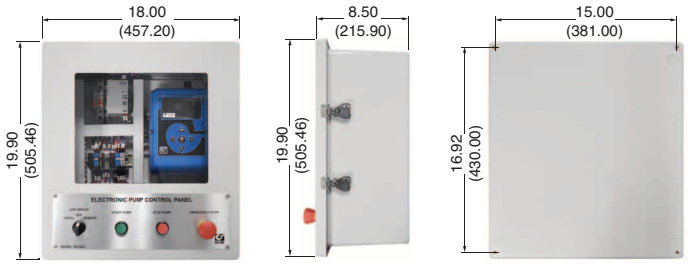
CLA-VAL™

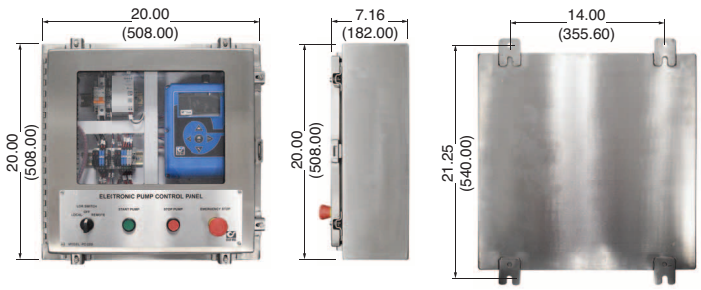
— MODEL — **PC-22D**

Electronic Pump Control Panel

Fiberglass Enclosure



Stainless Steel Enclosure



- **Pre-programmed Valve Controller**
- **Suitable for all Booster Pump and Deep Well Applications**
- **Works with 60 Series and 131 Series Control Valves**
- **Electronically Control Open/Closing Speed of Control Valve**
- **Indicator Lights Monitor System Status**
- **NEMA 4X Rated Enclosure**

The Cla-Val PC-22D provides control of the pump and pump control valve, preventing surges in the system when the pump starts or stops. It consists of a pre-wired electrical control panel employing a programmable valve controller to sequence the pump and pump control valve during all modes of operation. The programmable valve controller, which is housed in a NEMA 4X rated enclosure, provides protection to the pumping system from damage due to mechanical, hydraulic or power failure. The PC-22D offers all the control features found in the Cla-Val recommended wiring diagrams, plus alarms, automatic shutdown and adjustable timers.

System indicators provide local visual indicator of normal operation and alarm conditions. An externally mounted three position “Local-Off-Remote” switch provides local or remote pump start/stop operation. The PC-22D is supplied with contacts for remote start, a pressure switch and a valve limit switch.

The Cla-Val PC-22D Electronic Pump Control Panel is manufactured to ensure a minimum amount of field wiring. It is pre-programmed for most common pump control applications. Custom application programming is available upon request.

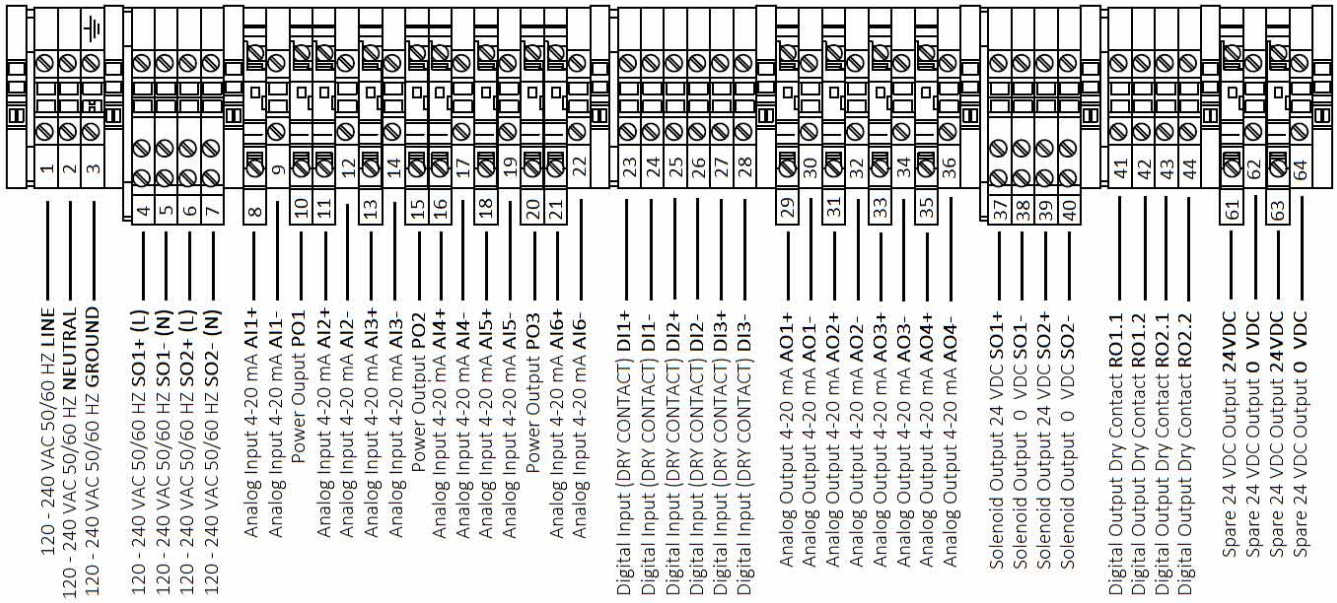
Features

- Controls single and dual chambered pump control valves
- Local visual indication of pump and control valve status
- Easy to adjust sequence timers
- Displays time for system to build pressure and for valve to open
- Contacts provided for remote or automatic start signal
- Operator interface buttons and reset switch
- Easy field wiring installation
- Automatic shutdown of pump in emergency situations
- Terminal block connections include – solenoid controls, valve limit switch, pump starter relay, remote automatic contact, pressure switch
- LOR switch for remote or local operation

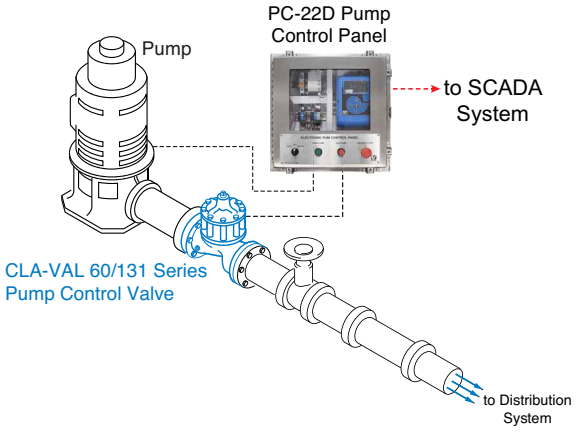
UL® LISTED Components

Wiring Diagram

Please refer to PC-22D IOM for detailed wiring diagrams ON/OFF control, Modulating control.



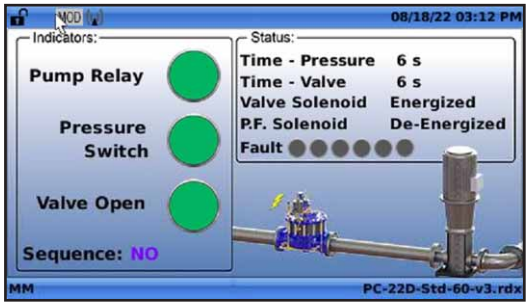
Typical Application



To minimize "in field wiring" the PC-22D is manufactured for most common pump control applications. The installation above shows the PC-22D being used with a Cla-Val Electronic Pump Control Valve.

Operation

The PC-22D pump control panel functions as a pump and pump control valve controller that provides appropriate visual indication of system status throughout all modes of operation. Colored lights are provided to indicate normal operation and alarm conditions of the pump and control valve.



Indicator	Color Grey	Color Green
Pump Status	Pump OFF	Pump ON
Pressure Switch	Pressure minimum not met	Pressure above minimum
Valve Open	Valve Closed	Valve Open

Normal Pump Start (Hand or Auto)

A pump start command is initiated by turning the LOR switch to the "Local/Remote" position and pressing start or by a remote contact closure with the LOR switch in the "Remote" position; either of these operations will immediately turn on the pump & can be seen by the indicator on the controller screen.

The valve will not start to open until a pressure switch contact has been made, notifying the controller minimum system pressure has been established. If using a dual solenoid 131/133 control valve, configured to control opening/closing solenoid, PID control can be configured to opening/closing speed, multi zone control, and Solenoid output type. If using a 60 series control valve, the valve will fully open.

Once the opening sequence is complete, all system indicators can be seen in green.

Normal Pump Shutdown

A normal pump shutdown sequence is initiated by either depressing the stop button if in "local" mode or by opening the remote contact if using "remote" mode. By initiating this command, the pump control valve relay will open and cause the control valve to close. if using a 131/133 series valve, PID control can be programmed to slowly close the valve in configurable amount of time. Once the valve is fully closed, the pump contact will open and shut down the pump.

Pump Malfunction

Anytime during the pump operation when the pump discharge pressure is not capable of satisfying the pressure switch setting, the visual indicator will change status and color, this indicates a loss of pressure, the control valve will close and the pump motor contacts shall open to turn off the pump. A screen indicator will display "System Failure", and a manual reset of the emergency stop switch will be required to clear the fault and reset the system.

Valve Malfunction

If the solenoids of the pump control valve fail, or if any other event should cause the valve to close without a normal pump shutdown command, the pump contact shall open turning the pump off. A screen indicator will display "System Failure", and a manual reset of the emergency stop switch shall be required to clear the fault and reset the system.

Timers

The PC-22D Electronic Pump Control Panel is supplied with a built-in pressure and valve opening sequence timer. Once the pump has turned on, if pressure does not meet the minimum operating system pressure or the control valve does not open within this configurable amount of time the pump contact shall open turning the pump off. A manual reset of the emergency stop switch shall be required to reset the fault.

Specifications

Construction

NEMA 4X Fiberglass/Stainless Steel with polycarbonate window, gasketed door, stainless steel twist/latch door fasteners.

Power

240/120 VAC @ 50/60 HZ with 5 Amp fuse and circuit breaker.

Inputs

Dry Contact Inputs:
- Remote Start Command
- Valve Limit Switch Signal
- Discharge Pressure Switch Signal
- Local Start Pump Command
- Local Stop Pump Command
- Emergency Stop Command

Analog 4-20mA Inputs:
(6) Available

Outputs

Pump Start Relay:
- 10 Amp Max

Control Valve Solenoids:
- 60 series Valve
  (1) 240/120 VAC
  @50/60 Hz/24VDC output.
- 131/133 series Valve
  (2) 240/120 VAC
  @50/60 Hz/24VDC output.

Alarm Relay:
- (2) Available & Configurable

Analog 4-20mA Output:
- (4) Available

Timers

Pressure Timer - Allowable time for pump to build pressure.
Valve Open Timer - Allowable time for control valve to open.

PID Control:

If using 131/133 series control valve, PID tuning can be configured to adjust parameters such , opening speed,closing speed, multi zone control.

Communication:
- Modbus TCP/IP
- Modbus RTU
- VNC

Temperature Range:
- -10 to 70° C
- 14°F to 158°F