



# — MODEL — SC-22D Electronic Surge Control Panel



Inside the  
SC-22D

- Pre-programmed Valve Controller
- Suitable for all Electronic Surge Control Applications
- Works with 52-08 and other Surge series valves
- UPS Battery Backup provides power during a power outage
- Indicator Lights Monitor System Status
- NEMA 4X Rated Enclosure

The Cla-Val SC-22D provides electronic control to a surge anticipator valve to open in response to events which create pressure surges such as a pump power failure or pump failure which is not related to a power loss. The electronic controlled surge valve will be fully open before the returning surge arrives at the valve. The surge valve will, after a pre-set time delay, close slowly. The valve shall respond at any time to over pressure surges independent of the electronic controls. The control box shall be capable of operating in either one of two different modes depending on the system requirements. The two modes "A" and "B" shall be selected by the operator within the enclosure.

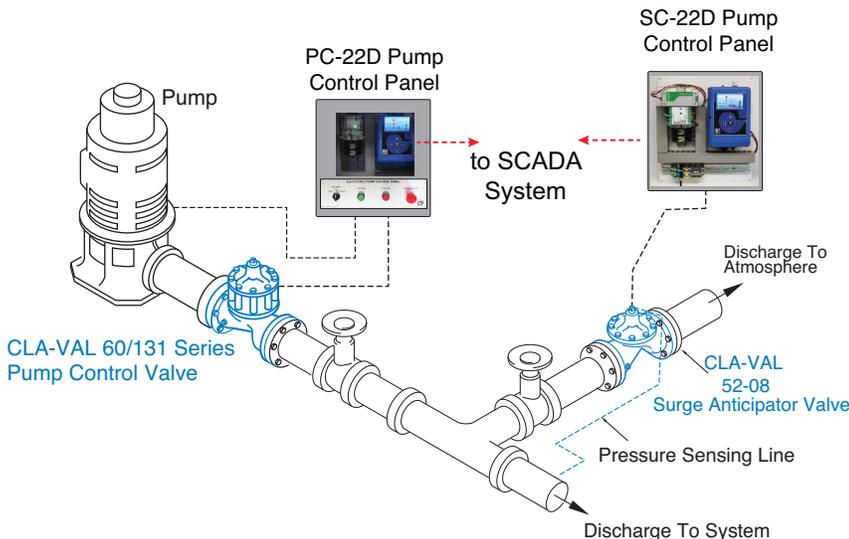
System indicators provide local visual indication of system and valve status, in addition to mode selection & timer configuration. The SC-22D is supplied with contacts for mode selection, testing the system, limit switch, pressure switch (optional), pump start command (optional), and alarm conditions.

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

## Features

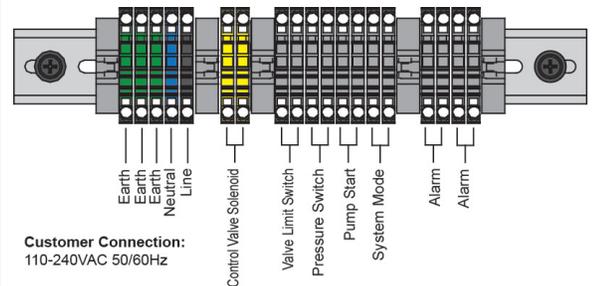
- Adjustable surge wave timer
- Adjustable Delay Timer, preventing premature valve operation on initial pump startup.
- Dual operating modes (A and B) available.
- UPS battery backup designed with temperature compensation, constant current, trickle charger.
- Light indication to show status of system and control valve
- Contact closures provided for remote signal transmission
- Control Panel is provided with a manual cycle test switch
- The enclosure can be protected with a padlock to prevent tampering.
- Easy field wiring installation.

## Typical Application



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

## Wiring Diagram



### Inputs-

1. Valve Limit Switch
2. Pressure Switch
3. Pump Start Command
4. System Mode

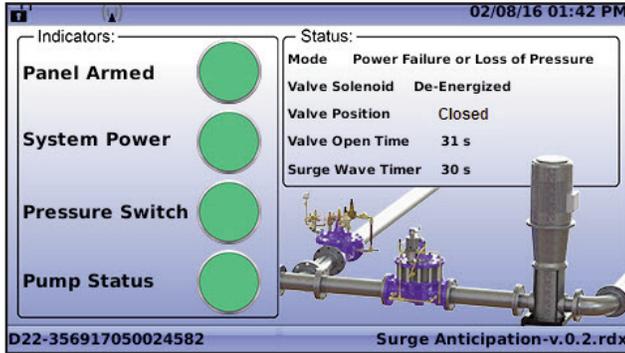
### Outputs-

1. Control valve Solenoid
2. (2) Alarms



## Operation

The SC-22D control panel functions as a surge 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.



### Visual Indications

1. Panel Armed - Green = Armed, Yellow = Disarmed, Amber = Armed Delay
2. System Power - Red = Power Supplied by UPS, Green = Power supplied by system
3. Pressure Switch - Red = Below Minimum, Green = Pressure OK
4. Pump Status - Red = Pump Not Running, Green = Pump Running
5. Mode - Power Failure & Loss of Pressure (Mode "A") or Power Failure or Loss of Pressure (Mode "B")
6. Valve Solenoid - Energized or De-Energized
7. Valve Open Time - Time indicating how long the valve has been open.
8. Surge Wave Timer - Timer setting

### Electrical Wiring

All electrical connections to the control box must originate from the same power source as pump power. A power failure to the pumps must also be a power failure to the electronic control panel. The control box requires 120 volt AC.

### Arming the Panel

"Arming" the control panel to protect against surges requires the following conditions to be met:

1. Must have 120 volt AC power to the box (see electrical wiring above).
2. Pump On contact must be closed, indicating a pump is running.
3. The minimum system pressure must be met.

### Mode

The mode switch permits selecting either of two operating methods. In mode "B", the control box, when armed will respond to a pressure switch loss (low wave surge) or a power failure to the pumps. In mode "A", the control action is the same as for mode "B" with the exception that the control box will not respond to a power failure unless accompanied by a low wave surge.

## System Power Indicator/Power Failure Sequence

The system power indicator will display whether the control box has 120 volt AC. The UPS provides indication of battery status. If system power is lost, the control box & surge control valve will run completely off the UPS.

### Pump Running Feature

The pump run terminals should be connected to a relay in the pump starter circuit, in parallel, so that the control box is aware of any pump that is running. When a pump starts, the built in adjustable pump delay timer will delay arming the control box for a specified period during a pump startup where pressure transients may be experienced. If it is impractical to make this connection, a jumper may be left in its place. This means the control box will respond to power failures or low pressure conditions whether a pump is running or not.

### Pressure Switch

A pressure switch, when used, is connected with its normally open contacts across the terminals. The switch senses under-pressure conditions and opens the surge valve depending on the mode programmed. When a pressure switch is not required, a jumper is installed across the terminals. Typically, a pressure switch is set for about one-half the static system pressure.

### Valve Testing

The control box is provided with a manual test contact. When the contact is closed, a surge event will be simulated. The surge valve will open until the adjustable surge wave timer expires, which then the valve will close.

## Specifications

### Construction

NEMA 4X fiberglass enclosure with gasketed door, stainless steel twist/latch door fasteners.

### Power

120VAC @ 60Hz protected with 5 Amp Fuse, UPS Battery Backup 24VDC / 0.8AH.

### Timers

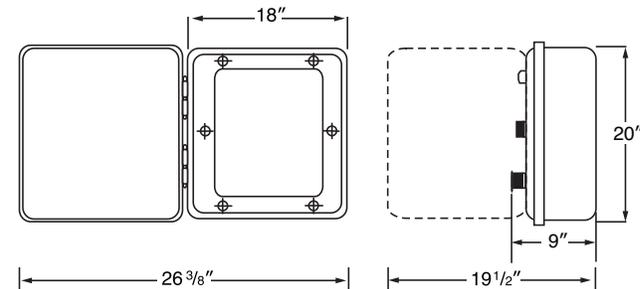
Pressure Timer - Allowable time for pump to build pressure.  
Valve Open Timer - Allowable time for control valve to open.

### Communication:

- Modbus TCP/IP
- Modbus RTU
- VNC

### Temperature Range:

- -10 to 70° C
- 14°F to 158°F



1701 Placentia Avenue • Costa Mesa, CA 92627

800-942-6326 • Fax: 949-548-5441 • Web Site: [cla-val.com](http://cla-val.com) • E-mail: [info@cla-val.com](mailto:info@cla-val.com)

#### CLA-VAL CANADA

4687 Christie Drive  
Beamsville, Ontario  
Canada L0R 1B4  
Phone: 905-563-4963  
E-mail: [sales@cla-val.ca](mailto:sales@cla-val.ca)

#### CLA-VAL EUROPE

Chemin des Mésanges 1  
CH-1032 Romanel/  
Lausanne, Switzerland  
Phone: 41-21-643-15-55  
E-mail: [cla-val@cla-val.ch](mailto:cla-val@cla-val.ch)

#### CLA-VAL UK

Dainton House, Goods Station Road  
Tunbridge Wells  
Kent TN1 2 DH England  
Phone: 44-1892-514-400  
E-mail: [info@cla-val.co.uk](mailto:info@cla-val.co.uk)

#### CLA-VAL FRANCE

Porte du Grand Lyon 1  
ZAC du Champ du Périer  
France - 01700 Neyron  
Phone: 33-4-72-25-92-93  
E-mail: [cla-val@cla-val.fr](mailto:cla-val@cla-val.fr)

#### CLA-VAL PACIFIC

45 Kennaway Road  
Woolston, Christchurch, 8023  
New Zealand  
Phone: 64-39644860  
[www.cla-valpacific.com](http://www.cla-valpacific.com)  
E-mail: [info@cla-valpacific.com](mailto:info@cla-valpacific.com)