



# Model VC-22D ELECTRONIC VALVE CONTROLLER



Model VC-22D Valve Controller



- Provides remote or local setpoint control for valves in a variety of fluid applications
- Highly accurate and stable valve control
- Controller is supplied with pre-loaded ValvApps™ for most common valve functions
- Custom ValvApps™ can be created for Multi-Function Control
- Simple Control Curves graphical programming
- High resolution color screen graphics with color-coded indicators
- Communications via standard 4-20 mA retransmission and relays or by Modbus RTU/TCP
- Internal logging: programmable and download to USB
- Less than 3 Watts power: solar or hydro powered remote valve control
- Simple and intuitive programming and set-up
- Option of: IP-65 NEMA Type 4 Housing Enclosure IP-68 Submersible (verified by independent lab) Panel Mount (fits 1/4 DIN or surface mount)

The Cla-Val VC-22D is designed to provide state of the art valve control for a variety of fluid control parameters. Intuitive programming screens allow easy and fast programming for standard and customized applications such as flow, pressure, level, or position. Complete capabilities allow either stand-alone operation or easy integration into SCADA systems with standard wired signals or Modbus (TCP or RTU) communications.

For ease of use, the controller is pre-loaded with a wide variety of typical valve applications (ValvApps™). Additional custom ValvApps™ can be created by Cla-Val to meet any operational requirement. For example, two or three modulating control functions can be combined into one custom ValveApp.

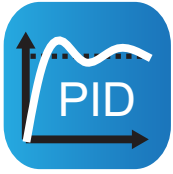
### Pre-Loaded Typical ValvApps™ include

- Flow Control with Mag Meter Feedback
- Pressure Control with Upstream or Downstream Feedback
- Position Control with Position Feedback
- Modulating Level Control with Level and Position or Flow Feedback
- Metering Valve with Position and DP or P1-P2 Feedback
- Ratio Control with 2 Flowmeter feedbacks
- Altitude On/Off Level Control with Delayed Opening and Level Feedback
- Pressure Management with CRD-34 Electronic Pilots and Flow Feedback

### Controller Applications



VC-22D Valve Functions



**PID Control**

Used in maintaining a control valve at setpoint, multiple PID loops can be programmed with each of them offering local or remote setpoints. A real-time chart view helps to visualize valve response and fine tune valve response. Programmable setpoint ramping prevents hydraulic shocks.



**Control Curves**

Offers an easy way to create a relationship between two system variables. Using graphical functions, the user draws the control curve relationship linking pressure, flow, level, and/or time directly on the screen. Up to four control curves allowing independent pump control valve opening and closing or tailored modulating level control.



**Actions**

Used to take "action" (or alarms) when programmable conditions (1 or 2) are met by forcing an output relay, solenoid, or 4-20 mA output. The closing relay can be used to send an alarm to SCADA. Up to four actions can be programmed including deadband.



**Totalizer**

Keeps track of total volume as a function of time. Customizable units & reset functionality allow for simplified set-up and configuration. Can be used for volume (or batch) control applications limiting water volume taken from supplier per day or into tank trucks.



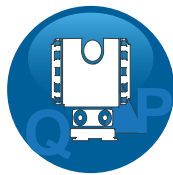
**Retransmission**

Used to retransmit any input signal, variable, or calculation to a SCADA system. Up to four input signals such as pressure, flow, or level can be redirected through the 4-20 mA outputs.



**Data Logging and Log File**

All input and output values are logged according to a programmable schedule. Default logging is every 5 minutes but can be as low as 1 minute or at customized intervals. 4 GB SD card memory allows greater than 80,000,000 values storage. Data is stored in MS-Excel (CSV) readable format. Transfer is by USB.



**DP Metering**

A built-in function to calculate flowrate based on valve position and DP. The returned flow value can be displayed and controlled without a separate flow meter. A metering ValvApp with this feature is included in the standard internal library. All standard Cla-Val valve sizes curves are included.

Enclosures

IP-65

IP-68

Panel Mount

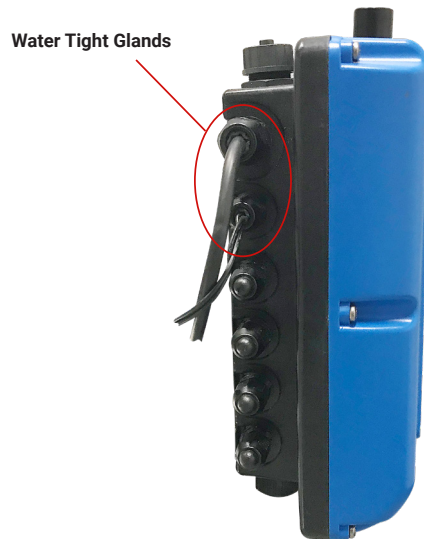
Conduit Connection

Water Tight Glands

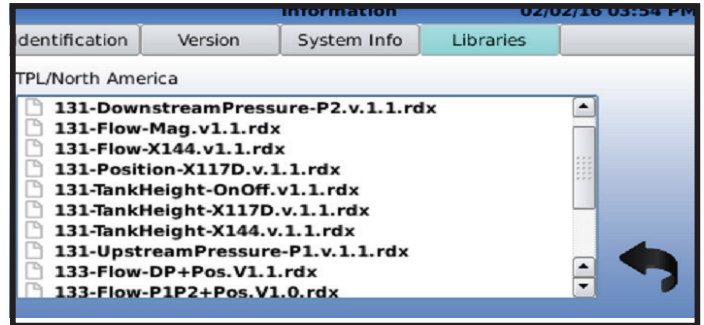
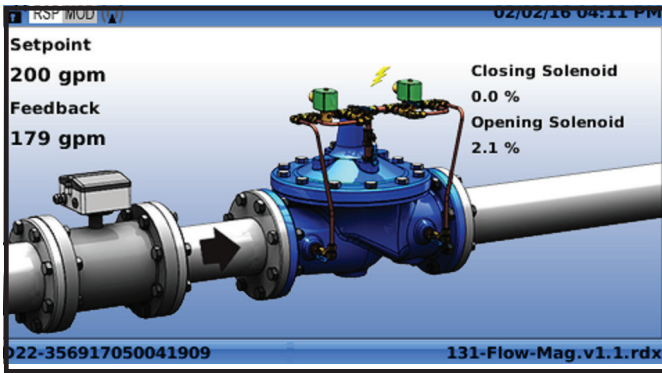
Flush Back



Conduit Connectors Included (1/2" NPT)

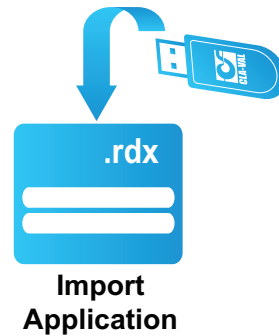
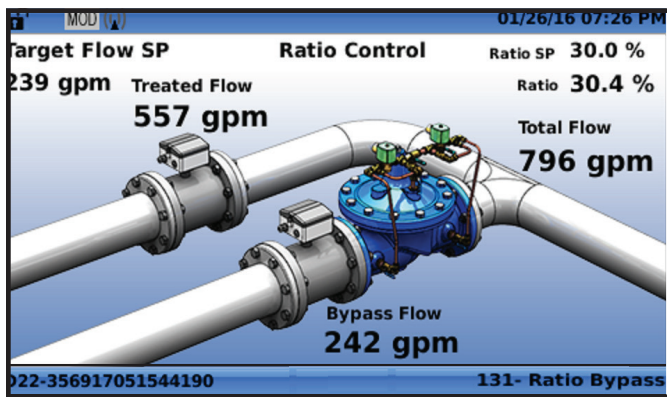


## Standard & Custom ValvApps™



### Standard ValvApps™

At startup the user can select from an internal library of Standard ValvApps designed for the most common control applications such as flow, pressure, level, position, or pressure management. Pre-configured graphics display actual valve installation and minimizes startup time.



### Custom ValvApps™

Special requirements can easily be handled by importing Custom ValvApps from the USB port. Program files may be either pre-programmed into the controller or sent by email and downloaded into the controller. All within minutes. Typical non-standard applications include ratio (blending), multiple functions, multiple inputs, custom graphics, differential pressure, temperature, salinity, electrical conductivity, parallel valves, etc.

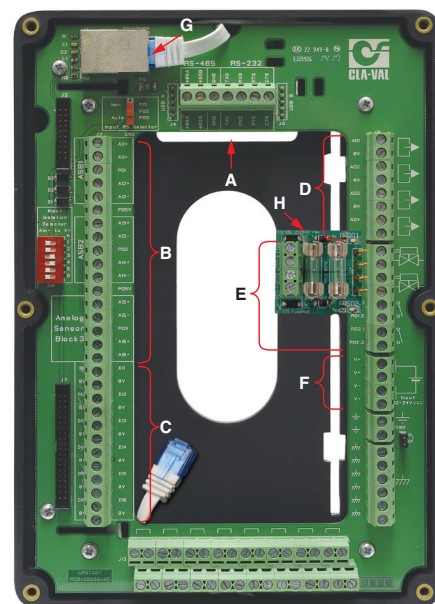
## Inputs, Outputs & Communications

### Features

- A. Catalog No. 428-01 or No. 628-01
- B. Valve Size
- C. Six Digital inputs
- D. Four 4-20 mA Analog Outputs
- E. Two Solenoid + Two Relay Outputs
- F. 12 - 24 VDC Power
- G. Ethernet Connection (External)
- H. 1A Fuse Module



Typical installation with mounting bracket



## VC-22D Valve Controller Product Specifications

Inputs
6x Analog 4-20 mA
6x Digital (dry contact max 5 VDC @ 0.1A - 100 Hz max)
Reverse polarity & short circuit protection
Optocoupler isolation @ CMR 1000 V - 2 wires insulated

Outputs
4x 4-20 mA Analog
2x Solenoid solid state relay 24 VDC @ 0.5 A - binary or proportional
1A Fuse protection provided
2x Mechanical relay 24 VDC - 240 VAC @ 1 A max.
Reverse polarity & short circuit protection

Control Parameters
Proportional band 0-100% / independent opening and closing
Deadband 0 - full scale
Cycle time 0 - 60 sec
Integral and Derivative available
Output limits - % of Cycle Time / Independent opening and closing
Multi-zone tuning - up to 4 zones
4x PID loops
4x Actions or Alarms - 1 or 2 triggering conditions
4x Control Curves (graphically programmed)
Setpoint ramping
Input signal filter 0-100%
Flow Totalizer (usable for volume control)

Logging & Data Storage
Configurable logging intervals
Real-time back-up on 4 GB SD card
Memory protection 10 year lithium battery
CSV file format MS-Excel compatible
File transfer to USB memory

Power Requirements
12 24 VDC Input
Consumption: 1.5 W standby, 3 W in use
Max 32 VDC over voltage protection
Reverse polarity and short circuit protection

Communications
Modbus TCP / Ethernet
Modbus RTU / RS-485
USB
VNC
GPRS modem quad band (consult factory)

Enclosure & Display
<b>IP-65 Enclosure</b> <ul style="list-style-type: none"> <li>• 1/2" NPT Conduit Connections</li> <li>• IP-65 NEMA Type 4</li> </ul>
<b>IP-68 Enclosure</b> <ul style="list-style-type: none"> <li>• Water tight cable glands</li> <li>• Water resistant up to 2 meters for 1 month</li> </ul>
<b>Panel Mount Enclosure</b> <ul style="list-style-type: none"> <li>• IP-20</li> <li>• Surface mount or 1/4" DIN rail mount</li> </ul>
8.75" (223 mm) H x 6" (153 mm) W x 3.5" (89 mm) D
Weight 3 lbs (1.4 kg)
PC / ABS plastic UV resistant
USB, Ethernet
5 mechanical pushbuttons
Silicon sealed polycarbonate screen
4.3" color display 480 x 272 - 24 bit
Password 5-digit
Mounting bracket - anodized aluminum
Temperature range 14 to 158 F (-10 to 70 C)
PCB coating - 90% RH, non condensing

Optional External AC/DC Power Converter
Used to operate AC solenoids
Can be purchased with IP-68 or Panel Mount enclosures

