



MODEL VC-22D

Electronic Valve Controller



Model VC-22D
Valve Controller



Product Description

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.

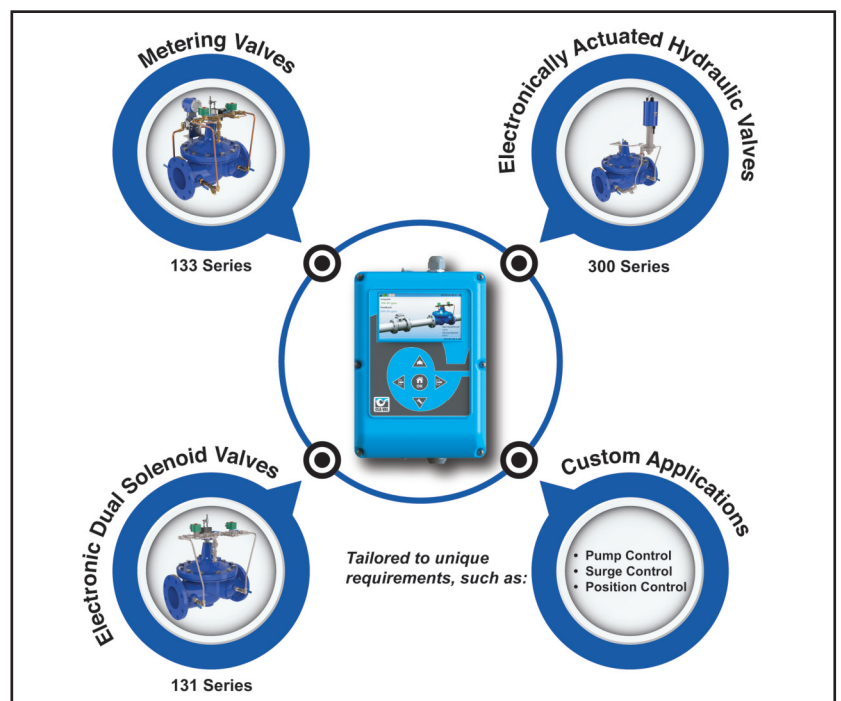
For ease of use, the controller is pre-loaded with a wide variety of typical valve applications (ValvApps™). Additional custom ValvApps™ can be created by Cla-Val to meet any operational requirement. For example 2 or 3 modulating control functions can be combined into one custom ValveApp.

Pre-Loaded Typical ValvApps™ include:

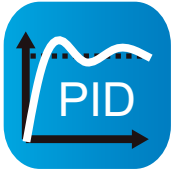
- Flow Control with Mag Meter or e-Flowmeter Feedback
- Pressure Control with Upstream or Downstream Feedback
- Position Control with Position Feedback
- Modulating Level Control with Level and Position or Flow Feedback
- Metering Valve with Position and DP or P1-P2 Feedback
- Ratio Control with 2 Flowmeter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

- 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)

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.



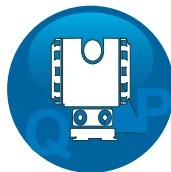
Retransmission

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



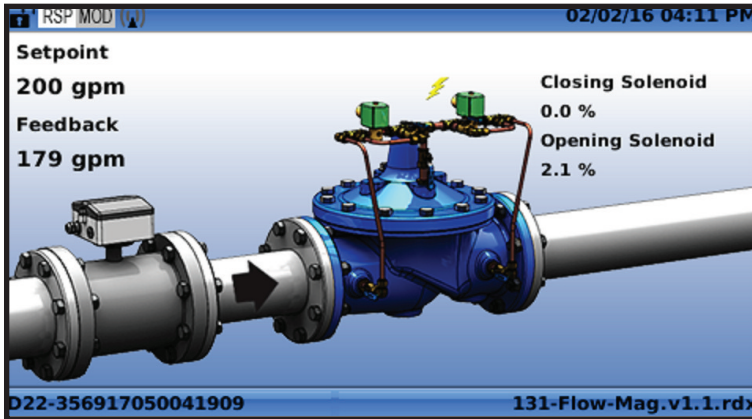
IP-68



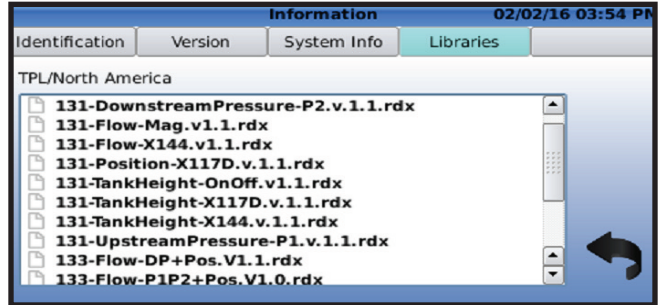
Panel Mount



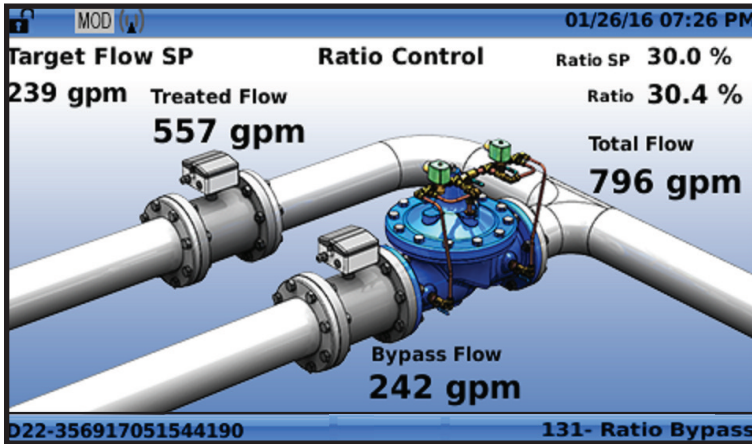
Standard & Custom ValvApps™



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 displays 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.



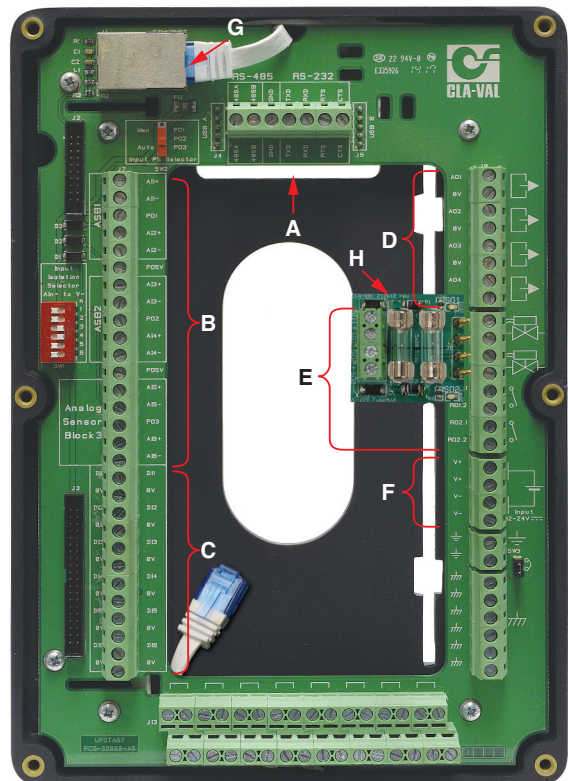
Inputs, Outputs & Communications

Features

- A) RS-232/485
- B) Six 4-20 mA Analog Inputs
- 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	Power Requirements
6x Analog 4-20 mA	12 24 VDC Input
6x Digital (dry contact max 5 VDC @ 0.1A - 100 Hz max)	Consumption: 1.5 W standby, 3 W in use
Reverse polarity and short circuit protection	Max 32 VDC over voltage protection
Optocoupler isolation @ CMR 1000 V - 2 wires insulated	Reverse polarity and short circuit protection
Outputs	Communications
4x 4-20 mA Analog	Modbus TCP / Ethernet
2x Solenoid solid state relay 24 VDC @ 0.5 A - binary or proportional	Modbus RTU / RS-485
1A Fuse protection provided	USB
2x Mechanical relay 24 VDC - 240 VAC @ 1 A max.	VNC
Reverse polarity & short circuit protection	GPRS modem quad band (consult factory)
Control Parameters	Enclosure & Display
Proportional band 0-100% / independent opening and closing	IP-65 Enclosure
Deadband 0 - full scale	<ul style="list-style-type: none"> • 1/2" NPT Conduit Connections • IP-65 NEMA Type 4
Cycle time 0 - 60 sec	IP-68 Enclosure
Integral and Derivative available	<ul style="list-style-type: none"> • Water tight cable glands • Water resistant up to 2 meters for 1 month
Output limits - % of Cycle Time / Independent opening and closing	Panel Mount Enclosure
Multi-zone tuning - up to 4 zones	<ul style="list-style-type: none"> • IP-20 • Surface mount or 1/4" DIN rail mount
4x PID loops	8.75" (223 mm) H x 6" (153 mm) W x 3.5" (89 mm) D
4x Actions or Alarms - 1 or 2 triggering conditions	Weight 3 lbs (1.4 kg)
4x Control Curves (graphically programmed)	PC / ABS plastic UV resistant
Setpoint ramping	USB, Ethernet
Input signal filter 0-100%	5 mechanical pushbuttons
Flow Totalizer (usable for volume control)	Silicon sealed polycarbonate screen
Logging & Data Storage	4.3" color display 480 x 272 - 24 bit
Configurable logging intervals	Password 5-digit
Real-time back-up on 4 GB SD card	Mounting bracket - anodized aluminum
Memory protection 10 year lithium battery	Temperature range 14 to 158 F (-10 to 70 C)
CSV file format MS-Excel compatible	PCB coating - 90% RH, non condensing
File transfer to USB memory	Optional External AC/DC Power Converter
	Used to operate AC solenoids
	Can be purchased with IP-68 or Panel Mount enclosures