**Model VC-22D**

**IP-68 Electronic 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
- IP-68 Submersible (verified by independent lab)

**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

**Controller Applications**

- Metering Valves
- Electronically Actuated Hydraulic Valves
- Electronic Dual Solenoid Valves
- Custom Applications

![Controller Applications Diagram](image)
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.

**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.

**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.

**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.

**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.
Standard & Custom ValveApps™

At startup the user can select from an internal library of Standard ValveApps 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 ValveApps™

Special requirements can easily be handled by importing Custom ValveApps 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)
## VC-22D Valve Controller Product Specifications

### Inputs

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>6x Analog</strong> 4-20 mA</td>
<td></td>
</tr>
<tr>
<td><strong>6x Digital</strong> (dry contact max 5 VDC @ 0.1A - 100 Hz max)</td>
<td></td>
</tr>
<tr>
<td>Reverse polarity and short circuit protection</td>
<td></td>
</tr>
<tr>
<td>Optocoupler isolation @ CMR 1000 V - 2 wires insulated</td>
<td></td>
</tr>
</tbody>
</table>

### Outputs

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>4x 4-20 mA Analog</strong></td>
<td></td>
</tr>
<tr>
<td><strong>2x Solenoid solid state relay 24 VDC @ 0.5 A</strong> - binary or proportional</td>
<td></td>
</tr>
<tr>
<td><strong>2x Mechanical relay 24 VDC - 240 VAC @ 1 A max.</strong></td>
<td></td>
</tr>
<tr>
<td>Reverse polarity &amp; short circuit protection</td>
<td></td>
</tr>
</tbody>
</table>

### 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)

### Power Requirements

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>12 24 VDC Input</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Consumption: 1.5 W standby, 3 W in use</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Max 32 VDC over voltage protection</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Reverse polarity and short circuit protection</strong></td>
<td></td>
</tr>
</tbody>
</table>

### Communications

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

### Enclosure & Display

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>8.75” (223 mm) H x 6” (153 mm) W x 3.5” (89 mm) D</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Weight 3 lbs (1.4 kg)</strong></td>
<td></td>
</tr>
<tr>
<td><strong>PC / ABS plastic UV resistant</strong></td>
<td></td>
</tr>
<tr>
<td><strong>IP-68 Connections - cable glands, USB, Ethernet</strong></td>
<td></td>
</tr>
<tr>
<td><strong>5 mechanical pushbuttons</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Silicon sealed polycarbonate screen</strong></td>
<td></td>
</tr>
<tr>
<td><strong>4.3” color display 480 x 272 - 24 bit</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Password 5-digit</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Mounting bracket - anodized aluminum</strong></td>
<td></td>
</tr>
<tr>
<td><strong>IP-68, 2 meters 1 month</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Temperature range 14 to 158 F (-10 to 70 C)</strong></td>
<td></td>
</tr>
<tr>
<td><strong>PCB coating - 90% RH, non condensing</strong></td>
<td></td>
</tr>
</tbody>
</table>

### Optional Power Converter / Supply

- IP-68; Used to operate AC solenoids
- Panel Mount; Used to operate AC solenoids