

131 Series

(Full Internal Port)

MODEL _____

631 Series

(Reduced Internal Port)



Electronic Control Valves



Model 131-01/631-01

- Simple Proven Design
- Quality Solenoid Pilot Controls
- Ideal For SCADA Systems
- Multi-Function Capability; Hydraulic Backup
- Security System to Prevent Unauthorized Changes
- Easy to Maintain

The Cla-Val Series 131/631 Electronic Control Valves are designed specifically for applications where remote control of the valve is preferred. It is a hydraulically operated, pilot controlled, diaphragm valve. The solenoid pilot controls are actuated by electrical signals from the optional VC-22D Electronic Valve Controller. The solenoid pilots either add or relieve line pressure from the cover chamber of the valve, causing it to open or close as directed by the electronic controller.

Series 131/631 Electronic Control valves can be configured to perform a wide range of functions, such as; pressure reducing, pressure sustaining, flow control, or level control. The electric controls can also be combined with hydraulic controls to create dual function, or fail-safe capability.

The basic 131-01/631-01 Electronic Control Valve (Schematic shown below) includes the main valve and solenoid pilot controls. Optional features include the VC-22D Electronic Valve Controller and the X117 Series Valve Position Transmitter. If the check feature option is added, and a pressure reversal occurs, the downstream pressure is admitted into the cover, closing the valve.

Schematic Diagram

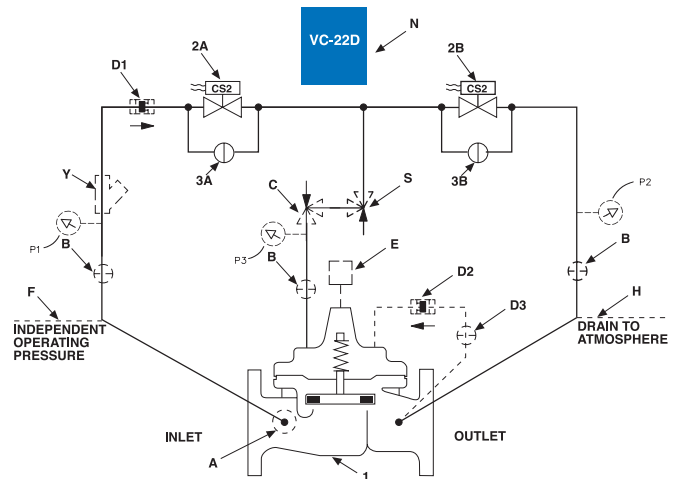
Item	Description
1	100-01 Hytrol Main Valve
2	CS2 Solenoid Control
3	CK2 (Solenoid By-Pass)



Optional Features

Item	Description
A	X46A Flow Clean Strainer
B	CK2 Isolation Valve
C	CV Flow Control (Closing)
D	Check Valves With Isolation Valve
E	X117 Series Position Transmitter
F	Independent Operating Pressure
H	Atmospheric Drain
N	Electronic Controller
P	X141 Pressure Gauge
S	CV Flow Control (Opening)
Y	X43 "Y" Strainer

NSF/ANSI 372:
National Lead Free
Mandate "Reduction
of Lead in Drinking
Water Act"

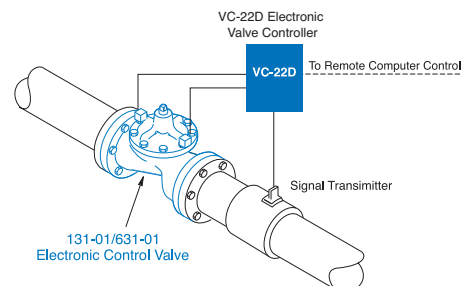


Product Dimensions Data:

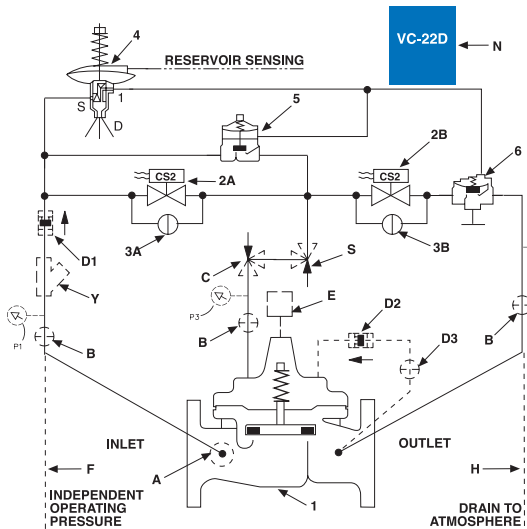
For the 131 Series Main Valve dimensions, see pages 17.
For the 631 Series Main Valve dimensions, see pages 29.

Typical Applications

This brochure contains typical application that are modifications to the basic 131-01/631-01 Electronic Control Valve shown here. It is typical installed in a pipeline with a VC-22D Series Controller that receives a process variable signal that is compared to set-point and adjusts the main valve's capacity until the signals match. There are many different variations not shown in this brochure. Contact us with your specific application and we will provide a field proven solution.



Schematic Diagram



Item	Description
1	100-01 Hytrol Main Valve
2	CS2 Solenoid Control
3	CK2 Cock (Solenoid By-Pass)
4	CDS6A Altitude Control
5	100-02 Powertrol (Reverse Flow)
6	100-01 Hytrol (Reverse Flow)

Optional Features

Item	Description
A	X46A Flow Clean Strainer
B	CK2 Isolation Valve
C	CV Flow Control (Closing)
D	Check Valves with Isolation Valve
E	X117 Series Position Transmitter
F	Independent Operating Pressure
H	Atmospheric Drain
N	Electronic Controller
P	X141 Pressure Gauge
S	CV Flow Control (Opening)
Y	X43 "Y" Strainer

131-06/631-06

Combination Electronic Control And High Level Shut-Off Valve

This valve is used in reservoir applications where the filling or draining rate is controlled and modulated by the electronic controller. Flow pressure and valve position can also be controlled. Should the liquid in the reservoir reach a high level, the hydraulic altitude control automatically overrides the electronic control and closes the valve. The altitude control can be adjusted to close the valve over a wide range of settings. The optional check feature will close the valve if there is a pressure reversal in the line.

131-09/631-09

Modulating Float Valve With Solenoid Lockout of Float Control and Electronic Positioning

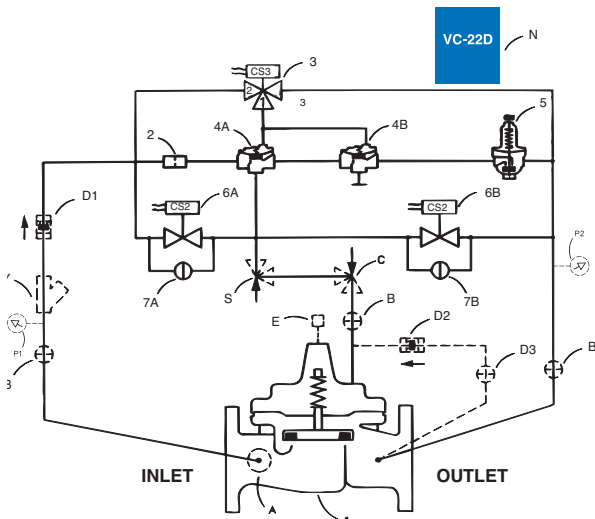
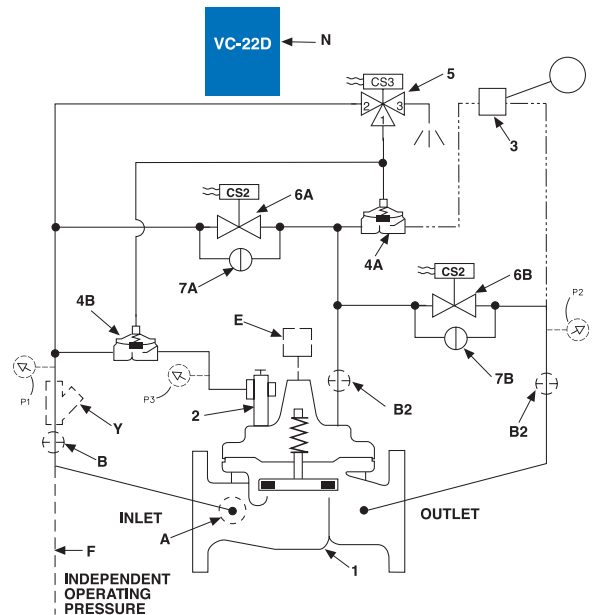
The electronic controller modulates the flow through this valve to control liquid level in a tank. If power failure should occur, the third solenoid shifts, and the float control will allow the valve to modulate using hydraulic line pressure. The VC-22D Electronic Valve Controller and X117 Series Valve Position Transmitter are used in combination with an electronic level sensing device to provide modulating flow control of the valve.

Schematic Diagram

Item	Description
1	100-01 Hytrol Main Valve
2	X74B-3 Stem Valve
3	CFM-7 Float Pilot
4	100-01 Hytrol (Reverse Flow)
5	CS3 Solenoid Control
6	CS2 Solenoid Control
7	CK2 Solenoid By-Pass

Optional Features

Item	Description
A	X46A Flow Clean Strainer
B	CK2 Isolation Valve
E	X117 Series Position Transmitter
F	Independent Operating Pressure
N	Electronic Controller
P	X141 Pressure Gauge
Y	X43 "Y" Strainer



Schematic Diagram

Item	Description
1	100-01 Hytrol Main Valve
2	X58C Restriction Assembly
3	CS3 Solenoid Control
4	100-01 Hytrol (Reverse Flow)
5	CRD Pressure Reducing Control
6	CK2 Solenoid Control
7	CK2 Solenoid Bypass

Optional Features

Item	Description
A	X46A Flow Clean Strainer
B	CK2 Isolation Valve
C	CV Flow Control (Closing)
D	Check Valves Isolation Valve
E	X117 Series/X117E Position Transmitter
N	Electronic Controller (Single)
P	X141 Pressure Gauge
S	CV Flow Control (Opening)
Y	X43 "Y" Strainer

131-18/631-18

Electronic Control Valve Equipped with Hydraulic Pressure Reducing Solenoid Selected

Flow, pressure, level or valve position is normally controlled by the electronic controller that operates two solenoids to modulate the valve to maintain the process variable. Should a power failure occur, a parallel hydraulically operated pressure reducing pilot system takes control of the valve maintaining a preset outlet pressure. When power is restored, the valve automatically reverts back to the electronic mode. The optional check feature automatically will close the valve if a pressure reversal occurs in the pipeline.

131-22/631-22

Electronic Control Valve (Power Fail Closed)

Flow, pressure, level or valve position is normally controlled by the electronic controller that operates two solenoids to modulate the valve to maintain the process variable. Should a power failure occur, the valve can be configured to go open or closed. The optional check feature automatically will close the valve if a pressure reversal occurs in the pipeline.

Schematic Diagram

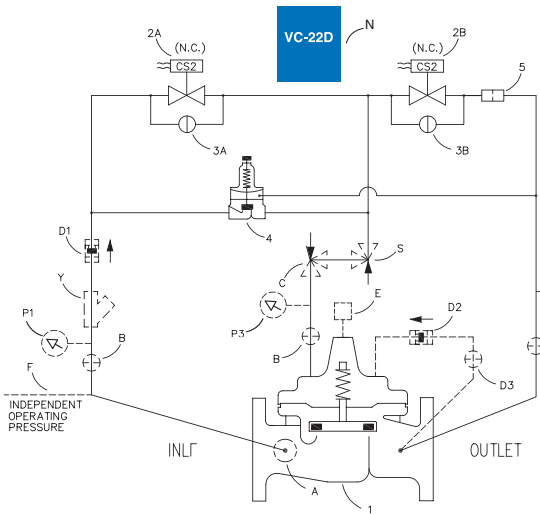
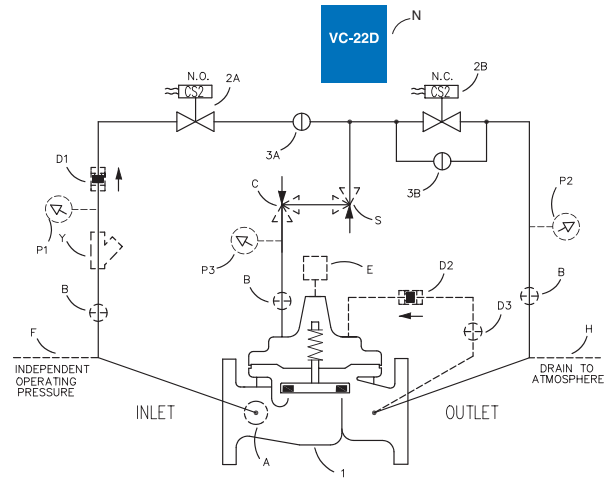
Item Description

- 1 100-01 Hytrol Main Valve
- 2 CS2 Solenoid Control
- 3 CK2 (Solenoid By-Pass)

Optional Features

Item Description

- A X46A Flow Clean Strainer
- B CK2 Isolation Valve
- C CV Flow Control (Closing)
- D Check Valves with Isolation valve
- E X117 Series Position Transmitter
- F Independent Operating Pressure
- H Atmospheric Drain
- N Electronic Controller
- P X141 Pressure Gauge
- S CV Flow Control (Opening)
- Y X43 "Y" Strainer



Schematic Diagram

Item Description

- 1 100-01 Hytrol Main Valve
- 2 CS2 Solenoid Control
- 3 CK2 Solenoid By-Pass
- 4 CRL5 Pressure Relief Control
- 5 X58C Restriction Assembly

Optional Features

Item Description

- A X46A Flow Clean Strainer
- B CK2 Isolation Valve
- C CV Flow Control (Closing)
- D Check Valves with Isolation Valve
- E X117 Series Position Transmitter
- F Independent Operating Pressure
- N Electronic Controller (Single)
- P X141 Pressure Gauge
- S CV Flow Control (Opening)
- Y X43 "Y" Strainer

131-CW/631-CW

Electronic Interface Control with Pressure Reducing Feature, Hydraulically Operated

Flow, pressure, level or valve position is normally controlled by the electronic controller that operates two solenoids to modulate the valve to maintain the process variable. Should a power failure occur, a parallel hydraulically operated pressure reducing pilot system takes control of the valve limiting the maximum outlet pressure. When power is restored, the valve automatically reverts back to the electronic mode. The optional check feature automatically will close the valve if a pressure reversal occurs in the pipeline

131-EJ/631-EJ

Electronic Interface Control with Pressure Sustaining Feature, Hydraulically Operated

Flow, pressure, level or valve position is normally controlled by the electronic controller that operates two solenoids to modulate the valve to maintain the process variable. Should a power failure occur, a parallel hydraulically operated pressure sustaining pilot system takes control of the valve limiting the minimum inlet pressure. When power is restored, the valve automatically reverts back to the electronic mode. The optional check-feature automatically will close the valve if a pressure reversal occurs in the pipeline

Schematic Diagram

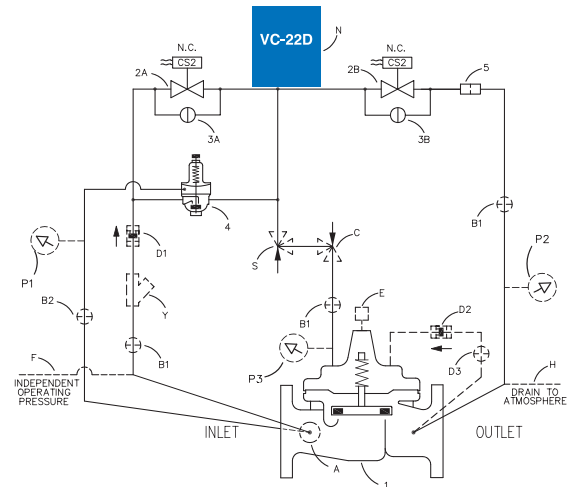
Item Description

- 1 100-01 Hytrol Main Valve
- 2 CS2 Solenoid Control
- 3 CK2 Solenoid By-Pass
- 4 CRA Pressure Reducing Control
- 5 X58C Restriction Assembly

Optional Features

Item Description

- A X46A Flow Clean Strainer
- B CK2 Isolation Valve
- C CV Flow Control (Closing)
- D Check Valves with Isolation Valve
- E X117 Series Position Transmitter
- F Independent Operating Pressure
- H Atmospheric Drain
- N Electronic Controller (Single)
- P X141 Pressure Gauge
- S CV Flow Control (Opening)
- Y X43 "Y" Strainer





MODEL

VC-22D

IP-68 Electronic Valve Controller



Model VC-22D
IP-68 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.

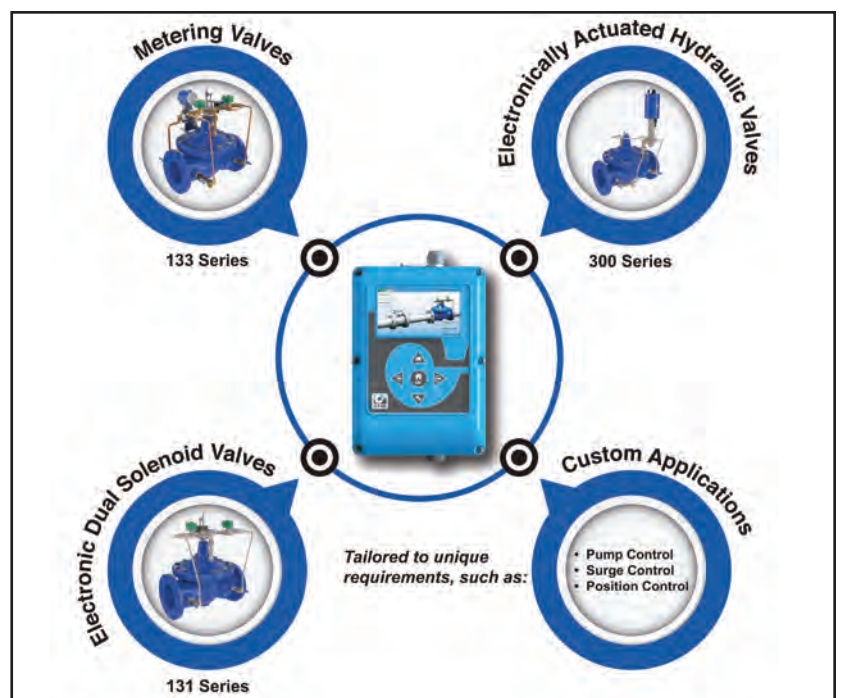
Pre-Loaded Typical ValvApps™ include:

- 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

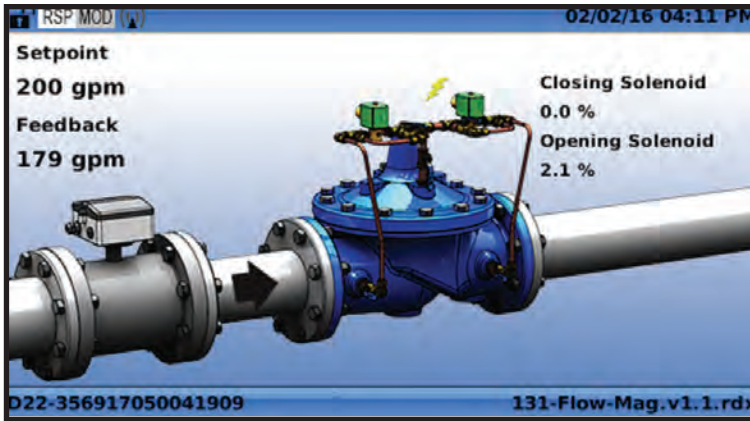
- Provides remote or local setpoint control for valves in a variety of fluid applications
- Highly accurate and stable valve control
- Controller is supplied with pre-loaded ValvApps™ for most common valve functions
- Custom ValvApps™ can be created for Multi-Function Control
- Simple Control Curves 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
- IP-68 Submersible (verified by independent lab)



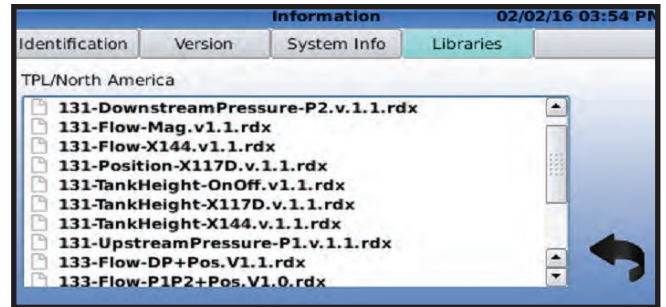
Controller Applications



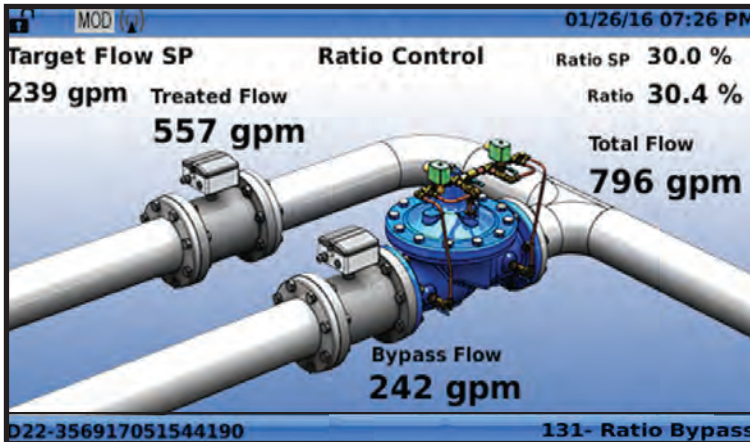
VC-22D Standard & Custom ValvApps™



Standard 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.



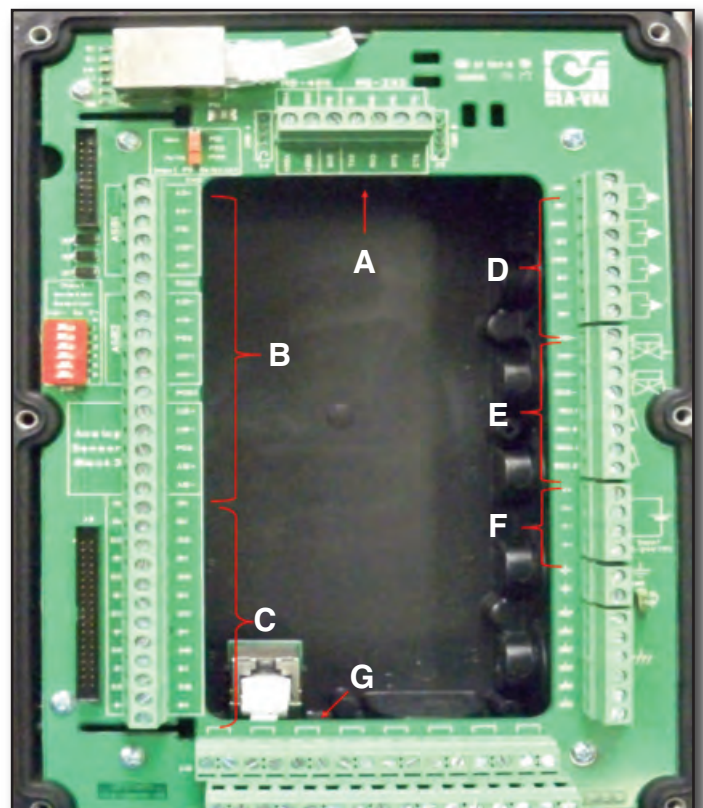
Inputs, Outputs & Communications

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)



Typical installation with mounting bracket





MODEL **133-01**
(Full Internal Port)
633-01
(Reduced Internal Port)

Metering Valve



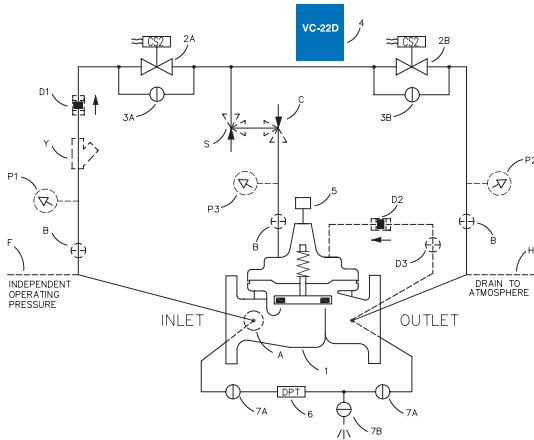
- Automatically Measures and Controls Flow Rate Without a Separate Metering Device
- Completely Self Contained
- Reliable Analog Communications
- Retransmission Capabilities
- Ideal for Retrofitting Existing Valves
- Security System to Prevents Unauthorized Changes
- Optional Totalizing Capabilities

The Cla-Val Model 133-01/633-01 Metering Valve is a completely self contained valve and control system that accurately meters and/or controls flow rate when used on valves with pressure differentials of less than 100 psid.

Using a VC-22D Electronic Controller, data from valve mounted differential pressure and position transmitters are assimilated into a proprietary algorithm program that is based on valve size and configuration to arrive at a flow measurement. This information is used for retransmission and/or compared with a local or remote set-point for valve flow control.

The 133-01 Control System can also be installed on new or existing hydraulic pilot control valves such as: pressure reducing, pressure sustaining, flow limiting and level control to transmit flow rate without disturbing the valve's primary hydraulic function(s). Specify Kit 133-01 for these applications. Consult factory.

For all applications, specify voltage, minimum/maximum pressures and flow rates, valve size, pressure class and optional features. Consult your local representative or the Factory for engineering assistance and valve selection.



Schematic Diagram

Item	Description
1	100-01 Hytrol Main Valve
2	CS2S Solenoid Control
3	CK2 Solenoid By-Pass
4	VC-22D Electronic Controller
5	X117 Series Position Transmitter
6	DPT Differential Pressure Transmitter
7	CK2 Isolation Valve

Optional Features

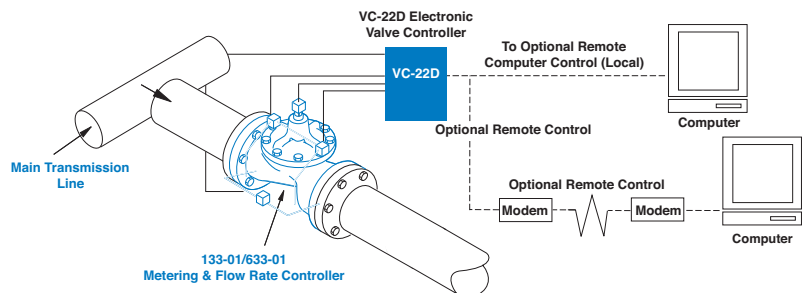
Item	Description
A	X46A Flow Clean Strainer
B	CK2 Isolation Valve
C	CV Flow Control (Closing)
D	Check Feature
F	Independent Operation Pressure
H	Atmospheric Drain
P	X141 Pressure Gauge
S	CV Flow Control (Opening)
Y	X43 "Y" Strainer

NSF/ANSI 372:
National Lead Free
Mandate "Reduction
of Lead in Drinking
Water Act"



Typical Applications

The Model 133-01/633-01 Metering and Flow Rate Controller is typically installed in a fluid delivery system where the flow rate is measured and changed from a remote location such as a SCADA system.



Product Dimensions Data:

For the 133-01 Main Valve (100-01) dimensions, see pages 17.
For the 633-01 Main Valve (100-20) dimensions, see pages 29.



Improved Filter Backwashing

Advanced Cla-Val Electronic Backwash Valves with metering capability

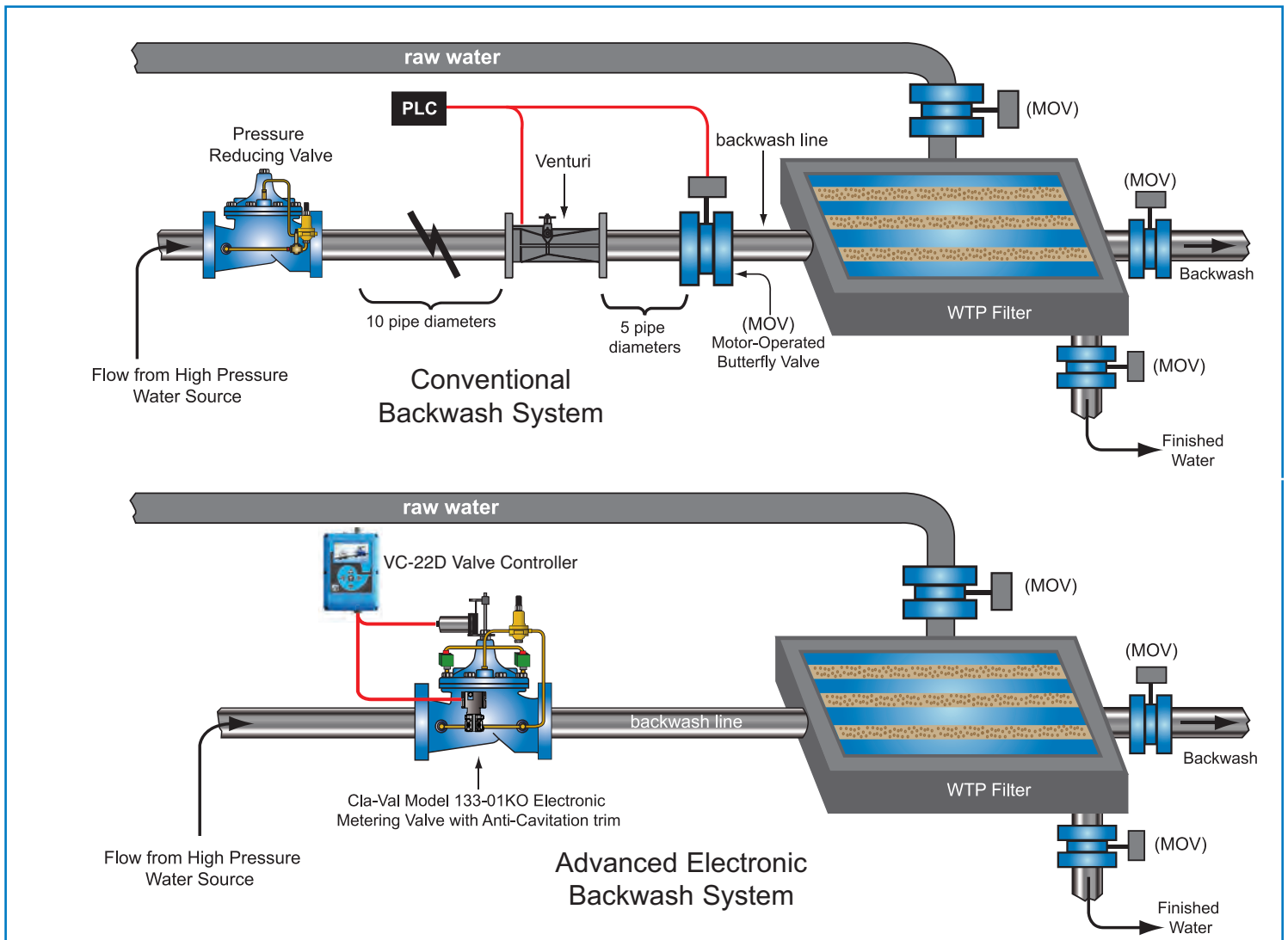
All water treatment plant filters must be regularly backwashed to clear away impurities left by raw water and to ensure optimum filtration results. Conventional systems, utilizing a combination of devices, often succumb to the ravages of cavitation caused by high system pressure and pose space challenges because of the long runs of piping required between components to guarantee proper function.

Cla-Val electronic metering valves equipped with KO anti-cavitation trim can handle the pressure and can perform the backwashing function without external metering or control components, greatly reducing space requirements and installation/maintenance costs.

This multi-functional control valve cost effectively meets the following operational requirements:

- Low-rate wash
- Remote valve closure
- Hydraulic pressure override
- High-rate wash
- Flow metering and totalizing
- Can interface with SCADA systems

In addition to being available on new valves, any existing, installed Cla-Val Pressure Reducing Valve can be field retrofitted with the Model 133 electronic control and metering kit to perform backwashing at peak efficiency.



340-02

(Full Internal Port)

MODEL

3640-02

(Reduced Internal Port)

Electronic Actuated Rate of Flow Control Valve



NSF/ANSI 372:
National Lead Free
Mandate "Reduction
of Lead in Drinking
Water Act"



- Simplified Remote Valve Set-Point Control
- 12 to 24 VDC Input Power
- Isolated Input
- Reverse Polarity Protection
- Reliable Hydraulic Operation
- IP-68 Submersible
- Use with the VC-22D Electronic Controller

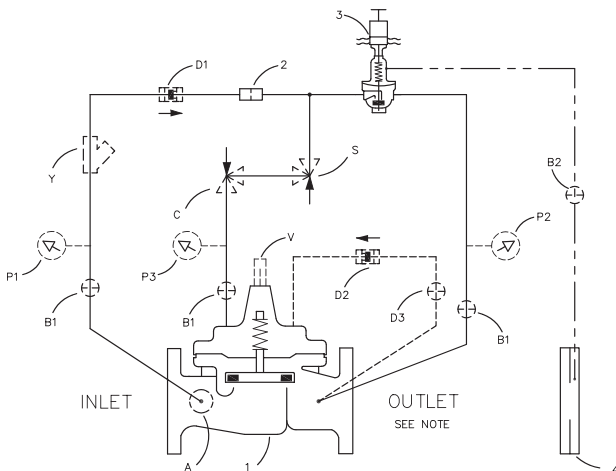
The Cla-Val Model 340-02/3640-02 Electronic Actuated Rate of Flow Control Valve combines the precise control of field proven Cla-Val hydraulic pilots and simple remote valve control. The Model 340-02/3640-02 valve controls flow by limiting flow to a preselected maximum rate (within a four to one ratio), regardless of changing line pressure. It is a hydraulically operated, pilot controlled, diaphragm actuated control valve. The valve uses a CDHS-34 actuated pilot control, consisting of a hydraulic pilot and integral controller that accepts a remote set-point command input and makes set-point adjustments to the pilot. The recommended control method is simple remote set point change from an RTU (Remote Telemetry Unit) to the CDHS-34 where the 4-20 mA command signal is ranged to specific flow range of orifice plate and hydraulic pilot control components. Very accurate control can be achieved when span does not exceed 4:1 turndown. Since the CDHS-34 is pre-ranged to full spring range, some on-site calibration may be necessary when this control method is used. Free downloadable software is available from Cla-Val website for this purpose. The CDHS-34 can also accommodate control systems where the RTU compares flow rate transmitter signal to the remote set point command signal. The RTU adjusts the CDHS-34 with 4-20 mA command signal containing an adequate deadband to prevent actuator dithering after the two signals agree. Internal continuous electronic monitoring of actuator position results in virtually instantaneous position change with no backlash or dithering when control signal is changed. In the event of a power or control input failure, the CDHS-34 pilot remains in hydraulic control virtually assuring system stability under changing conditions. If check feature ("D") is added, and pressure reversal occurs, the valve closes to prevent return flow.

Schematic Diagram

Item	Description
1	100-01 Hytrol Main Valve
2	X58C Restriction Fitting
3	CDHS-34 Electronic Differential Control
4	X52E Orifice Plate Assembly

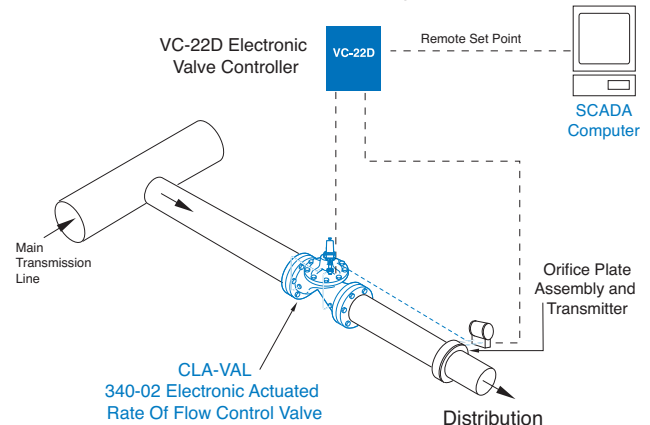
Optional Features

Item	Description
A	X46A Flow Clean Strainer
B	CK2 Isolation Valve
C	CV Flow Control (Closing)
D	Check Valves with Isolation Valve
P	X141 Pressure Gauge
S	CV Flow Control (Opening)
V	X101 Valve Position Indicator
Y	X43 "Y" Strainer



Typical Applications

The valve is designed to be used with supervisor control systems (SCADA), having an isolated remote analog set-point output and a process variable flow transmitter input. It is also an effective solution for lowering costs associated with "confined space" requirements by eliminating the need for entry into valve structure for set-point adjustments and system information. Additional pilot controls, hydraulic and/or electronic, can be easily added to perform multiple control functions to fit exact system requirements.



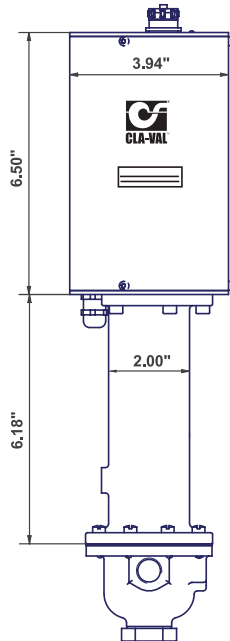
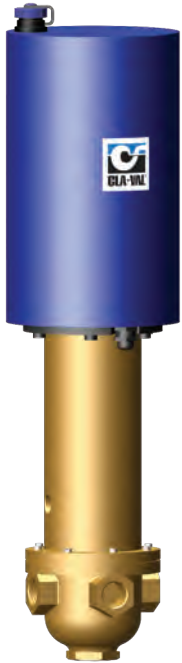
Product Dimensions Data:

For the 340-02 Main Valve (100-01) dimensions, see pages 17.
For the 3640-02 Main Valve (100-20) dimensions, see pages 29.



— MODEL — **CDHS-34**

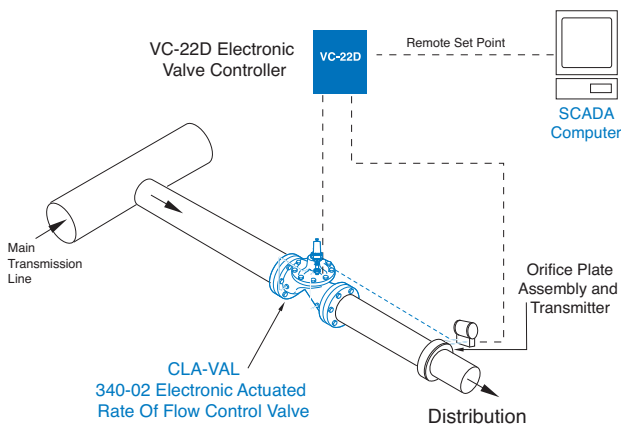
Electronic Actuated Rate of Flow Pilot Control



- Simplified Remote Valve Set-Point Control
- 12-24VDC Input Power
- Isolated Input
- Reverse Polarity Protection
- Reliable Hydraulic Operation
- IP-68 Submersible
- Use with the VC-22D Electronic Controller

The Cla-Val Model CDHS-34 Electronic Actuated Differential Pressure Pilot Control provides remote set-point adjustment and accurate differential pressure control for rate of flow control on Cla-Val 340 Series Control Valves. Remote set-point command signals can be from any SCADA-type control system using analog 4-20 mA signal or by contact closure for cc/ccw rotation. A precision orifice plate installed with valve creates differential pressure used for rate of flow control by the CDHS-34. Operating on 12 to 24 VDC and consuming very little power, it is an ideal control system for remote valve sites that may even be solar powered. Existing manually-set Cla-Val 40 Series Rate-of-Flow control valves can be retrofitted with CDHS-34 to add remote set-point control. Verification of differential pressure and corresponding flow rate may be sent to SCADA system from customer supplied differential pressure sensor attached to orifice plate.

The CDHS-34 consists of a hydraulic pilot and integral controller that accepts a 4-20 mA remote set-point and positions the pilot to maintain a maximum pressure differential at orifice plate and corresponding flow rate within preset limits. Pressure differential settings are linear between these settings. Special USB connector cable and free downloadable software can be used to change built-in electronic range limits for differential pressure and corresponding flow rate. Continuous internal monitoring of actuator position results in smooth transitions between pilot set-points with no backlash or dithering. When power or control input fail, the CDHS-34 pilot remains in automatic hydraulic control assuring system stability under all conditions.



Typical Applications

The CDHS-34 is installed on Cla-Val 340 Series valves that maintain flow rate and require this flow to be changed from a remote location. It is also an effective solution for lowering costs associated with "confined space" requirements by eliminating the need for entry in valve structure for set-point adjustment. Additional pilot controls, hydraulic and/or electronic, are also available to perform multiple functions to fit exact system requirements.

350-02

(Full Internal Port)

MODEL—

3650-02

(Reduced Internal Port)

Electronic Actuated Pressure Sustaining Control Valve



NSF/ANSI 372: National Lead Free Mandate "Reduction of Lead in Drinking Water Act"



- Simplified Remote Valve Set-Point Control
- 12 to 24 VDC Input Power
- Isolated Input
- Reverse Polarity Protection
- IP-68 Submersible
- Use with the VC-22D Electronic Controller

The Cla-Val Model 350-02/3650-02 Electronic Actuated Pressure Sustaining Control Valve combines precise control of field proven Cla-Val hydraulic pilots and simple, remote valve control. The Model 350-02/3650-02 is a hydraulically operated, pilot controlled, modulating valve designed to maintain constant upstream pressure within close limits. This valve can be used for pressure sustaining, back pressure or unloading functions in a by-pass system. The valve uses a CRL-34 pilot control, consisting of a hydraulic pilot and integral controller, that accepts a remote set-point command input and makes set-point adjustments to the pilot.

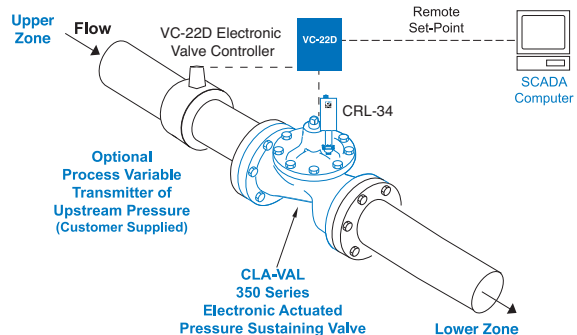
The recommended control method is simple remote set point change from an RTU (Remote Telemetry Unit) to the CRL-34 where the 4-20 mA command signal is ranged to specific pressure range. Very accurate control can be achieved when span does not exceed 100 psi. Since the CRL-34 is pre-ranged to the full spring range, some on-site calibration may be necessary when this control method is used. Free downloadable software is available from the Cla-Val website for this purpose. The CRL-34 can also accommodate control systems where the RTU compares pressure transmitter signal to the remote set point command signal. The RTU adjusts the CRL-34 with 4-20 mA command signal containing an adequate dead-band to prevent actuator dithering after the two signals agree.

Internal continuous electronic monitoring of actuator position results in virtually instantaneous position change with no backlash or dithering when control signal is changed. In the event of a power or control input failure, the CRL-34 pilot remains in hydraulic control virtually assuring system stability under changing conditions. If check feature ("D") is added, and pressure reversal occurs, the valve closes to prevent return flow.

Typical Applications

The valve is designed to be used with supervisory control systems (SCADA), having remote analog set-point output and process variable upstream pressure input. It is also an effective solution for lowering costs associated with "confined space" requirements by eliminating need for entry into valve structure for set-point adjustment.

Additional pilot controls, hydraulic and/or electronic, can be easily added to perform multiple control functions to fit exact system requirements.

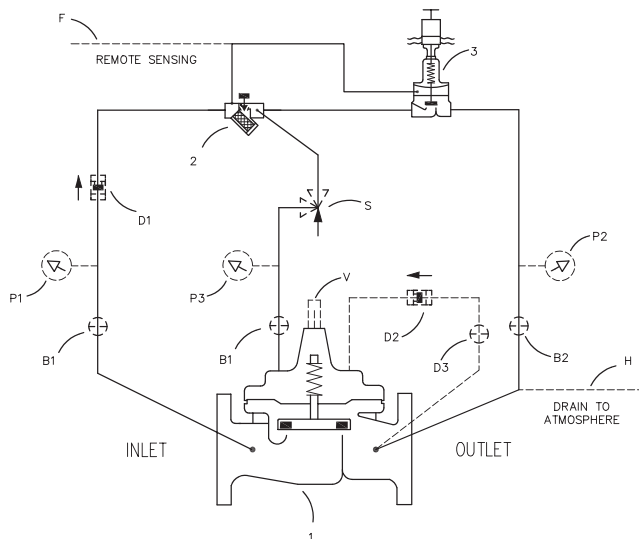


Schematic Diagram

Item	Description
1	100-01 Hytrol Main Valve
2	X42N-2 Strainer & Needle Valve
3	CRL-34 Electronic Pressure Sustaining Control

Optional Features

Item	Description
B	CK2 Isolation Valve
D	Check Valves with Isolation Valve
F	Remote Pilot Sensing
H	Drain to Atmosphere
P	X141 Pressure Gauge
S	CV Flow Control (Opening)
V	X101 Valve Position Indicator



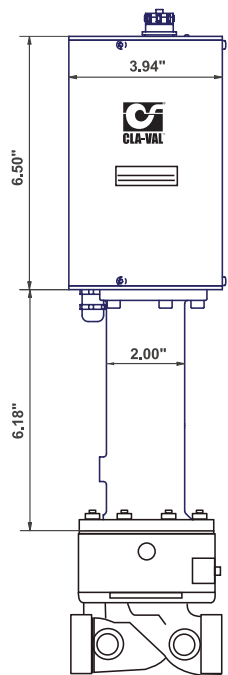
Product Dimensions Data:

For the 350-02 Main Valve (100-01) dimensions, see pages 17.
For the 3650-02 Main Valve (100-20) dimensions, see pages 29.



— MODEL — **CRL-34**

Electronic Actuated Pressure Sustaining Pilot Control

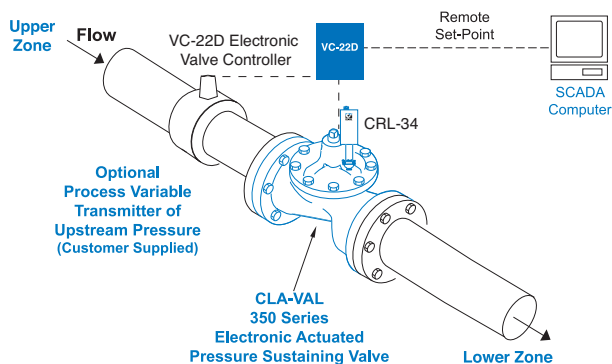


- Simplified Remote Valve Set-Point Control
- 12-24VDC Input Power
- Isolated Input
- Reverse Polarity Protection
- Reliable Hydraulic Operation
- IP-68 Submersible
- Use with the VC-22D Electronic Controller

The Cla-Val Model CRL-34 Electronic Actuated Pressure Sustaining Pilot Control provides remote set-point adjustment and accurate pressure sustaining control on Cla-Val 350 Series Control Valves. Remote set-point command signals can be from any SCADA-type control system using an analog 4-20 mA signal or by contact closure for cc/ccw rotation.

The CRL-34 senses upstream pressure with a remote hydraulic connection. Operating on 12 to 24 VDC and consuming very little power, it is an ideal control system for remote valve sites that may even be solar powered. Existing manually-set Cla-Val 50 Series Pressure Sustaining control valves can be retrofitted with CRL-34 to add remote set-point control of minimum inlet pressure. Verification of inlet pressure may be sent to SCADA system from customer supplied pressure sensor attached upstream of valve.

The CRL-34 consists of a hydraulic pilot and integral controller that accepts a 4-20 mA remote set-point and positions the pilot to maintain a minimum pressure at valve inlet within preset limits. Pressure settings are linear between these settings. Pressure settings are calibrated to the specific spring range of the control. Special USB connector cable and free downloadable software can be used to change this range if needed. Continuous internal monitoring of actuator position results in smooth transitions between pilot set-points with no backlash or dithering. Should power or control input fail, the CRL-34 pilot remains in automatic hydraulic control assuring system stability under all conditions.



Typical Applications

The CRL-34 is installed on Cla-Val 350 Series valves that maintain minimum upstream pressure by relieving excess pressure to lower zone and require this pressure setting to be changed from a remote location. It is also an effective solution for lowering costs associated with "confined space" requirements by eliminating the need for entry in valve structure for set point adjustment. Flow information can also be provided from the main valve, see E-133VF. Additional pilot controls, hydraulic and/or electronic, are also available to perform multiple functions to fit exact system requirements.

390-02

(Full Internal Port)

MODEL

3690-02

(Reduced Internal Port)

Electronic Actuated Pressure Reducing Valve



NSF/ANSI 372: National Lead Free Mandate "Reduction of Lead in Drinking Water Act"



- Simplified Remote Valve Set-Point Control
- Isolated Input
- Ideal for Pressure Management
- 12-24VDC Input Power
- Reverse Polarity Protection
- IP-68 Submersible
- Use with the VC-22D Electronic Controller

The Cla-Val Model 390-02/3690-02 Electronic Actuated Pressure Reducing Control Valve combines precise control of field proven Cla-Val hydraulic pilots and simple, remote valve control. The Cla-Val Model 390-02/3690-02 Pressure Reducing Valve automatically reduces a higher inlet pressure to a steady lower downstream pressure regardless of changing flow rate and/or varying inlet pressure. This valve is an accurate, pilot-operated regulator capable of holding downstream pressure to a pre-determined limit. The valve uses a CRD-34 pilot control, consisting of a hydraulic pilot and integral controller, that accepts a remote set-point command input and makes set-point adjustments to the pilot.

The recommended control method is simple remote set-point change from an RTU (Remote Telemetry Unit) to the CRD-34 where the 4-20 mA command signal is ranged to specific pressure range. Very accurate control can be achieved when span does not exceed 100 psi. Since the CRD-34 is pre-ranged to the full spring range, some on-site calibration may be necessary when this control method is used. Free downloadable software is available from Cla-Val website for this purpose. The CRD-34 can also accommodate control systems where the RTU compares pressure transmitter signal to the remote set point command signal. The RTU adjusts the CRD-34 with 4-20 mA command signal containing an adequate deadband to prevent actuator dithering after the two signals agree.

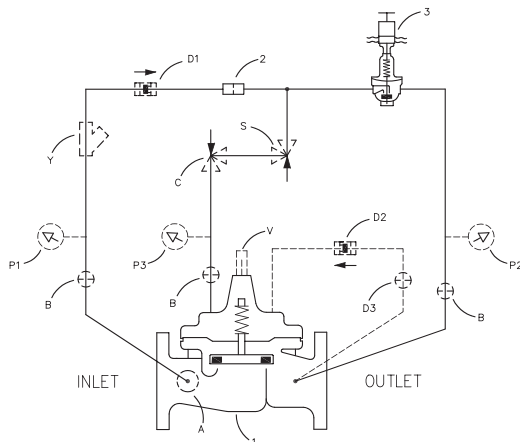
Internal continuous electronic monitoring of actuator position results in virtually instantaneous position change with no backlash or dithering when control signal is changed. In the event of a power or control input failure, the CRD-34 pilot remains in hydraulic control virtually assuring system stability under changing conditions. If check feature ("D") is added, and pressure reversal occurs, the valve closes to prevent return flow.

Schematic Diagram

Item	Description
1	100-01 Hytrol Main Valve
2	X58C Restriction Fitting
3	CRD-34 Electronic Pressure Reducing Control

Optional Features

Item	Description
A	X46A Flow Clean Strainer
B	CK2 Isolation Valve
C	CV Flow Control (Closing)
D	Check Valves with Isolation Valve
P	X141 Pressure Gauge
S	CV Flow Control (Opening)
V	X101 Valve Position Indicator

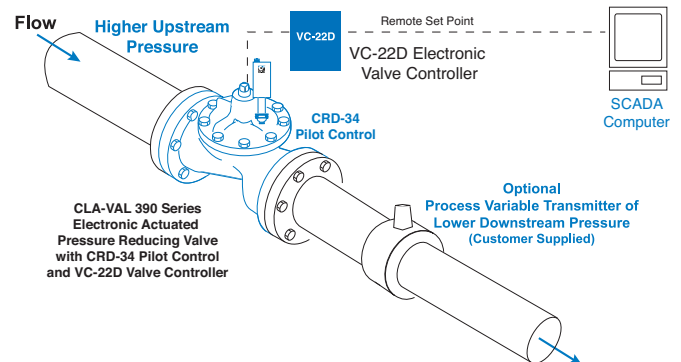


Product Dimensions Data:

For the 390-02 Main Valve (100-01) dimensions, see pages 17.
For the 3690-02 Main Valve (100-20) dimensions, see pages 29.

Typical Applications

The Cla-Val 390 Series valves that maintain downstream pressure and require this pressure to be changed from a remote location. It can be an effective solution for lowering costs associated with "confined space" requirements by eliminating the need for entry in valve structure for set-point adjustment. It is also ideal for pressure management, and can be programmed to minimum night time and optimum daytime pressures. Optional profiler can be used to create custom correlation between pressure and flow information.



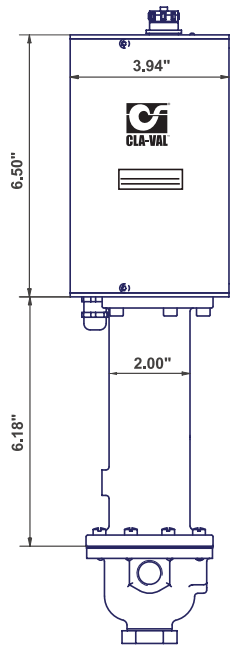


—MODEL— CRD-34 and CRA-34

Electronic Actuated Pressure Reducing Pilot Control



CRD-34 shown



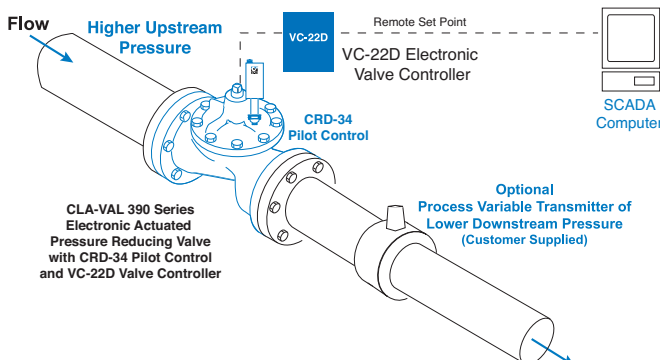
- Ideal for Pressure Management
- Simplified Remote Valve Set-Point Control
- Isolated Input
- 12-24VDC Input Power
- Reverse Polarity Protection
- IP-68 Submersible
- Use with the VC-22D Electronic Controller

The Cla-Val Model CRD-34 and CRA-34 Electronic Actuated Pressure Reducing Pilot Controls provide remote set-point adjustment and accurate downstream pressure control on Cla-Val 390 Series Control Valves. Remote set-point command signals can be from any SCADA-type control system using an analog 4-20 mA signal or by contact closure for cc/ccw rotation.

The CRD-34 senses valve outlet pressure directly and the CRA-34 senses downstream pressure with remote hydraulic connection. Operating on 12 to 24 VDC and consuming very little power, they are an ideal control system for remote valve sites that may even be solar powered. Existing manually-set Cla-Val 90 Series Pressure Reducing control valves can be retrofitted with CRD-34 or CRA-34 to add remote set-point control of delivery pressure. Verification of downstream pressure may be sent to SCADA system from customer supplied pressure sensor attached to valve outlet.

The CRD-34 and CRA-34 consists of a hydraulic pilot and integral controller that accepts a 4-20 mA remote set-point and positions the pilot to maintain a pressure at valve outlet within preset limits. Pressure settings are linear between these settings. Pressure settings are calibrated to the specific spring range of the control. Special USB connector cable and free downloadable software can be used to change this range if needed. Continuous internal monitoring of actuator position results in smooth transitions between pilot set-points with no backlash or dithering. Should power or control input fail, the CRD-34 or CRA-34 pilot remains in automatic hydraulic control assuring system stability under all conditions.

Typical Applications



The CRD-34 and CRA-34 are installed on Cla-Val 390 Series valves that maintain downstream pressure and require this pressure to be changed from a remote location. It can be an effective solution for lowering costs associated with "confined space" requirements by eliminating the need for entry in valve structure for set-point adjustment. It is also ideal for pressure management, and can be programmed to minimum night time and optimum daytime pressures. Optional profiler can be used to create custom correlation between pressure and flow information. Flow information can also be provided from the main valve, see E-133VF. Additional pilot controls, hydraulic and/or electronic, are also available to perform multiple functions to fit exact system requirements.