



# Purchase Specification

## Model No. 131 VC ELECTRONIC VALVE CONTROLLER

### Function

The controller shall provide the interface between a remote computer system and the hydraulic control valve.

It shall have remote communication capability in both the analog or digital format. Local manual set-point and emergency manual control shall also be provided. The controller shall accept an analog 4-20 mA feedback signal.

Upon receiving the remote set-point command from the computer system or local command from the operator, the controller will provide proper signals to modulate and maintain the valve at the desired set-point value.

A fluorescent display of current feedback status and set-point in scaleable engineering units shall be provided as an integral part of the controller.

When the feedback signal deviates from the set-point, the appropriate opening or closing solenoid on the valve will pulse. As the feedback signal approaches the set-point, this on/off pulse time will gradually lessen to smoothly modulate the valve to the set-point. The total cycle time between each pulse shall be programmable between 1 and 60 seconds. A programmable time proportional output feature shall also function to aid in tuning valve response. When the feedback signal is within a programmable deadband zone, the opening and closing solenoids will not activate and the valve will maintain position.

The operator keypad shall consist of two rows of alphanumeric characters to display numeric values and units. Color coded alarm, status and mode indicators will display operating conditions. Security key codes shall protect against unauthorized changes to the controller. All programming shall include key words and prompts to aid in set-up and timing the controller.

The controller shall be solid-state construction with an internal chassis capable of being removed for inspection and repair. All program memory including set-point and timing parameters shall be protected by an internal lithium battery rated for 10 year life.

When optional remote digital communications are provided, the controller shall be capable of direct linkage to a computer or other instrumentation which has RS232C or RS422 communications. When RS 422 data highway communications is specified, up to 64 controllers may be addressed from a single computer port and shall operate up to 5000' from the computer. RS232C shall operate up to 50' distance between the computer or RTU and the valve controller. All set-point, tuning, and auto-manual operation shall be adjustable commands sent from the computer. Each transmission shall include the individual controller address. Communication baud rates shall be 300, 1200, or 2400 baud.

### Controller Specifications

Control Input:	4-20 mA full scale (others optional)
Control Parameters:	
Proportional Bands:	1 to 200% adjustable in 1% increments independently for opening and closing.
Deadband:	Adjustable 0.00 to 25.5% of span.
Cycle Time:	1 to 60 seconds in 1 sec. increments.

#### Environmental Parameters:

Temperature:	5 C to 55 C (40 F to 130 F)
Humidity:	90% RH, non-condensing.
Power Input:	13.5 watts max. at 117 VAC, 50/60 Hz.
Memory Protection:	10 yr. type. life lithium battery
Housing:	Flame retardant UL rated ABS plastic. Fits 1/4 DIN cutout.



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The Electronic Valve Controller shall be the Cla-Val Co. Model 131VC. Valve Controller as manufactured by Cla-Val Co., Newport Beach, CA 92659-0325.

## Control Valve Pilot System

The 131-01/631-01 hydraulic control valve pilot system shall consist of dual solenoids which alternately apply or relieve pressure to the diaphragm chamber to position the main valve. They shall be normally closed (energized to open), 120 or 240 volt AC with Nema type 4 enclosure. A manual system to by-pass the solenoids shall also be provided.

Optional pilot system features shall include:

Item Description

- A X46A Flow Clean Strainer
- B CK2 Cock (Isolation Valve)
- C Cv Flow Control (Closing)
- D Check Valves with Cock
- E X117C Position Transmitter
- F Independent Operating Pressure
- H Atmospheric Drain
- N Electronic Controller
- S Cv Flow Control (Opening)
- Y X43 "Y" Strainer

The Electronic Control Valve shall be the Cla-Val Co. Model 131-01/631-01. The Electronic Control Valve as manufactured by Cla-Val Co., Newport Beach, CA 92659-0325.

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The valve position transmitter shall produce a variable current (4-20 mA) output signal suitable for relaying valve stem position. The transmitter shall incorporate a means of adjustment to calibrate the feedback signal to correspond accurately with the full stroke of the valve stem. The position transmitter shall be enclosed by an aluminum explosion-proof and weather-sealed housing as defined by Nema 7 Class I groups C & D and by Nema 9 Class II groups E, F, & G and shall include all necessary hardware for external mounting on Cla-Val valves. A means of reversing transmitter output without relocating wires shall be incorporated inside the transmitter housing.

(Optional) Two cam actuated single-pole, double-throw type switches capable of adjusting over the entire rotational span of the transmitter shall be incorporated into the housing. (DPDT available on request).

The valve position transmitter shall be a Model X117C (or X117CLS) Valve Position Transmitter as manufactured by Cla-Val Co., Newport Beach, CA 92659-0325.



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## Mechanical

Fits Valve Sizes 2" through 24"

Pressure Rating 400 psi max

Temperature -13 to 185 F

## Materials

Cast aluminum housing;

Steel bracket;

Brass adapter;

Stainless steel stem;

Buna-N-Synthetic rubber seals.

Other materials available as extra cost option.

## Electrical

Housing is weather-sealed and explosion-proof to: Nema Standards: 1,3,4,7, 9 and 13.  
UL Listed: Class I, Groups C and D.  
Class II, Groups E, F and G.

CSA Certified: Class I, Groups C and D.  
Class II, Groups E, F and G.

Output Analog Current: 4-20 mA  
Span: Adjustable from 15 to 90 of angular rotation.

Null: 4 mA position may be set at any angular position.

## Optional

Resistive:

500 ohms + 10% in center (free position)

975 ohms max. 15 105 rotation clockwise (CW)25 ohms min. at 105 rotation CCW2 watts power at 70 C/105 xF at full scale.

Switches 2 SPDT UL/CSA rating 15 amps,120, 240 or 480 VAC .5 amp 125 VDC25 amp 250 VDC