



—MODELS— **CRL-31**

# Electronic Actuated Pressure Relief Pilot Control



- Simplified Remote Valve Set-Point Control
- 24VDC Input Power
- Easy Interfacing to SCADA Systems
- Accurate Pressure Control
- Reliable Hydraulic Operation
- Rugged Durable Design

The Cla-Val Model CRL-31 Electronic Actuated Pressure Sustaining Pilot Control is designed to be retrofitted to existing hydraulic operated valves where remote set-point change, as directed by a SCADA or other similar control system, is desired. The CRL-31 is installed on valves to sustain a minimum upstream pressure or unload excess pressure in a pump bypass system. Operating on 24 VDC and consuming less than 100 mA under load (occurring only during set point change) and 25 mA at no load, it is an ideal control system for remote valve sites (i.e. solar powered).

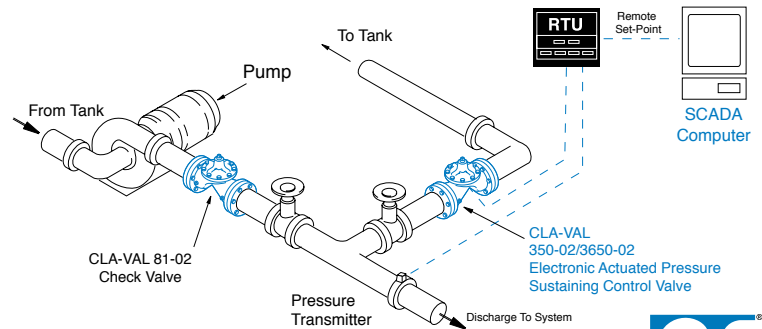
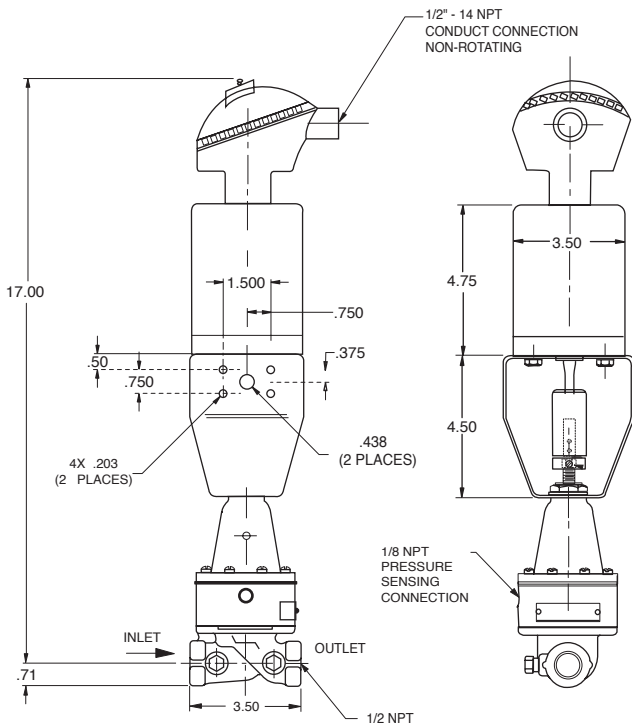
The CRL-31 consists of a hydraulic pilot and integral controller that accepts a 4-20 mA remote set-point and precisely positions the pilot to maintain valve inlet pressure within a predetermined zero and span setting. Default settings are set to minimum spring range adjustment at 4 mA and maximum at 20 mA. Pressure settings are linear between these values. Optional Range Parameter Kit is required to change pressure range limits.

A separate pressure sensor signal (customer supplied) may also be sent to a supervisory control system for verification of pressure setting.

Continuous internal monitoring (pat. pend) of actuator position results in accurate pressure changes with no backlash or dithering. Built-in electronic limits prevent over ranging. In the event of a power or control input failure, the CRL-31 pilot remains in hydraulic control assuring system stability under changing conditions.

## Typical Applications

The CRL-31 is installed on valves that limit the upstream pressure to a minimum value and require this pressure 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.



## CRL-31 Purchase Specifications

The Electronic Actuated Pressure Sustaining Pilot Control shall have an integral hydraulic pilot and electronic controller contained in a NEMA 4X enclosure to provide interface between remote telemetry and valve set-point control. It will compare a remote analog command signal with an internal position sensor signal and adjust the hydraulic pilot control spring mechanism to a new set-point position. The actuator speed will be factory set to less than one RPM with a maximum range of nine turns. Actuator position feedback output shall be supplied standard. The remote command input 4-20 mA analog signal must be automatically ranged in engineering units within the range set by built-in electronic limiters. Supplied electronic range limiters shall reduce total range to a portion of pilot spring range.

If the Remote Set-Point signal is lost or power fails, the valve shall remain under control of the pressure sustaining hydraulic control sub-assembly. No adjustments shall be necessary to the actuator except to the low and high position range adjustment. Range adjustment shall be accomplished only with valve manufacturer's components and instructions to be supplied in a separate kit.

The Electronic Actuated Pressure Sustaining Pilot Control shall be Cla-Val Model CRL-31 as manufactured by Cla-Val, Newport Beach, CA.

### Mechanical Pilot Specifications

#### Adjustment Ranges

0 to 75 psi  
20 to 200 psi

#### End Connection

1/2" NPT

#### Temperature Range

Water: to 180°F

#### Materials

##### Standard Pilot System Materials

Pilot Control: Bronze ASTM B62  
Trim: Stainless Steel Type 303  
Rubber: Buna-N® Synthetic Rubber

##### Optional Pilot System Materials

Pilot Systems are available with optional Aluminum, Stainless Steel or Monel materials at additional cost.

### When Ordering, Please Specify

1. Catalog CRL-31
2. Adjustment Range
3. X56 Mounting Kit (Specify Valve Size)

**Options:** Range Parameter Kit. Includes Windows-base software and special 6' connecting cable. Kit is required when changing range parameters or when servicing pilot control to restore range parameters.

### Electronic Actuator - Specifications

**Supply Power Input:** 24 VDC (+/- 10%) at 2 Amps  
No Load draw: 25 mA  
Max. Load draw: 100 mA

**Remote Command Input:** 4-20 mA analog signal, 12 to 36 VDC compliant, 220 ohm burden. Non-Isolated (return wire is referenced to power supply common wire)

**Position Feedback Signal:** 5 K high precision potentiometer (three-wire signal) output. Supplied standard

**Speed of Rotation:** Approximately 270 degrees per minute (non-adjustable)

**Total Number of Turns:** 9 (factory pre-set maximum)

**Position Limiters:** Built-in Electronic type, factory set to maximum range, field settable to desired range with Range Parameter Kit.

**Loss of Signal or Loss of Power:** Actuator will remain in last commanded position.

**Terminal Block:** Accepts up to #16 AWG solid or strand wire

#### Actuator Mechanical Specifications:

Enclosure and Wiring  
Junction Box: NEMA 4X, Anodized Aluminum, Non-Rotating  
Bracket: Anodized Aluminum  
Coupling Assembly: Brass, Nickel Plated  
Gear Train: Stainless Steel, permanently lubricated



E-CRL-31 (R-5/05)

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