

## CVS Controls ALS 410 Ex d Limit Switch

The CVS Controls Series ALS 410 Limit Switch is designed for rotary and linear valves and actuators in hazardous locations.

Equipped with standard NAMUR shaft and bracket, for easy mounting to NAMUR actuators. Secure type 4, 4x rated case with multi angle top and side visual indicator.

Red to indicate fully closed position, and yellow to indicate fully open position.

Available in 4 different configurations. 3 rotary, 1 linear.

The limit switch is CSA Approved for Class 1, Div 1, Groups B C D and T6.

It also carries an IP66 weather rating and is CE and Ex certified.

Standard operating temperature limit  
-40°C through 50°C



CVS ALS410ML2-L Limit Switch



CVS ALS410ML2




CVS ALS410QA22C12



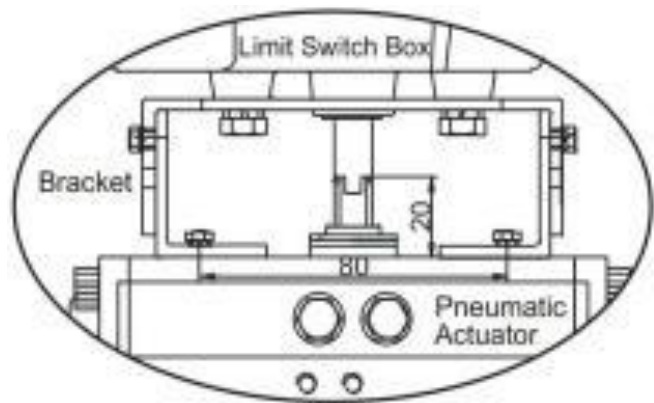
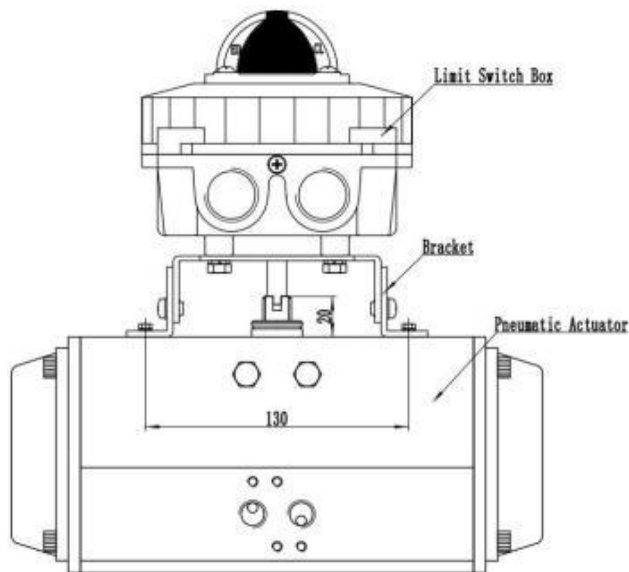
CVS ALS410QA23B12

## Specifications

Model No.	ALS-410ML2	ALS-410QA23B12	ALS-410QA22C12	ALS-410-M2-L
	ROTARY	ROTARY	ROTARY	LINEAR
Photo				
Enclosure	Die-cast Aluminum with polyester powder coated, O-ring sealed			
Explosion Proof	Class I Division I Groups B,C,D T6			
Temperature Range	-40°C to +50°C			
Cable Entry	2 - 3/4NPT			
Terminal Strips	8	12		8
Position Indicator	90°Yellow Open, Red Closed (Rotary)			30°Yellow Open, Red Closed (Linear)
Voltage	8A,250VAC/30VDC	60VA 1.0A, 280VDC; , 240VAC	120VA,3A,250VAC/DC	8A,250VAC/30VDC
Internal Switch	ML2: (2x)SPDT	QA23B12: (2x)SPDT	QA22C12: (2x)SPST	M2-L: (2x)SPDT
Bracket	MB3.4:30x80-130H:20-30(carbon steel)			

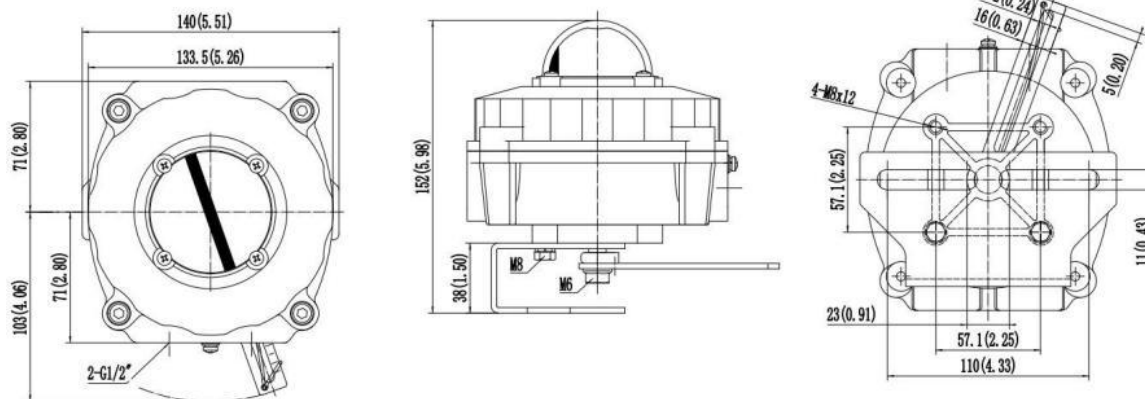
## Installation – Rotary

1. Attach the proper mounting bracket to the limit switch box housing using the 4 supplied cap screws.  
(do not fully tighten the cap screws yet)
2. Align the limit switch output shaft to the top of the actuator shaft and engage it
3. Attach bracket to the actuator using hardware provided.
4. Tighten all screws after alignment is complete.



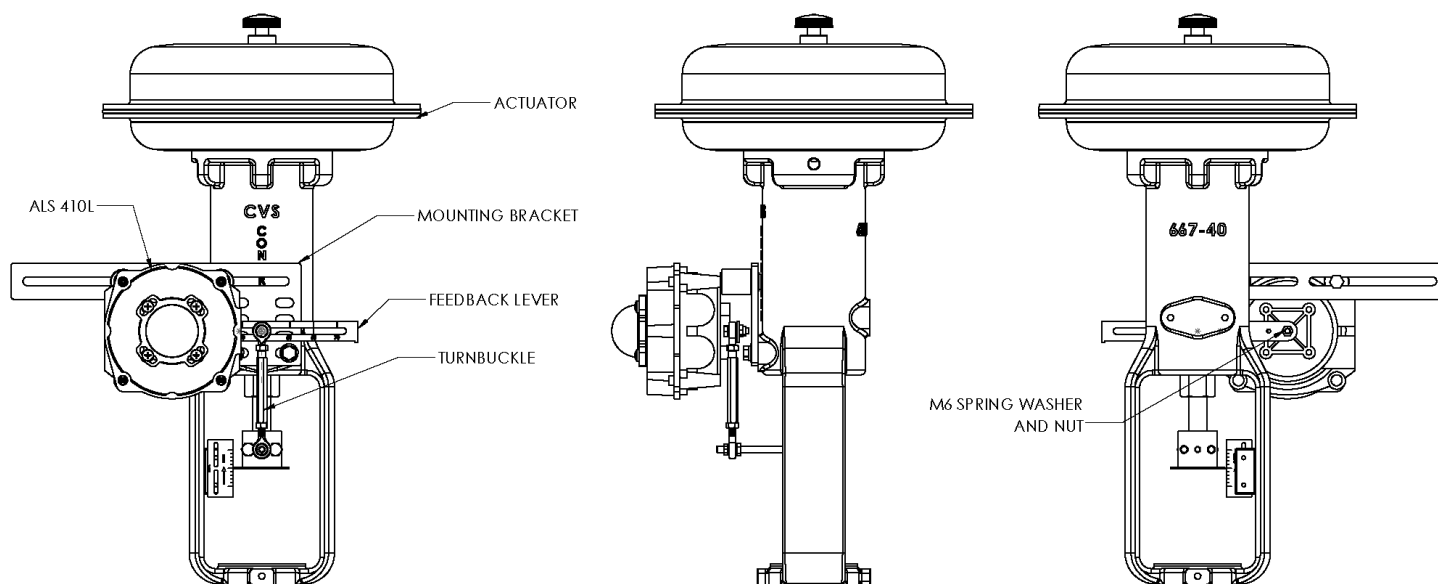
## Installation – Linear

1. Attach the proper mounting bracket to the limit switch box housing using the 4 supplied cap screws. (do not fully tighten the cap screws yet)
2. Align the limit switch output shaft to the top of the actuator shaft and engage it
3. Attach bracket to the actuator using hardware provided.
4. Tighten all screws after alignment is complete.



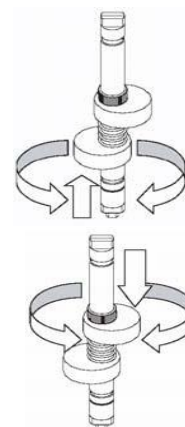
### NOTE:

Do not open the limit switch when energized in hazardous locations.  
Use only a damp cloth with water to clean the indicator if required.



## **Limit Switch Adjustment**

1. Loosen limit switch box cover screws and remove cover.
2. Rotate actuator to the fully open valve position.
3. Lift up bottom Yellow cam and turn until switch is activated and then release.  
Engage cam back onto the splined retainer. Spring will maintain cam engagement.
4. Rotate actuator to the fully closed valve position.
5. Push down top Red cam and turn until switch is activated and then release.  
Engage cam back onto the splined retainer. Spring will maintain cam engagement.
6. Place cover on limit switch box and tighten.



### **NOTE:**

- Take care to ensure that housing O-ring is properly located in seal groove.
- Keep the box closed while circuits are alive.
- Disconnect supply circuit before opening.
- Ensure the flameproof surface does not have any paint or scratches during the process of adjustment.
- Use a multimeter to confirm contact activation if necessary

## Electrical

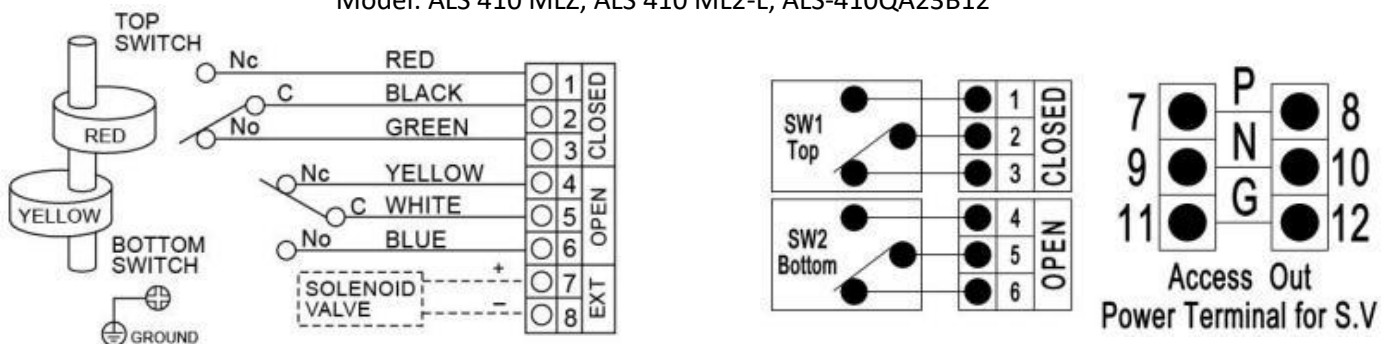
### INSTALLATION

1. Remove limit switch box cover (Disconnect supply circuit before opening).
2. Remove protection plugs from conduit entries and install conduit or plugs suitable for type of protection required.
3. Engage wires in terminal strip using a small screwdriver

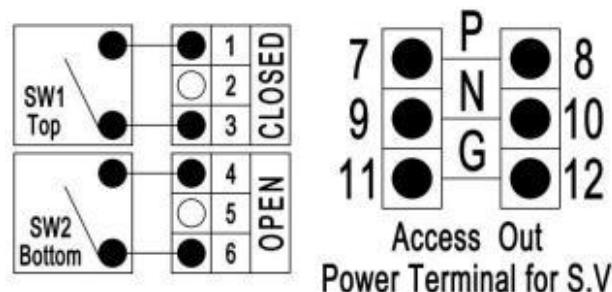
### Connections

- Visually inspect to ensure the flameproof surface does not have any paint missing, or scratches during the process of adjustment.
- All user connections are made at the numbered terminals located inside the cover and indicated which terminal numbers correspond to switch contacts: normally open, normally closed common, etc. Simply follow the wiring diagram and electric code to connect switches to your system.
- Additional electric devices may also be wired through the switch box. At least two auxiliary terminals are included as an option. A ground screw is also included. Simply wire the electric device to auxiliary terminals provided.
- Be sure to properly ground the electric device at the ground terminal provided.
- CVS ALS series Exd switch boxes include two 3/4" NPT conduit entries. Be sure to follow the National Electric Code regulations for rigid conduit, flexible conduit or cable systems as applicable.

Model: ALS 410 MLZ, ALS 410 ML2-L, ALS-410QA23B12

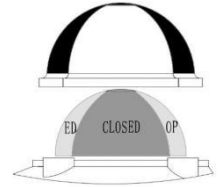


Model: ALS-410QA22C12



## **Indicator Adjustments**

Indicators are easily adjusted to match the dome's clear windows or the special rotor angle indicator, such as 90° (rotary) or 30 (linear) indicator. Simply loosen the four screws to adjust the indicator. Make sure dome window lines up with rotor quadrants. Finally, tighten the screws to ensure a good seal.



## **Inspection and Maintenance**

Use only wet cloth when cleaning the indicator.

Inspect the components of the limit switch box for wear or damage and replace where necessary.

### ***RECOMMENDED REPLACEMENT PARTS:***

1. Limit switch. 2. Position indicator O-ring. 3. Housing O-ring. 4. Shaft O-rings (top and bottom)

## **Storage**

To store CVS ALS series Exd limit switch box, the following cautions are recommended:

- *Ensure the flameproof surface does not have any paint or scratches.*
- *Protect flameproof (mating) surfaces with appropriate grease to prevent corrosion.*
- *Ensure the limit switch box is completely dry and water free.*
- *Maintain the entrances of cable by fitting the original or replacement plastic corks.*
- *Protect from dust, dirt and damage by packing in box or plastic bag.*

## **Conditions of Acceptability**

The threaded holes shall be installed with suitably certified cable glands, stopping plug or conduit fitting for final installation.

- The yield strength of special fasteners shall be sufficient to hold in place.
  - Flameproof surface must be unmarred, otherwise it will void rating.
  - The flameproof joints are not intended to be repaired.
  - Under certain extreme circumstances, exposed plastic and unearthed metal parts of the enclosure may store an ignition-capable level of electrostatic charge.
- Therefore, the user/installer shall implement precautions to prevent the build-up of electrostatic charge, eg: locate the equipment where a charge-generating mechanism (such as wind-blown dust) is unlikely to be present and clean with damp cloth.

CVS ALS Limit Switch Series have been 100% factory tested for operation, water tightness, and pressure with 15 bar for 60 seconds

For more information contact CVS Controls.

### **Specifications**

**Enclosure** Die-casting aluminum: O-ring sealed

**Coating** Dichromate conversion with polyester powder coating

**O-rings** Buna N

**Environment** Type 4, 4X

**Area Classification** Class I, Division 1, Groups B, C, D T6

**Fasteners** Stainless steel

**Shaft** Stainless steel Namur

**Conduit Entries** 2\*3/4 " -14 NPT, or 2\*M20x1.5 (optional).

**Terminal Strip Contacts** 8

**Mounting Bracket** MB – 3.4: 30 x 80, 130 H:20, 30 (Carbon steel)

**Operating Temperature** -40°C ~ 50°C

### **Approvals**



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# CVS

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