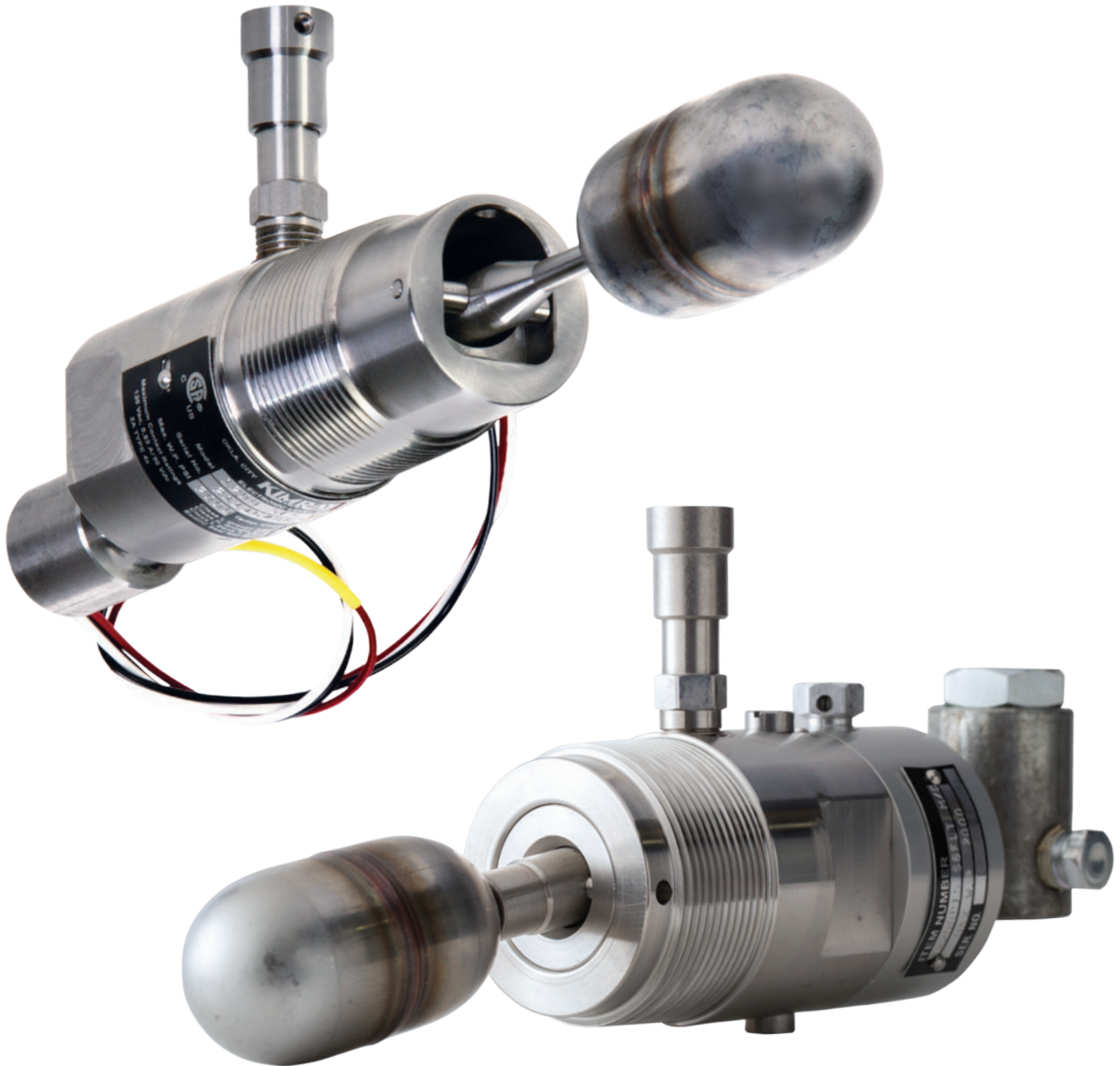


# LEVEL SWITCH



**KIMRAY**  
INC.®

# LEVEL SWITCH

## INTRODUCTION

Kimray pneumatic and electric switches give customers dependable service in all types of environments. Both can be used for high or low level control, and the 316 stainless steel, used in all wetted parts, can stand up to corrosive environments. Because the mechanicals are separated from the vessel fluid, the wear and tear on the switch is minimized.

### THE CHALLENGE

Customers need a high- or low-level alarm in the vessel in case the liquid level is compromised because of a faulty dump valve or level controller.

### THE SOLUTION

Kimray level switches provide an on/off signal to operate a pneumatic shut-in valve or an electric signal to close a shut-in valve to prevent the vessel from draining or spilling over. The electric version can also provide a signal to activate an alarm on a PLC or other automation device.

## APPLICATIONS

### BOTH SWITCHES:

**Separators:** Used in separators and tanks for high and low liquid level shut-in.

**Blow Cases:** Activate the blow case.

**Treaters:** Control the liquid level span in the downcomer by operating a dump valve.

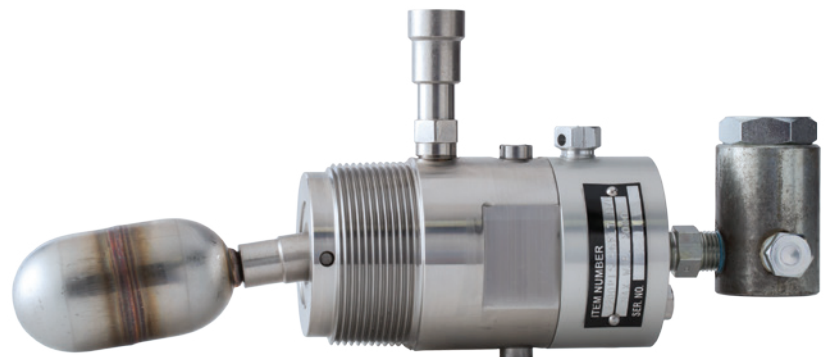
**Scrubbers:** Activate dump valves to remove liquids from inlet scrubbers.

**Liquid Accumulators:** Activate dump valves to remove liquids from accumulators.

**Process vessels:** Used in separators and tanks for high and low liquid level shut-in.

### PNEUMATIC LEVEL SWITCH ONLY:

**Compressors:** Often paired with a Kimray High Pressure Control Valve to dump liquid at the inlet scrubber.



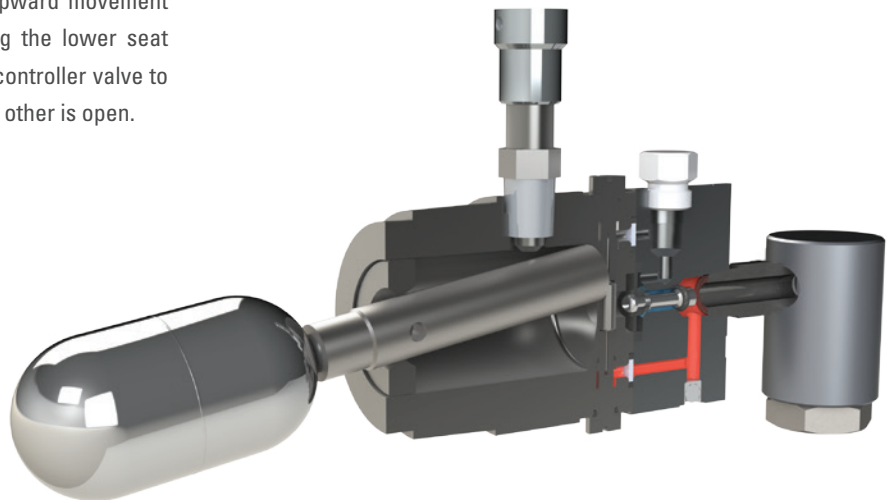
# PNEUMATIC LEVEL SWITCH

## HOW IT WORKS

Several features make the Kimray Pneumatic Level Switch a robust and dependable choice for level control. The switch is designed without a seal, which completely isolates the process fluid from the pneumatics. The switch also features a large orifice snap pilot, allowing quicker actuation of control valves. The pneumatic output can be switched from direct to indirect by rotating the housing.

The pneumatic switch consists of a float that monitors the changing liquid level in a vessel and a magnetically-actuated two-way switch to output a pneumatic signal. The switch attaches to the vessel with a 2" NPT connection and ¼" NPT connection for the supply gas and output tubing.

The supply gas enters the rear of the switch through a filter and travels through the channels into the lower seat. As the liquid increases in the vessel, the float rises, causing the magnet embedded in the float arm to pivot downward. The magnet repels the two-way switch, forcing it to snap upward and allows up to a 75 psig output. As the liquid level decreases, the float lowers and the float lever pivots upward. The magnet's upward movement repels the two-way switch downward, closing the lower seat and opening the upper seat, which allows the controller valve to close. One seat will always be closed when the other is open.



# PNEUMATIC LEVEL SWITCH

## KEY DESIGN FEATURES

- All wetted parts are stainless steel for corrosive environments.
- The test button manually moves the float lever, indicating full range of motion and switch activation.
- The simple design with few moving parts ensures lasting performance.
- The switches meet NACE MR0175 for sulfide stress cracking-resistant metallic materials.
- The pneumatic switch can handle up to 75 psig of supply pressure.



## SPECIFICATIONS

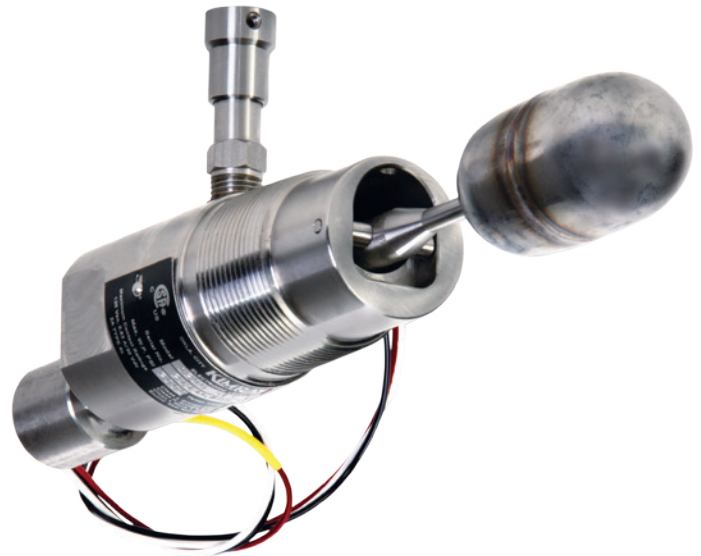
Max Supply Pressure	75 psig
Temperature	-20° to 350°F
Minimum Specific Gravity	0.5 with the 316 Stainless Steel float
Elastomers	FKM or LTN
Vessel Pressure	Up to 2000 psig
Body Material	316 stainless steel
Direct/Indirect	The switch may be made indirect by rotating the pilot body 180°.
Repair Kit	RZX
Manual Override	Available
Float Options	316 stainless steel or polypropylene

# ELECTRIC LEVEL SWITCH

## HOW IT WORKS

The Kimray Electric Level Switch is a snap-acting high or low-level controller. This electric switch works with pressures up to 5000 psig and is used for level control on separators, treaters, scrubbers, liquid accumulators and process vessels by sending a signal to a receiver.

The switch construction has wetted parts made of 316 stainless steel. As the float moves closer to the high setpoint, the magnet on the lever moves down toward the reed switch in the body. As the high point of the vessel's fluid is reached, the magnet closes the reed switch and sends an electronic signal. The electric signal is used to activate a shut-down device or operate an alarm for manual shut-down. The switch can be mounted inside the vessel or in an external float cage.

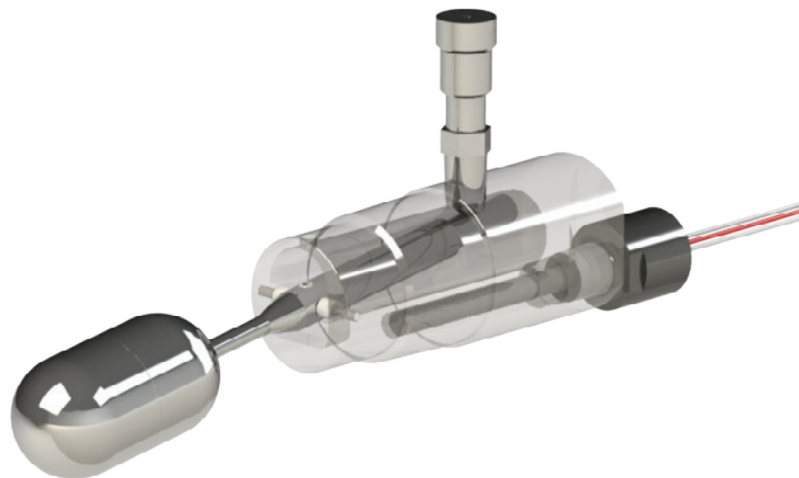


### NEED A SWITCH THAT RUNS ON LOW POWER?

The low-current version of this switch can operate using solar power. The rhodium contacts within this version are specifically designed for longer life with lower power.

## KEY DESIGN FEATURES

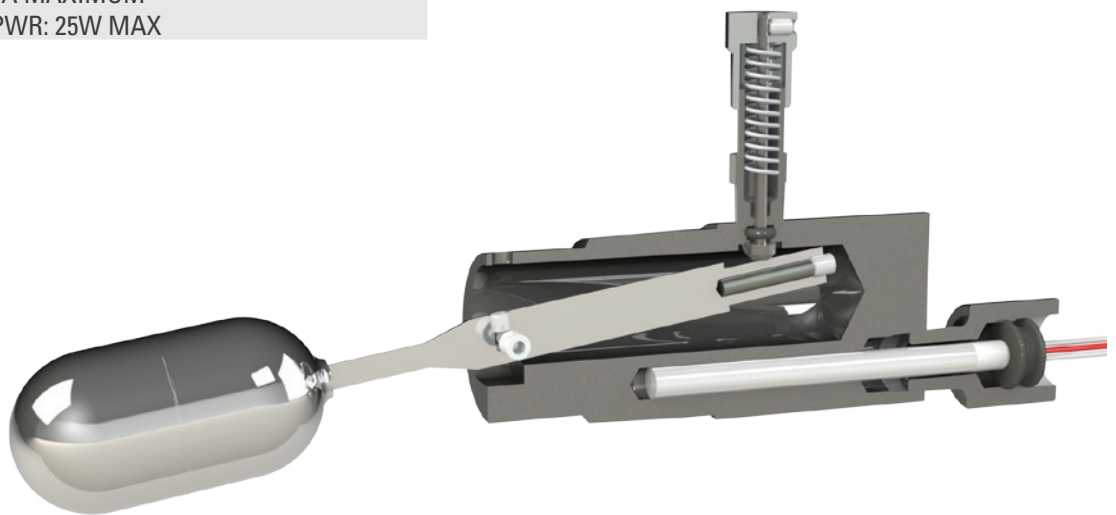
- The test button manually moves the float lever, indicating full range of motion and switch activation. The electric level switch is available with or without test button.
- Process fluid is isolated from the switch assembly, which prevents leakage and allows maintenance operations without the need to remove the switch from the vessel.
- This switch is a single pole double-throw, and it is not position sensitive, allowing more placement variety.
- The electric switch is NACE compliant, CSA certified and uses a NEMA 4X-certified cage.



# ELECTRIC LEVEL SWITCH

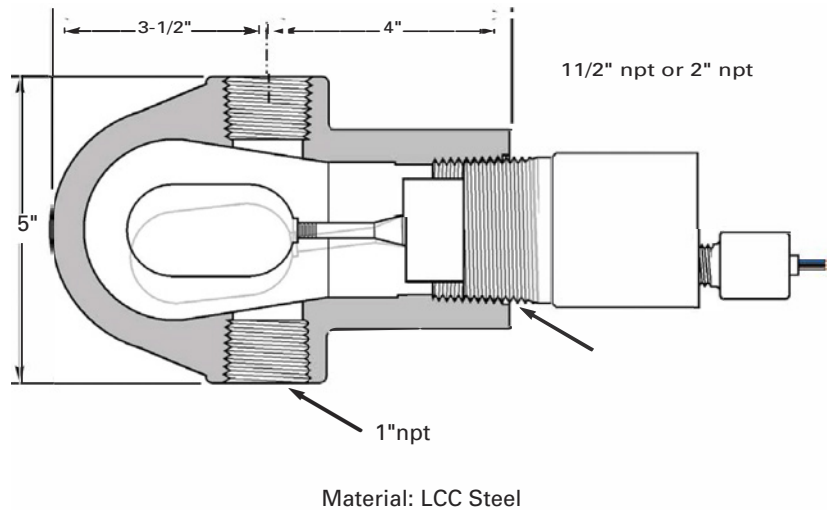
## SPECIFICATIONS

Connection	1½" and 2" NPT
Temperature	-40° to 350°F (316 Stainless Steel float) -40° to 200°F (poly float)
Minimum Specific Gravity	0.4 (measured in water)
Elastomers	FKM
Vessel Pressure	Up to 2000 psig (316 Stainless Steel float) Up to 5000 psig (poly float)
Body Material	316 stainless steel
Certifications	CSA, NEMA 4X
Explosion Proof	Class I, Groups A, B, C, D Class II, Groups E, F, G, Class III Class I, Zone 1, AEx d IIC, Ex d IIC (Stainless Steel float only) Additional seal not required
Electrical Rating	<b>Standard:</b> 0.83 @ 120vac 2A @ 50VDC 3A MAXIMUM PWR: 3W MIN, 100W MAX <b>Low Power:</b> 0.2A @ 120VAC 1A @ 25VDC 1A MAXIMUM PWR: 25W MAX





# ACCESSORIES



## FLOAT CAGE

A compact external float cage is available for both the pneumatic and electric level switch. The cage casting is LCC steel and is designed to allow the switch to attach with a 1½" or 2" NPT connection. The bottom opening has the process fluid pressure and the top opening contains process gas, which allows the switch float to react to the level change within the cage. The cage can handle a working pressure up to 3000 psig.

## ARM EXTENSIONS

Kimray level switch extensions are not standard with a level switch order because the float is screwed directly into the lever. Extensions of 3-inch lengths are available. If using an extension, use the optional syntactic float that is appropriate to the extension length. If an undersized or oversized float is used, the switch will not be accurate. Extension adapters should also be used when extending the arm length.

## FLOATS

Kimray offers two switch level float choices: the 316 stainless steel and the polyethylene.

### 316 STAINLESS STEEL

This is the standard float for both switches and has a working pressure of 2000 psig. The float can be used in temperatures up to 350°F.

### POLYPROPYLENE

This float has a working pressure up to 5000 psig and can be used in temperatures up to 200°F.

## ELECTRIC ONLY

Additional accessories include a 20-inch cable for manual override and an annulus plug.

# WHO WE ARE

Kimray designs and manufactures oil and gas control products. Based on more than 65 years of pioneering product development, we provide products and services that are reliable, smart and inventive. We generate meaningful solutions by staying curious and engaging in customers' needs. Our product ideas are fueled by a deep desire to make a difference that is both personal and unique to the customer.

We have made it our life's work to provide products and services that are positively impactful. Through the years, this pursuit has built strong relationships. Our customers have known that buying from Kimray is about much more than the product. The relationships between Kimray representatives and our customers extend from before the sale through the life of the product. Those relationships, along with quality Kimray products, are the result of a company striving for excellence for our customers, our company and our community.

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