

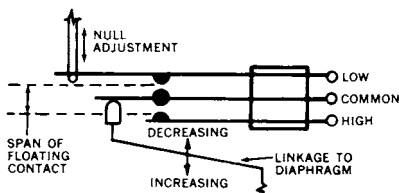


# Model 1640 Floating Contact Null Switch for High and Low Actuation

## Specifications - Installation and Operating Instructions



Model 1640 null switch.



Switching action in the Model 1640 null switch.



Adjusting the "null".

The Model 1640 Floating Contact Null Switch is identical to Dwyer® Series 1630 Large Diaphragm Pressure Switches, except for its electric switch. Model 1640 is equipped with a single pole, double-throw floating contact switch (not snap action), so it functions as a null switch.

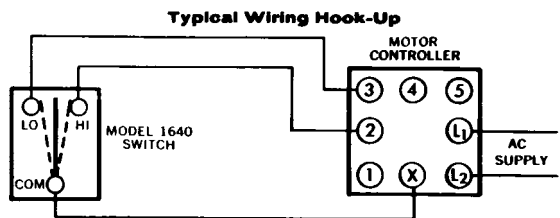
The drawing above shows the switching action schematically. As the diaphragm moves in response to pressure changes, it moves the floating contact to cause switching action at two preset points, with no switching action between these points. The "high" circuit will be closed when rising pressure differential reaches the preset level; the "low" circuit will be closed when falling pressure differential reaches the preset level.

A typical usage for this switch is to position motorized dampers when static pressure in a duct system reaches a desired maximum, and to reposition the dampers when the static pressure falls to a pre-established minimum. By using a pitot tube sensing element, Model 1640 can serve in the same way to control air velocity and maintain a constant volume of air in a supply duct.

**CAUTION:** Because of the very low electrical rating, the 1640 switch is almost always used with a relay which has suitable current carrying capability.

### Typical Wiring Hook-Up

Rising pressure closes the "high" contact which causes the motor to rotate in a counterclockwise direction. Decreasing pressure closes the "low" contact and causes the motor to rotate in a clockwise direction. When the floating contact is in the null zone there is no switching action and motor is at rest.



**Adjustment of the Switch:** The "high" actuation point is indicated on a calibrated scale secured to the transparent range enclosure. Re-setting is accomplished by turning the adjustment screw with a screwdriver to the desired setting on scale. The "low" actuation point is set by adjusting the span of the null by turning the Span Adjustment Screw on top of the switch element inside the conduit enclosure. (See photo above.)

### SPECIFICATIONS

**Ambient Temperature Range:** -30°F (-34.4°C) for dry air or gas to 130°F (54.4°C).

**Maximum Surge Pressure:** 25 psig (172.4 kPa)

**Rated Pressure:** 10 psig (68.95 kPa)

**Pressure Connections:** 1/8" NPT

**Electrical Ratings:** Non-inductive — 2-1/2 amp, 110V A.C.; 1-1/2 amp, 220V A.C.; 1 amp, 24V D.C.; 1/2 amp, 110V D.C.; Inductive - 1 amp, 110V A.C.; 1/2 amp, 220V A.C.; 1/2 amp, 24V D.C. De-rate 70 - 80% for very slow pressure changes.

**Switch Action:** SPDT floating contact (not snap action)

**Wiring Connections:** 3-screw type, common, high and low

**Weight:** 4 lbs., 13 oz. (2.18 kg)

**Installation:** Diaphragm vertical

**CAUTION:** For use only with air or compatible gases.

### Model 1640 Switches - Operating Ranges - Null Zone

Model Number	Range Inches, W.C. (Pa)	Adjustable Null Span	
		Min. Set	Max. Set
1640-0	.01 - 0.2	.01	.03
	(2.482 - 49.77)	(2.488)	(7.465)
1640-1	0.2 to 1.0	.02	.06
	(49.77 - 248.8)	(4.977)	(14.93)
1640-2	1.0 to 4.0	.03	.12
	(248.8 - 995.3)	(7.465)	(29.86)
1640-5	2.0 to 6.0	.03	.18
	(497.7 - 1493)	(7.465)	(44.79)
1640-10	3.0 to 12.0	.04	.20
	(746.5 - 2986)	(9.953)	(49.77)

**NOTE:** Special Models are available, including those with weather-proof or explosion-proof enclosures.

### Suggested Specification

Differential pressure switches shall be diaphragm operated to actuate a single pole double throw floating contact "Null" switch. The pressure differential at which the electrical switch will be actuated on rising pressure shall be adjustable. Set point adjustment shall be screw type with set point indicated on a visual scale. The span of the floating contact switch shall be adjustable. Switches shall be Dwyer Instruments, Inc. Catalog No. \_\_\_\_\_ for the required operating ranges.