

# QUALITROL® 141/148 & AKM 35600



Pressure or vacuum switches

## Tested and certified for accurate notification of pressure change

- Wide array of options allow for perfect solution to almost any application
- Rugged designs withstand harsh environments
- Compact design is easy to install

### Product Summary

**Description** Designed to provide operating control, limit or alarm functions for transformers and load tap changers. Contacts can be factory set or adjusted as needed. The snap-action switch automatically resets when pressure returns to pre-set conditions. Pressure and/or vacuum switches can be combined on a common manifold and protected by optional enclosure. Optional pressure indicators (dial gauges) are available on select models.

**Application** For pressure monitoring, operating control and alarm triggering on transformers, load tap changers and other related electrical apparatus.



**QUALITROL®**  
Defining Reliability

# QUALITROL® 141/146/148 & AKM 35600/47500 pressure or vacuum switches

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## Tested and certified to be reliable

- Reliable snap-action switch resets automatically - no manual reset is required
- The single pole single throw (SPST) and single pole double throw (SPDT) switches are UL and CSA listed
- Repeatability of +/-5% or +/- 0.4 PSI (3 kPa) of the switch set points provides safe and reliable alarm functions
- AKM 35600 models have been verified to react in less than 15 milliseconds when pressure changes at a rate between 29 - 72.5 KPSI (20-50 MPa) per second past switch settings, for fast detection of pressure changes

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## Wide array of options allow for perfect solution to almost any application

- Optional indication dial is available on 141 and 148 models for accurate monitoring of pressure conditions
- Switches may be applied on systems using steam, air and other non-combustible gases
- Pressure settings can be factory-set and/or adjustable by equipment manufacturer on select models
- The high electrical rating of the snap-action switch often saves on the need for expensive relays
- AKM 35600 is available with 3 way lockable test valve for isolation of pressure switch during operation testing

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## Rugged designs withstand harsh environments

- For outdoor applications, select models come with a deep gasketed enclosure, rated at IP55 (NEMA 4)
- AKM 35600 comes standard with a weather proof case (IP55) for surviving in weather exposed installations
- AKM 35600 has passed life tests of 6 million cycles (switch actuations)

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## Compact design is easy to install

- Compact 146 series of switches mount in any orientation inside control panel as an integral component
- Electrical connection options include standard quick connect, screw or solder terminals for a variety of applications



### Don't see what you need?

QUALITROL regularly creates models with special customer requirements. Contact your local sales representative or QUALITROL Application Engineer to review your special requirements.

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## QUALITROL® Field Services

To further improve reliability, QUALITROL provides comprehensive education and on-site commissioning services, maintenance contracts and technical support to all customers worldwide. Emergency response is available on all products and services.

## About QUALITROL®

QUALITROL Company LLC manufactures substation and transformer monitoring and protection devices used by electric utilities and manufacturing companies. It is the global leader in sales and installations of transformer asset protection equipment, fault recorders and fault locators. Established in 1945, QUALITROL Company produces thousands of different types of products on demand, each customized to customers' unique requirements.

## 141 TECHNICAL SPECIFICATIONS

<b>Mechanical</b>	Mounting	Center back vertical mounting
	Standard dial ranges (optional)	-10 to +10 PSI, other ranges available from factory
	Connection types	Screw terminals, flying leads
	Tank connection	1/4-18 NPT, 5/16" compression fitting
	Pressure relief device (141-005 only)	5 PSI
	Bleed valve (141-005 only)	1/4" ID tube hose barb
	Indication accuracy	+/- 2% of middle half of scale and +/- 3% over first and last quarter of scale
<b>Dimensions</b>	Dial diameter (where applicable)	3.5" (88.9 mm)
<b>Materials</b>	Dial case (optional)	Cold rolled steel, anodized aluminum
	Bezel and lens	One piece molded polycarbonate
<b>Environmental</b>	Std. operating temperatures	-20 to +165°F (-29 to +74°C)
	Enclosure (141-005 only)	Optional, rated up to IP55 (NEMA 4)
	Vibration resistance	Not affected when subjected to 60 Hz or whole multiples thereof
<b>Electrical</b>	Connection type	Flying leads, quick connects, sealed-weatherproof connectors, screw terminals
	Number of switches available	2
	Switch rating (AC)	15 A @ 125, 250, 480 VAC
	Switch rating (DC)	1/2 A @ 125 VDC, resistive 1/4 A @ 250 VDC, resistive
	Switch type	SPDT

## 146 TECHNICAL SPECIFICATIONS

<b>Mechanical</b>	Mounting	Center back vertical mounting
	Tank connection	1/4-18 NPT (standard)
<b>Materials</b>	Pressure connection	Brass
	Housing and cover	Powder coated aluminium
<b>Environmental</b>	Std. operating temperatures	-20 to 165°F (-29 to 74°C)
	Enclosure	Optional, rated up to IP11 (NEMA 2)
	Vibration resistance	Not affected when subjected to 50 or 60 Hz or whole multiples thereof
<b>Electrical</b>	Connection type	Screw terminal (standard), other connections available through factory
	Number of switches available	1
	Switch rating (AC)	15 A @ 115, 250 VAC
	Switch rating (DC)	1/2 A @ 125 VDC, resistive 1/4 A @ 250 VDC, resistive
	Switch type	SPDT



## 148 TECHNICAL SPECIFICATIONS

<b>Mechanical</b>	Mounting	Center back vertical mounting
	Standard dial ranges (optional)	-10 to +10 PSI
	Connection types	Screw terminals, flying leads
	Tank connection	1/4-18 NPT, 5/16" compression fitting
	Indication accuracy	+/- 2% of middle half of scale and +/- 3% over first and last quarters of scale
<b>Dimensions</b>	Dial diameter (where applicable)	3.5" (88.9 mm)
<b>Materials</b>	Dial case (optional)	Cold rolled steel, anodized aluminum
	Bezel and lens	One piece molded polycarbonate
<b>Environmental</b>	Std. operating temperatures	-40 to +180°F (-40 to +82°C)
	Enclosure	Standard, IP11 (NEMA 2); IP55 (NEMA 4) optional
	Vibration resistance	Not affected when subjected to 60 Hz or whole multiples thereof
<b>Electrical</b>	Connection type	Flying leads (standard), quick connectors, sealed-weatherproof connectors
	Number of switches available	1 or 2
	Switch rating (AC)	15 A @ 125, 250, 480 VAC
	Switch rating (DC)	1/2 A @ 125 VDC, resistive 1/4 A @ 250 VDC, resistive
	Switch type	SPDT

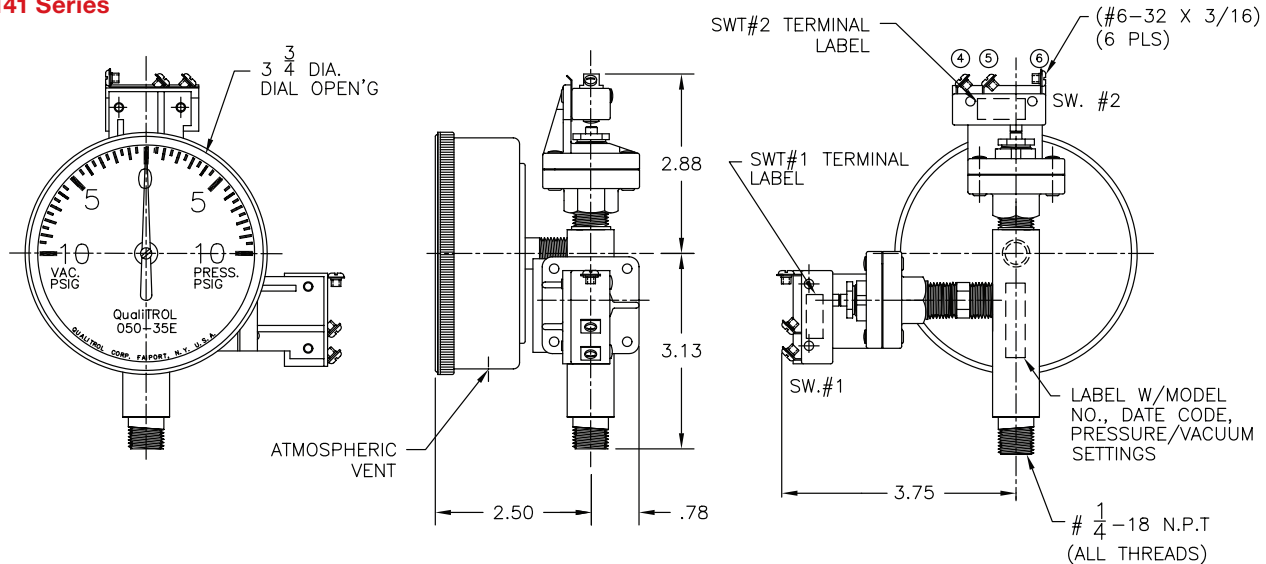
## 35600 & 47500 TECHNICAL SPECIFICATIONS

<b>Mechanical</b>	Mounting	Center back vertical mounting but also horizontal possible for some models
	Tank connection	1/4-18 NPT, 5/16" compression fitting, G3/8", M26 x 1.5 mm, flange diameter 110 mm
<b>Materials</b>	Pressure connection	Brass
	Case	Cold rolled steel with ANSI #70 light gray coating
	Housing and cover	Powder coated aluminium
	Bellows	Phosphor bronze
	Actuator plate	Stainless steel
<b>Environmental</b>	Std. operating temperatures	-40 to 176°F (-40 to +80°C)
	Vibration resistance	Not affected when subjected to 50 or 60 Hz or whole multiples thereof
<b>Electrical</b>	Connection type	Screw terminal, flying leads, quick connectors, sealed-weatherproof connectors
	Number of switches available	2 or 3
	Switch rating	5 A @ 125 VAC resistive 3 A @ 250 VAC resistive 0.8 A @ 110 VDC resistive 0.2 A @ 110 VDC, L/R = 40ms 0.6 A @ 125 VDC resistive 0.15 A @ 125 VDC, L/R = 40ms 0.4 A @ 220 VDC resistive 0.1 A @ 220 VDC, L/R = 40ms
	Switch type	SPST or SPDT

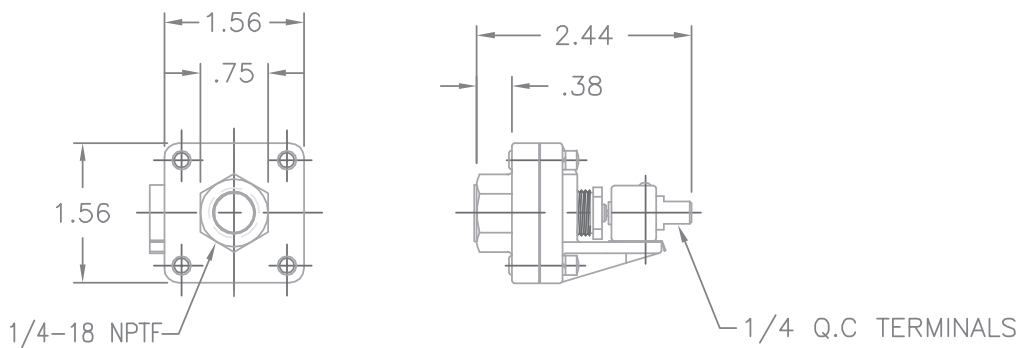


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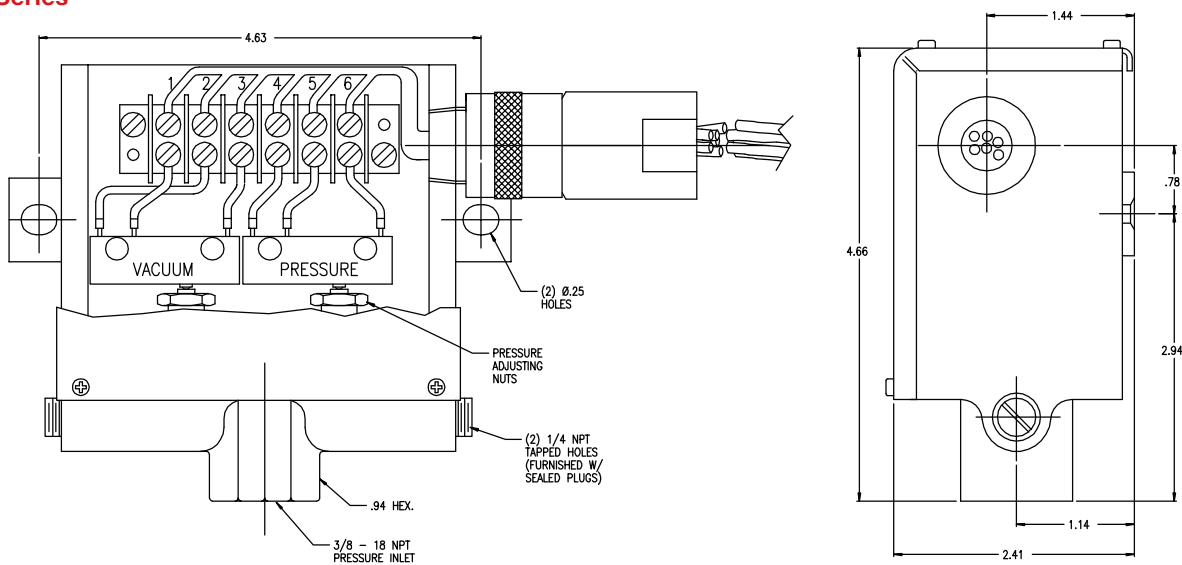
## 141 Series



## 146 Series



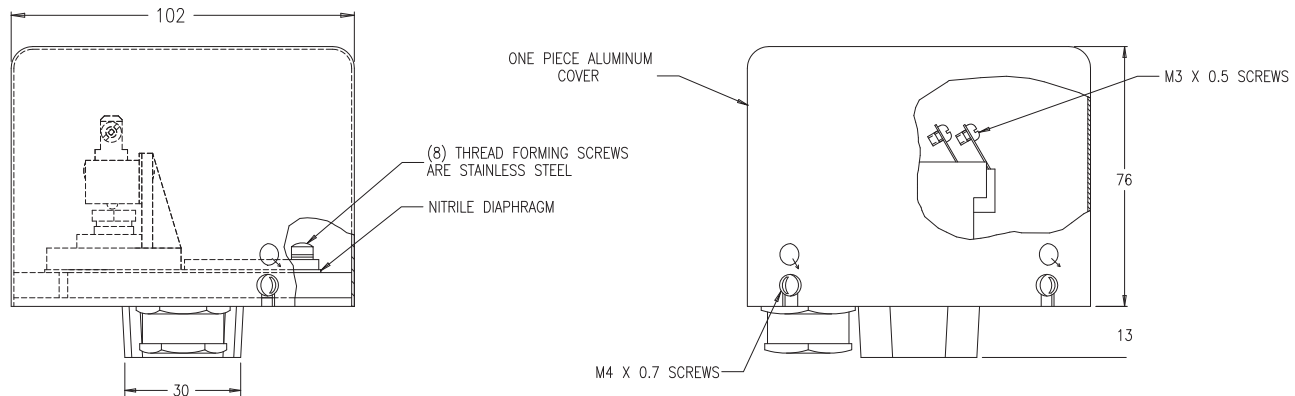
## 148 Series



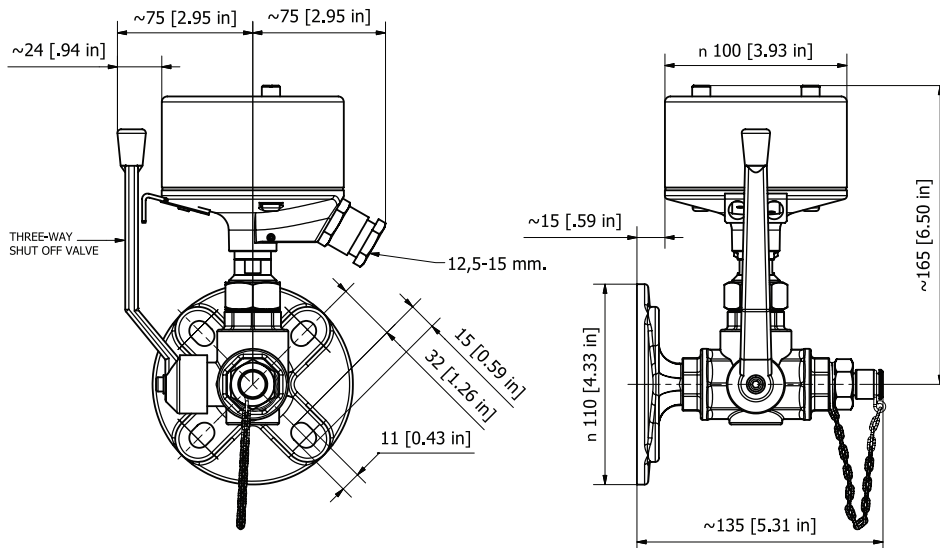


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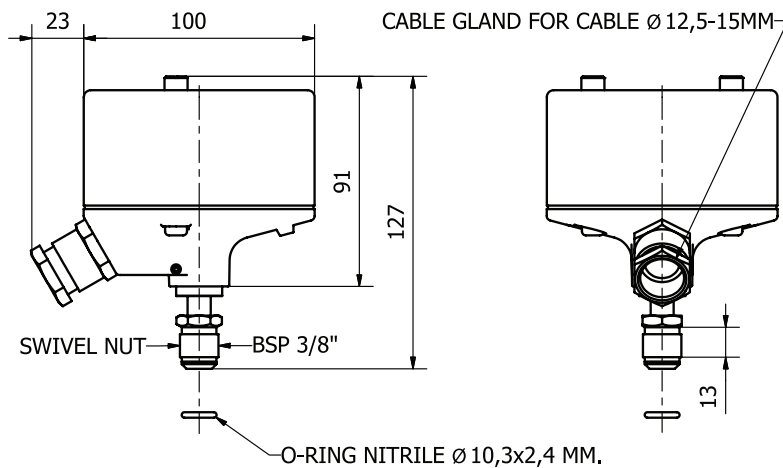
## 148 Series – Euro Style



## 35600 Series



## 47500 Series



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