



## SERIES 3000MR & 3000MRS | PHOTOHELIC® SWITCH/GAGE



**Note:** Shown with optional -SS bezel.  
Backward compatible with Magnehelic® gage.

### BENEFITS/FEATURES

- Gage reading unaffected by switch operation and will continue to read pressure even during power loss
- Zero and range adjustments outside of gage means no disassembly in normal service
- Solid state design allows for switching in high cycle rate applications without degradation
- Optional stainless steel bezel is the same installation diameter as Magnehelic® gage and simplifies field upgrade to Photohelic® switch/gage

### APPLICATIONS

- Pneumatic conveying
- Air conditioning systems
- Clean rooms

### DESCRIPTION

Using solid state technology, the **Series 3000MR & 3000 MRS Photohelic® Switches/Gages** combine the functions of a precise, highly repeatable differential pressure switch with a large easy-to-read analog pressure gage employing the durable, time-proven Magnehelic® gage design. Switch setting is easy to adjust with large external knobs on the gage face. Gage reading is unaffected by the switch operation will indicate accurately even if power is interrupted. Solid state design now results in greatly reduced size and weight. Units can be flush mounted or surface mounted with hardware supplied. 3000MR models employ versatile electromechanical relays with gold over silver contacts – ideal for dry circuits. For applications requiring high cycle rates, choose 3000MRS models with SPST (N.O.) solid state relays. All models provide both low and high limit control and include 18-inch (45 cm) cable assemblies for electrical connections. Compatible with air and other non-combustible, non-corrosive gases, they can be used in systems with pressures to 25 psig (1.725 bar). Optional construction is available for use to either 35 psig (2.42 bar) or 80 psig (5.51 bar).

## GAGE SPECIFICATIONS

<b>Service</b>	Air and non-combustible, compatible gases.
<b>Wetted Materials</b>	Consult factory.
<b>Accuracy</b>	±2% of FS (3000-0 ±3% of FS). (3000-00 ±4% of FS).
<b>Pressure Limit</b>	-20" Hg to 35 psig (-0.677 bar to 1.72 bar). MP option: 35 psig (2.41 bar), HP option: 80 psig (5.52 bar).
<b>Temperature Limits</b>	20 to 120°F (-6.67 to 48.9°C).
<b>Process Connections</b>	1/8" female NPT (duplicated side and back).
<b>Size</b>	4" (101.6 mm) dial face, 5" (127 mm) OD x 3-1/8" (79.38 mm); -SS Bezel: 4-3/4" (120.7 mm) OD x 2-21/32" (67.5 mm).
<b>Weight</b>	1.8 lb (816 g).

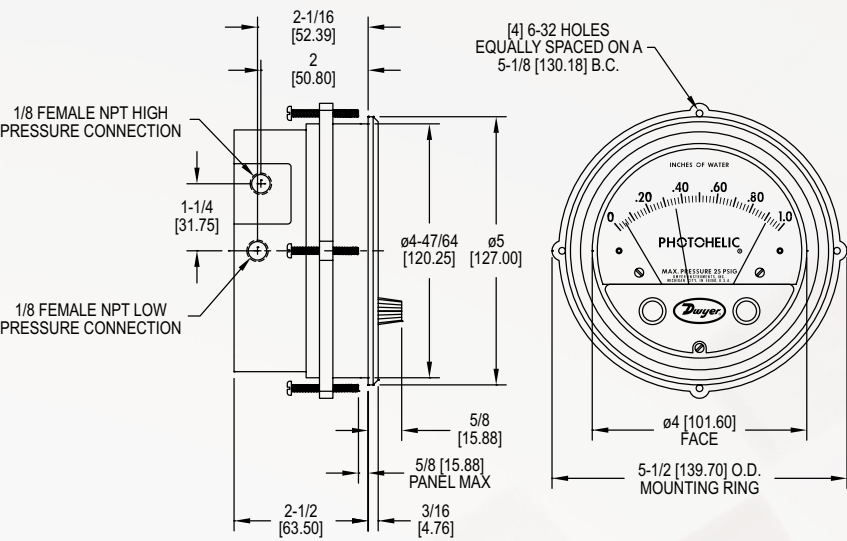
## 3000MR SWITCH SPECIFICATIONS

<b>Switch Type</b>	Each set point has 1 form C relays (SPDT).
<b>Relay Contacts</b>	(Resistive load) 1 form C rated 1.0 A @ 30 VDC, 0.3 A @ 110 VDC or 0.5 A @ 125 VAC. Gold over clad silver – suitable for dry circuits.
<b>Electrical Connections</b>	18" (46 cm) cable assembly with 8 conductors. Optional lengths to 100' (30.5 m).
<b>Power Requirements</b>	24 VDC, regulated 10%.
<b>Mounting Orientation</b>	Diaphragm in vertical position. Consult factory for other position orientations.
<b>Set Point Adjustment</b>	Adjustable knobs on face.
<b>Compliance</b>	CE.

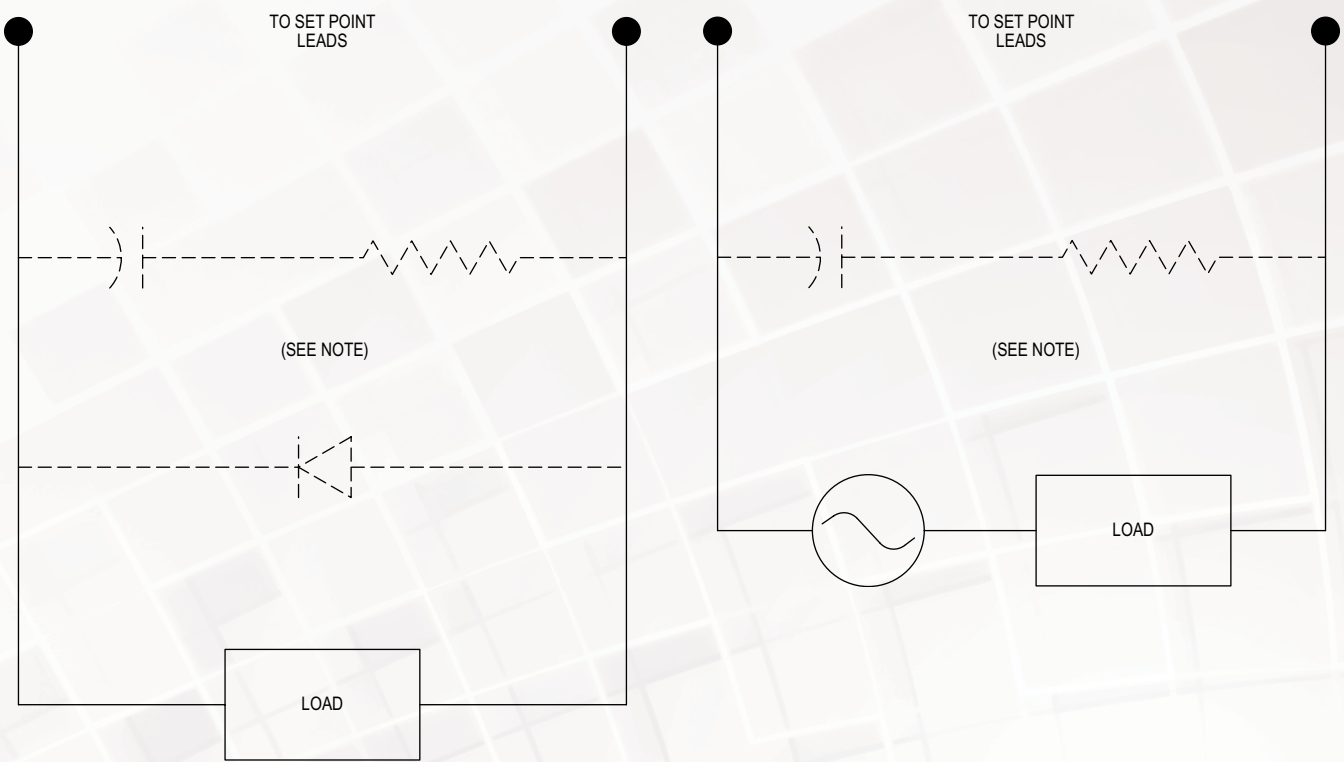
## 3000MRS SPECIFICATIONS

<b>Switch Type</b>	Each set point has a solid state relay.
<b>Switching Voltage</b>	20 to 280 VAC (47 to 63 Hz).
<b>Switching Current</b>	1.0 A (AC) max., 0.01 mA (AC) min., (2) SPST NO.
<b>Electrical Connections</b>	18" (46 cm) cable assembly with 6 conductors, optional lengths to 100' (30.5 m).
<b>Power Requirements</b>	24 VDC, regulated ±10%.
<b>Mounting Orientation</b>	Diaphragm in vertical position. Consult factory for other position orientations.
<b>Set Point Adjustment</b>	Adjustable knobs on face.
<b>Compliance</b>	CE.

DIMENSIONS

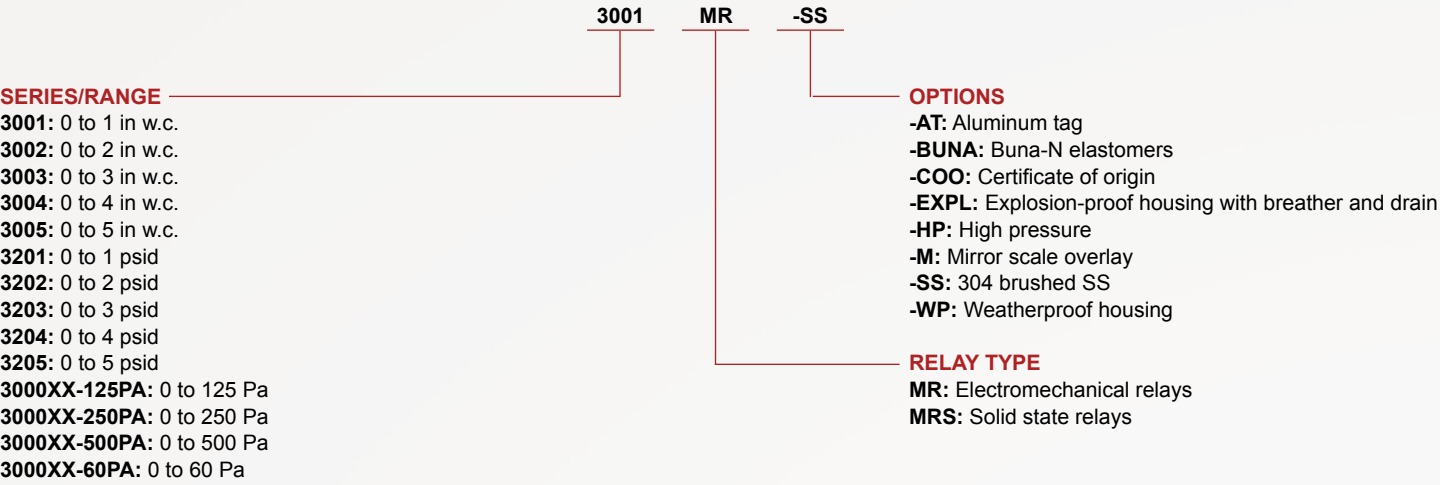


WIRING DIAGRAM



HOW TO ORDER

Use the **bold** characters from the chart below to construct a product code.



ACCESSORIES

Model	Description
A-298	Flat aluminum bracket for flush mounting Photohelic® and Capsuhelic® gages, 603A, 605, and 3000MR
A-320-B	Enclosure for 3000MR/MRS Photohelic® switch/gage, 605 Magnehelic® DP transmitter, DH3 Digihelic® pressure controller, 2000 Magnehelic® gage with medium and high pressure options, 4-13/16" (122.24 mm)
A-370	Flush mount bracket used with: Photohelic® 3000MR/MRS, Capsuhelic®, 631B transmitter, EDA. Bracket is then surface mounted. Steel with gray hammertone epoxy finish
A-600	R/C snubber (recommended for inductive loads like a solenoid or contactor)

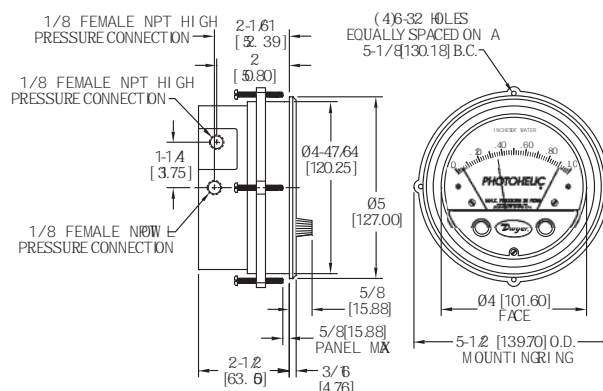






## Series 3000MR Photohelic® Differential Pressure Switch/Gage

### Specifications — Installation and Operating Instructions



Using solid state technology, the Series 3000MR Photohelic® switch/gage combines the functions of a precise, highly repeatable differential pressure switch with a large easy-to-read analog pressure gage employing the durable, time-proven Magnehelic® gage design. Switch setting is easy to adjust with large external knobs on the gage face. Gage reading is unaffected by switch operation — will indicate accurately even if power is interrupted. Solid state design now results in greatly reduced size and weight. Units can be flush mounted in 4 13/16" (122 mm) hole or surface mounted with hardware supplied. 3000MR models employ versatile electromechanical relays with gold over silver contacts — ideal for dry circuits. All models provide both low and high limit control and include 18-inch (45 cm) cable assemblies for electrical connections.

Gage accuracy is  $\pm 2\%$  of full scale and switch repeatability is  $\pm 1\%$ . Switch dead-band is one pointer width — less than 1% of full scale. Compatible with air and other non-combustible, non-corrosive gases, they can be used in systems with pressures to 25 psig (1.725 bar). Optional construction is available for use to either 35 psig (2.42 bar) or 80 psig (5.51 bar).

#### Accessories

Mounting ring, snap ring	(4) 6-32 x 1-1/4" RH machine screws
18" (45 cm) cable assembly	(panel mounting)
(2) 3/16" tubing to 1/8" NPT adapters	(3) 6-32 x 5/16" RH machine screws
(2) 1/8" NPT pipe plugs	(surface mounting)

#### ELECTRICAL CONNECTIONS

**CAUTION:** Do not exceed specified electrical ratings. Permanent damage not covered by warranty will result. This unit is not designed for AC line voltage operation.

Electrical connections are made by means of the cable assembly supplied which has a multi-pin female plug installed on one end which mates with the male connector on the rear of the gage. Wire leads on the opposite end of the assembly are connected in accordance with the drawing and chart to the right.

#### SPECIFICATIONS

##### GAGE SPECIFICATIONS

**Service:** Air and non-combustible, compatible gases.

**Wetted Materials:** Consult Factory.

**Accuracy:**  $\pm 2\%$  of full scale (3000-0  $\pm 3\%$  of full scale).

**Pressure Limit:** -20" Hg. to 25 psig (-0.677 bar to 1.72 bar). MP option; 35 psig (2.41 bar), HP option; 80 psig (5.52 bar).

**Temperature Limits:** 20 to 120°F. (-6.67 to 48.9°C).

**Process Connections:** 1/8 female NPT (duplicated side and back).

**Size:** 4" (101.6 mm) dial face, 5" (127 mm) O.D. x 3-1/8" (79.38 mm); For SS Bezel: 4-3/4" (120.7 mm) O.D. x 2-21/32" (67.5 mm).

**Weight:** 1.8 lb., (816 g).

##### SWITCH SPECIFICATIONS 3000MR

**Switch Type:** Each setpoint has 1 Form C relay (SPDT).

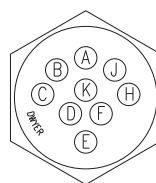
**Relay Contacts:** (resistive load) 1 Form C rated 1.0 amp @ 30 VDC, 0.3 amp @ 110 VDC or 0.5 amp @ 125 VAC. Gold over clad silver - suitable for dry circuits.

**Electrical Connections:** 18" (46 cm) cable assembly with 8 conductors. Optional lengths to 100' (30.5 m).

**Power Requirements:** 24 VDC, regulated  $\pm 10\%$ .

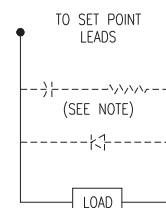
**Mounting Orientation:** Diaphragm in vertical position. Consult factory for other position orientations.

**Set Point Adjustment:** Adjustable knobs on face.

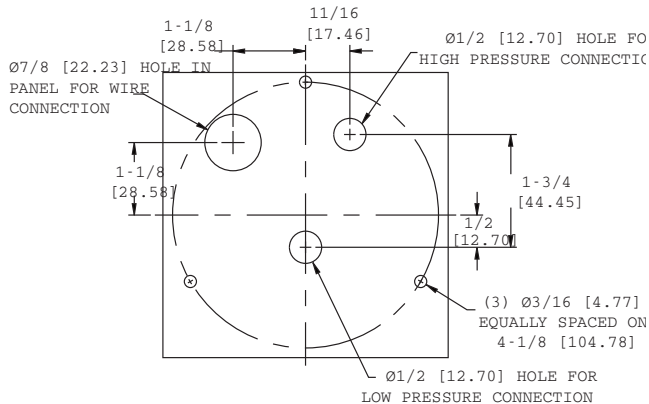


		LETTER	COLOR
Power Supply	+	A	Red
	-	E	Black
Low Set Point	COM	C	Brown
	NC	B	Violet
	NO	D	Blue
High Set Point	COM	H	Green
	NC	J	White
	NO	F	Orange

**Note:** An R/C (resistor/capacitor) snubber is required when switching inductive loads such as a solenoid or contactor. Specify Dwyer Instruments, Inc. part number A-600. For DC circuits, also include a 1N4005 diode.



1. **LOCATION:** Select a location where the temperature of the unit will be between 20°F and 120°F (-6.67 to 48.9°C). The tubing feeding pressure to the instrument can be run practically any length required but long lengths will increase response time slightly. Avoid surfaces with excessive vibration.
2. **POSITION:** All standard models are calibrated with the diaphragm vertical and should be used in that position for maximum accuracy. If your application requires mounting in other than a vertical position, be sure to specify this when ordering.
3. **PRESSURE CONNECTIONS:** For convenience, two sets of 1/8" female NPT ports are available. Plug the unused set with pipe plugs provided. Attach tubing from positive pressure source to port marked "HI" or from negative (Vacuum) source to port marked "LOW". In either case, opposite port must be vented to atmosphere. In dusty environments, we recommend use of an A-331 Filter Vent Plug to keep interior of instrument clean. For differential pressures the higher source is connected to the "HI" port and lower to the "LOW" port.



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- 04-3/4 [120.65] HOLE
- SNAP RING GROOVE
- PNEUMATIC PRESSURE TAPS

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- The Series 3000MR Photohelic® Differential Pressure Switch/Gage is not field serviceable and should be returned if repair is needed (field repair should not be attempted and may void warranty). Be sure to include a brief description of the problem plus any relevant application notes. Contact customer service to receive a return goods authorization number before shipping.